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Income Aspirations, Television and Happiness: Evidence from the World Values Surveys

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Abstract

This paper argues that television viewing produces higher material aspirations, by enhancing both adaptation and positional effects, thus lowering the effect of income on life satisfaction. Using individual data from the World Values Survey we present evidence indicating that the effect of income on both life and financial satisfaction is significantly smaller for heavy television viewers, relative to occasional viewers. This finding is robust to a number of specification checks and alternative interpretations. Overall, the results can be interpreted as providing an additional explanation for the income-happiness paradox: the pervasive and increasing role of television viewing in people's life, by raising material aspirations, reduces the effect of income on individual happiness.

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“It is hard for us to realize how little of our information comes from direct experience with the physical environment, and how much of it comes only indirectly, from other people and the mass media.”

(McLeod and Chaffee, 1972, p. 50)

1 Introduction

In the last three decades a number of studies have reported evidence on the income-happiness paradox. In cross-sectional studies, higher income is generally associated with higher subjective well-being across individuals, although the effect is relatively small, and GDP per capita and subjective well-being are positively and strongly correlated across countries (see e.g. Diener et al., 1999). However, *over time* happiness does not grow with income: countries with fast-growing GDP per capita have not shown corresponding increases in well-being (e.g. Easterlin, 1974, Veenhoven, 1994, Oswald, 1997).

One of the main explanations of the income-happiness paradox is based on the role of rising aspirations (e.g. Easterlin, 1995, 2001, Frey and Stutzer, 2002a,b). In this view, what matters for happiness is not income *per se*, but the gap between income and material aspirations. To the extent that aspirations rise together with income, subjective satisfaction may remain unchanged as income rises. Material aspirations of individuals, in turn, are influenced by two main processes (see Stutzer, 2004). On the one hand, the *adaptation* to past income and consumption levels: people tend to adapt quickly to higher income and consumption levels. As a consequence, additional material goods provide extra satisfaction only temporarily. On the other hand, the *comparison* with other people’s income (Easterlin, 1995): people tend to compare themselves with relevant reference groups in assessing their income and consumption levels. As a consequence, they tend to be less satisfied with a given level of income if their neighbours earn more.

A number of studies have provided evidence on the role of aspirations for individual happiness. In a recent paper, Stutzer (2004) uses income evaluation measures as a proxy for aspiration levels and shows that higher income aspirations reduce individual subjective well being, *ceteris paribus* (see also Stutzer, 2005). He also finds evidence that aspirations rise with own income levels and with the average income of others, consistently with processes of adaptation and social comparison. Clark and Oswald (1996) and Neumark and Postlewaite (1998) provide evidence on the role of social comparison for subjective well-being. However, relatively little evidence is available on the determinants of aspirations.

This paper examines the effects of television, the main agent of consumer socialization, on individual aspirations. In particular, we focus on the impact

of television viewing on income aspirations and, in turn, on the relationship between income and individual happiness. The reason for the emphasis on television is its pervasive role in individuals' life: television viewing is by far the most important leisure activity world-wide, and its role is growing steadily.¹

Most of the extensive literature on the effects of television focuses on the sociological and psychological dimensions, examining the impact of television contents on social perceptions, attitudes and beliefs, or the effects of television viewing on individuals' mental processes and health outcomes. Economists have considered the impact of television on consumer behaviour, but otherwise have largely ignored the impact of television on economic behaviour and outcomes.² Quite surprisingly, given the pervasive role of television in people's life, with the exception of the recent work by Frey et al. (2005) there have been hardly any studies examining the effects of television on individual well-being from an economic perspective.³

In this paper we argue that television viewing reduces the effect of income on life satisfaction by producing higher material aspirations, enhancing both adaptation and positional effects. More specifically, we formulate the hypothesis that heavy TV users derive less satisfaction from a given level of income, relative to occasional TV users, since television viewing has a significant positive impact on their material aspirations. In our view, television has a powerful effect on the satisfaction an individual derives from his income and consumption levels by speeding up both the hedonic and positional treadmills.

We investigate this hypothesis empirically using individual data from the World Values Survey. The results indicate that the effect of income on subjective well being is significantly lower for heavy-TV viewers. This finding is robust to a number of specification checks, while different alternative interpretations are examined and rejected. Overall, the results can be interpreted as an indication that the role of TV in raising aspirations provides an additional explanation for the income-happiness paradox: the pervasive and increasing role of television viewing in people's life contributes to raising individual material aspirations, thus lowering the effect of higher income on happiness.

¹According to recent survey data (IP, 2004), in 2003 the average daily viewing time per adult was above 3.5 hours in Europe and above 4.5 hours in the United States. Between 1995 and 2003 in Western Europe the average daily viewing time for adults increased from 186 to 217 minutes.

²The work of Corneo (2005) on the relationship between television viewing and working time represents a major exception.

³Layard (2005a) focuses on the effects of television viewing on perceived relative income. Using data from the US General Social Survey, he finds that television viewing is negatively related to perceived relative income and, in turn, to subjective well-being.

The paper is structured as follows. Section 2 discusses alternative explanations of the income-happiness paradox. Section 3 illustrates how television viewing affects material aspirations and, therefore, the relationship between income and subjective well-being. Section 4 presents the methodology and the data set used for the empirical analysis, while the results are presented in section 5. Section 6 concludes with a discussion of the main implications of the analysis.

2 The Income-Happiness Paradox and its explanations

The rediscovery of happiness in economics has been mainly a by-product of a process originated in psychology. In fact, the paper published by Brickman and Campbell in 1971, under the telling title “Hedonic relativism and planning the good society”, can be considered the starting point of the new studies on happiness and its paradoxes related to the economic domain. In their study, the two psychologists extended the “adaptation level” theory to individual and collective happiness, reaching the conclusion that bettering the objective conditions of life (income or wealth) has no lasting effects on personal well-being. Such a thesis should have provoked a serious methodological discussion about the meaning of the analysis of the nature and causes of the wealth of nations. Yet, it did not. Their study remained practically unknown to mainstream economics for years.

