RESEARCH ARTICLE

Three times more than money: generativity, relational goods and life satisfaction

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Abstract
Generativity and the quality of relational goods are two key drivers of subjective well-being traditionally neglected in the economic literature. By using two different data sources – the European Social Survey (ESS) and the European Statistics on Income and Living Conditions (EU-SILC) - we investigate their impact on life satisfaction of two large samples of Italian individuals. Our findings show that the effect is positive and significant and, in both estimates from the two different data sources, a change from the lowest to the highest level of relational life has an impact three times larger than the change from the lowest to the highest income decile.

Keywords Relational goods · Generativity · Life satisfaction

1 Introduction

Our paper aims to contribute originally to the subjective wellbeing literature by emphasizing the relative impact of relational goods and generativity vis-à-vis income on individual data using two different data sources.

A fundamental stimulus to this literature originates from the Easterlin paradox, observed in different forms, periods and countries of the world, essentially telling us

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that growth in per capita GDP is not a sufficient indicator to determine and explain positive changes in life satisfaction. As we know, the literature on this topic starts from the observation that in the post second world war period the steady increase in GDP per capita in the United States was not accompanied by a growth in the proportion of Americans who declared themselves very happy, a proportion that begins to decline after the late 1950s. Frei and Stutzer (2002) confirm the presence of the paradox for a large sample of countries using data from the World Happiness Report and the US Census Bureau. The same is true for Blanchflower and Oswald (2004) for the United States, the United Kingdom, Belgium, and Japan in the period from the early 1970s to the late 1990s and for Veenhoven (1993) for Japan in the period 1958–1987.

Stevenson and Wolfers (2008) criticize the paradox by finding conflicting results when focusing on the positive relationship, at the individual level, between income growth and happiness in the short run, and emphasizing that part of the paradox depends on the fact that life satisfaction is upward bounded. Easterlin and Angelescu (2009 and 2011) reply by claiming that the paradox should be measured by looking at the long-term relationship (after correcting for short-run effects) between GDPs per capita and happiness in a cross-sectional perspective in different countries. Bartolini et al. (2008) argue that the fall in social capital explains an important part of the paradox in the United States.

A striking recent "reverse" evidence for the Easterlin paradox comes from the COVID year, when Italy witnessed the largest fall in GDP since the end of World War II, accompanied by a 1% point increase in the proportion of Italians reporting themselves to be very happy. The Italian data are not anomalous and are confirmed in three-quarters of the countries surveyed in the same year by the World Happiness Report (Helliwell et al. 2021).

To settle the controversy in the literature we have to consider that the paradox can be explained by several factors. Among them, phenomena such as the limits of GDP per capita in correctly representing the same economic well-being of individuals and households,[1] the phenomenon of hedonic adaptation (Pérez-Truglia, 2012) that transforms the positive short-term relationship between income and happiness into a much flatter long term relationship due to a growth in expectations, and the negative effects of inequality on happiness, in general when we consider the role of relative income (Ferrer-I-Carbonell 2005), and, in particular, when dealing with inequality of opportunities (Becchetti et al. 2024b). The relative income effect contributes to explaining the happiness paradox since growth in per capita GDP, coupled with increasing inequality, can create negative happiness externalities in those who are at the bottom of the social ladder. This is likely to occur given the importance of comparisons with others for subjective wellbeing, as shown by further evidence provided, among others, by Clark and Oswald (1996), Luttmer (2005), Solnick and Hemenway (2005), Clark, Frijters, and Shields (2008), Foy et al. (2014), while Emili and Galli (2022) show how such comparison affects consumption patterns.

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[1] Per capita GDP can also be affected by fiscal competition and corporate profit shifting while the true indicator of economic prosperity is household disposable income net of the cost of basic needs such as health and education.

Two additional rationales for the Easterlin paradox arise from the consequences of economic growth and can contribute to generating the fallacy of a direct negative effect of income on life satisfaction. The first relates to the importance and role of relational goods and the increase of their opportunity cost as far as we become richer, in the sense that income and opportunities for non-relational leisure grow in a Baumol's disease perspective (Bruni and Stanca 2008; Becchetti and Santoro 2007). The second relates to the conflict between comfort and stimulus goods where again, with the increase in prosperity and the development of digital leisure, the comparative advantage of comfort versus stimulus goods produces negative effects on life satisfaction (Scitovsky 1976).

The Easterlin paradox does not imply that income does not positively affect life satisfaction, but that many other fundamental factors significantly contribute to our subjective well-being. Until we can fully concentrate on these factors, it will be difficult to explain the gap between the well-being ranking elaborated based on the opinions of academic experts and insiders, and the well-being ranking determined by the satisfaction declared by citizens.

From the considerations of Antonio Genovesi, John Stuart Mill and Anna Arendt some clues can be drawn as to some crucial factors affecting satisfaction and richness of meaning in life. According to Antonio Genovesi, people are substantially interested in themselves, but they recognise their relational nature so that their self-interest lies in knowing how to make other people happy.[2] John Stuart Mill reached similar conclusions based on the idea that happiness is the indirect effect of a life spent in generative directions that on different fronts (art, science, philanthropy) aim to achieve important results for humanity.[3] Mauro Magatti's reading of Anna Arendt[4] underlines how generation is an act superior to production and significantly more likely to contribute to life flourishing. We define what is expressed in these thoughts as generativity, intended as the expected impact of one's own action on the utility

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[2] "*Work hard for your own interest, no man could do otherwise, as he would be less human by not doing so: but do not work for the misery of others and, if possible, work out how to make them happy. The more you are self-interested, the more you must be virtuous if you are not fool. Is a natural law that you cannot make your own happiness without making that of other human beings*" (Genovesi, *Autobiografia e lettere*, p. 449).(Genovesi, *Autobiografia e lettere*, p. 449).

[3] "*Those only are happy, I thought, who have their minds fixed on some object other than their own happiness, on the happiness of others, on the improvement of mankind, even on some art or pursuit, followed not as a means, but as itself an ideal end. Aiming thus at something else, they find happiness by the way*" (John Stuart Mill, 1893: p.117).

[4] "The Jewish philosopher Hannah Arendt argues that social life draws its vitality from the fact that each of us enters the world through the constitutive moment of birth. From this common origin, it is possible to recognize individual uniqueness, from which derives the absolute dignity of every person and their capacity to initiate something unprecedented. This is then freedom in its fullest sense. Moreover, birth is what binds generations, ensuring the continuity of the species, but also establishing social bonds. Unlike production, generation, even though not relinquishing the tools of reason and prudence, is such precisely because it is an opening destined to elude us, to surpass us. It's a process that we can only foster and accompany, never dominate. Thus, by accepting this constitutive fragility of freedom, whose denial is at the root of the problems characterizing advanced modernity. Following this insight, one comes to understand that the greatest act we as human beings can perform is not so much that of producing – which is certainly commendable – but that of generating. Where this term has a meaning not only biological. It is the generation of others and of their freedom that fully realizes our lives". Mauro Magatti.

of other human beings in the present and in the future. More recently, Singer (2011) "practical ethics" view is in line with the suggested generativity approach when arguing that we should choose actions based on a wider evaluation of their consequences on other human beings and the environment. In this respect Singer emphasizes the importance of empathy and impartiality in moral decision-making, urging individuals to consider the interests of all sentient beings, not just those closest to them. He argues that by taking into account the consequences of our actions on others, we can strive to create a more compassionate and just world.

While Singer does not explicitly use the term "generativity," his ethical framework aligns with the idea of acting in ways that contribute positively to the well-being and flourishing of the largest number of individuals, including future generations and society as a whole.

Based on these considerations, we formulate the research hypothesis that quality of relationships and generativity are crucial determinants of life satisfaction, and test our hypothesis using two independent databases: the European Social Survey and the EU-SILC survey. The relevant finding of the paper is that in both samples we find a similar quantitative result: moving from the lowest to the highest intensity of relationships has an impact on life satisfaction three times larger than that obtained when moving from the lowest to the highest income decile.

2 Research hypotheses

The traditional economic paradigm is based on the interaction between firms and individuals (or households) in good and labor markets. Individuals and firms are the elementary units. while the key factors of corporate production are capital and labor. The economic literature speaks of private goods, public goods, and common goods (according to the rivalry/nonrivalry and excludability/non-excludability characteristics of these goods). The presence of another type of goods (relational goods) fundamental for subjective wellbeing and productivity, with their specific distinctive features, has been completely neglected until recent times.

Only in more recent years has the economic literature started to talk about relational goods as a particular feature of local public goods characterized by antirivalry and excludability (Uhlaner 1989; Gui and Stanca 2010). Relational goods are characterized by the quality of relationships between people, with encounters that are at the same time moments of production, consumption, and investment. The quality of relational goods, going back to Adam Smith's own assertion in the *Theory of Moral Sentiments*, can be traced back to the so-called "fellow feeling" that represents the common feeling that exists between different people due to overlapping preferences or the depth of experiences lived together.

During the same period, empirical studies on the determinants of subjective wellbeing have started to show that relational goods are a key variable in people's life satisfaction (Bruni and Stanca 2008; Becchetti et al. 2008; Gui and Stanca 2010).

In light of these considerations and the history of the literature we formulate the following research hypothesis.

