

# Watching alone: Relational Goods, Television and Happiness

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## Abstract

This paper discusses the role of relational goods and television viewing for individual happiness. Using individual data from the World Values Survey, we find evidence of a positive effect of relationality on life satisfaction, and a negative effect of television viewing on relational activities. Both relationships are strongly significant and robust to the use of alternative indicators of relationality. The results are also robust to estimation by instrumental variables to deal with possible simultaneity. We interpret these findings as an indication that the pervasive and increasing role of television viewing in contemporary society, through its crowding out effect on relational activities, contributes to the explanation of the income-happiness paradox.

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“Today, the thing hundreds of millions of humans most have in common with one another, aside from their humanity, is television. [...] On any evening of the year [...] through the windows of home after home comes the same distorted bluish flickering rectangle of television.”

(Kubey and Csikszentmihalyi, 1990, p. 24)

## 1 Introduction

Happiness is back to economics. After a long absence, the theoretical debate about the relationship between economics and happiness is currently growing steadily.<sup>1</sup> In the early seventies Richard Easterlin, influenced by developments in psychology (Brickman and Campbell, 1971), opened up the debate about the income-happiness paradox, also referred to as the “Easterlin paradox”: in thirty surveys over 25 years (from 1946 to 1970 in the United States) per capita real income rose by more than 60%, but the proportion of people who rated themselves as “very happy”, “fairly happy” or “not too happy” remained almost unchanged.<sup>2</sup>

Among the many explanations that have been offered for the Easterlin paradox, perhaps the most popular among economists are based on the relative (or positional) consumption hypothesis, introduced by Duesenberry (1949).<sup>3</sup> The basic idea is that people compare themselves to some reference group when making consumption decisions, so that individual utility depends not only on the *absolute* level but also on the *relative* level of consumption (see e.g. Frank, 2005, Layard, 2005). As a consequence, if everyone becomes richer and enjoys higher consumption levels, nothing changes in relative terms and individual happiness is unaffected.

It is important to observe that the positional theories commonly used to explain the income-happiness paradox rely on a particular idea of sociality: these theories are “social” (in the Robinson’s island positional competition

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<sup>1</sup>The first season of happiness’ studies in Political Economy was the reflections on “public happiness” by the 17th century economists, mainly Italian, such as Genovesi and Verri (see Bruni, 2004).

<sup>2</sup>Easterlin also found that within a single country, at a given moment in time, the correlation between income and happiness *exists and is robust*: “In every single survey, those in the highest status group were happier, on the average, than those in lowest status group” (Easterlin 1974, p. 100). Across countries, instead, the positive association wealth-happiness, although present, *is neither general nor robust* and poorer countries do not always appear to be less happy than richer countries. In other words: “if there is a positive association among countries between income and happiness it is not very clear”.

<sup>3</sup>Duesenberry argued that a person draws utility, or satisfaction, from his own level of consumption in relation or in comparison to the level of other people’s consumption (1949, p. 32).

cannot exist), but the kind of sociality taken into account has no reference to the *relational nature* of happiness. In the mainstream studies on happiness in economics, in fact, sociality is not considered an essential direct ingredient for a good life.<sup>4</sup> These theories do not deal with the *direct* relationship between sociality intended as relationality and individual well-being, so that the economic explanations of the Easterlin paradox do not consider sociality as a source of happiness *per se*.<sup>5</sup>

The existing literature, mainly outside the economic field, recognizes both theoretically and empirically relationality as an important determinant of life satisfaction. In psychology there is extensive evidence about the link between sociality and happiness. Bradburn (1969), one of the classic works on well-being, finds that social relationships are one of the strongest correlates of positive emotions. Baumeister and Leary (1995) review the evidence showing that people seem to have a fundamental need for close social relationships. A recent study by Kahneman et al. (2004) finds that in only 1 of 15 activities of daily living (i.e., praying) was affect balance (positive minus negative emotions) greater when people were alone rather than with others. People enjoyed the other 14 activities (such as exercising, resting, commuting, and working around the house) more when others were present than when they were alone.<sup>6</sup>

More generally, psychological studies offer extensive evidence on the importance of relationality on happiness and life satisfaction.<sup>7</sup> Within psychology there has been increasing appreciation of the fundamental importance of supportive interpersonal relationships for well-being and happiness. This dimension is so important that some theorists have defined “relatedness” as a basic human need that is *essential* for well-being (Baumeister and Leary, 1995, Deci and Ryan, 1991). In particular, within the “eudaimonic” approach, many authors see a *universal* association between the quality of

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<sup>4</sup>The main explanations of the paradox of happiness take into consideration sociality mainly as a public good problem. A rise in aspirations or positional competition generates negative externalities in consumption, thus implying the policy implications suggested by Layard (2005) and Frank (2005), such as Pigouvian taxes for conspicuous consumption.

<sup>5</sup>In this regard it is interesting to observe that Neumark and Postlewaite (1998) show that if a woman’s husband earns less than her sister’s husband, the first woman is more likely to go out to work, in order to keep up with the living standards of her sister. Interesting result, but something different from considering family relations as a direct source of happiness.

<sup>6</sup>This experiment, carried out by using the Day Reconstruction Method (DRM), is interesting also because it allows to deal explicitly with the problem of the direction of causality.

<sup>7</sup>“When we examined the characteristics of the relatively happiest persons, we found without exception that they reported strongly positive social relationships” (Diener and Seligman, 2002).

relationships and well-being.<sup>8</sup>

Research on intimacy also highlights the importance of relatedness for well-being and underscores that it is the quality of relatedness which determines well-being.<sup>9</sup> Whereas Deci and Ryan’s approach treats relationships as a *source* of well-being, Ryff and Singer (2000) treat it as a defining element of Personal Well Being (PWB), viewing positive relations with others as an essential element in human flourishing.<sup>10</sup>

Within economics, on the other hand, theory started only recently to acknowledge that the quality of interpersonal relationships influences economic performance, welfare and happiness (Gui and Sugden, 2005). The discovery of interpersonal relationships can indeed be considered one of the theoretical innovations in the field in recent years. However, in the economic literature there is little evidence on the determinants of interpersonal relationships and their effect on happiness.<sup>11</sup>

What economics may need, in our view, is an analysis of the links between genuine (or non-instrumental) social interaction and subjective well-being. This paper moves along this direction of research. After discussing the concept of “relational goods” and their role for individual happiness, we formulate and investigate empirically two main propositions. First, relational goods have an important independent effect on life satisfaction, controlling for individual demographic and socio-economic factors, personality characteristics and environmental and societal differences. Second, television, the most important form of entertainment and agent of socialization in contemporary society, has a significant crowding-out effect on relational activities, thus playing a key role in explaining why individuals underinvest in relationality.

Using individual data from the World Values Survey, we find a positive relationship between indicators of relationality and life satisfaction, and a negative relationship between television viewing and indicators of relationality. Both empirical relationships are strongly significant and robust to the use of a number of alternative indicators of relationality. These results are

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<sup>8</sup>“Evidence supporting the link of relatedness to SWB is manifold. Studies suggest that, of all factors that influence happiness, relatedness is at or very near the top of the list. Furthermore, loneliness is consistently negatively related to positive affect and life satisfaction” (Deci and Ryan, 2001, p. 154). A similar thesis is endorsed by Argyle (1987) and Myers (1999).

<sup>9</sup>For example, Nezlek (2000) reviews a number of studies showing that, whereas the quantity of interactions does not predict well-being, the quality of relatedness does. Carstensen (1995) and Kasser and Ryan (1999) point to the same conclusion.

<sup>10</sup>Ryff and Singer (2000) illustrate theoretically and empirically the links between interpersonal relationships, physiological functioning and happiness.

<sup>11</sup>Meier and Stutzer (2004) represents an exception. Using the German Socio-Economic Panel (GSOEP) for the period between 1985 and 1999, this study finds robust evidence that volunteers are more satisfied with their life than non-volunteers.

also robust to the use of instrumental variables to deal with possible simultaneity. We interpret these findings as an indication that the pervasive and increasing role of television viewing in individuals' life, through its crowding out effect on relational activities, can contribute to the explanation of the income-happiness paradox.

The paper is structured as follows. Section 2 discusses the definition of relational goods and their role in the debate on happiness and economics. Section 3 illustrates the effects, both direct and indirect, of television viewing on relationality. Section 4 discusses the methodology and the data set used for the empirical analysis, whose results are presented in section 5. Section 6 concludes with a discussion of the implications of the analysis.