Two economists, Richard Easterlin (1974) and Tibor Scitovsky (1976) were persuaded, however, that what was going on in that field of psychology could have something important to say for economic analysis. So, the “paradox of happiness” entered economics, bringing economic science back to its classical origins. In fact, the relationship between wealth and happiness was central in the classical tradition. However, the contemporary economists of happiness were generally not aware of such an old tradition. Their reference points were more recent: Duesenberry’s (1949) social theories of consumption, or the American Institutionalist tradition (from Veblen to Galbraith).⁴

Easterlin (1974), relying on empirical research on individuals’ happiness, opened up the debate about the “happiness paradox”. Making use of two types of data, both based on a subjective self-evaluation of happiness,⁵ Easterlin found that within a single country, at a given moment in time, the

⁴In a parallel stream of research, the Dutch economist Bernard Van Praag, in his doctoral thesis (1968), showed an unusual and heterodox interest in investigating wealth and well-being amidst the almost complete indifference of mainstream economists.

⁵The first type of data was supplied by the responses to a Gallup-poll type of survey in which a direct question was asked, a question which is still at the basis of most of the present analyses on happiness: “In general, how happy would you say that you are - very

correlation between income and happiness is strong and robust.⁶ In cross-sectional data among countries, instead, the positive association between wealth and happiness, although present, is neither general nor robust and poorer countries do not always appear to be less happy than richer countries.⁷ But the most interesting result came from the analysis of time series at the national level: in thirty surveys over 25 years (from 1946 to 1970 in the US) per capita real income rose by more than 60 per cent, but the proportion of people who rated themselves as “very happy”, “fairly happy” or “not too happy” remained almost unchanged.

The main drift of Easterlin’s seminal paper was developed two years later by Tibor Scitovsky’s *Joyless Economy* (1976). Hirsch (1976), Ng (1978) and Layard (1980) all brought new insights to the new theme of happiness in economics, which started to grow slowly but steadily.⁸ Today the “paradox of happiness” is gaining growing attention among economists, psychologists, social scientists and also, through the media, within the general public. The issue is relevant in economic theory: explaining the happiness paradoxes calls into questions some of the basic tenets of contemporary economics. The focus of the theoretical debate about the paradox of happiness, however, is contentious. Almost all scholars, from different backgrounds, agree that over time happiness does not grow with income.⁹ The income-happiness relation-

happy, fairly happy or not very happy?” (Easterlin, 1974, p. 91). The other set of data came from more sophisticated researches carried out by the psychologist Hadley Cantril (1965), another forerunner of contemporary quantitative studies on happiness, concerning people’s fears, hopes and satisfaction in 14 countries. The subjects interviewed were asked to classify their own satisfaction on a scale from 0 to 10.

⁶“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).

⁷“If there is a positive association among countries between income and happiness it is not very clear. The results are ambiguous” (Easterlin 1974, p. 108). Cantril’s data showed, for instance, that people in Cuba and Egypt were more satisfied than in West Germany (1965, p. 258).

⁸In 1997 the new theme surfaced in a debate in the *Economic Journal*, thus reaching a wider scientific audience.

⁹“Over time and across OECD countries, rises in aggregate income are not associated with rises in aggregate happiness. At the aggregate level, there has been no increase in reported happiness over the last 50 years in the US and Japan, nor in Europe since 1973 when the records began.” (Layard 2005b, p. 148). A recent paper by Hagerty and Veenhoven (2003) challenges this thesis, claiming that growing GDP is associated with greater happiness. Easterlin (2004) replied to this paper defending his classical thesis. Already in 1991 Veenhoven criticized Easterlin’s thesis about international comparisons. He plotted the same data as Cantril, though using the same scale on both axes, and showed that the relationship follows a convex pattern of diminishing returns. A similar criticism has been put forward by Oswald (1997, p. 1817) and many others, but the idea of a very low correlation between happiness and income growth is still the most accepted among economists working on happiness.

ship within a single country at a given moment in time is not controversial.¹⁰ Across countries the relationship is more controversial.¹¹

There are several explanations for the Easterlin paradox. The main theories can be grouped into three categories: hedonic, satisfaction and positional explanations. The first two (hedonic and satisfaction treadmills) have been put forward by psychologists, whilst the third one (positional treadmill) can be considered an internal evolution of the economic tradition.¹²

2.1 The hedonic treadmill

The hedonic explanation is based on set point theory. According to set-point theories of Subjective Well-Being (SWB) there is a level of happiness which remains practically constant during the life cycle. Personality and temperament characteristics, basically innate to individuals, play a prominent role in determining the level of happiness of individuals. Therefore, life circumstances, including health and income, are likely to account for a very small percentage of variation in SWB: people initially do react to events, but they then return to baseline levels of well-being that are determined by personality factors (Argyle 2001, Lucas et al. 2002).

Empirical studies (e.g. Lykken and Tellegen, 1996) concluded that more than 80 percent of the variance in long-term levels of SWB could be attributed to temperament. On this basis, researchers have claimed that people have inborn SWB set-points. The various shocks that hit us in our lifetime affect our happiness only temporarily. We inevitably return to our set point after a brief period during which an event has indeed affected our satisfaction levels. As pointed out by Daniel Kahneman: “[...] individuals exposed to life-

¹⁰The same thesis appears in Frank: “When we plot average happiness versus average income for clusters of people in a given country at a given time, rich people are in fact a lot happier than poor people. It’s actually an astonishingly large difference. There’s no one single change you can imagine that would make your life improve on the happiness scale as much as to move from the bottom 5 percent on the income scale to the top 5 percent” (2005, p. 67). And Layard: “Of course within countries the rich are always happier than the poor” (2005b, p. 148).