Ho1 the intensity of relationships (social meetings) has a positive and significant effect on life satisfaction.

We also argue that the quality of relationships depends on gratitude and reciprocity that can be triggered by actions having a positive impact on our relational counterparts (Gouldner 1960; Falk and Fischbacher 2006). This claim is supported by empirical evidence leading to the "gift exchange" hypothesis where it is shown that generative actions of employers lead to a response from workers in terms of higher productivity, lower absenteeism and reduced turnover (Akerlof 1982; Raff and Summers 1987). We therefore argue that generativity, by triggering gratitude and reciprocity, can increase the quality of relationships, thereby positively affecting subjective wellbeing. A characteristic of generativity is that its full results in terms of impact are determined in the future and therefore cannot be anticipated entirely by those performing generative actions (Becchetti and Conzo 2021). There is however experimental empirical evidence based on revealed preferences, self-declared wellbeing and neural responses that giving (irrespective of the perfect knowledge about its consequences) increases individual happiness (Harbaugh et al. 2007).

Based on these considerations (pleasure of giving and of having a positive impact on life of other human beings that can in turn increase the quality and quantity of relational goods) we formulate a second research hypothesis arguing that generativity, measured by a combination of creativity and care for others, expresses the positive potential that each of us can exert to positively influence the lives of others, thereby helping to increase interpersonal esteem, and the quality of relationships and, through it, subjective wellbeing.

Ho2 generativity has a positive and significant effect on life satisfaction.

3 The databases used for the survey

The two sources for our empirical analysis are the European Social Survey (ESS) and the European Statistics on Income and Living Conditions survey (EU-SILC) coordinated by Eurostat. The ESS is an international academic research program, conducted in Europe every two years, recognized as a research infrastructure by the European Union and since 2013. The survey detects socio-demographic data and social and political preferences of citizens from more than 30 nations.

The EU-SILC database focuses mainly on the topics of income, poverty, social exclusion, and quality of life of families, to provide comparable data across countries over time. The ESS database is much richer in terms of social variables and therefore allows us to construct indicators of generativity that are not available in the Eu-SILC survey.

Our ESS analysis is limited to the two ESS waves for which we have generativity data (wave 6 (2012) and wave 8 (2016)), while the EUSILC wave containing data of our interest is 2018.

Testing our hypothesis on the value of relationships for Italians using both databases offers an interesting opportunity to verify whether our results are conditioned by the specific characteristics of a single survey.

4 Descriptive findings from the European social survey

We build the generativity variable in the ESS database as the arithmetic mean of two factors: creativity and caring for the well-being of others, following the approach of Becchetti and Conzo (2021) who study its impact on subjective wellbeing of the European population. As shown by Becchetti and Conzo (2021) generativity is something different from the two benchmarks of other-regarding preferences in the economic literature such as pure altruism and warm glow (Andreoni 1989, 1990). With pure altruism individual satisfaction grows for positive changes in the utility of other human beings, even when the latter have not been caused by one's own action. With warm glow individual satisfaction depends on one's own amount of giving irrespective of the outcome of that action. With generativity satisfaction depends on the expected fruits of one's own action in terms of present and future expected increase of utility of other human beings.

In more detail, the first component of our generativity indicator, the caring for the well-being of others variable, is based on the answer to the question "*important to help people and care for the well-being of others*", where the possible answers are related to the degree of identification of the respondent (*a lot like me*, *like me*, *somewhat like me*, *a little like me*, *not like me*, *not at all like me*). The second component represented by the creativity variable is based on the response to the question "*important to think of new ideas and be creative*", and again the possible responses are related to the degree of identification of the respondent and identical to those of the previous variable. By assigning decreasing values from one to six for each answer according to the degree of identification (6=maximum, up to 1=minimum) we construct the variable generativity as the average of the two answers. The distribution of the variable is asymmetric with generally high values and a mode around the value of 5 (Fig. 1).

The variable intensity of relational life in the ESS database is based on the question concerning the frequency of meetings with friends, family and colleagues at social events (hence non-work related in the case of colleagues). More specifically, the question is "*how often do you meet socially with friends*, *family or colleagues*" and the possible answers are (*never*, *less than once a month*, *once a month*, *several times a month*, *once a week*, *several times a week*, *every day*).

Again, we observe an asymmetric distribution of the variable with a modal point shifted to the right (Fig. 2). The best option is, as expected, *many times a week*, but a non-negligible part of the respondents indicate *no more than once a month* (around 20%) and around 40% indicate *less than once a week*.

In this first descriptive phase of our research, we compare these distributions with that of life satisfaction in Italy (Fig. 3) ("*all things considered*, *how satisfied are you with your life?*"). As is known, this is the most widespread measure of happiness, the cognitive measure where the respondent is asked to think about his or her
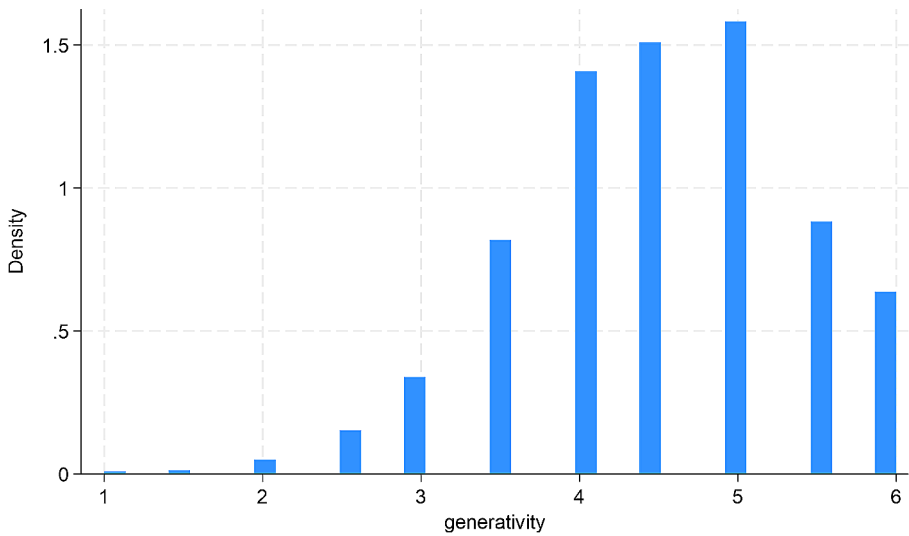
Fig. 1 Distribution of the generativity variable in Italy (European Social Survey)
Generativity is the arithmetic mean of answers to the following two questions: i)"*important to help people and care for the well-being of others*" (*a lot like me=6, like me, somewhat like me, a little like me, not like me, not at all like me=1*) ; ii) "*important to think of new ideas and be creative*" (*a lot like me=6, like me, somewhat like me, a little like me, not like me, not at all like me=1*)
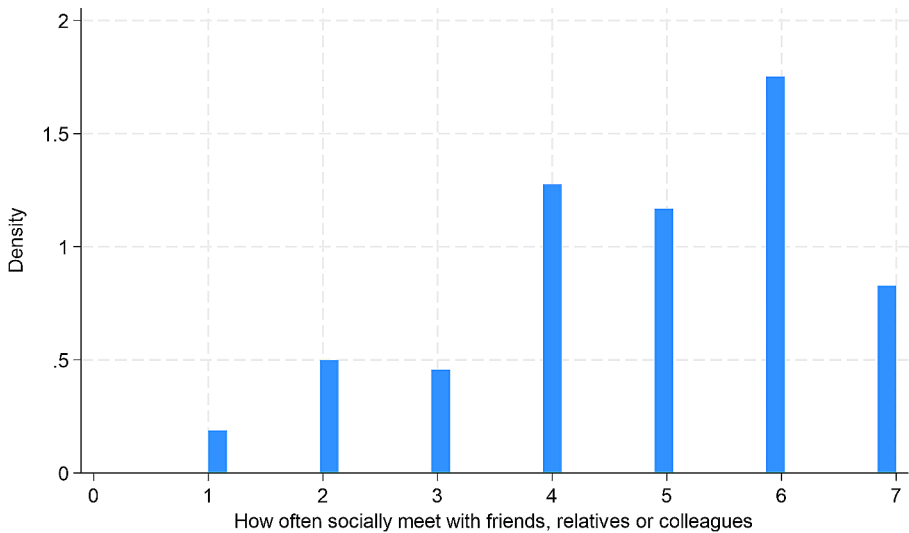

