Social Interactions and Life Satisfaction: Evidence from Latin America

Victoria Ateca-Amestoy · Alexandra Cortés Aguilar · Ana I. Moro-Egido

Abstract In this paper, we seek to examine the effect of *social comparisons* and of *social capital* on life satisfaction over a sample of Latin American countries. We test if, through social influence and exposure, *social capital* is either an enhancer or appeaser of the effect of *social comparisons* of material conditions in life satisfaction. Using the Latinobarómetro Survey (2007) we find, contrary to the existing literature that, the better others perform in the material dimension, the happier the individual is. We also find that *social capital* is among the strongest correlates of individuals' life satisfaction. Our findings suggest that social contacts may enhance the effect of *social comparisons*, which is more intense for those who perform worse in their reference group.

1 Introduction

The relevance of social influences in the modeling of individual behavior has become increasingly important in the economics research agenda. Economic studies explore the effects of social interactions on economic performance, welfare and subjective well-being (Gui and Sugden 2005; Meier and Stutzer 2008), and researchers in the field of economics have increasingly acknowledged that an individual's subjective well-being cannot be solely explained by individual characteristics, as social interactions also play their part (Farrell et al. 2004; Blume and Durlauf 2005; Deneulin and Townsend 2007; Fiorullo and

V. Ateca-Amestoy
University of Basque Country, Bilbao, Spain

A. C. Aguilar
Universidad Industrial de Santander, Bucaramanga, Colombia

A. I. Moro-Egido (✉)
University of Granada, Granada, Spain
e-mail: aimoro@ugr.es

Sabatini 2011; Cramm et al. 2012; Klein 2012, among others). Social comparisons and social capital are among the most powerful predictors of subjective well-being in certain instances of empirical research. For example, Bartolini et al. (2008) reported that the group of variables explaining almost all the variation in subjective well-being consists of income, social comparisons and social capital, and confidence in institutions.[1]

Subjective well-being is the umbrella term for different measures, grouped according to two dimensions (Stutzer and Frey 2010). The first dimension considers the distinction between an individual's own judgments about life satisfaction and the positive–negative affect component of well-being (Diener 1984, 2000; Diener et al. 1999; Schimmack 2008; Diener et al. 2009; Stutzer and Frey 2010). Diener (2006) reported that subjective well-being does not consider only how happy individuals are at a point in time, but also how satisfied they are with their lives as a whole. The second dimension distinguishes between measures that capture a person's level of subjective well-being and the duration in one mental state rather than in another. As life satisfaction is a relatively stable construct, duration measures usually refer to affect (comprising feelings and moods). Since no assessment of affect is conducted in this paper, we focus the analysis on life satisfaction.

Certain additional reasons for choosing life satisfaction arise from economic literature, where the main focus is on the measurability and interpersonal comparability of utility. There is still an ongoing discussion in the literature on whether there is indeed a link between the underlying utility and reported well-being measures. Subjective well-being, as a more general term, is more likely to represent the 'experienced utility' (Lelkes 2006a, b). Life satisfaction coincides with an economic point of view on well-being, representing a possibility of satisfying one's own preferences (Diener 1984). Happiness reflects the degree to which individuals judge the overall quality of their own lives to be wholly favorable (Headey and Wooden 2004).

Finally, the choice of life satisfaction rather than other measures of subjective well-being, such as happiness, is also informed by two practical reasons (Sacks et al. 2010). First, life satisfaction is more commonly found in datasets than any other measure. Second, prior literature on economics has focused largely on life satisfaction issues (even researchers have tended to label these analyses of "happiness"). Thus, we focus our attention on analyzing similar issues to make a direct comparison with prior literature.

We focus here on an analysis of the effect social comparisons and social capital has on life satisfaction for a group of Latin American countries. Even though the two social influences mentioned (social comparisons and social capital) are recognized as important determinants of individual life satisfaction (see Sect. 2 for a detailed discussion), research has paid less attention to the interrelations between them. Thus, our first contribution is to test the existence of an indirect effect of social capital over life satisfaction. This is the hypothesis whereby an individual's social capital has an additional influence on individual life satisfaction as a mediator of the intensity of the effect of social comparisons. Thus, through social influence and exposure, it is likely that social capital also acts either to enhance or mitigate the effect of social comparisons on an individual's life satisfaction.

Moreover, most empirical evidence about life satisfaction and social interactions has focused on developed economies. There are few studies for Latin America, and social influences are not their main focus (Graham and Felton 2006; Rojas 2006; Lora 2008). We perform our analysis using a large survey from Latin American and Caribbean countries, namely, Latinobarómetro

---

[1] Although our interest is not to propose or test any of the theories but rather to explain the main determinants of subjective well-being, we would like to draw the attention of the interested reader to the paper by Durayappah (2011), where different theories are presented.

2007 (Latinobarómetro 2007a; b; 2009). Increasing interest in including social capital in the policy agendas for those countries has been shown by the World Bank, United Nations and other institutions responsible for the design and implementation of development agendas. See, for example, the UN regional conference sponsored by the Economic Commission for Latin America and the Caribbean (ECLAC), held in Chile in 2001, on the theme "Social Capital and Poverty Reduction in Latin America and the Caribbean" (ECLAC 2003). The interest of the study of social capital and its integration into development agendas in Latin America is emulating its rapid progress elsewhere in the world. Furthermore, as noted by Molyneux (2002), Latin America seems to have a significant stock of social capital, identified as a fairly active civil society.[2] Thus, our second contribution is the study of the influence of social capital and its interaction with social comparisons in this specific group of countries.

Our findings suggest that the comparison effect on life satisfaction is positive for Latin American countries; that is, the better others perform, the happier the individual is. This is in contrast with most prior literature for developed economies, and even with some studies for Latin America (Graham and Felton 2006).[3] We also find that social capital is among the strongest correlates of an individual's life satisfaction in Latin American countries. Furthermore, our analysis confirms the result that social contacts enhance the effect of social comparisons among those who perform worse in their reference group. The forces behind these findings will be described along with the results.

The paper is structured as follows. The next section presents a review of the prior literature on social interaction and life satisfaction. Section 3 introduces major hypotheses on the determinants of individual life satisfaction. The data and the variables used in the study are described in Sect. 4. Section 5 explains the method of analysis. The results of the analysis are then presented and discussed in Sect. 6, and the main conclusions are summarized in Sect. 7.

2 Background

As noted in the introduction, there is a large body of literature that identifies the main determinants of life satisfaction. There follows a review of the main contributions existing literature makes on social comparisons and social capital. Some extended surveys concerning the determinants of subjective well-being in general are provided by Diener et al. (1999), Frey and Stutzer (2002), Van Praag and Ferrer-i-Carbonell (2004), Dolan et al. (2008).

2.1 Social Comparisons

The role of social comparisons has been highlighted by sociologists and social-psychologists, such as Festinger (1954), who developed the Social Comparison Theory. This theory postulates that individuals make assessments of their situations by comparing themselves with other people. Similarly, Michalos (1985) proposed the Multiple

---

[2] Molyneux (2002) includes an excellent review of the types of social capital in Latin America and their historical explanation from the 80s. Portes and Landolt (2000) also review some promising aspects and pitfalls of the role social capital plays in development for some Latin American countries. Kaztman (2003) analyzes the socio-cultural differences among countries in Latin America, and their influence on how social capital is defined in any country.

[3] Our results are consistent with the findings for Russia (Senik 2004), Eastern European countries (Senik 2008; Caporale et al. 2009; Selezneva 2011), and South Africa (Kingdon and Knight 2007; Bookwalter and Dalenberg 2010).

Discrepancies Theory, which postulates that life satisfaction emerges from an individual's evaluations of what they currently have against multiple comparison standards, such as what the reference group has. Through this paper, we refer to the effect of social comparisons on life satisfaction as the *comparison effect*.

In related literature, an individual's current reported life satisfaction is based on comparisons of two types: (1) internal benchmarks, which involve aspirations and dynamic comparisons with one's own situation at different points in time,[4] and (2) external benchmarks, i.e., comparisons with peers or relevant others, such as neighbors, co-workers, parents, etc. Our analysis here focuses on external benchmarks.[5]

The empirical analysis of the *comparison effect* from the external benchmark perspective involves two key issues: (1) how to identify the reference or comparison groups; and (2) how to model those comparisons. Concerning the identification of relevant others, surveys do not usually contain any direct questions about the composition of reference groups, with very few exceptions (Kingdon and Knight 2007; Senik 2009; Clark and Senik 2010). One alternative for researchers is to exogenously impose the reference groups, and delimit the subjects of comparison based on some observable characteristics of the respondents (see, for instance, Ferrer-i-Carbonell 2005). We adopt this latter approach here.

Concerning the way of modeling the comparison effect in order to assess the influence of other relevant individuals[6] on the valuation of one's own material circumstances, resources have been measured by income (Clark and Oswald 1996; McBride 2001; Blanchflower and Oswald 2004; Ferrer-i-Carbonell 2005; Luttmer 2005; Clark et al. 2008), expenditure (Alpizar et al. 2005; Bookwalter and Dalenberg 2010), wages (Tao and Chiu 2009), and, less frequently, wealth (Graham and Pettinato 2001; Graham and Felton 2005, 2006). We choose to define resources as household wealth, and we include differences between an individual's level of household wealth and the average level of the individual's reference group. As explained later, this choice is based on data availability.

A significant number of studies have recently investigated the role of reference material conditions in shaping an individual's life satisfaction (e.g., Easterlin 1995, 2003; Inglehart 1999; Frank 1985; McBride 2001; Blanchflower and Oswald 2004; Ferrer-i-Carbonell 2005; Luttmer 2005; Durlauf 2006; Vera-Toscano et al. 2006; Hopkins 2008; Caporale et al. 2009; Powdthavee 2009; Wolpert 2010; Blume et al. 2011; and Pereira and Coelho 2012, among others). The usual result when dealing with this relative material status is that when in a relatively disadvantaged situation, others' income exerts a negative effect on life satisfaction. Thus, the richest ones in the group impose a negative externality on their poorer counterparts, but not necessarily vice versa. There is, however, some evidence for the opposite case (Senik 2004, 2008; Kingdon and Knight 2007; Caporale et al. 2009; Clark et al. 2009; Clark and Senik 2010), by which having better off peers may have a positive effect over one's own life satisfaction. The interpretation of these contradictory results could reside in the existence of at least two possible effects: a negative one and a

---

[4] Zuzanek (2012) posits the notion of "societal expectations", which refers to a generalized longing for better socio-economic conditions, compared with the past rather than with other income groups or countries.