¹¹Layard makes an important distinction: “if we compare countries, there is no evidence that richer countries are happier than poorer ones - so long as we confine ourselves to countries with incomes over \$15,000 per head. At income levels below \$15,000 per head things are different, since people are nearer to the absolute breadline. At these income levels richer countries are happier than poorer ones. And in countries like India, Mexico and Philippines, where we have time series data, happiness has grown as income levels have risen” (2005, p. 149).

¹²The first economist who attempted to explain the income-happiness in terms of “treadmill effects” was Easterlin himself, in his 1974 paper. His explanation was based on Duesenberry’s (1949) “relative consumption” assumption. In his recent contributions Easterlin adds to the “relative consumption” hypothesis an explicitly “psychological” explanation based on the concept of hedonic adaptation or set-point theory.

altering events ultimately return to a level of well-being that is characteristic of their personality, sometimes by generating good or bad outcomes that restore this characteristic level” (1999, p. 14).

Many social scientists today maintain that there is a hedonic treadmill operating in the area of economic goods. The *hedonic treadmill*, an expression coined by Brickman and Campbell (1971), is a metaphor deriving from set-point theory. It refers to the idea that one is running constantly, towards material achievements, and yet remains at the same place because the treadmill runs at the same pace, or even faster, thus leading to lower levels of happiness.

Set-point theories are very popular today also among economists, implying that happiness is essentially a congenital matter that mostly depends on subjective elements, such as character, genes, or the inherited capacity to live with and overcome life’s hardship. In this view, there exists a given level of happiness, around which individuals gravitate due to different life-time experiences.¹³

2.2 The satisfaction treadmill

Kahneman (2000) makes a distinction between two types of treadmill effects, namely, the hedonic treadmill and the satisfaction treadmill. Whilst the hedonic treadmill depends on adaptation, the satisfaction treadmill depends on aspiration.¹⁴ A similar distinction between the two treadmill effects is made by Frey and Stutzer: “This process, or mechanism, that reduces the hedonic effects of a constant or repeated stimulus, is called adaptation. According to aspiration level theory, individual well-being is determined by the gap between aspiration and achievement” (2005, p. 125).

The satisfaction treadmill works in such a way that one’s subjective happiness (self-evaluation) remains constant even when one’s objective happiness improves. In this case, someone who buys a new car gets a boost in his objective well-being, or happiness, but the fact that he has had a rise in income has also made his aspirations rise about the ideal car to own, so that his

¹³This approach is not far from the theses of Herrnstein and Murray (1994), who claimed the uselessness of social programs on the basis of the innate level of intelligence that cannot be changed by education. Although in a quite different methodological line, Veenhoven (2005) rejects the common stereotype that sees misery, handicaps and inequality in income distribution as the main causes of people’s unhappiness, reaching the conclusion that there is no paradox of happiness in Easterlin’s sense. In his World Database of Happiness, Ghana and Colombia rank highest in terms of happiness levels. France and Italy take a back-seat to Guatemala.

¹⁴“On this hypothesis, Californians could indeed enjoy life more than others. However, if they also require more enjoyment than others to declare themselves happy, they will not report higher subjective happiness. Californians might be happier than other people objectively, but not subjectively.” (Kahnemann, 2000, p. 17).

subjective satisfaction level remains the same. This is true even though he may be objectively more comfortable in his new car.¹⁵ As a consequence, as their incomes increase, people are induced to seek continuous and ever more intense pleasures in order to maintain the same level of satisfaction.

Layard calls this effect the “effect of habit”: “if people adopt a higher living standard, they lose the option to return to they former living standard and experience the same utility as before from a given consumption” (2005, p. 155). This mechanism is also very close to the concept of reference-dependent preferences (Tversky and Kahneman, 1991), one of the most important ideas in modern behavioral economics.

2.3 The positional treadmill

Explanations based on the relative consumption hypothesis can be considered a development of the aspiration theory. The positional or relative consumption hypothesis is not a new one. Over a century ago, Veblen (1899) defined consumption as a social issue, given that the most significant acts of consumption are normally carried out in public, under the others’ view.¹⁶

Duesenberry (1949) was the first economist to introduce explicitly relative consumption theory. Duesenberry claimed that a person derives 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). Therefore, the utility of a person’s level of consumption is relative and not absolute. In this view, people are constantly comparing their material achievements with those of some reference group. It is the “keeping up with the Jones” idea, where utility depends on consumption relative to that of the others, rather than just on its absolute level.

More recently, Scitovsky (1976, cap. 6) dealt with the relationship between consumption and status, and Hirsch (1977) coined the term “positional good”. Today many economists are working on relative consumption or income theories with this interdisciplinary approach. The basic element of the theory is the concept of externality, in particular positional externality, that is connected to the idea of conspicuous consumption: conspicuous commodi-

¹⁵On the basis of the distinction between objective and subjective happiness, Kahneman maintains the individual and social importance of improving the objective conditions of happiness, even if such improvements are not felt subjectively. To drive more comfortable cars or eat better food is an expression of a higher quality of life (“objective happiness”, in Kahneman’s terms) although, because of the hedonic treadmill, there can be no increase in subjective terms.

¹⁶We should also mention the intuitions of the classical economists Smith and Genovesi about the social dimensions of consumption, and that the institutional American economists have always cultivated an interdisciplinary-line of research between economics, psychology and sociology.

ties are, in a sense, commons, with the typical phenomena of rivalry and over-exploitation.¹⁷ Following Frank's and Oswald's research, Layard recognizes that "a rise in the average income in the state where you live reduces your happiness by one third as much as a rise in your own income increases it". And, referring to the labour market, "a rise in wages of comparable workers reduces your job satisfaction as a rise in your own wage increases it" (Layard , 2005b, p. 150).