Fig. 2 Distribution of relational life intensity in Italy (European Social Survey)
Answer to the question "*how often do you meet socially with friends, family or colleagues*" at social events (*never=1, less than once a month=2, once a month=3, several times a month=4, once a week=5, several times a week=6, every day=7*)
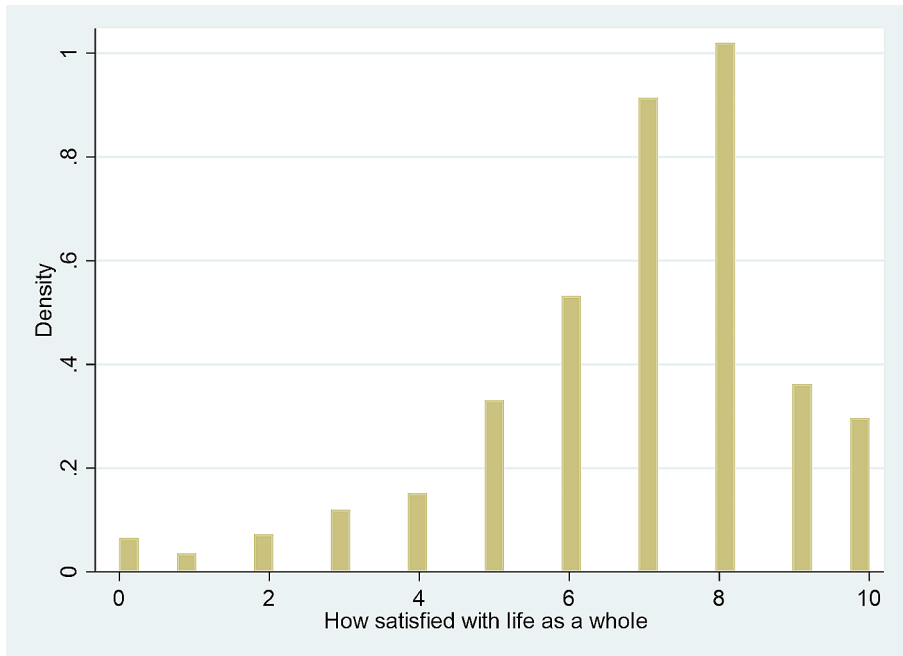
Fig. 3 Distribution of life satisfaction in Italy (European Social Survey)
Answer to the question "*how satisfied with life as a whole*" on a 0–10 scale

satisfaction with life. The approach differs from that of positive and negative affect where the question asks how happy or, on the contrary, how depressed people have felt in recent times, and from the opposite of eudaimonic well-being captured by the question about the meaning of life. As is well known, the question on reported life satisfaction can have answers in a range of values between 0 and 10 and our descriptive findings indicate that the distribution of subjective well-being in Italy has the traditional asymmetric conformation with mode around the value of 8 (Fig. 3).

In Fig. 4 we create two subsamples of individuals with high and low frequency of relationships and overlay the distributions of life satisfaction for the two subsamples. In more detail, the sample of respondents with low frequency of relationships includes those who report a frequency of less than once a week (i.e. never, less than once a month, several times a month), while the sample of respondents with high frequency of relationships includes relationships who report several times a week or every day (those in the intermediate group of once a week frequency are omitted from the comparison). The brown areas in the figure correspond to areas present in both distributions, the green to areas present only in the distribution of individuals with high frequency of relationships, and the pink areas only in the distribution of individuals with low frequency of relationships. As is clear from the figure, the areas of non-overlap are pronounced and the subsample of individuals with a high frequency of relationships has a much higher percentage of individuals reporting very high levels of life satisfaction, and a much lower percentage of individuals reporting very low levels of life satisfaction, compared to the subsample of individuals with a low
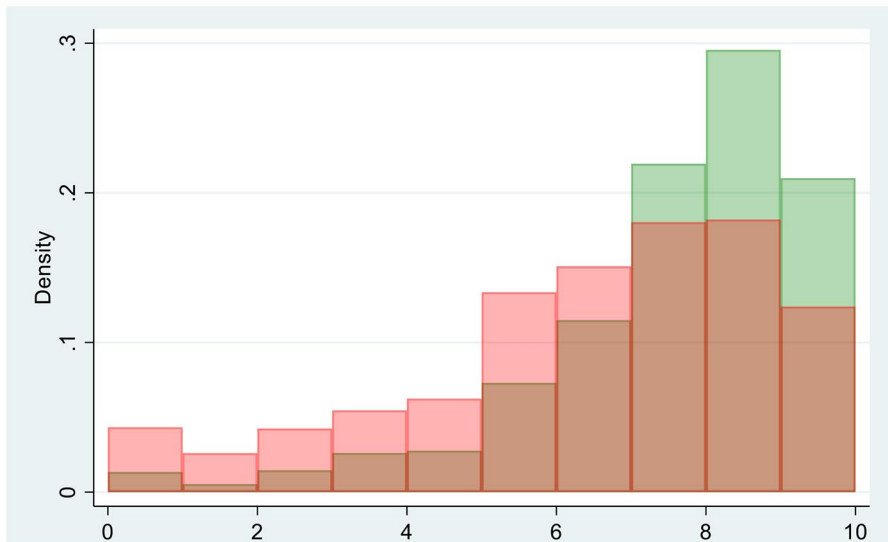
Fig. 4 Distribution of life satisfaction for individuals with high and low intensity of relational life in Italy – European Social Survey
High relational intensity: individuals who meet friends, family and colleagues at social events several times a week or more. Low relational intensity: individuals who meet friends, family and colleagues at social events less than once a week (individuals who meet friends, family and colleagues once a week are in neither of the two groups). Green areas: distribution of life satisfaction for high relational intensity, while not for low relational intensity individuals. Brown areas: distribution of life satisfaction for both high and low relational intensity individuals. Pink areas: distribution of life satisfaction for low relational intensity while not for high relational intensity individuals. Epps-Singleton Two-Sample Empirical Characteristic Function test 227.392 (0.000)

frequency of relationships. In more detail, among those with a high frequency of relationships there is a 12% points higher sample with life satisfaction levels of 10 and about 9% points of the sample with life satisfaction levels equal to nine compared to the subsample of those with a low frequency of relationships. The Epp-Singleton test rejects the null hypothesis that the two distributions are equal (W2 227.39 well above the critical threshold of 7.779).

In Fig. 5 we repeat the same exercise for the two subsamples of individuals with high and low generativity (high generativity if the value of the variable is above 5, low generativity if it is below 4.5). The areas of difference between the life satisfaction distributions for the two subsamples are also pronounced in this case and in favor of the sample of highly generative individuals who have a higher proportion (corresponding to around 15% points of all respondents) reporting the highest level of life satisfaction (10). Again, in this case, the Epps Singleton test indicates that the null hypothesis of equality of life satisfaction distributions between individuals in the two (high and low generativity) samples is rejected (W2 132.85 well above the critical threshold of 7.779).

The choice of the delimitation of the two sub-samples of high and low generativity (and high and low relationship intensity) is arbitrary but the modifications of the
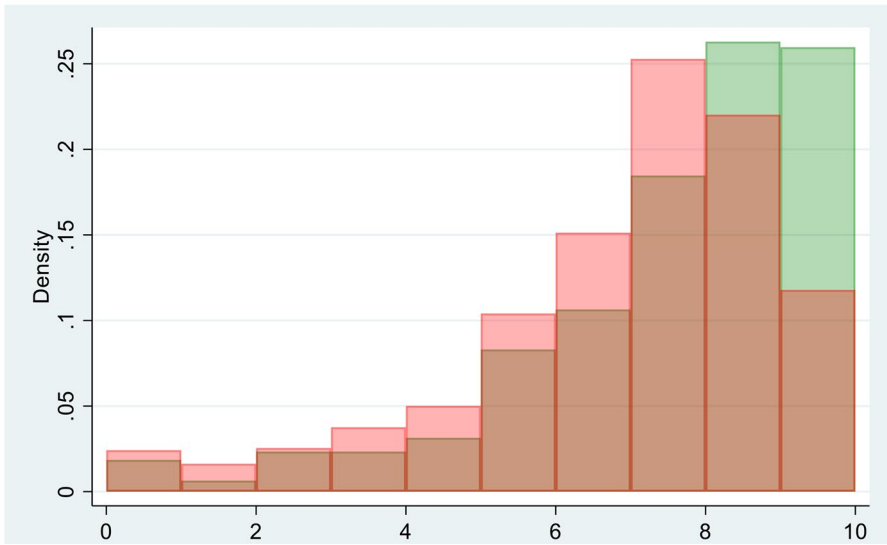
Fig. 5 Distribution of life satisfaction for individuals with high and low generativity in Italy - European Social Survey

High generativity: individuals with value of the generativity variable above 5. Low generativity: individuals with value of the generativity variable below 4.5. Green areas: distribution of life satisfaction for high generativity, while not for low generativity individuals. Brown areas: distribution of life satisfaction for both high and low generativity individuals. Pink areas: distribution of life satisfaction for low generativity while not for high generativity individuals. Epps-Singleton Two-Sample Empirical Characteristic Function test 132.854 (000)

threshold around those chosen do not change the essence of the finding (results omitted for reasons of space and available on request).

4.1 Econometric findings from the ESS sample

Descriptive findings on the comparison of conditional distributions provide relevant insights on the correlation among generativity, intensity of relational life and happiness.

The multivariate analysis that follows allows us to verify whether the relationships are significant after controlling for other relevant factors that typically affect subjective well-being such as, among others, age, educational level, marital status and employment status.