## 2 Relational goods

The concept of relational goods is emerging in economics as a new theoretical tool for the analysis of interpersonal relationships (Gui, 1987, Uhlaner, 1989). Uhlaner defined relational goods as goods that “can only be ‘possessed’ by mutual agreement that they exist, after appropriate joint actions have been taken by a person and non-arbitrary others” (1989, p. 254). Relational goods are, therefore, goods which cannot be produced, consumed, or acquired by a single individual, because they depend on the interaction with others and are enjoyed only if shared with others. They share some characteristics of *local public goods* (Corneo, 2005), because their essential feature is that they require *reciprocity* and cannot be pursued independently from the subjective situation and the preferences of the persons involved. Relational goods can be considered a third category of goods, neither private nor public. In fact, public goods require non-rivalry, while relational goods require something more than mere non-rivalry.<sup>12</sup> According to Uhlaner, “goods which arise in exchanges where anyone could anonymously supply one or both sides of the bargain are not relational” (1989, p. 255).

Given its recent appearance, the concept of relational goods still lacks a shared definition among the few economists who use it in their models. Gui (2002) proposes to analyze every form of interaction as a particular productive process that he calls *encounter*. A relational good (in Gui's sense) is different from a good, or a service, in which the quality of the relationship established between the contracting parties is an important characteristic. The essential difference between these two meanings of the adjective “relational” lies in the fact that in the case of the relational good the *relationship*

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<sup>12</sup>Two persons watching a picture simultaneously are consuming a public good, because each act of consumption is independent. The two persons do not need to enter into a relationship, which is exactly what constitutes the value of the relational good.

*in itself constitutes the economic good.*

Gui suggests that besides the traditional inputs and outputs that have been considered by economic theory, an encounter “between vendor and potential buyer, between doctor and patient, between two colleagues, and even between two clients of the same store”, produces intangible outputs of a *relational* (affective and communicative) *nature* (Gui 2002, p. 27). These intangible outputs can be either the changes in the human capital of the interacting subjects, which may be enjoyed individually, or else they can be *relational goods*, i.e. goods of a *relational nature*, because they are co-produced in order to be co-consumed by the agents.<sup>13</sup> A relational good can be either an *asset*, like a friendship or the mutual confidence in a team work, or else a one-shot consumer good like those associated with the “well-being” (or “bad-being”) produced by a chat with a stranger on a commuter train.<sup>14</sup>

The relationship itself constitutes the “good” in friendships, family relations, and love. It is not easy to be friend or relative to a computer and it is impossible to be friends with someone *unilaterally*. For relational goods, the dimension of reciprocity is, therefore, foundational. What’s more, the *identity* of the other person is essential for the value and sometimes the existence itself of the relational good.<sup>15</sup>

To sum up, while in psychology the use of the expression “interpersonal relationships” is much broader, economics uses it in a narrower sense. The key-characteristics of the interpersonal relationships that can be described as relational goods are: (i) *genuine* (not instrumental), (ii) *personalised* (identity matters), (iii) *motivation-dependent* (the reason behind an encounter is essential for the value and the existence of a relational good).

In the empirical analysis presented below, we use as proxies of relational goods the indicators that most closely embody the three features described above. We investigate both the effects of relationality on life satisfaction and the determinants of consumption of relational goods, focusing in particular

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<sup>13</sup>Recently Nelson (2005) criticises the use of the metaphor of “production” for describing human relations.

<sup>14</sup>These are local public goods (there is no rivalry in consumption among the agents involved), although the contribution to the good may be asymmetrical (all enjoy the relational climate of a birthday party, for example, while few have done the work, have contributed, to organize it). Defining relational goods as “public” goods can create some problems if we remain within the standard theory of public goods because of the typical problems of *free riding*. For a discussion on this point see Gui (2002, p. 45).

<sup>15</sup>A typical relational good identified by Borchering and Filson (2002) is the “companionship” derived from eating lunch with one’s colleagues instead of eating alone. The relational good is the output of the “company” (the encounter), co-produced by the colleagues, and *not* the complex good “meal in company” or commensality (in the words of Hirschman, 1996): commensality is the “encounter”, according to Gui’s theory, and the relational good (or bad) is the affective-communicative element of that encounter. This, however, is often the most important element in a meal in company.

on the link between television viewing and relationality. This relationship is illustrated in the following section.

### 3 Television and relational goods

Watching television is the most important leisure activity worldwide. According to recent survey data (IP, 2004), the average daily television viewing time for adults is 217 minutes in Western Europe, 228 minutes in Eastern Europe, and 290 minutes in the United States. These figures imply that, by the age of 75 an average European has spent about 12 full years watching television out of approximately 50 waking years, assuming an average of 8 hours of sleep per day. Not only viewing time levels are very high, but also the number of hours spent watching television continues to grow steadily. Between 1995 and 2003 in Western Europe the average daily viewing time for adults has risen from 196 to 217 minutes.<sup>16</sup>

Given the prominent and increasing role played by television in people's life, its influence on individual well-being cannot be neglected. Most of the extensive literature on the effects of television focuses on the sociological and psychological dimensions: the impact of television content on social perceptions, attitudes and beliefs, or the effects of television viewing on individuals' mental processes and health outcomes. Economists have focused on the impact of television advertising on consumer behaviour, but otherwise have largely ignored the effects of television on economic behaviour and outcomes.<sup>17</sup> Quite surprisingly, to our knowledge, there have been hardly any studies examining the effects of television on individual happiness from an economic perspective. The recent paper by Frey et al. (2005) represents a major exception. High levels of television consumption are found to be negatively related to individual life satisfaction, and are interpreted as the result of imperfect self-control and mispredicted utility.

We argue that television viewing has a negative impact on life satisfaction by harming, and to some extent replacing, relationships with other people.<sup>18</sup> Because of its specific characteristics, television plays an important role in crowding out relational activities both directly and indirectly.

First, consider the direct effect. The time spent watching television is generally subtracted from communicating with family and friends, partici-

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<sup>16</sup>The average daily viewing time for adults increased from 208 to 228 minutes between 2000 and 2003 in Eastern Europe, and from 283 to 290 minutes between 2001 and 2003 in the United States (IP, 2004).

<sup>17</sup>The work of Corneo (2005) on the relationship between television viewing and working time represents a major exception.

<sup>18</sup>Bruni and Stanca (2005) analyze the impact of television viewing on material aspirations and, as a consequence, on the effect of income on life satisfaction.

pating to community-life, interacting socially, that is relational activities that contribute significantly to our life satisfaction. There is extensive evidence that television viewing has a profound impact on relationships within the family (see e.g. Kubey and Csikszentmihalyi, 1990), leading in particular to less communication and interaction.<sup>19</sup> Television viewing has also been shown to decrease the amount of time spent with friends (e.g. Robinson, 1977). “People no longer sit around and visit. Everywhere you go you have to outtalk TV. TV people have entered your home and life more than people who should be friends and companions” (Steiner, 1983, in Kubey and Csikszentmihalyi, 1990, p. 108).

Second, the indirect effect. Television is one of the main agents of socialization and, through advertising and program contents, plays a key role in defining what our goals should be. In particular, television is a key factor in producing the belief that happiness depends on material consumption and in raising our material aspirations. When watching television, people are overwhelmed by images of more and better products than what they have, and people richer and wealthier than they are. Both factors contribute significantly to raise material aspirations. Television thus leads individuals to underestimate the relative importance of relational goods for their life satisfaction and, as a consequence, to overinvest in income-producing activities and underinvest in relational activities.

A natural question then follows: If television viewing is so damaging to relational activities and, as a consequence, to individual happiness, why do people choose to watch so much TV? In our view, part of the answer lies in the fact that relational activities are constrained by immediate costs in terms of time and effort, the necessity of other people to participate, and the need to engage intensively for long periods. In contrast, television has a number of features that make it an easily accessible alternative. First, the mentally undemanding and physically passive nature of television viewing contributes to making it a very attractive relaxing activity. Second, television is extremely inexpensive and available at any time of the day. Third, television tends to produce a viewing habit and, in many cases, can become highly addictive (see e.g. Winn, 1977).<sup>20</sup>

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<sup>19</sup>“Television seems to have changed the ways in which family interaction occurs. When the set is on, there is less conversation and less interaction. [...] There is more privatization of experience; the family may gather around the set, but they remain isolated in their attention to it”. [...] “When the TV set is on, it freezes everybody. Everything that used to go on between people – the games, the arguments, the emotional scenes, out of which personality and ability develop – is stopped.” (Kubey and Csikszentmihalyi, 1990, p. 108).

<sup>20</sup>Frey and Stutzer (2004) argue that individuals underestimate the utility of personal interactions. See Frey et al. (2005) for a detailed discussion of the determinants of television viewing.

But the most important reason for the crowding out effect on relational goods lies in television’s own nature: television provides, at virtually no costs and without any effort, not only a relaxing and convenient entertainment, but also a virtual network of relationships and interactions that, despite being completely artificial and illusory, tend to become *a substitute for actual social relationships*. People tend to watch talk-shows and reality-shows as if these were part of their own social life, talk about TV people as if they had an actual relationship with them. In short, television provides inexpensive and effortless artificial relationality that, despite lacking any relational content, is commonly and increasingly used as a substitute for actual inter-personal relationships.