Summing up, people make social comparisons in evaluating their material achievements. Relative consumption theory can therefore be described as a further treadmill effect. Something else is running along with our income or consumption: the income of others.

3 The effect of television on income aspirations

As discussed above, rising aspirations provide one of the main explanations of the income-happiness paradox: individuals' subjective well being depends on the gap between material achievements and aspirations. To the extent that aspirations rise together with income, subjective satisfaction may remain unchanged as income rises. In this section we consider the effect of television on two of main processes by which income aspirations are determined: adaptation to past income and consumption levels and social comparison.

The introduction and diffusion of television was one of the most significant social events of the twentieth century.¹⁸ Television is widely recognised as

¹⁷Positional explanations of the happiness paradox make use of the economic concept of externality, and, therefore, refer to the non-intentionality of the mechanism that leads people towards unhappiness traps. In particular, in positional theories the externality that agent A generates affects agent B's SWB by means of a reduction of the utility derived from a given level of consumption (or income). "That many purchases become more attractive to us when others make them means that consumption spending has much in common with a military arms race. A family can choose how much of its own money to spend, but it cannot choose how much others spend. Buying a smaller-than-average vehicle means greater risk of dying in an accident. Spending less on an interview suit means a greater risk of not landing the best job. Yet when all spend more on heavier cars or more finely tailored suits, the results tend to be mutually offsetting, just as when all nations spend more on armaments. Spending less - on bombs or on personal consumption - frees up money for other pressing uses, but only if everyone does it". (Frank 2005, p. 84)

¹⁸As observed by Layard (2003): "Television differs from any previous medium of communication in two ways. The first is immediacy. But the second is the sheer amount of exposure. The typical (median) Briton watches television for 3 hours a day roughly 25 hours a week. Over a lifetime a typical Briton spends more time watching television than doing paid work. In most European countries viewing is rather lower but it is above 2 hours a day in most countries. So it is not fanciful to suppose that TV has had a profound influence on our lives and on our well-being." Layard (2003, p. 15)

one of the most powerful agents of socialization in contemporary society. In particular, television plays a key role in consumer socialization, by providing consumers with information used in constructing their mental representation of reality.¹⁹ Television therefore contributes significantly to define what our goals are, or should be. We argue that, by acting as a powerful agent of consumer socialization, television produces higher material aspirations and, as a consequence, lower levels of well being for a given level of material achievements. More precisely, television viewing produces its effects on material aspirations in two main ways.

First, when watching television people are the target of images of more and better products than what they have. Advertisers are aware that new demand can be created if people are not satisfied for too long with what they have. As a consequence, people are constantly offered new and improved products that promise a better and happier life, with television playing a key role in this process. This increases people's desire for material possessions, as they are induced to compare the goods they consume with new goods and new varieties of existing goods.²⁰ Television viewing therefore makes them less satisfied with what they consume, and, consequently, decreases the satisfaction derived from any given level of income or consumption of material goods.²¹ In this perspective, TV can be seen as a powerful factor in speeding up the *satisfaction treadmill*, through faster growth of aspirations.

Second, by watching TV people are overwhelmed by images of people richer and wealthier than they are. This contributes to shifting up the benchmark for people's positional concerns: income and consumption levels are compared not only to those of their actual social reference group, but also to those of their virtual reference group, defined and constructed by television programs.²² Television viewing makes people less satisfied with

¹⁹“Television has a number of features that contribute to its impact as an agent of consumer socialization. First, it is ubiquitous: the average American family watches more than seven hours of television per day, the average individual more than four hours per day. Second, the effects of television are often invisible. Watching television is so common that its effects can be obscured. Third, television supplies its viewers with images, accounts and stories of life that often far removed from the viewer's daily experience and social milieu. Fourth, television's message is homogeneous. Fifth, television's representations of social reality are often discrepant from objective reality.” (O'Guinn and Shrum, 1997, p. 278)

²⁰As observed by Layard (2003, p. 16): “Television creates discontent by bombarding us with images of body shapes, riches and goods we do not have. It does this both in TV drama and in advertisements.”

²¹This is not to say that the new products or new varieties of existing products are not better than the old ones, in terms of the utility they produce. The point, instead, is that constantly being told that there is something better than what you have makes people value less what they have.

²²As observed by Layard (2003, p. 16): “The most obvious transformation of our life

their income and wealth levels. In this perspective, TV can be seen as a powerful factor in speeding up the *positional treadmill*, through comparison with higher benchmark groups.

Television viewing affects individuals' material aspirations because it is the main source by which people acquire social information and are driven to make social comparisons. In the following sections we test empirically the hypothesis that television has a positive effect on aspirations and, therefore, reduces the satisfaction obtained by individuals from a given income level.

4 Methodology and data

Let LS_i be the life satisfaction of individual i , Y_i his income and Y_i^* his income aspiration level. Assume that the life satisfaction of individual i at time t depends on the gap between his income and income aspirations (see Stutzer, 2004):

$$LS_{it} = \beta_0 + \beta_1 (Y_{it} - Y_{it}^*) + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

where X_{it} is a set of variables which have independent effects on an individual's reported subjective well-being, such as demographic factors, socio-economic conditions, personality traits, environment characteristics, and ε_{it} is an individual-time idiosyncratic error term.

Assume that current income aspirations are positively related to past own income (Y_{it-1}) and to current income of others (Y_{jt}), reflecting the fact that aspirations depend on both adaptation and positional effects:

$$Y_{it}^* = f \left(\begin{array}{c} Y_{it-1}, Y_{jt} \\ + \quad + \end{array} \right) \quad (2)$$

Next, assume that current own income is positively related to both Y_{it-1} and Y_{jt} , so that aspirations are positively related to current income. Assuming a linear relationship, this implies that

$$Y_{it}^* = \lambda_0 + \lambda_1 Y_{it} \quad (3)$$

with $\lambda_1 > 0$.