The estimated model is:

$$
\begin{aligned}
Life\_Sat_i = {} & \alpha_0 + \alpha_1 Generativity_i + \alpha_2 Rel\_Life\_Intensity_i + \alpha_3 Female_i + \alpha_4 Age_i \\
& + \alpha_5 [Age]\,2 + \sum_b \beta_b D\_ISCED\_Education_{b,i} \\
& + \sum_c \gamma_c D\_Income\_Decile_{c,i} + \alpha_5 NHMembers_i \\
& + \sum_d \delta_d D\_Employment\_status_{d,i} + \sum_f \eta_f D\_Marital\_status_{f,i} \\
& + \sum_p \xi_p D\_Region_{p,i} + \sum_q \chi_q D\_Wave_{q,i} + u_i
\end{aligned}
$$

where the dependent variable (*Life_Sat*) is the standard cognitive measure of subjective wellbeing, with possible answers in the (0–10) discrete value range. Our main regressors of interest are generativity (the arithmetic mean of answers to the question on creativity and passion for others) and intensity of relational life, the latter variable being created from the question on how often the respondent meets with friends, family and colleagues in social life, where the possible answers are *never*, *less than once a month*, *once a month*, *several times a month*, *once a week*, *several times a week*, *every day*.

Control variables include a 0/1 dummy variable with a unit value for the female gender dummy. Age is introduced in the estimation in a non-linear way (age level and age squared) to test the hypothesis of a U-shaped effect of age on life satisfaction (Blanchflower 2021). Other controls in the estimation are dummies for ISCED education levels, dummies for income deciles, the number of members in the respondent's household (*NHMembers*) and dummy variables measuring employment status (paid worker, retired, unemployed, inactive, disabled, in education) and marital status (married/civil union, separated, widowed, never married with divorced being the omitted benchmark). The set of regressors is completed by regional dummies capturing regional fixed effects.

The legend of the ESS variables used in the econometric analysis is in Table A1, while descriptive statistics are presented in Table A2 in the Appendix. The overall statistical base of around nine thousand observations is reduced in the estimates when we eliminate observations with missing data on variables relevant to us such as income, marital status and employment status (Table A2). The average level of life satisfaction in the sample is 6.8, the sample is gender-balanced (around 48% males) and the average age is around 50 years. Graduates are about 13%.

Econometric findings are presented in Table 1 with the following specifications: column 1 has standard controls only; column 2 introduces variables of interest only, in continuous format; column 3 adds controls to the variables of interest, in continuous format; column 4 reports controls and the variables of interest, in dummy format. The coefficients of relational life and generativity are positive and strongly significant and overall goodness of fit of the model jumps from 11 to around 16%. In the last specification (column 4) we introduce different relational life dummies for any different declared relational life intensity and see that the coefficient magnitude is higher as far as relational life intensity grows.

Findings on regression controls are consistent with consolidated evidence in the literature (see among others Frey and Stutzer 2010 and 2018; Becchetti and Pelloni 2013; Winkelmann 2014 and Clark 2018) as shown by the significant and positive role of the highest three income deciles and the negative and significant effect of unemployment status. The significant coefficient of age levels and the positive coefficient of age squared confirm the non-linear relationship highlighted several times in the literature (Blanchflower 2021). In terms of magnitude, it is interesting to note that the coefficients of the generativity variable and the quality of relationships are analogous to the effect of a transition from the last income decile to the fourth income decile. It should be noted that in the first case we use a discrete variable and therefore it is the impact of a one unit increase of the variable with respect to its average.

Table 1 Econometric findings (ESS survey)

VARIABLES	(1)	(2)	(3)	(4)
Intensity of relational life (continous)		0.240***	0.239***	
		(0.019)	(0.026)	
Generativity (continous)		0.293***	0.258***	
		(0.034)	(0.046)	
Meet friends, family, colleagues in social events	Omitted benchmark: *never meet socially with friends, family or colleagues*			
Less than once a month				0.702**
				(0.312)
once a month				1.459***
				(0.314)
Several times a month				1.456***
				(0.295)
Once a week				1.467***
				(0.295)
Several times a week				1.761***
				(0.291)
Every day				2.020***
				(0.303)
Generativity index	Omitted benchmark: generativity index < 3.5			
Generativity index 3.5–4.5				0.482***
				(0.159)
Generativity index > 4.5				0.765***
				(0.164)
Female	-0.034		-0.032	0.012
	(0.072)		(0.070)	(0.070)
Age	-0.059***		-0.049***	-0.056***
	(0.014)		(0.015)	(0.014)
$[Age]^2$	0.000**		0.000**	0.000***
	(0.000)		(0.000)	(0.000)
Highest education level	Omitted benchmark: *less than lower secondary education*			
_Ihighisced_2 (lower secondary)	0.322**		0.188	0.183
	(0.148)		(0.144)	(0.144)
_Ihighisced_3 (lower tier upper secondary)	0.508***		0.358**	0.336*
	(0.185)		(0.181)	(0.182)
_Ihighisced_4 (upper tier upper secondary)	0.540***		0.310**	0.316**
	(0.152)		(0.149)	(0.150)
_Ihighisced_5(advanced vocational)	0.603**		0.322	0.363
	(0.262)		(0.263)	(0.263)
_Ihighisced_6 (lower tertiary)	0.918***		0.622***	0.633***
	(0.199)		(0.199)	(0.199)
_Ihighisced_7 (higher tertiary)	0.720***		0.466***	0.502***
	(0.172)		(0.171)	(0.172)
Income decile	Omitted benchmark: *first income decile*			
Income decile 2	0.0748		-0.0435	-0.0696
	(0.194)		(0.191)	(0.189)
Income decile 3	0.0437		-0.115	-0.154

Table 1 (continued)

VARIABLES	(1)	(2)	(3)	(4)
	(0.187)		(0.185)	(0.183)
Income decile 4	0.424**		0.313*	0.269
	(0.189)		(0.185)	(0.184)
Income decile 5	0.586***		0.456**	0.417**
	(0.191)		(0.188)	(0.186)
Income decile 6	0.583***		0.452**	0.405**
	(0.194)		(0.192)	(0.191)
Income decile 7	0.599***		0.415**	0.372**
	(0.190)		(0.186)	(0.184)
Income decile 8	0.875***		0.741***	0.694***
	(0.195)		(0.194)	(0.192)
Income decile 9	1.000***		0.806***	0.748***
	(0.207)		(0.207)	(0.206)
Income decile 10	0.892***		0.683***	0.629***
	(0.238)		(0.244)	(0.243)
Number of household members	-0.008		0.016	0.011
	(0.035)		(0.035)	(0.035)
Retired	0.147		0.0407	0.0335
	(0.244)		(0.234)	(0.232)
In education	0.0638		-0.159	-0.169
	(0.239)		(0.233)	(0.233)
Unemployed	-1.080***		-1.180***	-1.182***
	(0.256)		(0.249)	(0.247)
Inactive	-0.322		-0.343	-0.312
	(0.313)		(0.301)	(0.300)
Paid worker	-0.068		-0.126	-0.133
	(0.217)		(0.209)	(0.208)
Huseworker	-0.187		-0.228	-0.248
	(0.225)		(0.215)	(0.215)
Disabled	-0.504		-0.589	-0.630
	(0.483)		(0.442)	(0.446)
Marital status	*Omitted benchmark: divorced*			
Married	0.670**		0.546*	0.529*
	(0.312)		(0.315)	(0.320)
Separated	-0.095		-0.256	-0.265
	(0.336)		(0.337)	(0.341)
Widowed	0.119		0.0620	0.059
	(0.351)		(0.352)	(0.355)
Never married	-0.101		-0.235	-0.242
	(0.307)		(0.309)	(0.314)
Survey waves	*Omitted benchmark: wave 8*			
Wave 6	0.262**		-0.413***	-0.401***
	(0.111)		(0.110)	(0.110)
Regional dummies	Yes	No	Yes	Yes
Constant	7.527***	4.378***	5.562***	6.033***
	(0.535)	(0.170)	(0.576)	(0.590)

Table 1 (continued)

VARIABLES	(1)	(2)	(3)	(4)
Observations	3,543	5,974	3,423	3,423
R-squared	0.113	0.056	0.152	0.158

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

Re-estimating the model using a dummy variable for each different relationship intensity variable, we find that moving from the lowest to the highest level is associated with a difference of two happiness points, three times the effect of moving from the lowest to the highest level in income and corresponding to slightly less than one standard variation of the life satisfaction variable (column 4). Dividing generativity into three categories, we also observe that the transition from the lowest to the highest level of generativity has an impact equivalent to that of the transition from the lowest to the highest level of income.

Note as well that when we introduce in our specification both generativity and relational life variables the generativity coefficient captures only its direct impact on life satisfaction, while not the indirect impact on it through better relational life. The total effect of generativity on life satisfaction is therefore likely to be larger than what we observe in the generativity coefficient in the fully augmented estimate.

4.2 Descriptive findings from the EU-SILC survey

We perform the same empirical analyses on the EU-SILC survey. The distribution on reported life satisfaction (the question is identical to that in the ESS questionnaire) is very similar with modal values around 7 and 8 and an asymmetric distribution (Fig. 6). Conversely, the question about relational life is quite different from the ESS. More specifically, we use here two main questions: (i) the frequency of social encounters with friends, family and colleagues as in ESS, but collected in EU-SILC as a strict dichotomous variable (yes or no); (ii) a question about loneliness, whose distribution of responses reveal that a very significant part of the respondents (more than 50 per cent) have never felt lonely during the last four weeks (Fig. 7).