[5] Bygren (2004), dealing with job satisfaction, contrasts the different effects of comparing one's own past situation to people within the same organization, people with the same occupation, and people in the labor market. He found that individuals focus primarily on more general comparisons (others in their occupation or labor market), and that comparisons with co-workers and their own past seem to be of minor importance. Another contribution to highlight the importance of comparison groups, in terms of the influence of relative deprivation on the income-health relationship, is Yngwe et al. (2003). Here, we propose alternative reference groups and alternative ways of modeling the comparison effect to check the robustness of the results.

[6] The relevant others are the individual's peers, i.e., those individuals in the reference group.

positive one. The standard negative influence associated to feelings of *envy*, where other people's good news is bad news for us; and a positive one in the form of an information or *signal effect*,[7] whereby the outcomes of the reference group contain information about an individual's own future prospects (i.e., other people's advances may have a positive influence on an individual's life satisfaction).[8] In this latter case, the comparison of resources may increase the life satisfaction even of those who are relatively poor (Clark and Senik 2010).

Furthermore, some of those studies indicate that life satisfaction can react as much to reference as to absolute income (e.g., Ferrer-i-Carbonell 2005; Luttmer 2005). Note, however, that income could increase the level of utility or well-being up to a threshold level, beyond which utility remains largely invariant (Caporale et al. 2009). This idea is consistent with the assumption of diminishing marginal utility of consumption (or income) in neoclassical economic theory.

2.2 Social Capital

Social capital has received increasing attention as a determinant of life satisfaction (Coleman 1988; Helliwell 2001, 2003, 2006; Helliwell and Putnam 2004; Tokuda et al. 2010; Elgar et al. 2011; Leung et al. 2011; Han et al. 2012, among others). Although the subject of social capital has been widely debated, there is still no commonly agreed definition or consensus on how to measure it (Portes 1998; Durlauf and Fafchamps 2004; Brunie 2009; Svendsen and Svendsen 2009; Sarracino 2010; Klein 2012). One of the main difficulties in defining social capital, as we will present below, is to determine whether it is an individual asset (Portes 1998) or a collective resource (Putnam 2000, Kawachi et al. 2004).

Here, we follow the OECD's proposal based on Putnam (2000), and we consider 'social capital' as "networks together with shared norms, values and understandings that facilitate co-operation within or among groups." The incentives that motivate such social connections, as noted by Bartolini et al. (2008), can be either internal or external to the individual. These authors define intrinsic social capital as those components "that enter into people's utility function", whereas by extrinsic social capital they mean those components that do not "directly enter into people's utility functions but are instrumental to something else that may be considered valuable." Bartolini et al. (2011) stress that the importance of intrinsically motivated social connections has already been emphasized in economics literature through the use of the term *relational goods*.

We consider here only intrinsic social capital, that is, *relational goods* (see Bruni and Stanca 2008). In their definition of *relational goods*, Bechetti et al. (2008) include companionship, emotional support, social approval, solidarity, a sense of belonging and of experiencing one's history and the desire to be loved or recognized by others. These goods are, on a smaller scale, produced by family relationships or friendships and, on a larger scale, in many kinds of social events (club or association meetings, live sports events, etc.). Accordingly, following the distinction proposed by Putnam (2000), we differentiate between *bonding* and *bridging* social capital. *Bonding* relates to closed networks of people with the same background, whereas *bridging* entails cross-cutting ties (e.g., associations

---

[7] In Lora (2008), this effect is called *solidarity*.

[8] Hirschman and Rothschild (1973) suggest that individuals may derive positive utility from observing other people's progression and comparing it with the positive signal. An individual's gratification from the advances of others is identified by Hirschman and Rothschild as *tunnel effect*.

that bring people into contact with others from a cross-section of society). Putman (2000) emphasized that *bonding* social capital is a means for "getting by," while bridging social capital is a means for "getting ahead". The expected benefits of *bridging* social capital result from its facilitation of weak social ties, while bonding social capital facilitates strong social ties (Beaudoin 2009).

Given that an adequate empirical modeling of *bridging* and *bonding* social ties is not straightforward, some authors, such as Beugelsdijk and Smulders (2003) and Sabatini (2008), have identified *bonding* social relationships as those that consist of closed networks of family and friends, while *bridging* social relationships are associated with membership of religious, cultural, sports, women's or youth groups. For Sabatini (2008), a third type can be distinguished, *linking*, in the form of the weak personal ties that arise from joint belonging to social groups.

In terms of existing results, many cross-sectional studies in the field of sociology and economics have shown that individuals with active social relationships tend to be happier with their lives. In this regard, *bridging* associations are identified as more likely to generate positive externalities than *bonding* associations (Woolcock and Narayan 2000; Marshall and Stolle 2004). Despite this, there is also evidence to suggest that individuals receive social support mostly from bonding rather than bridging social ties (Helliwell 2001; Putnam and Goss 2002; Helliwell and Putnam 2004).[9] Social interactions in cross-cutting networks lead to the collective good of citizens (Woolcock and Narayan 2000) because, for example, they have greater effects on trust than relations solely with individuals who are similar to oneself (Marshall and Stolle 2004; Powdthavee 2008). Social support or social networks[10] (and the associated norms of reciprocity and trust) have powerful effects on the level of life satisfaction (Inglehart 1999; Helliwell and Putnam 2004).

Despite the growing body of conceptual and empirical papers, none of the aforementioned studies analyzes the effect of social capital on an individual's life satisfaction in Latin American countries. The scarce empirical evidence from Latin American countries on social interactions as a source of individual life satisfaction does not make any distinction in this regard (Rojas 2006; Lora 2008). We seek to fill this gap by using the distinction between *bonding* and *bridging* social capital and applying it to Latin American countries.

Before ending this section, although our choice on how to conceptualize and operationalize social capital has already been addressed in previous paragraphs, we would like to briefly present some other alternative definitions and measures that have been proposed in social capital literature. Harpham et al. (2004) describe the difference between a structural and a cognitive component of social capital. The structural component includes networks, connectedness, associational life and civic participation (behavior), while the cognitive component includes perceptions of support, trust, social cohesion and perceived civic engagement (attitudes/perceptions). Harpham et al. (2002) propose a horizontal/vertical differentiation of social capital. Relationships across different levels of society (e.g., community, local, government) are included in the vertical dimension of social capital, while relationships among similar individuals or groups in the same social context are denominated as horizontal social capital. Harper (2002) conducts an extensive analysis of

---

[9] People who have close friends, confidants, friendly neighbors and supportive co-workers are less likely to experience sadness, loneliness and low self-esteem (Helliwell and Putnam 2004).

[10] Later in this section, we comment on the relationship between social networks and social support and bonding and bridging social capital.

the dimensions of social capital. He distinguishes mainly between dimensions measuring individual level characteristics (social participation, social networks and social support) and those closely related to community level attributes (reciprocity and trust, civic participation, views of the local area). The dimension *social networks and social support* refers to various indicators, such as number of friends and relatives, frequency in seeing and speaking to friends and relatives, virtual networks, and being able to identify reliable people who can provide help when needed. The number and types of exchanges between people within the network, and the shared identities that those agents develop, can influence the amount of support an individual has, as well as provide access to other sources of help. The notion of social support is closely related to the definition of *bonding* social capital (see Pong et al. 2005).

Other relevant contributions are found in the papers by Burt (Burt 1992, 1995, 2005, among others) that consider and analyze a concept of social capital based on: (1) the existence of a network of individuals and (2) the participation in this network. Lin (2001) considers a general definition that is consistent with different definitions proposed in the literature, assuming that investment in social relations produces expected returns in the market place (see op.cit, chapter 2). According to that author, two perspectives can be identified to evaluate the level at which returns are conceived: at individual or group levels. At the individual level, social capital can be seen as human capital (an individual makes the investment expecting a return). When viewing social capital at an ecological or collective-level, it can be defined as "connections among individuals-social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam 2000, p. 19). Considering social capital may have implications for the individual, Bourdieu (1986) defined it in a more compositional manner as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu, op. cit., p. 248). This latter definition further emphasizes that social networks give rise to intangible social resources, which can be accessed and mobilized for individual or collective action, and subsequently elicit individual or collective benefits (for a useful classification of sources and effects of individual social capital, see Portes 1998; Portes and Landolt 2000). There is a consensus among Portes, Burt and Lin that social capital should be conceived within the social network context and, therefore, the diversity in social relations measured by network diversity can provide a higher contact status that in turn brings better status attainment outcomes. The contributions by Lin (2001) and Sarracino (2010) provide excellent reviews of the evolution and alternative definitions and critical points of social capital.

2.3 Interactions

As pointed out in the introduction, while prior studies have revealed the importance of social comparisons and interpersonal relationships on an individual's life satisfaction, scientists have paid less attention to the interrelations between these two sociality factors, and the evidence has focused on developed countries.

Empirical evidence from social psychology[11] (e.g., Festinger 1954; Schachter 1959) shows there is a strong preference for comparing with less fortunate others (downward

---

[11] As Blanchflower and Oswald (2011) argue, there will be a need to integrate research across a variety of disciplines. There are many avenues in which economic, medical, psychological and sociological literature on happiness can inform scholars.

evaluations) but a desire for information about, and contact with, more fortunate others (a pattern they label upward contacts).[12] Under these definitions, as pointed out by Taylor and Lobel (1989) and Buunk et al. (1991), if people choose to affiliate with worse-off others in order to obtain self-enhancing information (downward comparisons), the negative influence from an improvement in others' resources on life satisfaction should be even more negative for those with more social contacts. Alternatively, affiliations with better-off others and self-improvement motivations would lead to a positive correlation between others' resources and individual life satisfaction, albeit greater for those with more interpersonal relationships.