Substituting (3) in (1), and omitting time subscripts, we obtain

$$LS_i = \beta_0 - \beta_1 \lambda_0 + \beta_1 (1 - \lambda_1) Y_i + \beta_2 X_i + \varepsilon_i \quad (4)$$

was the arrival of television, which shows us with total intimacy how other people live. Where people once compared themselves with the people round the corner, they can now compare themselves with anyone they like, up to J.R. in Dallas. It would be astonishing if such comparisons were not unsettling.”

Equation (4) indicates that, if aspirations are not directly observable, the coefficient of income incorporates the role of aspirations. In particular, assuming that income aspirations have a negative effect on life satisfaction, *ceteris paribus*, and that they are positively related to actual income, the omission of aspirations in estimating equation (4) determines a downward bias in estimating the effect of income on life satisfaction.

Now assume that, as discussed in the previous section, for any given level of actual income, income aspirations are higher for heavy television viewers (henceforth, high-TV), relative to light television viewers (henceforth, low-TV). This implies that

$$Y_i^* = \lambda_0 + (\lambda_1 + \lambda_2 TV) Y_i \quad (5)$$

where TV is a dummy variable indicating high-TV individuals, and λ_2 is assumed to be positive.

Substituting (5) in (1) we obtain

$$\begin{aligned} LS_i &= \beta_0 - \beta_1 \lambda_0 + \beta_1 (1 - \lambda_1 - \lambda_2 TV) Y_i + \beta_2 X_i + \varepsilon_i \\ &= \gamma_0 + \gamma_1 Y_i + \gamma_2 (TV \cdot Y_i) + \beta_2 X_i + \varepsilon_i \end{aligned} \quad (6)$$

where $\gamma_0 = \beta_0 - \beta_1 \lambda_0$, $\gamma_1 = \beta_1 (1 - \lambda_1)$, and $\gamma_2 = -\beta_1 \lambda_2$. Equation (6) indicates that, if TV viewing raises material aspirations for any given income level ($\lambda_2 > 0$), the coefficient characterizing the relationship between income and life satisfaction should be lower for high-TV viewers relative to low-TV viewers ($\gamma_2 < 0$). The effect of TV viewing on material aspirations can therefore be examined by testing whether γ_2 is significantly lower than 0.

We estimate equation (6) using individual data from the World Values Survey (see Inglehart et al., 2000). Four survey waves are currently available (1980-82, 1990-91, 1995-97 and 1999-2001), containing a total of 264,778 observations. However, since the first two waves do not contain information about television viewing we could only use the third and fourth waves (69,875 and 22,174 observations, respectively). This reduced the available sample size to 92,049 observations from 55 countries (see the data appendix for details).

The variable representing TV consumption levels is constructed 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)?”, with the following options: “Do not watch TV or do not have access to TV”; “1 - 2 hours per day”; “2 - 3 hours per day”; “More than 3 hours per day”. From this variable, we constructed a dummy variable taking the value 1 for high-TV viewers (2-3 or more than 3 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 $TV > 2$ dummy is 0.48).

Two measures of subjective well being are used as proxies for happiness.²³ The first, life satisfaction, is based on the question: “All things considered, how satisfied are you with your life as a whole these days?” and is measured on a scale from 1 to 10. The second (financial satisfaction) is defined similarly on the basis of the question “How satisfied are you with the financial situation of your household?”.²⁴ The income indicator is measured by self-reported deciles in the national distribution of income, so that income levels, defined in relative terms, are comparable across countries.²⁵

The set of control factors includes individuals’ demographic characteristics (age and gender) socio-economic conditions (self-assessment of freedom and health, education, employment status), family characteristics (marital status), personality traits (trust, honesty) and beliefs (importance of family, friends, leisure, politics, work and religion). Details on the definition and construction of these variables are provided in the data appendix.

One difficulty with using multi-country individual data is the need to control for cultural and societal differences, that may play a key role in explaining international differences in subjective well-being (Diener, 2000).²⁶ All the equations estimated in the following include either continent-specific geographic dummies (see Helliwell, 2002) or individual country dummies, so that unobserved heterogeneity due to country-level cultural and societal differences is controlled for. The equations are estimated by OLS, including a time fixed effect to allow for heterogeneity between the two survey waves.²⁷ Test statistics are calculated using heteroskedasticity robust standard errors.

²³For a discussion of the use of reported subjective well-being as an empirical approximation of individual happiness, see e.g. Frey and Stutzer (2002a).

²⁴We also considered a third measure of subjective well being, happiness, based on the question: “Taking all things together, would you say you are very happy, quite happy, not very happy, or not at all happy?”. The results were qualitatively similar to those obtained using life satisfaction and financial satisfaction.

²⁵Respondents were asked which decile their household income falls within a ten-point scale of national household income, such that a 1 indicates the first or lowest decile and a 10 represents the tenth or highest decile.

²⁶Helliwell (2002, p. 5) observes that “Since the data available for large-sample analysis has only limited power to identify personality types, the estimate responses to particular events will necessarily be an average across many different personality types, so that the explanatory power of equations based on individual responses is likely to be small.”

²⁷The results are qualitatively similar to those obtained using ordered probit or logit estimators, which would more appropriately take into account the ordinal nature of the dependent variable.

5 Results

5.1 Basic specification

Table 1 reports OLS estimates of equation (6) for the pooled sample (waves 3 and 4), with life satisfaction (column 2) or financial satisfaction (column 4) as dependent variable (measured on a scale from 10 to 100). The regressions are estimated on about 55,000 individual observations, and include continent-specific geographic dummies to control for cultural and societal differences (see the appendix for details on the definition).