As in the previous section, in Fig. 8 we compare the distributions of those who report very low values of loneliness (never felt lonely in the last four weeks), and those who report higher values of loneliness (i.e. those who report feeling lonely sometime or all the time in the last four weeks), as well as the distribution of those who report to meet family and friends at least once a month and those who don't (Fig. 9). The difference between the two distributions shows again a quite clear cut, confirming the results obtained with the European Social Survey. Again, the subsample of individuals with a high intensity of relationships or never feeling alone has a much higher percentage of individuals reporting very high levels of life satisfaction, and a much lower percentage of individuals reporting very low levels of life satisfaction, compared to the subsample of individuals with a lower intensity of relationships.
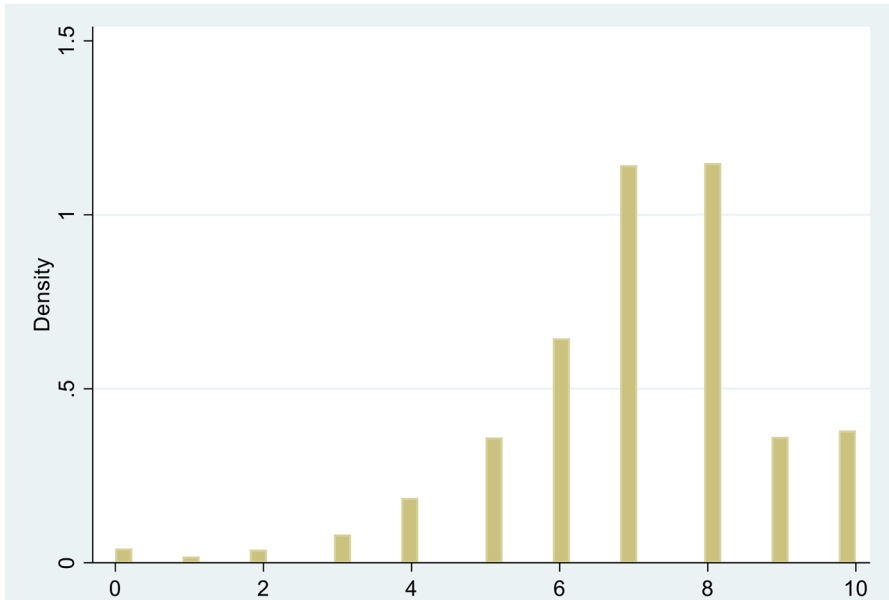
Fig. 6 Distribution of life satisfaction (EU-SILC survey)
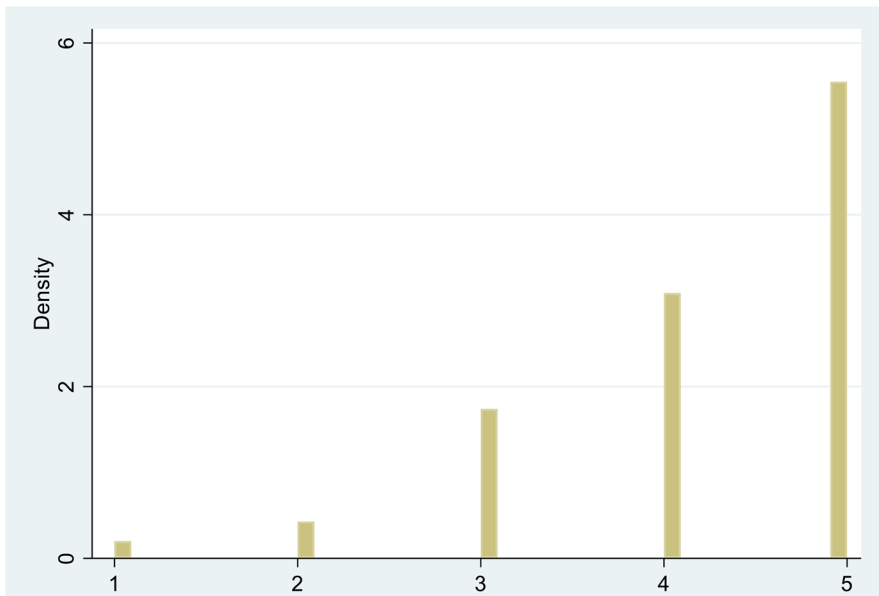Answer to the question "how satisfied with life as a whole" 0n a 0–10 scale

Fig. 7 Distribution of the relational variable (EU-SILC survey)
How long in the last 4 weeks have you felt alone? (always=1, almost always=2, some of the time=3, almost never=4, never=5)
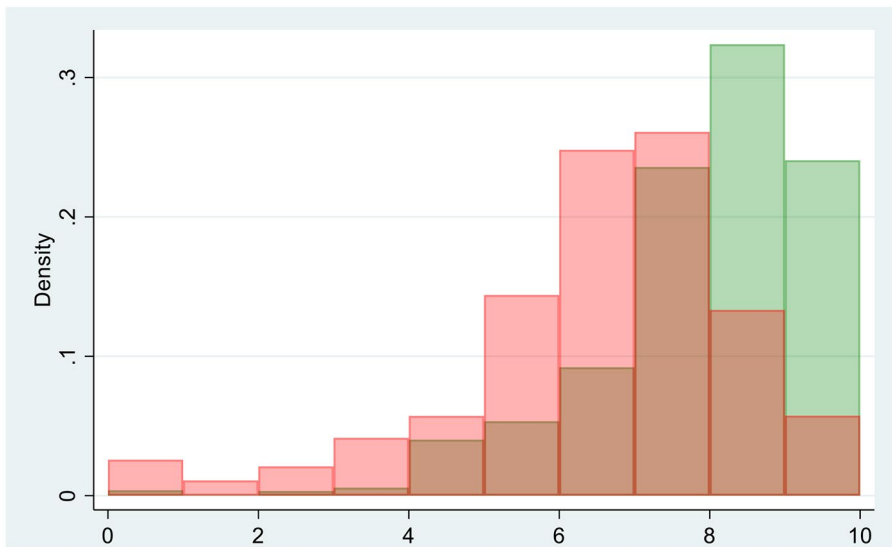
Fig. 8 Distributions of life satisfaction for those with high and low relational intensity in Italy (EU-SILC survey)

High-intensity relationships (never felt lonely in the last four weeks) Low-intensity relationships (feeling lonely sometime or all the time in the last four weeks). Green areas: distribution of life satisfaction for high relational intensity, while not for low relational intensity individuals. Brown areas: distribution of life satisfaction for both high and low relational intensity individuals. Pink areas: distribution of life satisfaction for low relational intensity while not for high relational intensity individuals. Epps-Singleton Two-Sample Empirical Characteristic Function test 3717.016 (0.00)

4.3 Econometric findings from the EU-SILC survey

The econometric analysis on the EU-SILC data is carried out with a specification as similar as possible to that of the ESS, but taking into account the differences in some variables between the two surveys. The specification adopted in this case is:

$$
\begin{aligned}
Life\_sat_i &= \alpha_0 + \alpha_1 Female_i + \alpha_2 Age_i + \alpha_3 [Age]2 + \alpha_4 Rel\_Life\_Intensity \\
&+ \sum_b \beta_b D\_Education_{b,i} + \sum_c \gamma_c D\_Income\_Decile_{c,i} \\
&+ \alpha_5 NHMembers_i \\
&+ \sum_d \delta_d D\_Employment\_Status_{d,i} + \sum_f \eta_f D\_Marital\_Status_{f,i} \\
&+ \sum_p \xi_p D\_Region_{p,i} + u_i
\end{aligned}
$$

where the dependent variable is identical to that of the ESS sample (the life satisfaction question with values from 0 to 10).

The main regressors of interest measuring relational life differ from ESS because the questions relating to this area are different in the two surveys. Namely, these are relationship intensity and a dichotomous variable on whether one meets friends and relatives at least once a month.
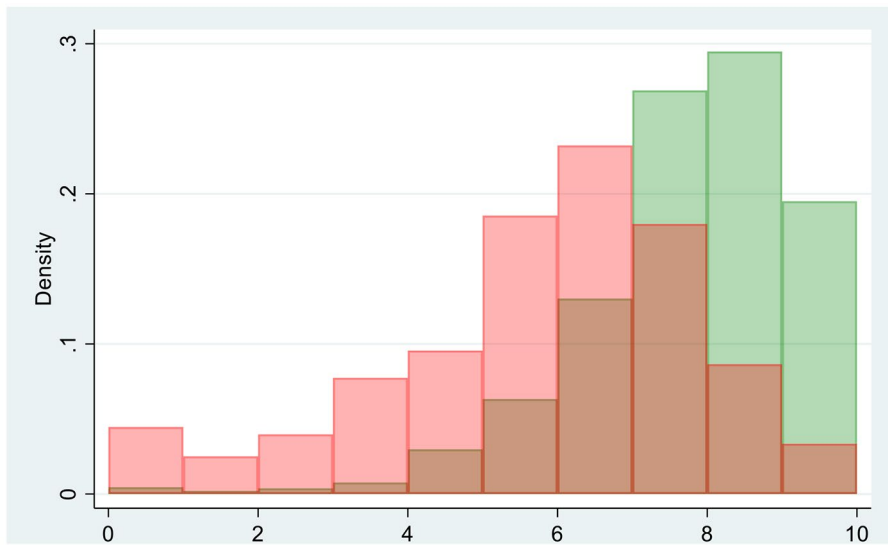
Fig. 9 Distributions of life satisfaction for those with high intensity (green) and low intensity (red) of relationships in Italy
High-intensity relationships (meet with family and/or friends to drink or eat together at least once a month) Low-intensity relationships (don't meet with family and/or friends to drink or eat together at least once a month). Green areas: distribution of life satisfaction for high relational intensity, while not for low relational intensity individuals. Brown areas: distribution of life satisfaction for both high and low relational intensity individuals. Pink areas: distribution of life satisfaction for low relational intensity while not for high relational intensity individuals. Epps-Singleton Two-Sample Empirical Characteristic Function test 1974.856 p-value (0.00)

Regression controls exactly match those of the ESS when considering the gender dummy, age and age squared, number of household members, dummy variables for educational level and family status, income deciles and dummy variables capturing regional effects (variable legend in Table A3 in the Appendix).