The need for research that combines these two social influences becomes evident. Using data from Switzerland, Stutzer (2004) found evidence that the average income in the community where an individual lives exerts a negative effect on the individual's level of life satisfaction. This negative effect is twice as high for people who have contact with their neighbors. Luttmer (2005) used the American Survey of Families and Households and found that an increase in neighbors' earnings has the strongest negative effect on happiness for those who socialize more in their neighborhood. A recent study by Clark and Senik (2010) using the European Social Survey conducted in 2006/2007 reported that people compare themselves to the groups with whom they interact more frequently, and that colleagues are the most frequently cited reference group. Bartolini et al. (2008) argue that a higher income increases happiness as long as it does not undermine social capital.

3 Hypotheses

Therefore, due to the possible mixed nature of relative income comparisons, the effect over quality of life of one's own relative standing in income distribution could be either positive or negative, while social capital should increase life satisfaction. At the same time, however, it could be that negative peer-effects are more intense for people that socialize more. As pointed out in the introduction, our aim is to analyze the joint influence of comparisons and social capital on individual life satisfaction.

In line with the related literature, we assume that a standard life satisfaction function can be expressed as follows:

$$LS_i = LS(y_i, f(y_i, \bar{y}_r), SC_i, II_i; X_i) \tag{1}$$

where y_i represents individual i's resources; $f(y_i, \bar{y}_r)$ represents social comparisons between an individual's own resources (y_i) and the reference group's ($\bar{y}_r$); SC_i represents the social capital of individual i; II_i characterizes the effect of the intensity of an individual's social comparisons and social capital[13]; and X_i describes an individual's socio-economic characteristics that have been previously identified in the literature as usual correlates of individual self-assessed life satisfaction.

---

[12] Using the findings from a previous study, Taylor and Lobel (1989) argue that individuals under threat are faced with the two major coping tasks of regulating emotions and obtaining relevant problem-solving information and inspiration. To meet these goals, individuals will make use of cognitive comparisons to worse-off others, but seek information about, and contact with, persons better off than themselves (Buunk et al. 1991).

[13] We adopt a similar approach to that used by Luttmer (2005), where the joint influence of others' resources and social capital on well-being is integrated in a life satisfaction function.

As described previously, we analyze these two factors and their interaction as determinants of an individual's well-being. Our main interest is to investigate whether social capital serves to enhance or mitigate the effect of resource comparisons.

We present a set of commonly held hypotheses.

- *Resources Hypothesis* This hypothesis assumes that an individual's life satisfaction is influenced positively by their own economic material circumstances, represented by y_i. See Clark et al. (2008) for a comprehensive review of the relationship between income and life satisfaction. In relation to income, this hypothesis has also been referred to as the *absolute income* hypothesis.
- *Social Comparisons Hypothesis* This hypothesis relies on the individual's relative resources. It suggests that the way individuals feel about their material conditions depends on their own resources as well as on the resources of others in their reference group, which is represented $f(y_i, \bar{y}_r)$ in Eq. 1. Thus, the life satisfaction of individual i depends on the gap between their own and others' material circumstances. As mentioned in the previous section, this hypothesis refers to the *comparison effect*. It should be remembered that the influence of social comparisons on life satisfaction could reside in the existence of envy and *signal* effects.[14] Feelings of envy imply that exposure to someone who is worse off (better off) will result in more positive (negative) self-assessed life satisfaction. Alternatively, information about the situation of others may enter the representation of one's own future and produce an information or signal effect that has a positive influence on individual life satisfaction. Based on this previous evidence, an increase in the individual's relative standing in their reference group might lead to an ambiguous effect on life satisfaction depending on the net effect between the *envy* and *signal* effects. We consider a version of this hypothesis known as the *asymmetric comparison effect*, which assumes that individuals below or above others' material circumstances can be affected differently by changes in their relative position (Ferrer-i-Carbonell 2005). Specifically, the magnitude of the effect of others' resources on individual life satisfaction is hypothesized to be stronger for relatively poor individuals (those below the average) than for relatively rich ones (those above the average), as found by Ferrer-i-Carbonell (2005).
- *Social Capital Hypothesis* The evidence presented earlier shows that individuals with active interpersonal relationships tend to be happier with their lives. This hypothesis assumes that social interactions generate relational goods and produce powerful positive influences on an individual's life satisfaction (SCi in Eq. 1). We consider the distinction between bonding (closed networks) and bridging (cross-cutting ties) social capital. We expect a positive effect from both, with the influence of bridging social capital being greater.
- *Intensity of Interactions Hypothesis* This hypothesis combines the two previous hypotheses (II_i in Eq. 1), based on the notion that changes in others' material conditions can influence an individual's life satisfaction to a different extent depending on exposure to social interaction, i.e., the frequency and/or the intensity of one's social relationships. From a theoretical viewpoint, since both comparisons and social capital ambiguously influence individual life satisfaction, we cannot unequivocally assess whether social interactions act to enhance or mitigate the effect of resources comparisons on an individual's life satisfaction. The two different types of social

---

[14] Social psychology literature classifies these effects as ego enhancing or ego deflating with additional depressing or motivational effects.

capital (bonding and bridging) could allow us to disentangle the effect of the relationships' intensity on the comparisons effect.

- *Socio-economic Hypotheses* These hypotheses are based on the empirical regularities from previous studies. We consider gender, age, marital status, education, labor market status, ethnicity, and city size effects on an individual's life satisfaction.

4 Data and Variables

4.1 Data

The empirical analysis is based on a representative survey conducted in eighteen Latin American and Caribbean countries called Latinobarómetro (2007a, b, 2009). In addition to the standard demographic and socio-economic variables already presented in the Latinobarómetro dataset, the 2007 survey includes information about individual self-evaluations of satisfaction with diverse aspects of people's life and social capital variables, which some other waves do not.

Latinobarómetro is an annual public opinion survey. It is not a longitudinal survey; this survey does not interview the same people every year, so we cannot examine the effect of changes in personal or environmental conditions over individual life satisfaction. The surveys are conducted annually by a prestigious research firm in each country and coordinated by the Latinobarómetro Organization.

The 2007 release of the Latinobarómetro includes questions about personal satisfaction with work, income, leisure, household and life (unfortunately, some of these questions were only asked in 2007). This survey consists of 20,212 observations, with approximately 1,000–1,200 interviews per country. This information is collated through the data each country sends. In almost all the countries, the methodology consists mainly of a modified probability sample, probabilistic in three stages and quotas in the final stage. The samples are representative of the adult population of each country, with a margin of error of approximately 3 % for each country.[15] With the exception of five countries, the representativeness is 100 %. The exceptions are Guatemala 96 %, Honduras 98.4 %, Nicaragua 99.8 %, Panama 99.2 % and Paraguay 97.4 %. Adulthood begins at 18 in most of the countries, with the exceptions being Brazil and Nicaragua, where the legal age is 16. The entire survey is treated as a large region-wide sample with the weights assigned in the whole dataset for each individual and country.[16]

---

[15] The main features of the sample design, with the specification of the method of selection of respondents and the sample size for each country, can be found at http://www.latinobarometro.org. In almost all the countries, the methodology consists of a modified probability sample, probabilistic in three stages and quotas in the final stage. Information about the sampling error and representativeness is also provided. Finally, a specific description of the methodology for each country is included in the document. There are specific questions for measuring incidents during the interview, such as number of rejections, losses, revisits, number of households assigned per interviewer, etc. Overall data say that on average around 43 % are rejected in some way (individual refusals, for example), about 16 % have some reason for losses (individual is out or ill for example), the average number of households is 2.53 per interviewer, and on average there are 1.19 revisits (for example, an individual asks the interviewer to come back).

[16] In the Dominican Republic, El Salvador, Guatemala, Honduras and Nicaragua, the sample is weighted with respect to stratum; in Chile it is weighted with respect to age, sex, educational level and geographical area; in Argentina with respect to sex and age; in Colombia with respect to age, sex, educational level and size of habitat; in Paraguay with respect to type of area, and in Venezuela with respect to sex and educational level. In Bolivia, Brazil, Costa Rica, Ecuador, Mexico, Panama, Peru and Uruguay the sample is not weighted. More details are also provided by the Methodological Report (Latinobarómetro 2009).

Our analysis excludes individuals with missing information about their demographic or socio-economic characteristics.[17] Thus, our final sample covers information for 17,670 individuals from the eighteen countries included in the dataset: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

4.2 Variables

4.2.1 Definition of Subjective Well-Being

The Latinobarómetro dataset for 2007 provides different measures of satisfaction. Respondents in the Latinobarómetro survey are asked about their satisfaction with their life, job, free time, housing, household income and neighborhood, among other individual and social aspects.[18] We use the information about individual self-assessed life satisfaction (LS) that derives from the following question: "Could you please tell me on a scale from 0 to 10, where "0" means you are "very dissatisfied" and "10" means you are "very satisfied", how satisfied you are with the way your life has turned out so far?". The non-response rate to this question is less than 2 %. There is a fair amount of variation in the answers, with a mean reported life satisfaction of 5.91 and a standard deviation of 2.20. Table 1 in Appendix 1 reports the main descriptive statistics of our dependent variable.

4.2.2 Definition of Explanatory Variables

To test the *Resources Hypothesis*, the literature commonly uses the reported periodical income or the expenses that individuals must assume to support their standard of living as a proxy of material conditions or an individual's economic status (Blanchflower and Oswald 2004; Kingdon and Knight 2006; Bookwalter and Dalenberg 2010). In our case, neither income nor consumption data are collected in the Latinobarómetro Survey. Nevertheless, the survey provides information on certain goods and assets households have. To approximate the level of the household's material well-being, we consider two different variables that provide us with complementary information.