We start by considering the results for the control variables, in order to provide a preliminary assessment of the empirical specification. The health and freedom indicators have large and highly significant coefficients.²⁸ Unemployment lowers life satisfaction by almost 5 percentage points, and the coefficient is highly significant. Medium and upper education levels have negative effect on individuals' well-being, with only the former being significant.²⁹ The results indicate a U-shaped pattern for different age groups (six groups from 15-24 to over 65): life satisfaction is significantly higher for the 15-24 and over 65 age groups (see e.g. Blanchflower and Oswald, 2000 for Britain and the United States). The life satisfaction for males is 1.19 percentage points lower than that for females. Being married is associated to a highly significant 3.05 difference in life satisfaction. As for individual characteristics, individuals who assign a high priority to either family, friends, leisure or religion report systematically higher satisfaction levels, while the opposite holds for those who consider important politics or work (although the latter indicator is not significant). Significantly higher life satisfaction is associated also to the honesty indicator (cheating on taxes is never justifiable) and the trust dummy (in general, people can be trusted).

Income is positively and significantly related to life satisfaction. The effect of income on life satisfaction, however, is significantly lower for those who watch more television. Moving up by one decile in the income scale is

²⁸A one-point improvement in health, on a five point scale, is associated with a 5.62 rise in life satisfaction (on a scale 10 to 100). A one-point improvement in self-perceived freedom, on a ten point scale, is associated with a rise in life satisfaction of 3.2 percentage points. It should be noted, however, that both the health and freedom coefficients may overstate the effect on subjective well-being, since self-reported well being, health and freedom are likely to be affected in the same direction by personality differences (see Helliwell, 2002). Diener and Lucas (2000) also observe that whereas subjective assessments of health are generally found to be related to happiness, the evidence for objective measures is less clearcut.

²⁹As observed by Helliwell (2002, p.11) "the education variables are among the weakest in the WVS data, being based solely on the ages at which individuals finish their full-time education. This is a very imperfect guide to how much education has been received or what results or qualifications have been obtained."

associated to a 1.43 rise in life satisfaction for low-TV individuals. The effect of income is smaller by 0.7 percentage points for high-TV individuals, and the difference is highly statistically significant. This difference can be interpreted as reflecting the effect of television viewing on material aspirations.

When financial satisfaction is used as the dependent variable, both the effect of income and the negative differential for high-TV viewers are larger (2.56 and -0.85, respectively) and more strongly significant. All the results for socio-economic and demographic characteristics also apply to financial satisfaction. Interestingly, the importance of family is no longer significantly related to individual satisfaction, the coefficient for politics is positive and significant, and that for work negative and significant.

5.2 Robustness

Table 2 present results obtained by estimating equation (6) using individual country dummies instead of area dummies, to check if the results are robust to alternative ways of controlling for environmental differences. All the results for socio-economic, demographic and individual characteristics are virtually unchanged. The differential effect of income for high-TV viewers is slightly smaller (-0.45 and -0.59, for life and financial satisfaction, respectively), but remains strongly significant.

Tables 3 and 4 present results obtained by estimating equation (6) separately for waves 3 and 4. The responsiveness of life satisfaction to income is significantly lower for heavy-TV viewers in both waves. The negative differential effect is also found in the equation for financial satisfaction, although it is not significant in wave 4.

Next, we examine the robustness of the results to the use of alternative definitions of the television indicators. First, we consider a dummy variable taking the value 1 for 1-2, 2-3, or more than 3 hours per day ($TV > 0$, table 5) and, second, a dummy variable taking the value 1 for more than 3 hours per day ($TV > 3$, table 6). All the findings discussed above are robust to the alternative definitions. The responsiveness of life satisfaction to income is found to be significantly lower using either indicator, with the effect being more pronounced for the $TV > 0$ dummy.

5.3 Alternative interpretations

One possible explanation of the negative coefficient for the TV-income interaction dummy is that the effect of income on well being may be non-linear, with smaller well-being effects attached to increases in income beyond certain levels. If television consumption is positively related to income, the negative sign of the coefficient for the TV-income interaction could be spurious, as it

would be simply capturing the non-linear effect of income. We thus consider the robustness of the results by including among the regressors either income squared (table 7) or income interacted with a high-income dummy (table 8). All the findings discussed above are robust to the alternative specifications.

Another possible interpretation of the negative coefficient for the TV-income interaction dummy is that it actually captures the different effect of television on the well-being of individuals depending on their financial condition. In this view some kind of “reverse causality” applies, as it could be argued that television is particularly beneficial to low-income individuals, whereas high-income individuals, having more alternative options available, do not benefit as much from television viewing. We thus consider the differential effect of income on life satisfaction for heavy-TV viewers *separately* for low-income and high-income individuals. The results, reported in tables 9 and 10, confirm the negative effect of television viewing on the responsiveness to income *within* both low- and high-income sub-samples, thus providing support to the causal interpretation of the coefficient for the interaction dummy in equation (6).³⁰

6 Conclusions

Prior research has shown that television viewing has an important effect on how individuals perceive reality and, in particular, on their material aspirations (see e.g. O’Guinn and Shrum, 1997, Shrum et al. 1998). A recent study by Shrum et al. (2005), based on a sample of 321 Americans, finds evidence that television cultivates materialism. A positive effect of television viewing on materialism was also found by Sirgy et al. (1998). There is also extensive evidence that higher material aspirations have a negative impact on life satisfaction (e.g. Stutzer, 2004, 2005).

In this paper we examined the effects of television viewing on income aspirations and, in turn, on the relationship between income and individual happiness. We argued that television viewing reduces the effect of income on life satisfaction by producing higher material aspirations, enhancing both adaptation and positional effects. Using individual data for about 56,000 individuals from the World Value Surveys we presented evidence indicating that the effect of income on both life and financial satisfaction is significantly smaller for heavy television viewers, relative to occasional TV viewers. This finding was found to be robust to a number of specification checks, while different alternative interpretations were examined and rejected.