The descriptive table of variables used in the econometric analysis (Table A4 in the Appendix) indicates that in the EU-SILC survey average life satisfaction is slightly higher 7.04, also average age is slightly higher (around 56 years) and gender is balanced as in ESS (55% female). Graduates are around 14%. The sample size is more than three times wider than ESS.

Results of our econometric findings (Table 2) show a striking similarity in the effect of our main variables of interest (intensity of relational life and loneliness) on life satisfaction and the same relationship tested in the ESS sample. Namely, relational life has an effect three times larger than that of the transition from the bottom to the top income decile, exactly as in the case of the estimation based on ESS data. Indeed, column 4 test the effects of the highest relational life (never felt lonely), which is around 1.3, three times higher than being in the top decile (around 0.4).

Econometric findings on regression controls are consistent with those of the previous ESS estimates with a significant and increasing positive effect of the education level on life satisfaction, the non-linear effect of age, the negative and significant effect of unemployment status and the positive impact of marital relationship, mar-

Table 2 Econometric findings (EU-SILC survey)

VARIABLES	(1)	(2)	(3)	(4)
Relationship intensity (continuous)		0.321***	0.318***	
		(0.052)	(0.043)	
Relationship intensity	Omitted benchmark: felt lonely always			
felt lonely almost always				0.282*
				(0.145)
felt lonely some of the time				0.651***
				(0.181)
felt lonely almost never				1.019***
				(0.225)
felt lonely never				1.283***
				(0.214)
social exclusion		-0.216***	-0.207***	-0.207***
		(0.036)	(0.032)	(0.032)
meet friends and relatives		1.495***		
		(0.129)		
female	-0.014		0.002	0.001
	(0.032)		(0.020)	(0.020)
age	-0.027***		-0.020***	-0.020***
	(0.007)		(0.006)	(0.006)
age squared	0.000***		0.000**	0.000**
	(0.000)		(0.000)	(0.000)
Highest education level	Omitted benchmark: less than lower secondary education			
primary education	0.158		-0.014	-0.016
	(0.122)		(0.081)	(0.082)
lower secondary education	0.389***		0.129	0.126
	(0.122)		(0.084)	(0.085)
lower tier upper secondary education	0.596***		0.283***	0.280***
	(0.136)		(0.089)	(0.091)
upper tier upper secondary education	0.819***		0.371***	0.369***
	(0.140)		(0.092)	(0.094)
higher tertiary education	1.059***		0.572***	0.570***
	(0.168)		(0.120)	(0.122)
post graduate education	1.043***		0.551***	0.549***
	(0.170)		(0.117)	(0.119)
Income decile	Omitted benchmark: first income decile			
2 decile	0.229***		0.101**	0.100**
	(0.056)		(0.046)	(0.046)
3 decile	0.414***		0.189***	0.187***
	(0.058)		(0.056)	(0.057)
4 decile	0.494***		0.205***	0.202***
	(0.052)		(0.051)	(0.051)
5 decile	0.556***		0.246***	0.243***
	(0.054)		(0.046)	(0.047)
6 decile	0.577***		0.248***	0.246***
	(0.051)		(0.052)	(0.052)
7 decile	0.622***		0.260***	0.258***
	(0.044)		(0.036)	(0.036)

Table 2 (continued)

VARIABLES	(1)	(2)	(3)	(4)
8 decile	0.723***		0.336***	0.333***
	(0.070)		(0.066)	(0.066)
9 decile	0.824***		0.398***	0.398***
	(0.061)		(0.048)	(0.048)
10 decile	0.844***		0.425***	0.423***
	(0.063)		(0.055)	(0.056)
Number of households members	-0.068***		-0.068***	-0.067***
	(0.017)		(0.012)	(0.012)
Employment status	*Omitted benchmark: employed*			
retired			0.046	0.046
			(0.030)	(0.030)
unemployed			-0.787***	-0.787***
			(0.085)	(0.085)
inactive			0.033	0.033
			(0.085)	(0.087)
housework			-0.049	-0.048
			(0.060)	(0.059)
unable to work			-0.990***	-0.986***
			(0.174)	(0.173)
Marital status	*Omitted benchmark: never married*			
Married	0.278***		0.127***	0.128***
	(0.046)		(0.028)	(0.028)
separated/divroced	-0.180***		-0.110*	-0.109*
	(0.052)		(0.056)	(0.056)
widowed	-0.084**		0.037	0.042
	(0.037)		(0.046)	(0.044)
people to rely on		0.023	0.246	0.246
		(0.109)	(0.150)	(0.148)
Regional dummies	Yes	No	Yes	Yes
Constant	7.102***	5.001***	6.412***	6.706***
	(0.219)	(0.381)	(0.231)	(0.247)
Observations	29,183	23,301	27,026	27,026
R-squared	0.130	0.221	0.275	0.276

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

riage or cohabitation status compared to the omitted benchmark of never married. The overall goodness of fit is higher than in the ESSestimate and jumps from 13 to 27%.

4.4 Instrumental variable econometric findings

A significant relationship between two variables (in our case relational life and life satisfaction, and generativity and life satisfaction) can be the result of three types of connections. Direct causality, reverse causality, and spurious correlation. In the case of the relationship between explanatory variables and subjective life satisfaction (and, in our case, between generativity or relational life, on the one hand, and

life satisfaction, on the other hand) direct causality (it is generativity and relational life that cause happiness) is one of the three possible interpretations. In the case of reverse causality, however, it would be higher life satisfaction that encourages a more intense relational life and makes us more inclined toward generativity. In the case of a spurious correlation, on the other hand, it could be a third character-type factor (such as, for instance, extroversion or assertiveness) that determines positive effects on both life satisfaction and relational life, thereby generating a spurious correlation of them. It is likely that, in presence of the observed significant relationship, all of these three channels are at work. To test what we are most interested in (direct causality) we can use instrumental variables. We know that in the literature on the subject there are some studies that, through instrumental variables, have demonstrated the existence of a direct causal relationship between relational life and happiness (Becchetti et al. 2011, 2012; Bruni et al. 2019). However, the focus on the relationship between generativity and life satisfaction is novel and, at the best of our knowledge, no papers are using instrumental variables on this topic. Hence, we propose a robustness check through the means of instrumental variables in both the specification of the EU-SILC and ESS estimate. In EU-SILC, we approximate our instrumented variable (relational intensity) into a continuous variable to have a parsimonious number of instruments. We use as an instrument average regional age class and education level specific intensity of relationships. The use of the age class and education variables to create our average relational intensity instrument aims to have enough variability in the instrument. First stage estimates show that the instrument is relevant (significant effect on the instrumented variable). Second stage estimates show that the instrumented variable has a significant effect on the dependent variable. We logically argue that our instrument should be valid since average age and education specific intensity of relationships in the region is expected to affect individual relational intensity but not directly life satisfaction. Following the strategy proposed in the financial literature by Caprio et al. (2007) and further used in Laeven and Levine (2009) and Ferri and Murro (2015), we used the regional mean share of relationship intensity to instrument relational life. Our point is that individual life satisfaction is directly affected by the respondent's quality of personal relationships. The average level of quality of relationships in the region (conditional to age and education class) cannot have a direct effect on her/him since it is an average value with no effect on her/his life (it does not represent real people with close relationships with the respondent). In the same way, we can read about significant statistics related to our region but those statistics do not have any direct effect on our life satisfaction since they do not correspond to our direct experiences.