On the one hand, we use information about the ownership of different assets to construct a weighted, linear index of household wealth using principal components analysis[19] to derive those weights. Ten assets and services were considered: television, refrigerator, own home, computer, washing machine, cell phone, car, a second or holiday home, running water and bathroom with shower. A similar index is used by the Latin American Public Opinion Project (LAPOP), with the difference being that the LAPOP index includes information about the ownership of a landline and microwave (Córdova 2009), but does not consider owning either a home or a second home. The linear index constructed from our analysis is used as a proxy of each individual's material welfare and household

---

[17] In order to uphold representativeness, we verified that the quotas remain in the final sample with no missing information. With the exception of Honduras, in all the countries the quotas by sex, age and education in the final sample differ by only 1 % or less from the quotas established in the sample design.

[18] For instance, the way the economy operates in their country, public safety, democracy, healthcare, education and the public spaces to which they have access, among other things.

[19] Principal components analysis is a statistical procedure using a set of variables to extract the few orthogonal linear combinations of the variables that capture the common information in the most satisfactory way. Consistently, the first principal component of a set of variables is the linear index of all the variables that capture the largest amount of information common to all the variables.

wealth.[20] The index is rescaled from 0 to 10 and will be referred to in our analysis as *Wealth*. The average value of our index in the sample is 5.80. Table 2 in Appendix 1 presents the main descriptive statistics of the variables used.

Although our wealth index contains most of the information regarding an individual's material circumstances, the high poverty rate (approximately 33 % of the population, as reported in ECLAC, 2010) renders it expedient to consider another question in the dataset that provides complementary information about an individual's resources. Specifically, we use the question "Has your household run out of money to buy food at any time during the past 12 months?" We then include a categorical variable labeled *Food*. This categorical variable is 1 if the individual reports that their household has had difficulties buying food in the last 12 months, and functions as a proxy of deprivation.[21] In our sample, 30 % of individuals reported having difficulties buying food and were therefore assigned to the deprivation category.

To model the idea behind the *Social Comparisons Hypothesis*, most existing evidence considers the *mean dependence* framework (or cell average approach), which relies on a subtle exclusion restriction whereby individuals compare themselves only to the average income within each cell. Under this *mean reference* framework, the *comparison* effect can be considered *symmetric*; that is, the extent to which a change in the group's average level of resources influences an individual's life satisfaction is similar across the board (Clark and Oswald 1996; McBride 2001; Blanchflower and Oswald 2004; Ferrer-i-Carbonell 2005; Luttmer 2005; and Helliwell and Huang 2005). Clark et al. (2008) present a survey summarizing the empirical literature that follows this procedure. Alternatively, the *asymmetric comparison* effect highlights the extent to which a change in others' resources influences individual well-being differently (McBride 2001; Ferrer-i-Carbonell 2005, and Cortés and Moro-Egido 2011). This latter option is the one considered here. Moreover, we make comparisons on the basis of the index of wealth we have built. To consider this *asymmetric comparison* effect, we define the variables I_1 and I_2

$$I_1 = \begin{cases} y_i - \bar{y}_{ir} & \text{if} \quad y_i \geq \bar{y}_{ir} \\ 0 & \text{if} \quad y_i < \bar{y}_{ir} \end{cases} \qquad I_2 = \begin{cases} \bar{y}_{ir} - y_i & \text{if} \quad y_i \leq \bar{y}_{ir} \\ 0 & \text{if} \quad y_i > \bar{y}_{ir} \end{cases}$$

where I_1 and I_2 measure how much wealthier (I_1) or poorer (I_2) the individual is with respect to their reference group's wealth. The reference wealth of an individual is defined as the average wealth of the reference group, which is

$$\bar{y}_{ir} = \left(\frac{1}{N_r}\right) \sum_{i' \neq i} y_{i'}$$

where i' are the individuals who belong to the same group as i, and N_r is the number of individuals considered.

This study follows the prior literature and characterizes reference groups according to certain geographical and socio-economic characteristics, as described below. The

---

[20] Filmer and Pritchett (2001) proposed and used this procedure to estimate the relationship between household wealth and children's school enrollment in India. The authors compared this method with the use of consumer expenditures, finding that this simple index of assets has a high correlation with the information on household consumer expenditures and works as well or even better than the information on expenses to predict children's enrollment. Additionally, they showed the internal and external validity of this type of index, as well as its robustness to the inclusion of different assets.

[21] The low Spearman correlation between our wealth index and the measure of food deprivation avoids problems of multicollinearity in the subsequent statistical analysis.

procedure generates between 50 and 65 different reference groups by country, given that there are particular characteristics that do not overlap in some countries. It should be note that, as is standard in most empirical work, the reference group is assumed to be exogenous. To model the hypothesis, we consider that the life satisfaction of individual i depends on the gap between their own and others' wealth. Then, among the options for modeling the *comparison effect*, we consider a version of the *asymmetric comparison* effect within the mean reference framework. Variable I_1 varies between 0 and 10 with a mean of 0.87, while variable I_2 ranges from 0 to 6.49 with a mean of 0.59.

Respondents in the Latinobarómetro survey are also asked how often they meet friends and relatives (beside normal activities) and about their active membership of a political party, a professional association· a church or other religious organization, and/or a sports, leisure or cultural group.[22] To test the *Social Capital Hypothesis*, we include two different types of social capital: *bonding* and *bridging* social capital. As suggested by Beugelsdijk and Smulders (2003) and Sabatini (2009), we use the information about the frequency of contacts with friends and relatives to construct the categorical variable *SC-Bonding*. This variable takes the value of 1 if the respondent meets friends and relatives at least once a month, and 0 otherwise.[23] On average, 70 % of the respondents in our sample meet friends and relatives at least once a month. The empirical approach to *bridging* social capital is made in two distinct ways. In the first approach, membership and active participation in political, labor, religious, sports or leisure organizations are considered separately in order to test the positive influence each one has on an individual's life satisfaction.[24] We then define the categorical variables *Political*, *Labor/professional*, *Religious*, and *Sport/leisure*, which are coded 1 if the individual belongs to, and actively participates in, each kind of association. In our sample, 8 % of the individuals participate in a political organization, 4 % in a professional organization, 19 % in a religious one and 10 % in a sports association. In the second approach, we define the variable *SC-Bridging*, which is a linear index constructed using an individual's answers about their membership of the association mentioned in the first option. Principal components analysis is used to derive the weights. The index ranges from 0 to 10, and the average value in our sample is 0.85. This alternative measure is useful when considering interaction effects between bridging social capital and other variables because it summarizes the information about bridging relationships in a single item.

The *Intensity of Interactions Hypothesi*s (our contribution) is modeled through the interaction terms for the variables that represent the Relative Standing and Social Capital hypotheses, which is denoted by II_i in Eq. 1. The incorporation of these interaction terms allows us to test the influence of bonding and bridging social capital as enhancers or mitigators of wealth comparisons. In particular, in order to test the *Intensity of Interactions Hypothesi*s, and by considering that the frequency of contacts could have different influences for wealthier and poorer people, we define the following:

- $(I_1)Bonding$ and $(I_2)Bonding$: These variables value, respectively, whether the individual visits friends and relatives at least once a month.

---

[22] The corresponding question asks whether the individual belongs to a trade union or professional association.

[23] The options to the question are: never, less than once a month, once a month, several times a month, once a week, several times a week, and every day.

[24] Individuals are classified as members of each of these associations if they choose one of the following 4-point scale verbal categories: (1) Belong and actively participate; (2) Belong but do not actively participate: (3) Used to belong but do not anymore; (4) Have never belonged.

- (I_1)N*Bonding* and (I_2)N*Bonding*: These variables value, respectively, whether the individual visits friends and relatives less than once a month.
- (I_1)*Bridging* and (I_2)*Bridging*: These variables cover the interaction between the variables I_1 and I_2 and the index SC-Bridging that measures bridging social capital.

Significant differences can be observed between an individual's life satisfaction with and without *bonding* social relationships when their wealth is below the average of the reference group wealth, and also for those whose wealth is above the reference group average.[25] As pointed out in the description of the hypotheses, these differences might reflect a multitude of characteristics and depend on the influence of social capital and relative standing on individual life satisfaction.

Finally, a set of socio-demographic variables are included to cover the regularities of the *Socio-Economic Hypotheses*. We define the categorical variable *Male*, which is coded 1 if the individual is male and 0 if female. In our sample, 49 % of individuals are male. The age of the respondent is included with the variable *Age* measured in years. In order to test for nonlinearity in the relationship between life satisfaction and age, we also include age squared in the statistical analysis below (*Age squared*). The average age in the sample is 39.54 years. To cover marital status, we define a categorical *Single* that takes the value of 1 if the individual has never married, a categorical *Married* that is coded 1 if the individual is married or cohabiting, and a categorical *Other* that is equal to 1 if the individual is separated, divorced or widowed. In our sample, 30 % of individuals have not been married and 58 % have a partner.

Five categorical variables cover all the education categories in the dataset. The variable *Illiterate* takes the value of 1 if the individual is illiterate. The categorical *Primary-Incomplete* is coded 1 when the individual has not completed primary education. We differentiate between illiterate and incomplete primary education levels because being able to read and write can make a difference in low income countries in terms of capabilities. If the individual has completed primary, secondary or university education, we construct the dummies *Primary*, *Secondary* and *University*, respectively. In our sample, 10 % of individuals are illiterate, 21 % have not completed primary education, 34 % have completed primary education, 27 % have a secondary level of education, and finally 8 % have a university degree.

We define four categorical variables to control for an individual's labor market status. The variable Employed takes the value of 1 if the individual is employed in a paid job, and 0 otherwise. The categorical *Self-employed* is coded 1 when individuals state they are self-employed. The variable *Unemployed* takes the value of 1 if the individual is unemployed. Finally, the variable *Inactive* is equal to 1 when the individual reports being a student, retired or a homemaker, and 0 otherwise. In our sample, 26 % of individuals are employed, 32 % are self-employed, 5 % are unemployed, and 37 % are inactive in the labor force.

We are interested in identifying these ethnic differences in Latin America between indigenous people and people from other ethnic groups. Blanchflower and Oswald (2004) have found differences in satisfaction with life between black and other non-white races and whites in both the UK and the US. In this case, we define four categorical variables guided by the self-reported ethnic group: *Indigenous*, *White*, *Mestizo*[26] and *Other* (Asian,

---

[25] The test of equality of means was rejected in all cases with a p value lower than 0.01.