## 4 Data and methodology

Based on the discussion in the previous sections, we investigate two main propositions on individual data, controlling for relevant demographic, socio-economic, environmental and individual characteristics: (a) relational goods have a positive independent effect on individuals’ life satisfaction, and (b) television viewing has a negative effect on relational activities. This section briefly presents the data set and the methodology used for the empirical analysis.

We use individual data from the World Values Survey (WVS), a compilation of surveys conducted in more than 80 countries representing about 85 per cent of the world’s population (see Inglehart et al., 2000).<sup>21</sup> Four WVS waves are currently available (1980-82, 1990-91, 1995-97 and 1999-2001), for a total of 264,778 observations. The sample size in our analysis is smaller, however, due to the limited availability of individual variables. In particular, only the fourth wave contains information about relational time, and information on voluntary activities is not available in the first wave. Information on television consumption is only available for the third and fourth waves. Summary statistics for all the variables used in the analysis are reported in table 1.

In order to study the first proposition, we assume that individual happiness (*HAP*) depends on demographic factors (*DEMO*), socio-economic conditions (*SEC*), personality traits (*PERS*), environmental characteristics (*ENV*), and relational goods (*REL*):

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<sup>21</sup>The VWS provide information on individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction. Within each country, samples are selected randomly “from all administrative regional units after stratification by region and degree of urbanization” (Inglehart et al, 2000, p. 7).

$$HAP_i = f(DEMO_i, SEC_i, PERS_i, ENV_i, REL_i) \quad (1)$$

Happiness is measured by life satisfaction, based on the question: “All things considered, how satisfied are you with your life as a whole these days?”<sup>22</sup> The set of regressors includes individuals’ demographic characteristics (age and gender) socio-economic conditions (income, health, freedom, education, employment status),<sup>23</sup> family characteristics (marital status),<sup>24</sup> personality traits and beliefs (trust, honesty, importance of religion).<sup>25</sup>

Relational activities are measured by two sets of indicators. The first set refers to volunteering activities. In particular, we rely on information on both membership and active involvement in the following voluntary activities: (a) church-religious, (b) sport-recreation, (c) art-music-educational, (d) labor union, (e) political party, (f) environmental, (g) professional, (h) charity.<sup>26</sup> It is important to observe that the information available in the WVS allows to identify the net effect of the relational component of voluntary activities (actual involvement, as opposed to simple membership), and also to assess and compare the role played by individual voluntary activities (these two dimensions are not available in the panel data set used by Meier and Stutzer (2004) for their study of the effect of volunteering on life satisfaction). Figure 1 shows the frequency of either membership (panel a) or active participation (panel b) to individual voluntary organizations. Figure 2 displays the relation between active participation to voluntary organizations and life satisfaction.

The second set of indicators refers to “relational time”, i.e. time spent with (a) parents or other relatives, (b) friends, (c) colleagues from work or

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<sup>22</sup>The original answers on a scale 1 (dissatisfied) to 10 (satisfied) were multiplied by 10 in order to ease interpretation of regression results. See e.g. Frey and Stutzer (2002) for a discussion of the use of reported subjective well-being as an empirical approximation of individual happiness.

<sup>23</sup>Income is measured by self-reported deciles in the national distribution of income, so that income levels expressed in relative terms are comparable across countries and individuals. Health is measured by the self-assessed state of health, on a 1 to 5 scale (very good=5, good=4, fair=3, poor=2, and very poor=1). Freedom is defined as the degree of freedom of choice and control an individual has over his life, on a 1 to 10 scale (1=none at all, 10=a great deal).

<sup>24</sup>Information on the number of children was not used because of the low number of observations available.

<sup>25</sup>The honesty variable is based on answers to the question “is it justifiable to cheat on taxes”, on a 1 to 10 scale (1=always justifiable, 10=never justifiable). The trust dummy takes the value 1 for those who think that in general people can be trusted (0 if you cannot be too careful when dealing with people). The importance of religion is measured on a 1 to 4 scale (1=not very important, 4=very important).

<sup>26</sup>This information is based on the questions “To which of the following voluntary organizations, if any, do you belong to?” and “For which of the following voluntary organizations, if any, are you currently doing unpaid voluntary work?”.

profession, (d) people at church, (e) people at sports club or service organization, thus providing a more direct measure of relational activities.<sup>27</sup> Figures 3 and 4 present the frequency distribution for each indicator of relational time, and their relation with life satisfaction, respectively.

In order to study the second proposition, we assume that relational goods depend on television consumption in addition to a number of demographic factors, socio-economic conditions, personality traits, environment characteristics:

$$REL_i = f(DEMO_i, SEC_i, PERS_i, ENV_i, TV_i) \quad (2)$$

Television consumption is measured from answers to the question “Do you ever watch television? If yes: How much time do you usually spend watching television on an average weekday (Not weekends)?”<sup>28</sup> From this variable, we constructed a dummy variable taking the value 1 for high-TV viewers (more than 2 hours per day) and 0 for low-TV viewers (no TV or 1-2 hours per day). This definition splits the sample almost equally (the sample mean of the TV dummy is 0.48). We also constructed a second dummy variable for heavy TV viewers (more than 3 hours per day). Figure 5 displays the frequency of television viewing, while figures 6 and 7 present the relation between television viewing and active volunteering activities and relational time indicators, respectively.

In order to control for cultural and societal differences, that may play a key role in explaining international differences in subjective well-being (Diener, 2000), all the equations include individual country dummies, so that unobserved heterogeneity due to country-level environmental differences is controlled for. The set of regressors also includes time fixed effects to allow for heterogeneity between different survey waves. A linear functional form is assumed and the different specifications of equation (1) are estimated by OLS.<sup>29</sup> Equation (2) is estimated either by OLS or using a probit model when the dependent variable is a dummy variable. Test statistics are calculated using heteroskedasticity robust standard errors.

The causal interpretation of regression results is generally difficult in social sciences, but in the present analysis it is a particularly delicate issue,

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<sup>27</sup>These variables are constructed on the basis of answers to the question “How often do you spend time with” (1=not at all, 2=only a few times a year, 3=once or twice a month, 4=weekly). Given the ordinal nature of the original variables, for each indicator we also constructed a dummy variable taking value 1 if once a month or weekly, 0 otherwise.

<sup>28</sup>The options presented to the respondents are: (1) “Do not watch TV or do not have access to TV”; (2) “1 - 2 hours per day”; (3) “2 - 3 hours per day”; (4) “More than 3 hours per day”.

<sup>29</sup>Qualitatively similar results are obtained using ordered probit estimators, which would more appropriately take into account the ordinal nature of the dependent variable. OLS results are presented for ease of interpretation.

given the characteristics of the relationships under investigation and the cross-sectional nature of the data set. To find an association between relational activities and life satisfaction, on the one hand, or between television viewing and relational activities, on the other hand, does not by itself imply a causal relationship.<sup>30</sup> In fact, both these relationships are likely to be simultaneous, given that, in the first case, life satisfaction could determine higher levels of relational activities and, in the second case, high levels of relationality could lead to lower consumption of television. Surely, it cannot be ruled out that causality goes in both directions.<sup>31</sup>

We therefore also present instrumental variables (2SLS) estimation results. Although it is generally quite difficult to find appropriate instruments, we use the variables “*importance of friends*” and “*importance of family*” as instruments for the relational indicators in equation (1), under the assumption that the priority assigned to friends and family is related to the actual consumption of relational goods, but is not independently related to life satisfaction.<sup>32</sup> For equation (2) we use the variable “*importance of television*” as an instrument for TV consumption, under the assumption that self-reported television importance is related to the consumption of television, but is not independently related to relational goods.<sup>33</sup>

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<sup>30</sup>Diener and Seligman (2004) underline the causality problem in the correlation between social relations and well-being, and conclude that “within-person data indicate that it is not just that happy people have better relationships than unhappy people. Rather, the same individuals are happier on average when they are with others than when they are alone. These results again suggest that positive social contact causes well-being. [...] Thus, the causal path from social relationships to well-being moves in both directions.”

<sup>31</sup>The possibility that endogeneity may result from omitted variables affecting both dependent and independent variables should also be considered (for example, extroversion determining both happiness and relational activities). However, the use of a wide range of individual control factors and country-specific dummy variables in estimating equations (1) and (2) makes this cause of endogeneity a relatively minor concern.

<sup>32</sup>The variables “importance of friends” and “importance of family” are based on the question “Indicate how important friends (or family) are in your life” (1=not at all, 2=not very important, 3=rather important, 4=very important). We also constructed corresponding dummy variables (1 if rather or very important, 0 otherwise) and checked the robustness of the results.