³⁰We also considered the possibility that the TV dummy might be capturing more generally unobservable individual characteristics, possibly thus affecting other determinants of subjective well being. We thus interacted each of the socio-economic variables regressors in equation (6) with the TV dummy, but the interaction term was never significant.

The analysis presented in this paper complements the results in Bruni and Stanca (2005), who find that television viewing has a negative indirect effect on individual life satisfaction, through a significant crowding out effect on relational goods. Our results also qualify, and extend to a large and representative international data set, the findings in the recent studies by Frey et al. (2005) and Layard (2005).

Overall, the results presented in this study can also be interpreted as providing an additional explanation for the income-happiness paradox: as standards of living improve, the pervasive and increasing role of television viewing in people's life contributes significantly to raising material aspirations, thus lowering the effect of higher income on individual happiness.

7 Data appendix

The World Values Survey (WVS) provides information on individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction. WVS is a compilation of surveys conducted in more than 80 countries representing about 85 per cent of the world's population. 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). The first wave (1980-82) covers 23 countries (mostly OECD, 30,739 observations), the second (1990-91) 43 countries (59,169 observations), the third (1995-97) 50 countries (78,574 observations), and the fourth wave (1999-2001) 68 countries (96,296 observations). There are 82 different countries represented in one of the four waves, for a total of 264,778 observations.

Summary statistics for all the variables used in the analysis are reported in table 11. 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 self-assessment of 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). Educational levels are captured by three dummy variables for low (inadequately completed or completed elementary education, incomplete secondary school), medium (complete technical/vocational secondary school, incomplete or complete university-preparatory secondary school) and high education (some university with or without degree/higher education).

The age of the respondent is measured either by dummy variables identifying the age group of the respondent (18-24, 25-34, 35-44, 45-54, 55-64, 65 and older). We also control for gender, with a male dummy. Family characteristics are described a dummy variable for marriage (equal to 1 if the respondent is married), zero otherwise. The honesty variable is defined on individuals' answers to whether it is justifiable to cheat on taxes, on a 1 to 10 scale (1=never justifiable, 10=always 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"). Respondents' personality traits are proxied by the variables family, friends, leisure time, politics, work, religion, measuring the importance attributed by respondents to each of the above life domains on a 1 to 4 scale (1=not very important, 4=very important).

Geographic area dummy variables are defined as follows: Latin America (Argentina, Brazil, Chile, Dominican Republic, Mexico, Peru, Puerto

Rico, Uruguay, Venezuela), Asia (China, Bangladesh, India, Pakistan, Indonesia, Jordan, Taiwan), Africa (Nigeria, Algeria, South Africa, Morocco, Zimbabwe, Uganda, Egypt, Tanzania), continental Europe (West Germany, Greece, Spain, Switzerland), Scandinavia (Sweden, Finland, Norway), former Soviet Union (Russia, Ukraine, Azerbaijan, Armenia, Georgia, Estonia, Latvia, Lithuania, Belarus), Eastern Europe (East Germany, Moldova, Croatia, Serbia, Montenegro, Bosnia Hercegovina), base-group (Australia, United States).

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Table 1: Determinants of individual satisfaction (area dummies)

	Life satisf.	(t-stat.)	Fin. satisf.	(t-stat.)
Income	1.43	(26.19)	2.56	(43.85)
Income * TV dummy	-0.70	(-9.23)	-0.85	(-10.56)
<i>Socio-econ. characteristics</i>				
Health	5.62	(45.54)	4.23	(32.43)
Freedom	3.20	(69.56)	2.44	(52.49)
Unemployed	-4.85	(-13.66)	-4.94	(-13.21)
Low education	Baseline		Baseline	
Middle education	-0.61	(-2.40)	-0.37	(-1.36)
High education	-0.11	(-0.39)	0.64	(2.16)
Married	3.05	(13.53)	1.29	(5.39)
Male	-1.19	(-6.24)	-0.22	(-1.09)
Age 15-24	Baseline		Baseline	
Age 25-34	-2.58	(-8.45)	-2.90	(-8.86)
Age 35-44	-3.41	(-10.24)	-3.63	(-10.18)
Age 45-54	-3.09	(-8.44)	-2.62	(-6.69)
Age 55-64	-1.27	(-3.20)	-0.71	(-1.68)
Age 65 and over	2.19	(5.10)	4.93	(10.58)
<i>Individual characteristics</i>				
Family	1.25	(4.82)	-0.17	(-0.64)
Friends	0.64	(4.45)	0.65	(4.28)
Leisure	1.03	(7.85)	0.84	(6.12)
Politics	-0.44	(-4.25)	0.32	(2.90)
Work	-0.11	(-0.79)	-0.69	(-4.49)
Religion	0.51	(5.00)	0.68	(6.23)
Honesty	0.37	(8.39)	0.19	(3.99)
Trust	1.40	(6.60)	1.66	(7.30)
Adjusted R^2	0.29		0.24	
Observations	56258		56211	

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors).