[26] The individuals classified themselves as a person of mixed race, particularly of indigenous and white parentage.

black, mulatto[27] and others). In our sample, 9 % of individuals are indigenous, 43 % are *mestizos*, 28 % are white and 20 % belong to other ethnic groups.

Finally, to capture the effect of city size, we construct a set of categorical variables. Specifically, *MediumCity* is coded 1 if the individual's town has more than 10,000 inhabitants and is not a capital city. The variable *SmallCity* takes the value of 1 if the individual's town has fewer than 10,000 inhabitants, and the variable *CapitalCity* is equal to 1 if the individual lives in a capital city. In our sample, 70 % of individuals live in a medium-sized city, while 14 % reside in a small city.

4.2.3 Constructing the Reference Group

As mentioned above, this study follows the prior literature and characterizes reference groups according to geographical and socio-economic characteristics. We build the groups of relevant others based on age bracket, educational level and the size of the city where the respondents live. In addition to the categories for educational level and city size, we also use age groups.[28]

Based on the availability of information, other group-formation criteria will also be explored. First, individuals in the same country are grouped by similar educational levels and age. Second, city size and occupational status are considered as criteria for building the comparison group. Finally, given their country and the size of their city of residence, individuals with the same educational attainment are considered a comparison group. The results of the analysis considering these reference groups are presented in "Appendix 2".

5 Empirical Model

The response of individual i to the life satisfaction question LS_i. In line with prior literature, we assume that each individual evaluates their satisfaction with life (LS_i^*), and classifies satisfaction according to one of the available categories. The nature of this variable means it can be used to estimate an ordered probit model.[29]

However, given that the aim of this study is to analyze interactions between certain variables, this question poses an empirical problem. As Norton et al. (2004) have shown, the interpretation of interaction terms in linear regression models does not extend to non-linear regression models, and the computation of the marginal effects and statistical significance of the parameters in the latter case involve an additional difficulty.

Nevertheless, Ferrer-i-Carbonell and Frijters (2004) and van Praag and Ferrer-i-Carbonell (2004) have shown that the results using ordered logit or probit models are surprisingly close to the result of a simple OLS when the dependent variable ranges over a large scale. That is, the sign of the coefficients is the same; the significance is the same; and the trade-offs between variables are roughly the same, which means that indifference curves are similar. Ferrer-i-Carbonell (2005) suggests that the larger the scale, the more

---

[27] This category includes individuals of mixed black and white parentage.

[28] In terms of age groups, we consider 16–25, 26–35, 36–45, 46–65 and 66 or older. The variables used to construct the reference groups are also included in the econometric analysis that incorporates reference wealth. As Ferrer-i-Carbonell (2005) argues, it is assumed that these characteristics have two effects, namely, a pure one, and the creation of the individual reference group.

[29] In order to use the Ordered Probit Model, we should test all the assumptions behind that choice. See Mora and Moro-Egido (2008) for a detailed summary on goodness of fit tests.

precise the measure of individual well-being. Fortunately, as described earlier, Latino-barómetro 2007 provides individual responses to the life satisfaction question that range over a sufficiently large scale (from 0 to 10), thus allowing us to use OLS estimations to test our hypotheses.

Given that our main interest focuses on the influence of social interactions on an individual's life satisfaction, we begin with the benchmark model that includes social comparison variables, then move on to a model that also considers *Social Capital* influences, and finally proceed to a model that considers all the identified *Intensity of Interaction* terms. In Model A, individual life satisfaction is described by:

$$LS_i^* = \alpha + \varphi' y_i + \lambda_1 I_1 + \lambda_2 I_2 + \gamma' X_i + \tau' C + \varepsilon_i \tag{A}$$

where y_i represents the individual's resources, variables I_1 and I_2 measure the comparison resources effect, X_i includes the individual's characteristics, C counts for country fixed effects,[30] and ε_i is an error term. It should be noted that the *Resources Hypothesis* will imply that the first coefficient (associated to the variable *Wealth*) in vector φ should be positive, while the second one (*Food*) should be negative. Regarding the *Social Comparisons Hypothesis*, there is an ambiguous expected sign for λ_1 and λ_2 depending on which of the two underlying effects (*envy* or *signal* effect) dominates. According to the related literature, the effect of variable I_1 on individual life satisfaction (in absolute terms) is expected to be smaller than the effect of variable I_2, i.e., $|\lambda_1| < |\lambda_2|$. Even some prior literature assumes that wealthier people are not influenced by others' resources, which would mean that $\lambda_1 = 0$

We also proposed Model B and C, which incorporate the variables associated to the *Social Capital* Hypothesis (corresponding to Eq. 1) into Model A. In Model B, we include the variables *SC-Bonding* and the information about the individual's participation in political, labor, religious, sports or leisure organizations. This information is considered separately in order to test the positive influence each one has on individual life satisfaction. In Model C, we include the variable *SC-Bridging*, which groups the information about the individual's membership of these organizations into a linear index.

$$LS_i^* = \alpha + \varphi' y_i + \lambda_1 I_1 + \lambda_2 I_2 + \beta_1 SC - Bonding + \beta_2 Political + \beta_3 Labor/professionl \\ + \beta_4 \text{Re} ligious + \beta_5 Sport/Leisure + \gamma' X_i + \tau' C + \varepsilon_i \tag{B}$$

$$LS_i^* = \alpha + \varphi' y_i + \lambda_1 I_1 + \lambda_2 I_2 + \beta_1 SC - Bonding + \beta_6 SC - Bridging + \gamma' X_i + \tau' C + \varepsilon_i \tag{C}$$

As in the related literature, we expect individuals with active interpersonal relationships to be generally happier with their lives; that is, $\beta_i > 0$ for $i = 1, \ldots, 6$. To test whether social capital enhances or mitigates wealth comparisons (the *Intensity of Interactions* Hypothesis), we propose Model D, where we explore the difference in the effect of relative standing on life satisfaction between those with and without active social relationships.

---

[30] To control for country-heterogeneity, and as pointed out in the description of the variables considered, we have included a set of categorical variables, one for each country. We find no significant effect on satisfaction depending on whether an individual lives in Mexico, Nicaragua, Venezuela or the Dominican Republic. All the other countries have a negative effect, with the largest being observed in Chile, Uruguay and Brazil. Additionally, we have estimated the standard errors with cluster methodology that controls for the fact a group of observations (individuals) belongs to the same group (country).

$$LS_i^* = \alpha + \varphi' y_i + \lambda_1 I_1 + \lambda_2 I_2 + \beta_7(I_1)Bonding + \beta_8(I_2)Bonding + \beta_9(I_1)NBonding$$
$$+ \beta_{10}(I_1)NBonding + \beta_{11}(I_1)Bridging + \beta_{12}(I_2)Bridging + \gamma' X_i + \tau' C + \varepsilon_i \quad \text{(D)}$$

In this case, we test the statistical differences between β_7 and β_9 to study whether social capital could modify the influence of I_1 on life satisfaction, and between β_8 and β_{10} for the case of I_2. The influence of *bridging* social relationships as mediators of the relative standing effect on individual life satisfaction is tested by including the variables $(I_1)Bridging$ and $(I_2)Bridging$ through parameters β_{11} and β_{12}.

6 Results

We present the estimation results for our life satisfaction regression models in Table 3. For the sake of simplicity, we have omitted the estimated parameters corresponding to *Resources* and *Socio-economic Hypotheses* and country effects from the tables.[31] The sign and significance of the estimated coefficients of the variables corresponding to the *Resources* and *Socio-economic Hypotheses* are similar to the evidence from previous studies. In particular, an individual's material conditions, as gathered by *Wealth*, have a positive effect on their life satisfaction, while *Food*, which accounts for individual material deprivation, obviously has a negative influence. We found no gender effect, but life satisfaction diminishes with age, until it reaches a minimum, and then increases. While being married does not have an effect on life satisfaction, individuals who are separated, divorced or widowed are less satisfied with their lives than single individuals. Although previous studies for Latin American countries have found that education variables have a highly significant effect over life satisfaction (Graham and Felton 2006), only the highest educational level has a positive effect on life satisfaction in our sample. One of the possible reasons for this difference between previous results and our own is that our analysis is limited to workers' life satisfaction. Nevertheless, when an individual's material wealth is not controlled for, these education variables are positive and highly significant, given the high correlation between education and wealth. Being unemployed has a significant and negative influence on life satisfaction. We also find that whites are more satisfied with their life than indigenous individuals. Finally, living in a capital city has a negative effect on life and job satisfaction, while people who live in small cities are more satisfied with their job than people in large urban areas. The analysis now focuses on the coefficients associated to *Social Comparisons*, *Social Capital* and *Intensity of Interactions* hypotheses.

In terms of the *Social Comparisons Hypothesis*, our results show that the effect of the individual's relative wealth is only relevant for those individuals who are below the average reference wealth; that is, the *comparison* effect is asymmetric. It should be noted that only the estimated parameter corresponding to I_2 is, in statistical terms, significantly different from zero. This result is in line with Ferrer-i-Carbonell (2005). We also find that for those individuals there is a *signal* effect associated with the value of the information about others' good news, which dominates the possible feelings of *envy* produced by comparisons (estimated parameters are positive and significant). As mentioned before, a rise in the wealth of a colleague (Clark et al. 2009), for example, is likely to create positive expectations about our own future, rather than an evaluation of our own economic standing. Given the information we use to construct our wealth index, the positive effect of

---

[31] The full set of results is available from the authors upon request.

variable I_2 on individual life satisfaction can also be interpreted as a positive externality, since higher cohort wealth may be correlated with higher quality public goods and higher levels of public health and safety, as suggested by Bookwalter and Dalenberg (2010).