<sup>33</sup>The indicator of television importance is constructed from the question “Do you agree with the following statement: Television is my most important form of entertainment (1=disagree strongly, 2=disagree, 3=agree, 4=agree strongly). We also constructed a corresponding dummy variable (1 if agree or agree strongly, 0 otherwise) and used both variables as instruments.

## 5 Results

### 5.1 Relational goods and life satisfaction

Table 2 presents OLS estimation results for equation (1), measuring relational goods with participation to voluntary organizations. The dependent variable is life satisfaction (measured on a scale from 10 to 100), and participation to voluntary organizations is measured by a dummy variable for either simple membership (column a), active participation (column b), or both indicators simultaneously (column c), controlling for the socio-economic and demographic variables described above. The estimates are based on observations for about 73,000 individuals, and all specifications include country-specific dummies and time-fixed effects for country waves.<sup>34</sup>

We start by considering the results for the control variables, in order to provide a preliminary assessment of the empirical specification. Across individuals from a wide range of countries, higher relative income is associated to higher subjective well-being, although the effect is relatively small: moving up by one decile in the relative income scale is associated to a strongly significant 1.15 increase in life satisfaction (on a scale 10 to 100). The health and freedom indicators have large and highly significant positive coefficients: a one-point improvement in health, on a five point scale, is associated to a 4.8 increase in life satisfaction; a one-point improvement in self-perceived freedom, on a ten point scale, is associated to a 3.12 increase in life satisfaction. Unemployment and marriage are associated to large and significant differences in life satisfaction (-3.9 and 3.67, respectively). The number of years of education has a positive but not significant effect on individuals' well being, with decreasing returns. Age is negatively and significantly related to life satisfaction, with significant decreasing returns. As for personality characteristics, individuals who assign a high priority to religion or think that cheating on taxes is never justifiable report systematically higher satisfaction levels. The same is true for those who reply yes when asked if they think that, in general, people can be trusted.

Focusing on the relational indicators, membership of a voluntary organization is associated to a statistically significant increase in life satisfaction (1.15 percentage points), *ceteris paribus*. Active participation to the activities of a voluntary organization is also positively and significantly associated

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<sup>34</sup>The sample includes WVS waves 2 to 4, with the following countries: Germany, Denmark, Spain, United States, Canada, Japan, Mexico, South Africa, Australia, Norway, Sweden, Argentina, Finland, South Korea, Switzerland, Puerto Rico, Brazil, Nigeria, Chile, Belarus, India, China, Taiwan, Austria, Lithuania, Latvia, Estonia, Ukraine, Russia, Peru, Venezuela, Uruguay, Philippines, Moldova, Georgia, Azerbaijan, Dominican Republic, Bangladesh, Serbia, Montenegro, Macedonia, Croatia, Bosnia-Herzegovina, Albania, Morocco, Vietnam, Zimbabwe, and Uganda.

to higher life satisfaction, and the increase is somewhat larger and more significant. It is interesting to observe that the effect of volunteering for life satisfaction is as large as that of moving up by one decile in the income scale. When both volunteering indicators are inserted jointly, so that the coefficient of the “active participation” dummy measures the net effect of the relational component (actual involvement), over and above simple membership, both variables have positive coefficients, and the effect of active participation is somewhat larger and more strongly significant. These results suggest that the relational component of participation to voluntary organizations, represented by the actual interaction with other people, has an independent positive effect on life satisfaction.

Table 3 presents results obtained using the *number* of voluntary organizations to which people either simply belong or dedicate time actively (i.e. a discrete variable in a range from 0 to 8, as opposed to a binary variable). Membership in one additional voluntary organization is associated to a statistically significant 0.3 increase in life satisfaction, *ceteris paribus*. The number of active participations is also positively and significantly associated to higher life satisfaction, and the increase is much larger and more strongly significant. Interestingly, when both indicators are inserted jointly, both variables have positive coefficients, but only active participation is significant, whereas membership is no longer significant. These results confirm and qualify the earlier finding that the relational component of participation to voluntary organizations is the relevant factor for life satisfaction.

Table 4 presents results for the relationship between active participation to *individual* voluntary organizations and life satisfaction. The table reports results obtained by including the voluntary organization dummy variables either individually (column a) or jointly (column b). Participation to religious, sport, art and charity organizations has a positive and significant effect on life satisfaction in both specifications. In particular, participation to a charity voluntary organization has the largest effect on life satisfaction (1.78-1.58), whereas membership in sport organizations has the smallest effect (0.95-0.54). The coefficients for church- and art-related activities organizations are in the range 1.4-1.1 for the individual and joint specifications, respectively.

In order to assess the net impact of the relational component of voluntary activities, table 4 also reports results obtained by including both membership and active participation dummy variables, either individually (column 3) or jointly (column 4). These results are particularly interesting, as the coefficients for active involvement, net of simple membership, can be given a causal interpretation, thus allowing to deal, albeit indirectly, with the issue of causality that undermines the interpretation of cross-sectional regression results. With the only exception of the dummy for the sport voluntary orga-

nization, that becomes no longer significant, all the results presented above are robust to the inclusion of the membership dummies. Participation to religious, art and charity organizations has a positive and significant effect on life satisfaction. Active involvement in a charity voluntary organization has the largest net effect on life satisfaction (1.5 percentage points).

It is interesting to observe that membership or active involvement in unions, political parties, environment and professional voluntary organizations are not significantly related to life satisfaction. This seems to suggest that it is the voluntary activities implying an explicit relational content (such as those related to charity, church and arts) that matter for life satisfaction, whereas those that imply a joint effort for a common cause (such as unions, parties, environment) do not appear to result in higher subjective well being. This result can be considered an indication that relationality per se, rather than instrumental relationships, is what matters for individual happiness.

Table 5 presents estimation results for the link between individual indicators of relational time and life satisfaction.<sup>35</sup> As above, the table reports results obtained by including the relational proxies either individually (column a) or jointly (column b). When considered individually, all indicators have positive and significant coefficients. However, when the indicators are inserted jointly, the coefficients for time spent with colleagues and with people from church are no longer significant. Time spent with the family (parents and other relatives) has the largest effect on life satisfaction in both specifications, with a coefficient ranging between 1 and 0.73. The variables for time spent with friends and with people from sport activities have positive and significant coefficients, ranging between 0.8 and 0.6. In order to take into account the ordinal nature of the original variables, columns (c) and (d) report results obtained when using the relational indicators defined as dummy variables. All the results discussed above are robust to the use of alternative definitions of the relational indicators.

As noted above, however, these findings could also be interpreted as the result of reverse causality: happier individuals are more likely to contribute time and efforts to interpersonal relations. In order to deal with the simultaneous nature of the relationship between relationality and life satisfaction, table 6 reports 2SLS results, using “importance of friends” and “importance of family” as instruments for relational time indicators. The coefficients for all indicators are positive and significant, indicating that the positive effect of relational time on life satisfaction is not spurious. The results of Hausman-

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<sup>35</sup>Note that the sample now only includes WVS wave 4, with about 32,000 observations for the following countries: Spain, United States, Canada, Japan, Mexico, South Africa, Argentina, South Korea, Puertorico, Nigeria, Chile, India, Pakistan, China, Peru, Philippines, Moldova, Serbia, Montenegro, Macedonia, Bosnia-Herzegovina, Albania, Algeria, Indonesia, Iran, Jordan, Morocco, Vietnam, Zimbabwe, Uganda and Egypt.

type tests (columns 3-4) indicate that endogeneity is indeed a problem in estimating equation (1). Overidentifying restrictions tests (columns 5-6) do not lead to reject the hypothesis of instruments validity.<sup>36</sup> Overall, the results of estimation by instrumental variables seem to support the causal interpretation that consumption of relational goods has a positive impact on life satisfaction.

## 5.2 Television and relational goods

We now consider the evidence for the relationship between television viewing and relational activities. Table 7 presents probit estimation results for equation (2), using either membership (row 1) or active participation (row 2) in voluntary organizations as the dependent variable.<sup>37</sup> The TV indicator is either a dummy for high-viewers (more than 2 hours per day, column 2), or a dummy for heavy-viewers (more than 3 hours per day, column 3), controlling for the same set of socio-economic and demographic variables as in equation (1). The results indicate that higher television consumption levels are associated to a lower probability of participating to voluntary organizations. Interestingly, the crowding out effect of television is larger and more significant for active participation than for pure membership. In column 4 we report the coefficients of the dummy for very heavy users when inserting both television dummy variables, so that the estimates capture the net effect of heavy viewing. The net effect is negative and significant for both pure membership and active participation. As a robustness check, table 8 presents OLS estimation results for the same equations as above, using the number of voluntary organizations as the dependent variable. All the results are confirmed in this alternative specification.