We test this hypothesis in a falsification estimate where we limit the sample to those with very low or almost non-existent relational life (those who answer they felt alone always or almost always). More specifically, as it is customary in falsification tests, we replace in the benchmark specification the instrumented variable with the instrument and find that the instrument is not significant. These findings do not reject our validity hypothesis as they show that the instrument affects the dependent variable only through the instrumented variable while it is not significant when the instrumented variable has zero or very low values (Table 3). Very similarly, in the ESS we approximate our instrumented variables (relational intensity and generativ-

Table 3 Econometric findings (EU-SILC survey) – IV approach

VARIABLES	IV final regression	falsification regression
meet friends and relatives	0.497***	
	(0.142)	
IV1: mean of relational life by age region education		0.360
		(0.377)
female	0.009	-0.118
	(0.021)	(0.121)
age	-0.018***	-0.076***
	(0.004)	(0.020)
age squared	0.000***	0.000***
	(0.000)	(0.000)
Highest education level		
primary education	-0.0317	-0.0349
	(0.076)	(0.267)
lower secondary education	0.108	-0.0611
	(0.077)	(0.370)
lower tier upper secondary education	0.263***	0.331
	(0.084)	(0.398)
upper tier upper secondary education	0.338***	0.246
	(0.081)	(0.453)
higher tertiary education	0.538***	0.702
	(0.083)	(0.491)
post graduate education	0.519***	-0.105
	(0.097)	(0.597)
Income decile		
2 decile	0.088**	0.101**
	(0.044)	(0.043)
3 decile	0.172***	0.188***
	(0.046)	(0.043)
4 decile	0.179***	0.204***
	(0.049)	(0.044)
5 decile	0.216***	0.244***
	(0.051)	(0.045)
6 decile	0.221***	0.247***
	(0.052)	(0.046)
7 decile	0.236***	0.259***
	(0.051)	(0.047)
8 decile	0.309***	0.335***
	(0.053)	(0.048)
9 decile	0.367***	0.397***
	(0.055)	(0.049)
10 decile	0.396***	0.424***
	(0.055)	(0.049)
Number of households members	-0.080***	-0.067***
	(0.015)	(0.011)
Employment status		
retired	0.0289	-0.0375

Table 3 (continued)

VARIABLES	IV final regression	falsification regression
	(0.037)	(0.199)
unemployed	-0.770***	-1.620***
	(0.057)	(0.249)
inactive	0.027	-0.290
	(0.075)	(0.279)
housework	-0.062	-0.856***
	(0.041)	(0.256)
unable to work	-0.944***	-1.769***
	(0.160)	(0.448)
Marital status		
Married	0.082*	0.356*
	(0.046)	(0.203)
separated/divroced	-0.089**	-0.221
	(0.043)	(0.195)
widowed	0.116	0.241
	(0.076)	(0.174)
people to rely on	0.174***	0.769***
	(0.064)	(0.124)
Regional dummies	Yes	Yes
Constant	5.699***	5.902***
	(0.584)	(1.467)
Observations	27,026	1,575
R-squared	0.269	0.179
Durbin–Wu–Hausman test F(1, 26,974)	1.86	
	(Prob>F = 0.1723)	

ity) into a continuous variable to have a parsimonious number of instruments. We use as instrument average regional age class and education level specific intensity of both relationships and generativity. Results, in line with those of EU-SILC, show the instruments are relevant and exogenous. Moreover, second stage estimates confirm that the instrumented variables have significant effect on the dependent variable (Table 4). We also test in both our EU-SILC and ESS estimates with the Durbin–Wu–Hausman test for the endogeneity and the potential bias in OLS estimates but find that the null hypothesis of no bias is not rejected (1.86 (Prob>F=0.1723) in the EU-SILC estimate and 1.94 (Prob F=0.1534) in the ESS estimate).

We therefore have various checks showing that the significant effect of generativity and intensity of relationships on life satisfaction is consistent with a direct causality effect.

Table 4 Econometric findings (ESS survey) – IV approach

VARIABLES	IV final regression	falsification regression
Intensity of relational life	0.328***	
	(0.093)	
Generativity	0.499***	
	(0.154)	
IV1: mean intensity of relational life by age region education		-0.0531
		(0.163)
IV2: mean generativity of relational life by age region education		0.333
		(0.283)
Meet friends, family, colleagues in social events		
Less than once a month		1.819***
		(0.517)
once a month		2.007***
		(0.514)
Several times a month		1.982***
		(0.535)
Once a week		2.520***
		(0.512)
Several times a week		2.737***
		(0.571)
Every day		1.819***
		(0.517)
Female	-0.200**	-0.284
	(0.100)	(0.192)
Age	-0.050**	-0.067
	(0.020)	(0.042)
$[Age]^2$	0.00039*	0.00039
	(0.000)	(0.000)
Highest education level		
_Ihighisced_2 (lower secondary)	0.0837	0.0133
	(0.190)	(0.406)
_Ihighisced_3 (lower tier upper secondary)	0.328	0.520
	(0.240)	(0.455)
_Ihighisced_4 (upper tier upper secondary)	0.165	0.0406
	(0.205)	(0.412)
_Ihighisced_5(advanced vocational)	-0.120	-0.438
	(0.439)	(0.659)
_Ihighisced_6 (lower tertiary)	0.521*	0.363
	(0.289)	(0.551)
_Ihighisced_7 (higher tertiary)	0.303	0.355
	(0.237)	(0.460)
Income decile		
Income decile 2	-0.219	0.136
	(0.243)	(0.373)
Income decile 3	-0.376	-0.175
	(0.235)	(0.412)
Income decile 4	0.242	0.668*

Table 4 (continued)

VARIABLES	IV final regression	falsification regression
	(0.231)	(0.382)
Income decile 5	0.294	0.575
	(0.242)	(0.444)
Income decile 6	0.435*	0.541
	(0.245)	(0.421)
Income decile 7	0.431*	0.267
	(0.234)	(0.420)
Income decile 8	0.747***	0.399
	(0.246)	(0.480)
Income decile 9	0.713***	1.018**
	(0.270)	(0.435)
Income decile 10	0.939***	1.063**
	(0.307)	(0.443)
Number of household members	0.0249	-0.0214
	(0.0457)	(0.0807)
Retired	-0.426	-0.153
	(0.268)	(0.470)
In education	-0.501*	-0.670
	(0.283)	(0.496)
Unemployed	-1.718***	-1.487***
	(0.305)	(0.511)
Inactive	-0.695*	0.0626
	(0.383)	(0.587)
Paid worker	-0.560**	-0.514
	(0.231)	(0.400)
Huseworker	-0.445*	-0.938*
	(0.250)	(0.487)
Disabled	-0.944*	-1.635
	(0.513)	(1.072)
Marital status		
Married	(0.347)	(0.449)
	-0.565	-0.329
Separated	(0.386)	(0.555)
	0.0683	0.381
Widowed	(0.400)	(0.679)
	-0.446	-0.196
Never married	(0.339)	(0.411)
	0.0249	-0.021
Survey waves		
Wave 6	0.381***	-0.281
	(0.119)	(0.421)
Regional dummies	Yes	Yes
Constant	4.653***	5.343***
	(0.898)	(1.807)
Observations	1,966	610
R-squared	0.144	0.183

Table 4 (continued)

VARIABLES	IV final regression	falsification regression
Durbin–Wu–Hausman test F(2, 1978)	1.94 (Prob>F=0.1534)	

5 Discussion of our empirical findings

The relevant finding of the paper is that in both samples we find a similar quantitative result: moving from the lowest to the highest intensity of relationships has an impact on life satisfaction three times larger than that obtained when moving from the lowest to the highest income decile.

The policy implications of these findings are important. Policies creating conditions that trigger individual generativity and quality of relational life can significantly and positively affect subjective wellbeing. Individual generativity can be fostered by policies easing the creation of social and profit organisations, active aging and fighting the phenomenon of the young who neither work nor study. Quality of relational life can be achieved, for instance, by smart work and other job policies enabling improved work-life balance and by policies supporting cultural events and other occasions of interpersonal meetings, also by shaping a relational friendly urban environment.

A superficial first impression might lead one to believe that there are only trade-offs between economic value creation, well-being, and relationships. There are many possible virtuous circles. The first concerns working life where the ability to cooperate simultaneously creates higher quality of life in relationships and higher added value. Indeed, relationships are the fundamental meta-factor for the success of companies because the workforce is composed of people with complementary and non-overlapping skills. In this context, the exchange of gifts (Akerlof 1982) creates trust and trustworthiness by generating that social capital that makes cooperation the virtuous equilibrium overcoming coordination failures (Becchetti et al. 2012). Cooperation among workers with complementary non overlapping skills is superadditive as it creates more value than the sum of their stand-alone contributions. This is confirmed by empirical findings indicating that firms with higher quality of relationships[5] have

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[5] Higher quality of relationships is measured as the sum of contributions of the following four variables: *Worker Well-being Mission i*s a binary (0/1) indicator. It takes the value of one if the company indicates that its strategic mission over the past three years involves enhancing worker well-being, promoting equal opportunities, supporting parenthood, and fostering work-life balance.*Team-Working Priority* taking the value of one (and zero otherwise) if the company reports that prioritizing team-work soft skills was a primary consideration when hiring workers from 2016 to 2018.Initiative *for Local Business Strategic* takes the value of one (and zero otherwise) when the company states that it has undertaken or supported initiatives for local businesses during the same period, considering them part of its strategic mission.*CSR Involving Stakeholder*s which takes the value of one for companies that involve stakeholders in financing CSR projects. These initiatives encompass five potential options: reducing the environmental impact of corporate activities, enhancing workers' well-being, supporting initiatives of collective interest beyond the company, contributing to the local business environment, and promoting safety improvements within the company or its operating area.

additional 21,000 euros of value added per employee, all other relevant factors being equal (Becchetti et al. 2024a) and better risk-adjusted returns (Edmans 2011).

Turning to the health and care sector in general, examples such as work in jail and the health budget (government subsidies to address psychical fragility through work reintegration) and the work of social cooperatives or companies that reintegrate work demonstrate how the quality of generative and care relationships is a strongly advisable approach to contrast marginality, foster generativity and promote inclusion thereby increasing life satisfaction of the beneficiaries (Becchetti et al. 2022b).