Our estimation results also confirm the *Social Capital Hypothesis*. Visiting friends and relatives at least once a month and engaging in social organizations[32] increase individual life satisfaction. In line with previous studies, the results from Latin American countries suggest that bonding and bridging social connections are among the strongest correlates of life satisfaction in terms of the magnitude and significance of the estimated coefficients (Helliwell and Putnam 2004).

There are three main results regarding the *Intensity of Interactions Hypothesis* tested in Model D. First, for individuals above the average wealth in reference group I_1, relative standing matters for those who visit friends and relatives less than once a month. An individual's relative standing does not influence life satisfaction if the intensity of *bonding* relationships is larger (variable $(I_1)Bonding$ is not significant). Regarding wealthy people who socialize more, the negative feelings of envy due to a decrease in their relative standing may compensate the information and signal effects because socialization emphasizes the reference wealth. The same interpretation can be applied in the case of the non-significant estimated coefficient of the interaction variable $(I_1)Bridging$.

Secondly, the results show that for people below the average reference wealth (I_2), interaction between bonding social relationships and relative wealth positively influences individual life satisfaction. The statistical difference between β_8 and β_{10} shows that the influence of relative wealth is larger for individuals who frequently visit friends and relatives than for those who do not. As expected, the intensity of *bonding* social capital enhances the comparison effect. For poor members of the group, there is a dominant *signal* effect, i.e., reference wealth plays an informational role regarding their own perspectives and they derive positive welfare from a rise in others' wealth. This evidence is also consistent with the *tunnel effect* proposed earlier on by Hirschman and Rothschild (1973) to refer to an individual's gratification from the advances of others.

Thirdly, the intensity of bridging social relationships also positively influences the comparison effect for individuals below the average reference wealth (variable $(I_2)Bridging$ is positive and significant), meaning that participation and affiliation with people in cross-cutting networks serve the function of *self-improvement* for poor individuals. In line with social psychology research, the prevalence of the *signal* effect suggests that others undergoing a similar experience may provide information about how to improve one's status, as well as serve as a model for the coping process.[33] Similar findings in studies on transitional economies, such as Senik (2004) using Russian data, have been justified by arguing that individuals in such an economy take the reference income not as a comparison but as an information measure to create future expectations. Individuals who see richer people around them take this as a sign that their own material welfare may soon increase, which contributes to their happiness. Selezneva (2011) contends that, within the context of transitional economies with high uncertainty and changing conditions, the observation of the conditions of relevant others (peers) is informative for the evaluation of one's own further chances. Other studies with similar results analyze data from transitional

---

[32] The correlation between the variables associated to social relationships is not higher than 0.30 in any case, thereby discounting the risk of multicollinearity in the estimation.

[33] For poor individuals, information about others in better circumstances may give them the confidence and inspiration necessary to undertake an improvement plan.

Eastern European countries (Senik 2008; Caporale et al. 2009) and South Africa (Kingdon and Knight 2007; Bookwalter and Dalenberg 2010). This positive influence of others' wealth for poor individuals with active social relationships is robust for the consideration of different reference groups. Additional estimations, where we consider alternative reference groups based on age and education, city size and labor status, and city size and educational level, are shown in Table 4 of Appendix 2.

To sum up, the evidence from Latin American countries shows that an improvement in others' material conditions generates positive externalities on life satisfaction. In the case of the poor, the positive effect of *bonding* and *bridging* social contacts on life satisfaction is twofold. First, there is a direct effect produced by belonging and participating in networks of this kind. Second, it seems to have an indirect effect as an enhancer of the signal effect of comparisons.

7 Conclusions and Discussion

We have examined the determinants of satisfaction in Latin American countries using data from the Latinobarómetro 2007 survey to understand how social influences affect life satisfaction. Social relationships and social comparisons are major determinants in a number of ways.

First, unlike developed countries, we find evidence that improving the material conditions of relevant others (people in one's reference group) increases life satisfaction; that is, the dominance of the *signal* effect over the *envy* effect. However, this effect is not symmetric. Relative wealth has a greater influence on the life satisfaction of individuals whose wealth is below the average in their reference group than for those with wealth above the reference group average. This is consistent with the findings of Ferrer-i-Carbonell (2005).

Second, we find that *bonding* and *bridging* social relationships are positively correlated with individual life satisfaction.

Third, our main finding is that the types of social capital considered in this study (*bridging* and *bonding*) enhance the wealth comparison effect on individual happiness. In particular, for poor individuals interacting frequently with friends and relatives or belonging to an organization, an improvement in others' wealth is perceived as a positive externality.

Until now, the principal argument for interpreting the positive role of social capital has been that *bridging* social networks promote trust and diminish the transaction cost, thereby facilitating economic activities (the same result applies to the linking social capital category). Following social psychology theory and the evidence found in our research for Latin American countries, a complementary explanation may be proposed. Considering our results, if *bridging* social networks are seen as a source of information and motivation for less fortunate people, this behavior can also be understood as a potential force for enhancing economic growth. The potentially negative role of *bonding* social capital is not found in our analysis; in fact, it appears to be positive in both its direct and indirect effect on satisfaction. It could be the case that the social effects analyzed here have a different magnitude or impact in domains other than the evaluation of material resources. Indeed, we have posited that social comparisons and exposure to social interaction, through the positional degree of the goods or domain being evaluated, are an important determinant of satisfaction. Although the positive dimensions of social

capital have been assessed in many fields from a macro perspective, we have contributed to the analysis by exploring the positive dimension of social capital at an individual level. Further empirical research on diverse societies will contribute to a better understanding of these social influences.

A recent survey by Van Praag and Ferrer-i-Carbonell (2010) provides detailed discussions on the implications of these externalities for a variety of policy-relevant issues at both micro and macro levels, including optimal taxation, public redistribution and the welfare costs of aggregate fluctuations. Bartolini et al. (2008) provide a convincing and powerful explanation of the Easterlin paradox, giving social capital a new role: a higher income increases happiness as long as it does not undermine social capital. Our results are consistent with this finding. Should this hypothesis be corroborated by further research, policy agendas will also have to consider the effects of economic policy on the preservation and provision of social capital. Hence, social capital can become an important aspect of future development policies.

As further research, we will devote some attention to heterogeneity among countries; for instance, the way the economy operates in a specific country, as well as public safety, democracy, healthcare, education and the public spaces to which people have access, among other things. Differences between counties may be due to institutions. The countries included in our sample are far from homogeneous. As reported by Acemoglu and Robinson (2012), the existence of a centralized state with inclusive political and economic institutions is a prerequisite for economic and social development. Bartolini et al. (2008) consider that confidence in institutions is an important driver of differences in subjective well-being. Those considerations open a new line of research seeking to characterize which type of variables, whether micro or macro ones, are more important for explaining life satisfaction.

Finally, although we typically think of life satisfaction as a dependent variable, it is also worth devoting some time to the direction of causality. Dolan et al. (2008) conduct an excellent review of determinants of life satisfaction. This review reveals problems in terms of contradictory evidence, the impact on findings of potentially unobserved variables and the lack of certainty on the direction of causality, rendering it difficult to draw concise conclusions about the causes of life satisfaction and make clear policy recommendations at this stage. However, Dolan et al. (2008) suggest that an analysis of life satisfaction should at least be aware of the impact of income, relative income and personal and community relationships. The direction of causality is much clearer in the case of income than in the case of social capital, and this is the reason Dolan et al. (2008) propose pursuing this line of research.

Appendix 1

See Tables 1, 2, and 3.

Table 1 Dependent variable–descriptive statistics

Dependent variable	Mean/proportion	SD	Min.	Max.
Life satisfaction	5.91	2.20	0	10
Very dissatisfied (0–1)	0.03			
2	0.03			
3	0.07			
4	0.10			
5	0.22			
6	0.17			
7	0.13			
8	0.12			
9	0.04			
Very satisfied	0.08			

The sample comprises information from 17,670 individuals with valid life satisfaction

Table 2 Explanatory variables–descriptive statistics

	Mean/proportion	SD	Min.	Max.
Resources				
Wealth	5.76	2.33	0	10
Food	0.31	0.46	0	1
Relative standing				
I_1	0.87	1.15	0	10
I_2	0.59	0.99	0	6.49
Social capital				
SC-Bonding	0.70	0.46	0	1
SC-Bridging	0.85	1.64	0	10
Political	0.08	0.27	0	1
Labor/professional	0.04	0.20	0	1
Religious	0.19	0.39	0	1
Sport/leisure	0.10	0.30	0	1
Social interactions				
(I_1)Bonding	0.64	1.05	0	10
(I_1)NBonding	0.23	0.71	0	7.57
(I_2)Bonding	0.38	0.84	0	6.49
(I_2)NBonding	0.20	0.65	0	5.89
(I_1)Bridging	0.86	2.97	0	55.13
(I_2)Bridging	0.46	1.97	0	47.41
Socio-demographic characteristics				
Male	0.49	0.50	0	1
Age	39.54	16.20	16	94
Marital status				
Single	0.30	0.46	0	1
Married	0.58	0.49	0	1
Other	0.12	0.32	0	1
Education				
Illiterate	0.10	0.30	0	1

Table 2 continued

	Mean/proportion	SD	Min.	Max.
Primary-incomplete	0.21	0.41	0	1
Primary	0.34	0.47	0	1
Secondary	0.27	0.45	0	1
University	0.08	0.28	0	1
Labor market status				
Employed	0.26	0.44	0	1
Self-employed	0.32	0.47	0	1
Unemployed	0.05	0.21	0	1
Inactive	0.37	0.48	0	1
Self-reported ethnicity				
Indigenous	0.09	0.28	0	1
White	0.28	0.45	0	1
Mestizo	0.43	0.49	0	1
Other	0.20	0.40	0	1
City size				
MediumCity	0.70	0.46	0	1
SmallCity	0.14	0.35	0	1
CapitalCity	0.16	0.36	0	1
Sample size	17,670			

Table 3 Life satisfaction estimation results for the Latinobarómetro Survey 2007

	Model A	Model B	Model C	Model D
Relative standing				
I_1	−0.032 (0.030)	−0.033 (0.030)	−0.034 (0.030)	
I_2	0.123*** (0.034)	0.118*** (0.034)	0.119*** (0.034)	
Social capital				
SC-Bonding		0.135*** (0.037)	0.138*** (0.037)	
SC-Bridging			0.102*** (0.010)	0.075*** (0.017)
Political		0.218*** (0.069)		
Labor/professional		0.284*** (0.083)		
Religious		0.222*** (0.046)		
Sport/leisure		0.263*** (0.057)		
Intensity of interactions				
(I_1)Bonding				−0.046 (0.033)

Table 3 continued

	Model A	Model B	Model C	Model D
(I_1)NBonding				−0.091**
				(0.037)
(I_2)Bonding				0.151***
				(0.038)
(I_2)NBonding				0.073*
				(0.043)
(I_1)Bridging				0.012
				(0.008)
(I_2)Bridging				0.027**
				(0.013)
p value for H_0: $|\lambda_1| < |\lambda_2|$	0.003	0.006	0.005	
p value for H_0: $\beta_7 = \beta_9$				0.075
p value for H_0: $\beta_8 = \beta_{10}$				0.021
Resources variables	Yes	Yes	Yes	Yes
Socio-economic variables	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N. observations	17,670	17,670	17,670	17,670

Appendix 2

See Table 4.