Table 9 presents probit estimation results for the relationship between TV viewing and participation to individual voluntary organizations. We find that both the high and the heavy viewing dummies are associated to significantly lower probabilities of active participation to religious, environment and professional voluntary organizations. Active participation to charities is also negatively affected by television viewing, although the effect is only sig-

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<sup>36</sup>It should be observed that the fact that 2SLS estimates are higher than the OLS estimates casts some doubts on the validity of the instruments. We experimented with a number of alternative sets of instruments, but in all cases candidate instruments did not pass the overidentifying restrictions test.

<sup>37</sup>The sample includes WVS waves 3 and 4, with about 46,000 observations for the following countries: Germany, Spain, United States, Mexico, South Africa, Australia, Norway, Sweden, Finland, Argentina, Switzerland, Puerto Rico, Brazil, Nigeria, Chile, Belarus, India, Taiwan, Lithuania, Latvia, Estonia, Ukraine, Russia, Peru, Venezuela, Uruguay, Moldova, Georgia, Armenia, Azerbaijan, Dominican Republic, Bangladesh, Serbia, Montenegro, Croatia, Bosnia-Herzegovina, Zimbabwe and Uganda.

nificant for heavy viewing. When considering the net effect of heavy viewing (column 4), the same activities are negatively affected, although the effect on participation to religious and charity organizations is only marginally significant.

Table 10 presents OLS estimation results for the relationship between television viewing and individual relational activities.<sup>38</sup> High levels of television consumption have a negative and significant effect on the time spent with friends, colleagues and people from the church. The causal interpretation is reinforced by the finding that the net effect of heavy viewing (column 4) is also negative and significant in the equations for time spent with friends and colleagues.<sup>39</sup> It is interesting to observe that the high-television dummy has a positive and significant coefficient in the equation for time spent with the family. This is consistent with the view, shared by some observers, that television may lead to more interaction within the family because it provides one of the few opportunities for family members to spend time together (Riley et al., 1949).

Also in this case it should be noted that the relationship between television viewing and relationality could be simultaneous, given that people might use television as a response to solitude and, more generally, to negative affective experiences. Table 11 presents instrumental variables (2SLS) estimates for equation (2), using the importance of television as an instrument for TV consumption, under the assumption that self-reported television importance is related to the consumption of television, but is not independently related to relational activities. It should be observed, however, that there is a relatively small overlap in the observations for TV use (to be instrumented) and TV importance (the instrument). This implies that the resulting sample is relatively small (about 9,300 observations).<sup>40</sup>

The coefficients estimated by 2SLS are qualitatively similar, in terms of both sign and size, to those obtained by OLS. However, they are estimated less precisely, so that the negative effect of television is only significant in the equations for time spent with people from the church and, marginally, time spent with friends. The results of Hausman-type endogeneity tests (columns 3-4) indicate that the absence of simultaneity cannot be rejected except for two equations (time spent with friends and people from church). However, overidentifying restrictions tests (columns 5-6) lead to reject the hypothesis that the instruments are valid in all equations except those for sport and

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<sup>38</sup>The sample includes only WVS wave 4, for about 17,000 observations from the following countries: Spain, South Africa, Argentina, Puerto Rico, Nigeria, Pakistan, Peru, Bangladesh, Algeria, Indonesia, Jordan, Morocco, Zimbabwe, Uganda and Egypt.

<sup>39</sup>Qualitatively similar results are obtained estimating an ordered probit model to take into account the categorical nature of the dependent variable.

<sup>40</sup>The sample includes only WVS wave 4, with the following countries: Nigeria, Bangladesh, Algeria, Indonesia, Jordan, Zimbabwe, Uganda and Egypt.

(marginally) family. Overall, these findings are consistent with the causal interpretation of the link between television and relational time.

## 6 Discussion

This paper presented empirical evidence from the World Values Survey on the relationship between consumption of relational goods, television viewing and life satisfaction. We found that the relational component of volunteering (i.e. active participation to voluntary organizations) is positively and significantly associated to higher life satisfaction, with an effect that is quantitatively similar to that of moving up by one decile in the income scale. The voluntary activities implying an explicit relational content (such as charity, church, art) matter most for life satisfaction. Time spent in relational activities also has a large positive effect on life satisfaction. In particular, time spent with parents and relatives has the largest effect on life satisfaction. Time spent with friends and with people from sport and recreation activities also have a positive and significant effect.

We also found a negative relationship between television viewing and consumption of relational goods. High levels of television viewing have a negative and significant effect on volunteering activities and on the time spent with friends, colleagues and people from the church. Both empirical relationships are strongly significant and robust to the use of a number of alternative indicators of relationality and to estimation by instrumental variables to deal with possible simultaneity.

Relational goods and the crowding-out effect of television can help us in understanding a question that is central in the entire paradox of happiness debate: why do rational people allocate their time and resources without maximising their well-being? In fact, happiness theories based on *positional* or *aspiration* treadmill effects give a consistent explanation of this systematic error. Positional theories explain it through the presence of the positional externalities that lead to excessive consumption of conspicuous goods. Aspirations theories explain the error by assuming that in choosing their consumption levels people do not take into consideration the effects on aspirations, that actually reduce their SWB, as if they used the wrong utility function to make their decisions.

A relational theory of happiness would explain the Easterlin paradox arguing that higher income levels are associated with a tendency to over-consume material goods and under-consume relational goods, an important determinant of subjective happiness. Recent literature in social sciences offers more and more grounds for concern that the time devoted to interpersonal relations is falling, crowded-out by the extension of markets to domains covered in the past by non-market institutions such as family, church and civil

society.<sup>41</sup>

In particular, the expansion of the market and the erosion of ‘spaces’ for interpersonal relations has led, as by-products, to greater mobility between jobs and areas, shift of care of children and the old from family to market (Gui and Sugden, 2005). Actually, the time and effort devoted to production and consumption of relational goods are much less today, in market societies, than fifty years ago.<sup>42</sup> However, when material needs have been satisfied to a substantial degree, as it is the case in advanced economies, “well-being depends to an increasing extent upon social factors, like social environment, individual relative position and social status, and the ability to construct and enjoy meaningful and satisfactory relations with other people” (Antoci, Sacco and Vanin 2005, p. 2).

If less relationality leads to decreased happiness, the key question is why people consume lower and lower levels of relational goods. An economic explanation comes from recent studies such as Bartolini (2005) and Antoci, Sacco and Vanin (2005). The common idea in these papers is the focus on relational goods as *public* goods: the level of relationality can be too low not because of the choices of consumers, but instead because of a coordination failure in contributing to the public good. In this approach, the change of relative prices over time increases the costs of contributing to the production of relationality.

Scitovsky (1976) goes in a similar direction in distinguishing between “comfort” goods and “stimulation” goods. Comfort goods provide immediate rewards, with strongly decreasing marginal utility, and bring soon to boredom. Stimulation goods, instead, have an opposite characteristic: their marginal utility is generally increasing (e.g. cultural goods). Although Scitovsky does not explicitly mention this, relational goods belong to the category of stimulation goods. Indeed, as pointed out by Hirschman (1996), relational goods confer *at the same time* both comfort and stimulation.

In Scitovsky’s view, people tend to consume too much comfort goods also because they often appear as *stimulation goods in disguise*, but offered at a much lower price than actual stimulation goods. In particular, television provides inexpensive and effortless artificial relationality that, despite lacking any actual relational content, people use as a convenient substitute for actual inter-personal relationships. Television viewing can therefore be seen as a comfort good that *crowds out* consumption of relational goods.

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<sup>41</sup>See, among others, Putnam (2000), Lane (2000), Easterlin (2005).

<sup>42</sup>The evidence reported by Ryff and Singer (2000) shows that reducing social relationships and social bonds (in particular the three Aristotelian basic relational goods: friendship, love and civil participation) are strongly related to a decrease of health and of perceived happiness: in particular, reduction of relational goods “predicted incident cardiovascular disease, decline in physical function, and decline in cognitive function” (Ryff and Singer 2000, p. 38).

The evidence presented in this paper suggests that the pervasive and increasing role of television viewing in individuals' life, through its crowding out effect on relational activities, can provide an additional explanation of the income-happiness paradox. As a society becomes more affluent, people tend to underconsume relational goods. Television plays a key role in this process, by providing a substitute for actual relational activities.