Dependent variable: life satisfaction. All equations include area dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 2: Determinants of individual satisfaction (country dummies)

	Life satisf.	(t-stat.)	Fin. satisf.	(t-stat.)
Income	1.27	(22.63)	2.63	(43.74)
Income * TV dummy	-0.45	(-6.00)	-0.59	(-7.45)
<i>Socio-econ. characteristics</i>				
Health	5.17	(41.67)	4.09	(31.50)
Freedom	3.03	(65.55)	2.30	(49.76)
Unemployed	-4.17	(-11.86)	-3.95	(-10.74)
Low education	Baseline		Baseline	
Middle education	-1.38	(-5.08)	-1.39	(-4.90)
High education	-0.88	(-2.98)	-1.25	(-4.03)
Married	3.31	(14.91)	1.19	(5.06)
Male	-1.00	(-5.35)	-0.14	(-0.69)
Age 15-24	Baseline		Baseline	
Age 25-34	-3.07	(-10.18)	-3.15	(-9.81)
Age 35-44	-4.17	(-12.61)	-4.08	(-11.64)
Age 45-54	-4.02	(-11.07)	-3.06	(-7.96)
Age 55-64	-2.35	(-5.93)	-1.08	(-2.57)
Age 65 and over	0.68	(1.58)	4.36	(9.46)
<i>Individual characteristics</i>				
Family	1.43	(5.56)	-0.03	(-0.13)
Friends	0.46	(3.17)	0.51	(3.38)
Leisure	0.65	(4.95)	0.53	(3.90)
Politics	-0.83	(-7.89)	-0.28	(-2.51)
Work	-0.09	(-0.66)	-0.79	(-5.16)
Religion	0.75	(6.77)	0.64	(5.47)
Honesty	0.35	(8.11)	0.16	(3.43)
Trust	1.30	(6.19)	1.41	(6.27)
Adjusted R^2	0.31		0.29	
Observations	56258		56211	

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors).

Dependent variable: life satisfaction. All equations include country dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 3: Income, TV and subjective well being (1995-1997)

Dependent variable:	Life satisfaction	Financial satisfaction
Income	1.49 (24.13)	2.91 (43.72)
Income*TV dummy	-0.85 (-10.14)	-1.16 (-12.77)
Adjusted R^2	0.33	0.29
Observations	39212	39219

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and country dummies.

Data source: World Value Survey 3 (1995-1997)

Table 4: Income, TV and subjective well being (1999-2001)

Dependent variable:	Life satisfaction	Financial satisfaction
Income	1.42 (12.78)	2.02 (17.02)
Income*TV dummy	-0.38 (-2.32)	-0.21 (-1.21)
Adjusted R^2	0.21	0.16
Observations	17046	16992

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and country dummies.

Data source: World Value Survey 4 (1999-2001)

Table 5: Alternative dummy definition: watch TV at all

Dependent variable:	Life satisfaction	Financial sat.
Income	1.99 (15.23)	3.23 (23.28)
Income*TV dummy	-1.10 (-8.09)	-1.32 (-9.14)
Adjusted R^2	0.29	0.25
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 6: Alternative dummy definition: watch TV more than 3 hours

Dependent variable:	Life satisfaction	Financial sat.
Income	1.26 (27.75)	2.33 (48.03)
Income*TV dummy	-0.72 (-7.75)	-0.76 (-7.67)
Adjusted R^2	0.29	0.24
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 7: Robustness check: decreasing returns to income

Dependent variable:	Life satisfaction	Financial satisfaction
Income	2.43 (14.68)	3.35 (19.26)
Income ²	-0.10 (-6.73)	-0.08 (-4.98)
Income*TV dummy	-0.67 (-8.87)	-0.83 (-10.29)
Adjusted R^2	0.29	0.24
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.
Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 8: Robustness check: high income dummy

Dependent variable:	Life satisfaction	Financial satisfaction
Income	1.53 (19.11)	2.71 (31.87)
Income*HI dummy	-0.67 (-1.88)	-0.92 (-2.44)
Income*TV dummy	-0.69 (-9.15)	-0.85 (-10.47)
Adjusted R^2	0.29	0.24
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.
Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 9: Income, TV and SWB: high-income individuals

Dependent variable:	Life satisfaction	Financial sat.
Income	0.71 (4.78)	1.91 (11.61)
Income * High-TV * High-income	-0.43 (-2.00)	-0.52 (-2.17)
Adjusted R^2	0.29	0.25
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 10: Income, TV and SWB: low-income individuals

Dependent variable:	Life satisfaction	Financial sat.
Income	1.99 (15.88)	3.04 (23.39)
Income * High-TV * Low-income	-0.86 (-4.72)	-0.82 (-4.31)
Adjusted R^2	0.29	0.25
N. Observations	56258	56211

Note: t-statistics reported in brackets (heteroskedasticity robust standard errors). Additional control variables (not reported) include socio-economic and individual characteristics, as detailed in tables 1 and 2, and area dummies.

Data source: World Value Surveys 3 (1995-1997) and 4 (1999-2001).

Table 11: Descriptive statistics

Variable	Mean	St. Dev.	Min	Max	N. Obs
Life satisfaction	66.39	24.85	10.00	100.00	259947
Financial satisfaction	57.12	26.75	10.00	100.00	214363
TV viewing	1.58	0.96	0.00	3.00	92049
TV dummy	0.48	0.50	0.00	1.00	92049
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
Male dummy	0.48	0.50	0.00	1.00	260130
Married dummy	0.63	0.48	0.00	1.00	260449
Lower education	0.31	0.46	0.00	1.00	188968
Middle education	0.45	0.50	0.00	1.00	188968
Upper education	0.24	0.43	0.00	1.00	188968
Age 15-24	0.18	0.38	0.00	1.00	252491
Age 25-34	0.23	0.42	0.00	1.00	252491
Age 35-44	0.21	0.40	0.00	1.00	252491
Age 45-54	0.15	0.36	0.00	1.00	252491
Age 55-64	0.12	0.33	0.00	1.00	252491
Age over 64	0.11	0.31	0.00	1.00	252491
Family important	3.85	0.42	1.00	4.00	230650
Friends important	3.26	0.73	1.00	4.00	229932
Leisure important	3.07	0.81	1.00	4.00	228199
Politics important	2.26	0.96	1.00	4.00	226759
Work important	3.54	0.71	1.00	4.00	228871
Religion important	2.89	1.08	1.00	4.00	227079
Onesty	8.58	2.36	1.00	10.00	246262
Trust dummy	0.30	0.46	0.00	1.00	252181

Note: See the data appendix for details on the definition of the variables.