Table 4 Life satisfaction and social interaction by different reference groups

	Age and education	City and labor status	City and age
(I_1)Bonding	0.002	−0.086*	−0.084**
	(0.042)	(0.047)	(0.045)
(I_1)NBonding	−0.044	−0.133***	−0.133***
	(0.046)	(0.051)	(0.049)
(I_2)Bonding	0.081*	0.176***	0.199***
	(0.046)	(0.051)	(0.050)
(I_2)NBonding	−0.009	0.081	0.115**
	(0.049)	(0.052)	(0.053)
(I_1)Bridging	0.012	0.006	0.012
	(0.009)	(0.008)	(0.009)
(I_2)Bridging	0.030**	0.017	0.033**
	(0.012)	(0.013)	(0.013)
p value for H_0: $\beta_7 = \beta_9$	0.068	0.053	0.057
p value for H_0: $\beta_8 = \beta_{10}$	0.006	0.002	0.013
Resources variables	Yes	Yes	Yes
Socio-economic variables	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
N. observations	17,670	17,670	17,670

References

Acemoglu, D., & Robinson, J. (2012). *Why nations fail? The origins of power, prosperity and poverty*. New York: Crown Publishers.

Alpizar, F., Carlsson, F., & Johansson-Stenman, O. (2005). How much do we care about absolute versus relative income and consumption? *Journal of Economic Behavior and Organization, 56*(3), 405–421.

Bartolini, S., Bilancini, E. & Pugno, M. (2008). Are the American declines in social capital and happiness connected? Università degli Sdudi di Modena e Reggio Emilia.

Bartolini, S., Bilancini, E., & Pugno, M. (2011). Did the decline in social connections depress Americans' happiness? *Social Indicator Research,*. doi:10.1007/s11205-011-9971-x.

Beaudoin, C. E. (2009). Bonding and bridging neighborliness: An individual-level study in the context of health. *Social Science and Medicine, 68*, 2129–2136.

Bechetti, L., Pelloni, A., & Rossetti, F. (2008). Relational goods, sociability, and happiness. *Kyklos, 61*(3), 343–363.

Beugelsdijk, S., & Smulders, S. (2003). Bridging and bonding social capital: Which type is good for economic growth? In W. Arts, J. Hagenaars, & L. Halman (Eds.), *The cultural diversity of European unity* (pp. 275–310). Brill: Leiden.

Blanchflower, D., & Oswald, A. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics, 87*(7–8), 1359–1386.

Blanchflower, D. G., & Oswald, A. J. (2011). International happiness: An introduction and review. *Academy of Management Perspectives, 25*, 6–22.

Blume, L., Brock, W., Durlauf, S., & Ioannides, Y. (2011). Identification of social interactions. In J. Benhabib, A. Bisin, & M. Jackson (Eds.), *Handbook of social economics* (Vol. 1B, pp. 853–964). Amsterdam: Elsevier.

Blume, L., & Durlauf, S. (2005). Identifying social interactions: A review. In J. Oakes & J. Kaufman (Eds.), *Methods in social epidemiology*. San Francisco: Jossey-Bass.

Bookwalter, J., & Dalenberg, D. (2010). Relative to what or whom? The importance of norms and relative standing to well-being in South Africa. *World Development, 38*(3), 345–355.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*. New York: Greenwood Press.

Bruni, L., & Stanca, L. (2008). Watching alone: Relational goods, television and happiness. *Journal of Economic Behavior and Organization, 65*(3), 506–528.

Brunie, A. (2009). Meaningful distinctions within a concept: Relational, collective, and generalized social capital. *Social Science Research, 83*, 251–265.

Burt, R. S. (1992). *Structural holes*. Cambridge, MA: Harvard University Press.

Burt, R. S. (1995). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.

Burt, R. S. (2005). *Brokerage and closure: An introduction to social capital*. New York: Oxford University Press.

Buunk, B., Vanyperen, N., Taylor, S., & Collins, R. (1991). Social comparison and the drive upward revisited: affiliation as a response to marital stress. *European Journal of Social Psychology, 21*, 529–546.

Bygren, M. (2004). Pay reference standards and pay satisfaction: What do workers evaluate their pay against? *Social Science Research, 33*, 206–224.

Caporale, G., Georgellis, Y., Tsitsianis, N., & Ping Yin, Y. (2009). Income and happiness across Europe: Do reference values matter? *Journal of Economic Psychology, 30*(1), 42–51.

Clark, A., Frijters, P., & Shields, M. (2008). A survey of the income happiness gradient. *Journal of Economic Literature, 46*(1), 95–144.

Clark, A., Kristensen, N., & Westergard-Nielsen, N. (2009). Job satisfaction and co-worker wages: Status or signal? *The Economic Journal, 119*(536), 430–447.

Clark, A., & Oswald, A. (1996). Satisfaction and comparison income. *Journal of Public Economics, 61*(3), 359–381.

Clark, A., & Senik, C. (2010). Who compares to whom: The anatomy of income comparisons in Europe. *The Economic Journal, 120*(544), 573–594.

Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*(1), S95–S120.

Córdova, A. (2009). Methodological note: Measuring relative wealth using household asset indicators. Latin American Public Opinion Project. *Americas Barometer Insights, 6*, 1–9.

Cortes, A., & Moro-Egido, A. I. (2011). *Relative concerns and subjective well-being: Testing relative income hypotheses*. Mimeo: University of Granada.

Cramm, J. M., Møller, V., & Nieboer, A. P. (2012). Individual- and neighbourhood-level indicators of subjective well-being in a small and poor Eastern Cape township: The effect of health, social capital, marital status, and income. *Social Indicators Research, 105*, 581–593.

Deneulin, S., & Townsend, N. (2007). Public goods, global public goods and the common good. *International Journal of Social Economics, 34*(1–2), 19–36.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575.

Diener, E. (2000). Subjective well-being: The science of happiness, and a proposal for a national index. *American Psychologist, 55*, 34–43.

Diener, E. (2006). Guidelines for national indicators of subjective well-being and ill-being. *Applied Research in Quality of Life, 1*, 151–157.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Review, 125*, 276–302.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., & Oishi, S. (2009). New measures of wellbeing: Flourishing and positive and negative feelings. *Social Indicators Research, 39*, 247–266.

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology, 29*, 94–122.

Durayappah, A. (2011). The 3P Model: A general theory of subjective well-being. *Journal of Happiness Studies, 12*, 681–716.

Durlauf, S. N. (2006). Groups, social influences and inequality. In S. Bowles, S. N. Durlauf, & K. Hoff (Eds.), *Poverty traps* (pp. 141–175). New York: Rusell Sage Foundation.

Durlauf, S. N. & Fafchamps, M. (2004). Social capital, NBER Working Paper Series, Working Paper 10485.

Easterlin, R. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization, 27*(1), 35–47.

Easterlin, R. (2003). Explaining happiness. *Proceedings of the National Academic of Sciences, 100*(19), 11176–11183.

Economic Commission for Latin America and the Caribbean—ECLAC. (2003). *Social capital and poverty reduction in Latin America and the Caribbean: Toward a new paradigm*. Santiago de Chile: ECLAC.

Elgar, F. J., Davis, C. G., Wohl, M. J., Trites, S. J., Zelenski, J. M., & Martin, M. S. (2011). Social capital, health and life satisfaction in 50 countries. *Health and Place, 17*, 1044–1053.

Farrell, S., Aubry, T., & Coulombe, D. (2004). Neighborhoods and neighbors. Do they contribute to personal well-being? *Journal of Community Psychology, 32*, 9–25.

Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics, 89*(5–6), 997–1019.

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal, 114*(497), 641–659.

Festinger, L. (1954). A theory of social comparison process. *Human Relations, 7*, 117–140.

Filmer, D., & Pritchett, L. (2001). Estimating wealth effects without expenditure data-or tears: An application to educational enrollments in States of India. *Demography, 38*(1), 115–132.

Fiorullo, D., & Sabatini, F. (2011). Quality and quantity: The role of social interactions in self-reported individual health. *Social Science and Medicine,*. doi:10.1016/j.socscimed.2011.09.007.

Frank, R. (1985). *Choosing the right pond: Human behavior and the quest for status*. Oxford: Oxford University Press.

Frey, B. S., & Stutzer, A. (2002). What can economists learn from happiness research? *Journal of Economic Literature, 40*(2), 402–435.

Graham, C. & Felton, A. (2005). Does inequality matter to individual welfare? An initial exploration based on happiness surveys from Latin America. CSED Working Paper No. 38. Washington, DC: The Brookings Institution.

Graham, C., & Felton, A. (2006). Inequality and happiness: Insights from Latin America. *Journal of Economic Inequality, 4*(1), 107–122.

Graham, C., & Pettinato, S. (2001). Happiness, markets, and democracy: Latin America in comparative perspective. *Journal of Happiness Studies, 2*(3), 237–268.