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Figure 1: Frequency of individual volunteering activities

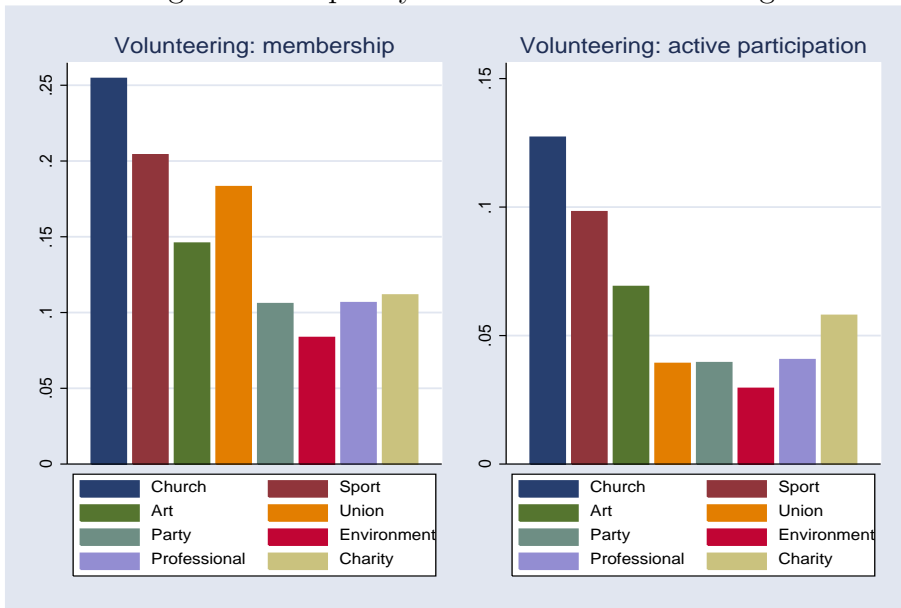


Figure 2: Volunteering activities and life satisfaction

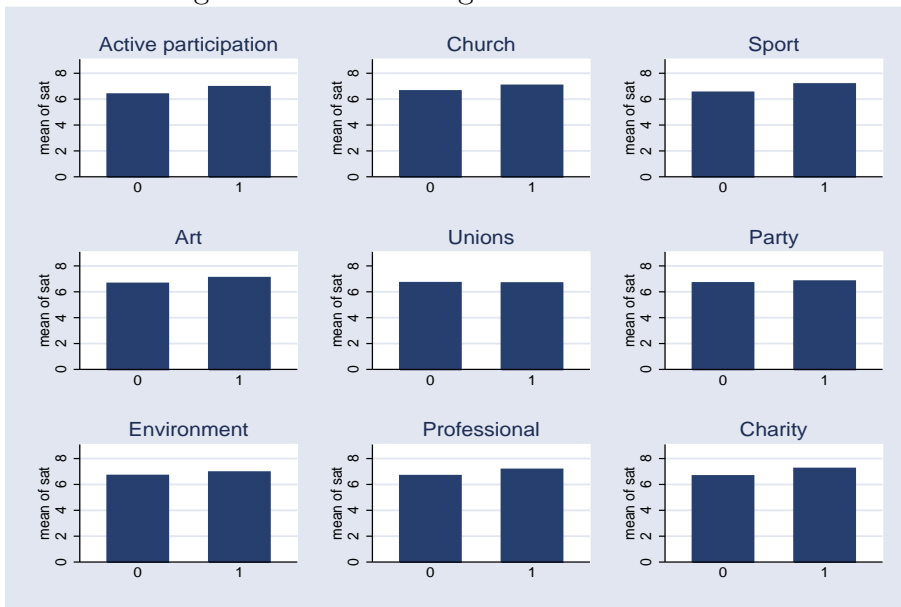


Figure 3: Frequency of relational activities

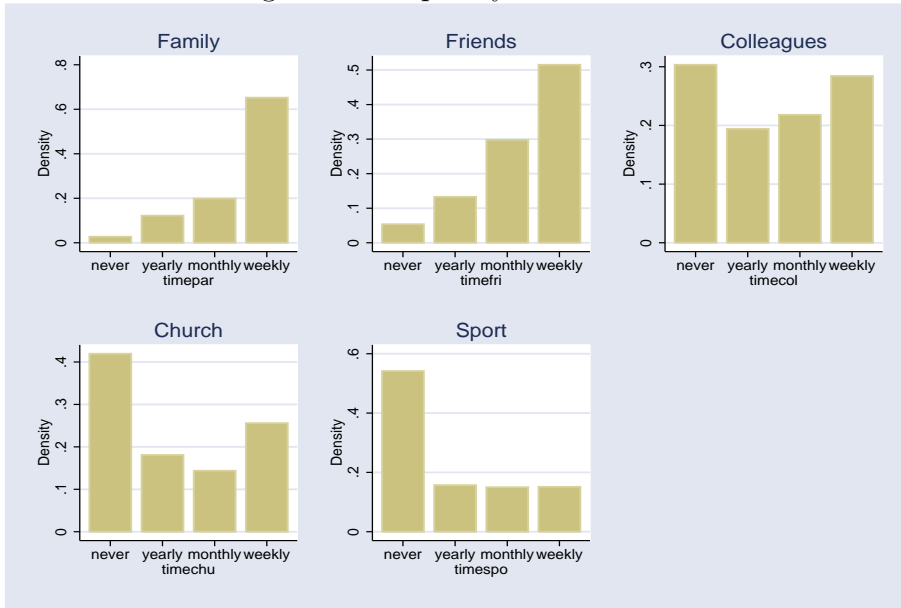
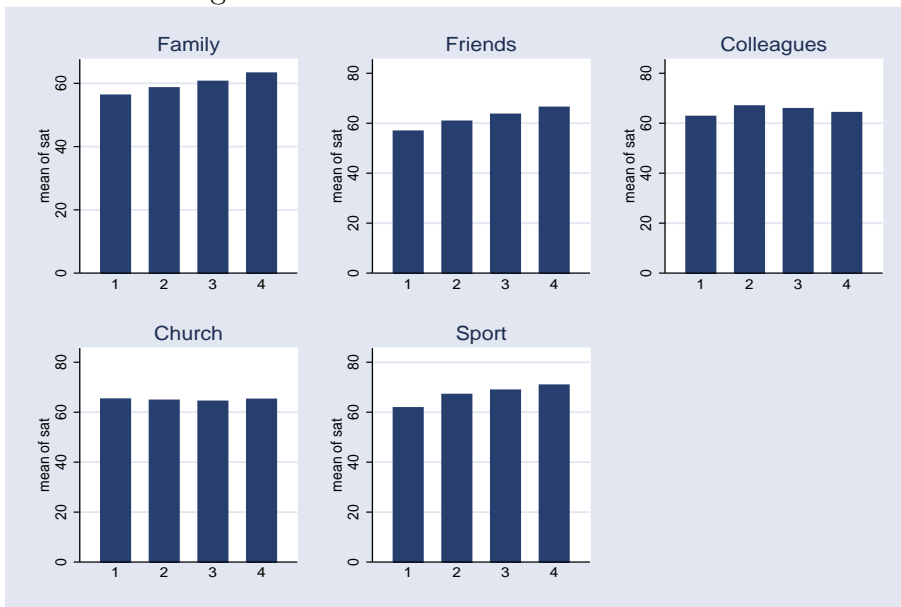