In many fields of research of policy responses the key to the progress of interpersonal relationships offers important solutions as in the case of the two examples cited. In general, therefore, progress in the field of relationships can achieve simultaneously important results in two directions such as productivity and social inclusion and, at the same time, life satisfaction due to the intrinsic value that relationships have from this point of view on life satisfaction itself.

6 Conclusions and indications for future research

Most of the contemporary literature on life satisfaction originates from the Easterlin's paradox which highlights how GDP growth is not a sufficient condition for life satisfaction. First, this literature allows us to bring together contributions from various disciplines such as psychology, sociology, and economics, to identify factors whose impact on well-being has been generally ignored by economics. The hypothesis that we test in this paper is that two of these fundamental factors are relational life (or relational goods) and generativity.

Our research hypothesis is tested on two different databases (ESS and EU-SILC) that have observations on Italian citizens. Empirical findings indicate that relational goods and generativity are highly significant in both cases. In terms of magnitude we surprisingly find in both surveys that the transition from the lowest to the highest level of relational quality of life has a three times larger impact on life satisfaction than the transition from the lowest to the highest level of income, after controlling for the relevant socio-demographic factors traditionally used in the literature concerning the multivariate analysis of subjective well-being.

The challenge of these types of works is to verify whether there is a direct causal link beyond this correlation with approaches such as instrumental variables. The literature on the subject shows that behind the correlation between relationships and life satisfaction there are direct and inverse causal links, as is the case with many other variables significantly correlated with subjective well-being. In this paper we perform a robustness check using instrumental variables in both surveys and confirm the causal link between relational life/generativity and life satisfaction.

Under the hypothesis of direct causality, the results of the paper have very relevant policy implications in several fields. In the labour market, they help to understand the importance and impact on subjective well-being of work-life balance policies and probably explain the phenomena of "great resignation" after the pandemic in which many times workers have decided to change jobs with the motivation of not having a good offer in terms of hybrid work which, with a mix of face-to-face and remote

work, allows progress in work-life balance (Becchetti et al. 2022a). Our findings have also important implications in terms of welfare policies indicating how generative and relational welfare should be the frontier for the future. More in detail, this implies that the essence of welfare intervention is not just a monetary transfer but richer relationship with beneficiaries and actions aimed at restoring their dignity by making them generative (as in the work in jail and health budget experiences).

More in general, our findings indicate that "beyond GDP" wellbeing indicators should incorporate as crucial dimensions those of generativity and quality of relationships so that economic policies could take into account their impact on these two fundamental factors of our subjective wellbeing.

Appendix

Table A1 Variable legend

Relational life intensity	"how often do you meet socially with friends, family or colleagues" at social events (never=1, less than once a month=2, once a month=3, several times a month=4, once a week=5, several times a week=6, every day=7)
Generativity	Arithmetic mean of answers to the following two questions: i)"*important to help people and care for the well-being of others*" (*a lot like me=6, like me, somewhat like me, a little like me, not like me, not at all like me=1*) ; ii) "*important to think of new ideas and be creative*" (*a lot like me=6, like me, somewhat like me, a little like me, not like me, not at all like me=1*)
Female	(0/1) dummy taking value one if the respondent is female
Age	Respondent age
Life Satisfaction	Answer to the question "how satisfied with life as a whole" 0n a 0–10 scale
Income class	Placement of respondent household total net income in one of the income deciles of the country (1=lowest, 10=highest)
ISCED education dummies	ES-ISCED I, less than lower secondary, ES-ISCED II, lower secondary, ES-ISCED III, lower tier upper, ES-ISCED IV, upper tier upper secondary; ES-ISCED V, advanced vocational, ES-ISCED VI, lower tertiary education, ES-ISCED VII, higher tertiary education.
Household members	Number of household members
Marital status dummies	(0/1) dummies picking up the following marital status conditions: married/civil union, separated, divorced, widowed, never married
Employment status	(0/1) dummies picking up the following employment status conditions: student, unemployed, inactive, paid worker, houseworker, disabled.
Regional dummies	Dummies taking value one for the respondent's resident Italian region and zero otherwise

Table A2 Descriptive Statistics – European Social Survey

Variable	Obs	Mean	Std.dev.	Min	Max
Life Satisfaction	3,534	6.778	2.172	0	10
Generativity	3,586	4.583	0.887	1	6
Male	3,586	0.484	0.500	0	1
Age	3,552	48.352	18.908	15	98
ISCED Education level					

Table A2 Descriptive Statistics – European Social Survey

Variable	Obs	Mean	Std.dev.	Min	Max
Less than lower secondary	6264	0.136	0.323	0	1
Lower secondary education	3,542	0.302	0.459	0	1
Lower tier upper education	3,542	0.065	0.246	0	1
Upper tier upper secondary Education	3,542	0.346	0.476	0	1
Advanced vocational	3,542	0.018	0.131	0	1
Lower tertiary education	3,542	0.032	0.177	0	1
Higher tertiary education	3,542	0.103	0.304	0	1
Income class 1	2,088	0.142	0.349	0	1
Income class 2	2,088	0.165	0.371	0	1
Income class 3	2,088	0.131	0.338	0	1
Income class 4	2,088	0.100	0.300	0	1
Income class 5	2,088	0.102	0.302	0	1
Income class 6	2,088	0.107	0.309	0	1
Income class 7	2,088	0.079	0.270	0	1
Income class 8	2,088	0.049	0.217	0	1
Income class 9	2,088	0.033	0.178	0	1
Income class 10	2,088	0.142	0.349	0	1
Number of family members	3,523	2.814	1.296	1	10
Retired	3,586	0.224	0.417	0	1
Student	3,586	0.101	0.301	0	1
Unemployed	3,586	0.085	0.279	0	1
Out of Labour force	3,586	0.024	0.152	0	1
Paid worker	3,586	0.480	0.500	0	1
Housework	3,586	0.091	0.288	0	1
Disabled	3,586	0.006	0.078	0	1
Married/civil union	3,586	0.510	0.500	0	1
Separated	3,586	0.058	0.233	0	1
Widowed	3,586	0.071	0.257	0	1
Never married	3,586	0.322	0.467	0	1
Divorced	3,586	0.039	0.386	0	1
Wave 6	3,586	0.268	0.443	0	1
Wave 8	3,586	0.732	0.443	0	1

Table A3 Legend of EU-SILC variables

Variable	Definition
life satisfaction	answer to the question "how satisfied with life as a whole" 0n a 0–10 scale
Female	(0/1) dummy taking value one if the respondent is female
Age	Respondent age
Household members	Number of household members
education level	no education; primary; lower secondary; lower tier upper secondary ; upper tier upper secondary; tertiary education; higher tertiary education; post graduate
marital status	never married; married; separated /divorced; widowed
people to rely on	excluding those who are living with you, currently do you have relatives or friend to rely on?

Table A3 Legend of EU-SILC variables

Variable	Definition
relationship intensity	in the last 4 weeks, for how long did you feel alone? Always/ almost always/ sometimes/ almost never/ never
social exclusion	generally speaking, how much do you feel socially excluded? Give a rate from 1 to 10
meet friends and relatives	Do you meet with family and/or friends to drink or eat together at least once a month? Yes/no
employment status	employed; retired; unemployed; inactive; housework; unable to work
household disposable income	decile of household disposable income
Regional dummies	Dummies taking value one for the respondent's resident Italian region and zero otherwise

Table A4 Descriptive statistics – EU-SILC

Variable	Obs	Mean	Std. Dev.	Min	Max
life satisfaction	29,183	7.042	1.824	0	10
age	29,183	55.687	18.086	16	103
female	29,183	0.548	0.498	0	1
Household members	29,183	2.422	1.230	1	9
education level					
no education	29,183	0.028	0.165	0	1
primary	29,183	0.153	0.360	0	1
lower secondary	29,183	0.277	0.448	0	1
lower tier upper secondary	29,183	0.074	0.261	0	1
upper tier upper secondary	29,183	0.322	0.467	0	1
higher tertiary education;	29,183	0.122	0.328	0	1
post graduate	29,183	0.024	0.153	0	1
marital status					
never married	29,183	0.279	0.449	0	1
married	29,183	0.506	0.500	0	1
separated /divorced	29,183	0.090	0.286	0	1
widowed	29,183	0.125	0.330	0	1
people to rely on	29,081	0.842	0.365	0	1
relationship intensity	28,179	4.215	0.966	1	5
social exclusion	28,839	1.893	2.430	0	10
employment status					
employed	28,209	0.484	0.500	0	1
retired	28,209	0.329	0.470	0	1
unemployed	28,209	0.049	0.215	0	1
inactive	28,209	0.026	0.159	0	1
housework	28,209	0.105	0.307	0	1
unable to work	28,209	0.007	0.081	0	1
decile of household disposable income					
1	29,183	0.121	0.326	0	1
2	29,183	0.117	0.322	0	1
3	29,183	0.115	0.318	0	1
4	29,183	0.104	0.305	0	1

Table A4 Descriptive statistics – EU-SILC

Variable	Obs	Mean	Std. Dev.	Min	Max
5	29,183	0.101	0.301	0	1
6	29,183	0.091	0.288	0	1
7	29,183	0.090	0.286	0	1
8	29,183	0.089	0.284	0	1
9	29,183	0.086	0.280	0	1
10	29,183	0.087	0.282	0	1

Declarations

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