Gui, B., & Sugden, R. (2005). Why interpersonal relations matter for economics. In B. Gui & R. Sugden (Eds.), *Economics and social interaction accounting for interpersonal relations* (pp. 1–22). Cambridge, MA: Cambridge University Press.

Han, S., Kim, H., Lee, E.-S., & Lee, H.-S. (2012). The contextual and compositional associations of social capital and subjective happiness: A multilevel analysis from Seoul, South Korea. *Journal of Happiness Studies,*. doi:10.1007/s10902-012-9375-x.

Harper, R. (2002). *The measurement of social capital in the United Kingdom*. Retrieved November 18, 2010, from http://www.oecd.org/dataoecd/22/52/2382339.pdf.

Harpham, T., Grant, E., & Rodriguez, C. (2004). Mental health and social capital in Cali, Colombia. *Social Science and Medicine, 58*, 2267–2277.

Harpham, T., Grant, E., & Thomas, E. (2002). Measuring social capital within health surveys: Key issues. *Health Policy and Planning, 17*(1), 106–111.

Headey, B., & Wooden, M. (2004). The effects of wealth and income on subjective well-being and ill-being. *The Economic Record, 80*, 524–533.

Helliwell, J. (2001). Social capital, the economy and well-being. In K. Banting, A. Sharpe, & F. St-Hilaire (Eds.) *The review of economic performance and social progress*. Institute for Research on Public Policy and Centre for the Study of Living Standards.

Helliwell, J. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling, 20*(2), 331–360.

Helliwell, J. (2006). Well-being, social capital and public policy: What's new? *The Economic Journal, 116*(510), C34–C45.

Helliwell, J., & Huang, H. (2005). How's the job? Well-being and social capital in the workplace. NBER Working Paper No. 11759.

Helliwell, J., & Putnam, R. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society, 359*(1449), 1435–1446.

Hirschman, A., & Rothschild, M. (1973). The changing tolerance for income inequality in the course of economic development. *The Quarterly Journal of Economics, 87*(4), 544–566.

Hopkins, E. (2008). Inequality, happiness and relative concerns: What actually is their relationship? *The Journal of Economic Inequality, 6*(4), 351–372.

Inglehart, R. (1999). Trust, well-being, and democracy. In M. Warren (Ed.), *Democracy and trust*. Cambridge: Cambridge University Press.

Kawachi, I., Kim, D., Coutts, A., & Subramanian, S. V. (2004). Commentary: Reconciling the three accounts of social capital. *The three accounts of social capital International Journal of Epidemiology, 33*, 682–690.

Kaztman, P. (2003). *Capital Social y Sociedad Civil en América Latina. BID seminar on La Agenda Ética Pendiente en América Latina*. Montevideo: Universidad de la República.

Kingdon, G., & Knight, J. (2006). Subjective well-being poverty vs. income poverty and capabilities poverty? *The Journal of Development Studies, 42*(7), 1199–1224.

Kingdon, G., & Knight, J. (2007). Community, comparisons and subjective well-being in a divided society. *Journal of Economic Behavior and Organization, 64*(1), 69–90.

Klein, C. (2012). Social capital or social cohesion: What matters for subjective well-being? *Social Indicators Research,*. doi:10.1007/s11205-011-9963-x.

Latinobarómetro Corporation. (2007a) Codebook 2007.

Latinobarómetro Corporation. (2007b) Latinobarómetro 2007 Data File.

Latinobarómetro Corporation. (2009) Methodological Report Latinobarómetro 2007.

Lelkes, O. (2006a). Knowing what is good for you: Empirical analysis of personal preferences and the objective good. *The Journal of Socio-Economics, 35*, 285–307.

Lelkes, O. (2006b). Tasting freedom: Happiness, religion and economic transition. *Journal of Economic Behavior and Organization, 59*, 173–194.

Leung, A., Kier, C., Fung, T., Fung, L., & Sproule, R. (2011). Searching for happiness: The importance of social capital. *Journal of Happiness Studies, 12*, 443–462.

Lin, N. (2001). *Social capital*. Cambridge: Cambridge University Press.

Lora, E. (2008). *Beyond facts: understanding quality of life. Development in the Americas report*. Washington, DC: Inter-American Development Bank.

Luttmer, E. (2005). Neighbors as negatives: Relative earnings and well-being. *The Quarterly Journal of Economics, 120*(3), 963–1002.

Marshall, M., & Stolle, D. (2004). Race and the city: Neighborhood context and the development of generalized trust. *Political Behavior, 26*(2), 125–153.

McBride, M. (2001). Relative-income effects on subjective well-being in the cross-section. *Journal of Economic Behavior and Organization, 45*(3), 251–278.

Meier, S., & Stutzer, A. (2008). Is volunteering rewarding in itself? *Economica, 75*(297), 39–59.

Michalos, A. C. (1985). Multiple discrepancies theory (MDT). *Social Indicators Research, 16*, 347–413.

Molyneux, M. (2002). Gender and the silences of social capital: Lessons from Latin America. *Development and Change, 33*(2), 167–188.

Mora, J., & Moro-Egido, A. I. (2008). On specification testing ordered discrete choice models. *Journal of Econometrics, 143*(1), 191–205.

Norton, E., Wang, H., & Ai, C. (2004). Computing interaction effects and standard errors in logit and probit models. *The Stata Journal, 4*(2), 154–167.

Pereira, M. C., & Coelho F. (2012). Untangling the Relationship between income and subjective well-being: The role of perceived income adequacy and borrowing constraints. *Journal of Happiness Studies.* doi: 10.1007/s10902-012-9365-z.

Pong, S., Hao, L., & Gardner, E. (2005). The roles of parenting styles and social capital in the school performance of immigrant Asian and Hispanic adolescents. *Social Science Quarterly, 86*(4), 928–950.

Portes, A. (1998). Social capital: its origins and applications in contemporary sociology. *Annual Review of Sociology, 24*, 1–24.

Portes, A., & Landolt, P. (2000). Social capital: Promise and pitfalls of its role in development. *Journal of Latin America Studies, 32*, 529–547.

Powdthavee, N. (2008). Putting a price tag on friends, relatives and neighbors: Using surveys of life satisfaction to value social relationships. *Journal of Socio-Economics, 37*(4), 1459–1480.

Powdthavee, N. (2009). How important is rank to individual perception of economic standing? A within-community analysis. *Journal of Economic Inequality, 7*(3), 225–248.

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.

Putnam, R., & Goss, K. (2002). Introduction. In R. Putnam (Ed.), *Democracies in flux. The evolution of social capital in contemporary society*. Oxford: Oxford University Press.

Rojas, M. (2006). Life satisfaction and satisfaction in domains of life: Is it a simple relationship? *Journal of Happiness Studies, 7*(4), 467–497.

Sabatini, F. (2008). Social capital and the quality of economic development. *Kyklos, 61*(3), 466–499.

Sabatini, F. (2009). Social capital as social networks: A new framework for measurement and an empirical analysis of its determinants and consequences. *The Journal of Socio-Economics, 38*, 429–442.

Sacks, D. W., Stevenson, B., & Wolfers, J. (2010). Subjective well-being, income, economic development and growth. NBER Working Paper Series, Working Paper 16441.

Sarracino, F. (2010). Social capital and subjective well-being trends: Comparing 11 western European countries. *The Journal of Socio-Economics, 39*, 482–517.

Schachter, S. (1959). *The psychology of affiliation*. Stanford, CA: Stanford University Press.

Schimmack, U. (2008). Measuring wellbeing in the SOEP. SOEP papers on Multidisciplinary Panel Data Research, Berlin, Paper 145.

Selezneva, E. (2011). Surveying transitional experience and subjective well-being: Income, work, family. *Economic Systems, 35*, 139–157.

Senik, C. (2004). When information dominates comparison: Learning from Russian subjective panel data. *Journal of Public Economics, 88*(9–10), 2099–2133.

Senik, C. (2008). Ambition and jealousy: Income interactions in the "Old Europe" versus the "New Europe" and the United States. *Economica, 75*(299), 495–513.

Senik, C. (2009). Direct evidence on income comparisons in their welfare effects. *Journal of Economic Behavior and Organization, 72*(1), 408–424.

Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behavior and Organization, 54*(1), 89–109.

Stutzer, A., & Frey, B. S. (2010). Recent advances in the economics of individual subjective well-being. *Social Research, 77*(2), 679–714.

Svendsen, T. G., & Svendsen, G. H. L. (2009). *Handbook of social capital: The Troika of sociology, political science and economics*. Cheltenham: Edward Elgar Publishing Limited.

Tao, H., & Chiu, S. (2009). The effects of relative income and absolute income on happiness. *Review of Development Economics, 13*(1), 164–174.

Taylor, S., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review, 96*(4), 569–575.

Tokuda, Y., Fujii, S., & Inoguchi, T. (2010). Individual and country-level effects of social trust on happiness: The Asia barometer survey. *Journal of Applied Social Psychology, 40*, 2574–2593.

van Praag, B., & Ferrer-i-Carbonell, A. (2004). *Happiness quantified: A satisfaction calculus approach*. Oxford: Oxford University Press.

van Praag, B., & Ferrer-i-Carbonell, A. (2010). Happiness economics: A new road to measuring and comparing happiness. *Foundation and Trends in Microeconomics, 6*(1), 1–97.

Vera-Toscano, E., Ateca-Amestoy, V., & Serrano-Del-Rosal, R. (2006). Building financial satisfaction. *Social Indicators Research, 77*(2), 211–243.

Wolpert, D. (2010). Why income comparison is rational. *Games and Economic Behavior, 69*(2), 458–474.

Woolcock, M., & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. *World Bank Research Observer, 15*(2), 225–249.

Yngwe, M. Å., Fritzell, J., Lundberg, O., Diderichsen, F., & Burström, B. (2003). Exploring relative deprivation: Is social comparison a mechanism in the relation between income and health? *Social Science and Medicine, 57*, 1463–1473.

Zuzanek, J. (2012). Does being well-off make us happier? Problems of Measurement. *Journal of Happiness Studies,*. doi:10.1007/s10902-012-9356-0.