Figure 4: Relational activities and life satisfaction



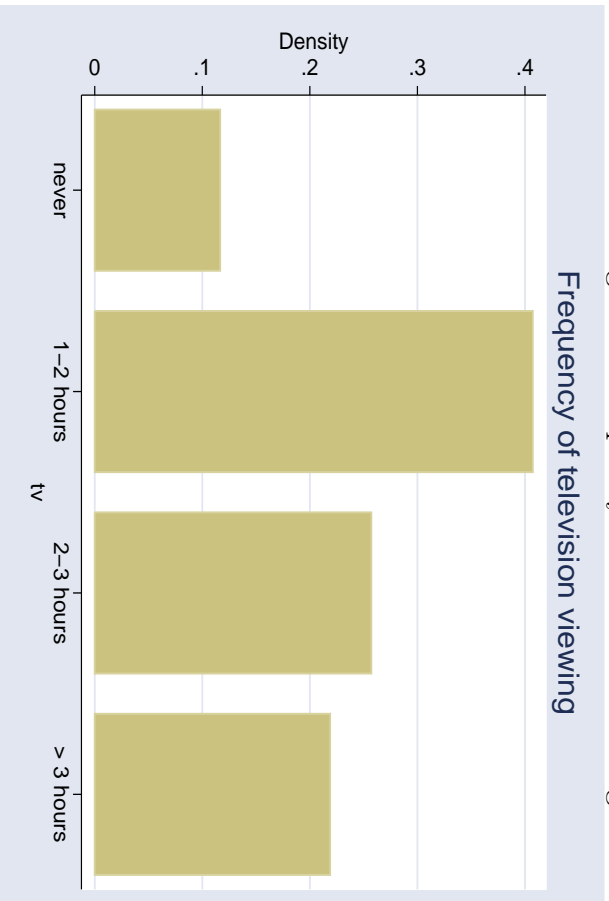


Figure 5: Frequency of television viewing

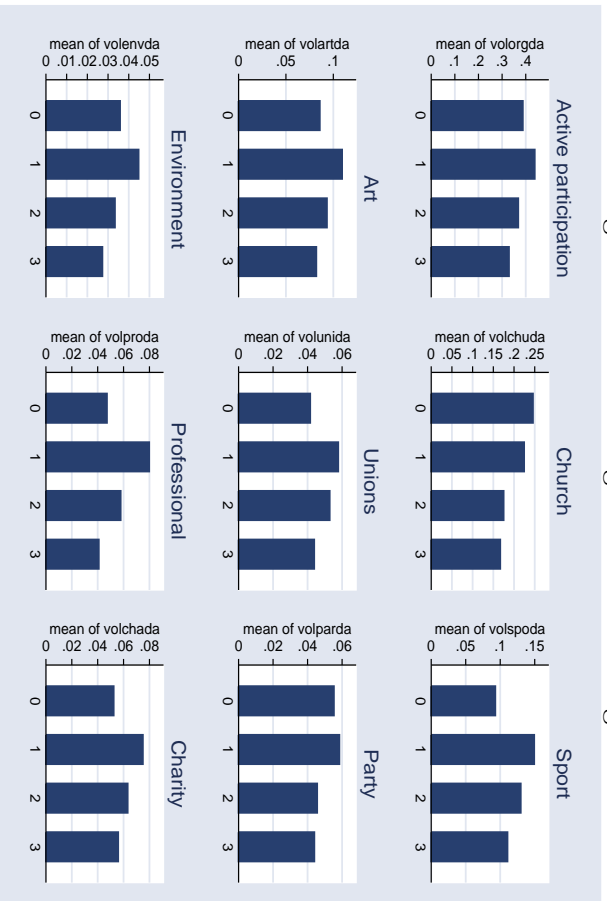


Figure 6: TV viewing and volunteering activities

Figure 7: TV viewing and relational activities

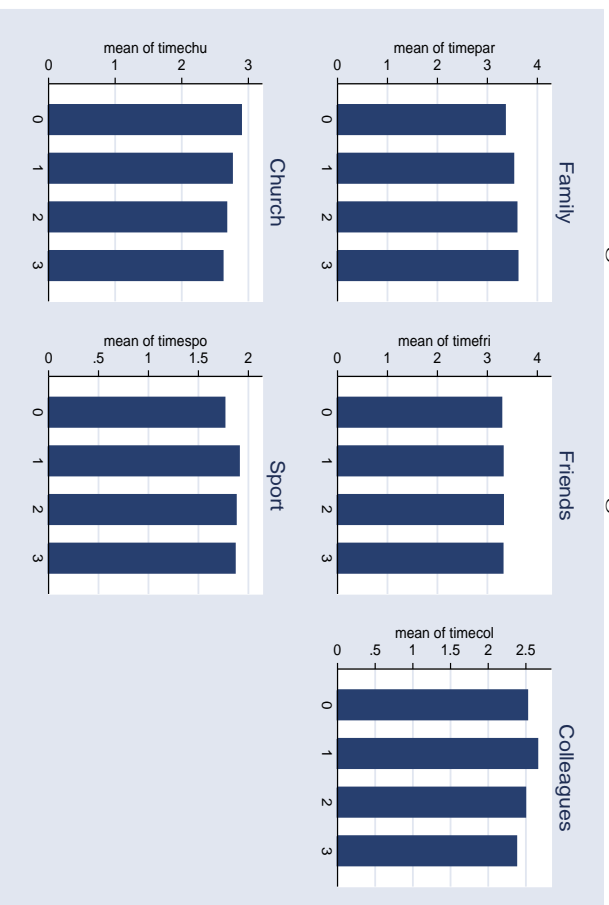


Table 1: Descriptive statistics

Variable	Mean	St. Dev.	Min	Max	N. Obs
Time spent with: family	3.48	0.81	1.00	4.00	53501
Time spent with: friends	3.27	0.89	1.00	4.00	94007
Time spent with: colleagues	2.48	1.19	1.00	4.00	77759
Time spent with: church	2.24	1.24	1.00	4.00	76920
Time spent with: sport	1.91	1.14	1.00	4.00	76472
Voluntary org. (number)	1.19	1.66	0.00	8.00	193344
Active vol. org. (number)	0.51	0.99	0.00	8.00	193344
Voluntary org. (dummy)	0.55	0.50	0.00	1.00	193344
Active vol. org. (dummy)	0.31	0.46	0.00	1.00	193344
Vol. organization: church	0.13	0.33	0.00	1.00	226894
Vol. organization: sport	0.10	0.30	0.00	1.00	200504
Vol. organization: arts	0.07	0.25	0.00	1.00	227264
Vol. organization: unions	0.04	0.19	0.00	1.00	229753
Vol. organization: politics	0.04	0.19	0.00	1.00	231050
Vol. organization: environment	0.03	0.17	0.00	1.00	229882
Vol. organization: professional	0.04	0.20	0.00	1.00	229875
Vol. organization: charity	0.06	0.23	0.00	1.00	228352
Life satisfaction	66.39	24.85	10.00	100.00	259947
Income decile	4.73	2.53	1.00	10.00	221148
Health	3.75	0.93	1.00	5.00	213305
Freedom	6.63	2.45	1.00	10.00	245836
Unemployed dummy	0.08	0.27	0.00	1.00	262882
Married dummy	0.63	0.48	0.00	1.00	260449
Education (years)	4.65	2.35	1.00	16.00	188968
Age	41.15	16.35	15.00	101.00	251323
Male dummy	0.48	0.50	0.00	1.00	260130
Trust dummy	0.30	0.46	0.00	1.00	252181
Onesty	8.58	2.36	1.00	10.00	246262
Religion important	2.89	1.08	1.00	4.00	227079
Friends important	3.26	0.73	1.00	4.00	229932
TV viewing	1.58	0.96	0.00	3.00	92049
TV viewing dummy	0.48	0.50	0.00	1.00	92049
TV important	2.59	0.91	1.00	4.00	36420
TV important dummy	0.55	0.50	0.00	1.00	36420
Wave1 dummy	0.12	0.32	0.00	1.00	264778
Wave2 dummy	0.22	0.42	0.00	1.00	264778
Wave3 dummy	0.30	0.46	0.00	1.00	264778
Wave4 dummy	0.36	0.48	0.00	1.00	264778

*Note:* See section 4 for details on the definition and construction of the variables.

Table 2: Life satisfaction and participation to voluntary organizations

Independent variable	(a)	(b)	(c)
Vol. org. member (dummy)	1.15 ( 6.58)		0.73 ( 3.52)
Vol. org. active member (dummy)		1.17 ( 6.80)	0.75 ( 3.67)
Income	1.15 ( 32.07)	1.15 ( 32.10)	1.15 ( 31.99)
Health	4.81 ( 46.70)	4.81 ( 46.72)	4.80 ( 46.68)
Freedom	3.12 ( 77.89)	3.12 ( 77.87)	3.12 ( 77.83)
Unemployed	-3.90 ( -13.34)	-3.94 ( -13.48)	-3.91 ( -13.35)
Married	3.67 ( 20.06)	3.67 ( 20.04)	3.68 ( 20.07)
Education	0.10 ( 0.73)	0.09 ( 0.72)	0.08 ( 0.63)
Education <sup>2</sup>	-0.01 ( -0.77)	-0.01 ( -0.78)	-0.01 ( -0.73)
Age	-0.59 ( -20.13)	-0.59 ( -20.03)	-0.59 ( -20.13)
Age <sup>2</sup>	0.01 ( 21.81)	0.01 ( 21.68)	0.01 ( 21.78)
Male	-1.10 ( -7.10)	-1.10 ( -7.10)	-1.11 ( -7.20)
Religion important	1.01 ( 11.41)	0.99 ( 11.20)	0.98 ( 11.11)
Trust	0.89 ( 5.16)	0.89 ( 5.14)	0.88 ( 5.08)
Onesty	0.26 ( 7.44)	0.26 ( 7.43)	0.27 ( 7.45)
Adjusted $R^2$	0.35	0.35	0.35
Observations	73572	73572	73572

*Note:* OLS estimates. Dependent variable: life satisfaction. t-statistics in brackets (heteroskedasticity robust standard errors). Regressors also include individual country dummies and time dummies for survey waves (1990-91, 1995-97, 1999-2001). Data source: World Value Surveys 2-4.

Table 3: Life satisfaction and number of voluntary organizations

Independent variable	(a)	(b)	(c)
Vol. org. member (number)	0.31 ( 5.96)		0.11 ( 1.65)
Vol. org. active member (number)		0.54 ( 7.05)	0.42 ( 4.17)
Adjusted $R^2$	0.35	0.35	0.35
Observations	73572	73572	73572

*Note:* OLS estimates. Dependent variable: life satisfaction. t-statistics in brackets (heteroskedasticity robust standard errors). Regressors also include indicators of gender, age and education, individual country dummies and time dummies for survey waves (1990-91, 1995-97 and 1999-2001), as detailed in table 2. Data source: World Values Surveys 2-4.

Table 4: Life satisfaction and individual voluntary activities

Independent variable	Ind. (a)	Joint (b)	Ind. net (c)	Joint net (d)
Vol. org.: church	1.41 ( 6.03)	1.14 ( 4.75)	1.16 ( 4.12)	0.93 ( 3.25)
Vol. org.: sport	0.95 ( 4.21)	0.54 ( 2.29)	0.16 ( 0.55)	0.28 ( 0.88)
Vol. org.: art	1.43 ( 5.69)	1.03 ( 3.83)	0.42 ( 1.25)	0.72 ( 2.00)
Vol. org.: union	0.16 ( 0.49)	-0.24 ( -0.69)	-0.54 ( -1.50)	-0.55 ( -1.43)
Vol. org.: politics	0.14 ( 0.39)	-0.43 ( -1.18)	-0.52 ( -1.21)	-0.01 ( -0.02)
Vol. org.: environment	0.65 ( 1.61)	-0.08 ( -0.18)	-0.37 ( -0.75)	0.15 ( 0.28)
Vol. org.: professional	0.35 ( 1.13)	-0.13 ( -0.39)	-0.54 ( -1.38)	-0.02 ( -0.06)
Vol. org.: charity	1.78 ( 6.13)	1.58 ( 5.11)	1.54 ( 3.73)	1.49 ( 3.43)
Adjusted $R^2$	0.36	0.36	0.36	0.36
Observations	77933	75041	77933	75041

*Note:* OLS estimates. Dependent variable: life satisfaction. t-statistics in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2. Data source: World Value Surveys 2-4.

Columns (a) and (c): coefficients estimated individually in separate equations.

Columns (b) and (d): coefficients estimated jointly in a single equation.

Table 5: Life satisfaction and relational activities: OLS

Independent variable	Ind. (a)	Joint (b)	Ind-d (c)	Joint-d (d)
Time spent with: family	1.00 ( 6.76)	0.73 ( 4.73)	2.10 ( 6.47)	1.56 ( 4.59)
Time spent with: friends	0.78 ( 5.17)	0.57 ( 3.51)	1.30 ( 4.10)	0.79 ( 2.31)
Time spent with: colleagues	0.27 ( 2.54)	0.03 ( 0.23)	0.76 ( 3.02)	0.37 ( 1.37)
Time spent with: church	0.24 ( 2.06)	0.08 ( 0.67)	0.56 ( 2.07)	0.26 ( 0.92)
Time spent with: sport	0.79 ( 6.83)	0.62 ( 5.12)	1.69 ( 6.28)	1.34 ( 4.80)
Adjusted $R^2$	0.29	0.30	0.29	0.30
Observations	35050	32642	35050	32642

*Note:* OLS estimates. Dependent variable: life satisfaction. t-statistics in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2. Data source: World Value Survey 4.

Columns (a) and (c): coefficients estimated individually in separate equations.

Columns (b) and (d): coefficients estimated jointly in a single equation.

Table 6: Life satisfaction and relational activities: 2SLS

Independent variable	Coeff.	Endog.	P-val.	Ov. R.	P-val.
Time spent with: family	9.13 ( 3.02)	7.99	0.00	0.92	0.34
Time spent with: friends	1.34 ( 3.12)	1.97	0.16	1.13	0.29
Time spent with: colleagues	4.37 ( 3.39)	10.59	0.00	0.44	0.51
Time spent with: church	12.50 ( 2.54)	8.68	0.00	1.97	0.16
Time spent with: sport	5.63 ( 2.90)	6.50	0.01	0.74	0.39
Observations	34962				

*Note:* Dependent variable: life satisfaction. 2SLS estimates (t-statistics in brackets, heteroskedasticity robust standard errors). Instruments: importance of friends and importance of family. The full set of regressors is described in table 2.

Data source: World Value Survey 4.

Table 7: Television and participation to voluntary organizations

Dependent variable	$TV > 2$	$TV > 3$	$TV > 3$ net
Voluntary org. dummy	-0.07 ( -5.05)	-0.08 ( -4.92)	-0.05 ( -2.76)
Active voluntary org. dummy	-0.09 ( -6.55)	-0.08 ( -4.98)	-0.04 ( -2.01)
Pseudo $R^2$	0.23	0.23	0.23
Observations	46302	46302	46302

*Note:* Probit estimates. Dependent variable in column 1. z-values in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2.  $TV > 2$  dummy = 1 if watch TV more than 2 hours per day.  $TV > 3$  dummy = 1 if watch TV more than 3 hours per day.  
Data source: World Value Surveys 3 and 4.

Table 8: Television and number of voluntary organizations

Dependent variable	$TV > 2$	$TV > 3$	$TV > 3$ net
Number of voluntary org.	-0.09 ( -5.72)	-0.10 ( -5.48)	-0.06 ( -2.85)
Number of active voluntary org.	-0.07 ( -6.52)	-0.07 ( -6.10)	-0.04 ( -2.80)
Adjusted $R^2$	0.23	0.23	0.23
Observations	46302	46302	46302

*Note:* OLS estimates. Dependent variable in column 1. t-statistics in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2.  $TV > 2$  dummy = 1 if watch TV more than 2 hours per day.  $TV > 3$  dummy = 1 if watch TV more than 3 hours per day.  
Data source: World Value Surveys 3 and 4.

Table 9: Television and participation to individual voluntary organizations

Dependent variable	$TV > 2$	$TV > 3$	$TV > 3$ net
Voluntary org.: church	-0.14 ( -8.61)	-0.12 ( -5.73)	-0.04 ( -1.56)
Voluntary org.: sport	0.05 ( 2.77)	0.02 ( 1.04)	-0.01 ( -0.38)
Voluntary org.: art	-0.03 ( -1.87)	-0.02 ( -1.12)	-0.01 ( -0.21)
Voluntary org.: union	0.00 ( 0.09)	-0.02 ( -0.61)	-0.02 ( -0.75)
Voluntary org.: politics	-0.05 ( -2.24)	0.01 ( 0.27)	0.05 ( 1.62)
Voluntary org.: environment	-0.08 ( -3.30)	-0.11 ( -3.54)	-0.08 ( -2.19)
Voluntary org.: professional	-0.07 ( -3.46)	-0.11 ( -4.19)	-0.09 ( -2.88)
Voluntary org.: charity	-0.03 ( -1.61)	-0.05 ( -2.12)	-0.04 ( -1.53)
Adjusted $R^2$	0.14	0.14	0.14
Observations	49994	49994	49994

*Note:* Probit estimates. Dependent variable in column 1. z-values in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2.  $TV > 2$  dummy = 1 if watch TV more than 2 hours per day.  $TV > 3$  dummy = 1 if watch TV more than 3 hours per day.  
Data source: World Value Surveys 3 and 4.

Table 10: Television and relational time: OLS

Dependent variable	$TV > 2$	$TV > 3$	$TV > 3$ net
Time spent (family)	0.04 ( 3.41)	0.01 ( 0.71)	-0.02 ( -1.30)
Time spent (friends)	-0.01 ( -1.06)	-0.04 ( -2.26)	-0.04 ( -2.04)
Time spent (colleagues)	-0.14 ( -7.42)	-0.13 ( -5.70)	-0.05 ( -2.04)
Time spent (church)	-0.05 ( -2.82)	-0.04 ( -1.99)	-0.01 ( -0.59)
Time spent (sport)	0.00 ( 0.20)	-0.01 ( -0.45)	-0.02 ( -0.65)
Adjusted $R^2$	0.19	0.19	0.19
Observations	17125	17125	17125

*Note:* OLS estimates. Dependent variable in column 1. t-statistics in brackets (heteroskedasticity robust standard errors). The full set of regressors is described in table 2.  $TV > 2$  dummy = 1 if watch TV more than 2 hours per day.  $TV > 3$  dummy = 1 if watch TV more than 3 hours per day. Data source: World Value Survey 4.

Table 11: Television and relational time: 2SLS

Dependent variable	TV	Endog.	(p-val)	Ov.R.	(p-val)
Time spent (family)	0.02 ( 0.28)	0.16	0.69	3.43	0.06
Time spent (friends)	-0.11 ( -1.74)	3.78	0.05	6.76	0.01
Time spent (colleagues)	-0.01 ( -0.08)	1.18	0.28	7.58	0.01
Time spent (church)	-0.23 ( -2.69)	4.54	0.03	9.13	0.00
Time spent (sport)	0.06 ( 0.72)	0.91	0.34	1.02	0.31
Adjusted $R^2$	9325				

*Note:* Dependent variable in column 1. 2SLS estimates (t-statistics in brackets, heteroskedasticity robust standard errors). Instruments: importance of television (categorical and dummy). The full set of regressors is described in table 2. Data source: World Value Survey 4.