Does Spending Make Us Happy?

The Role of Absolute and Relative Consumption on Life Satisfaction in Turkey

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Abstract

In economic theory 'consumption' is commonly seen as final 'utility', but the factual relationship between consumption and happiness has hardly been considered. Empirical research on this matter is required, among other things because it can provide a basis for more informed consumer choice. We add to the emerging literature on this matter with a survey study among the general public in Turkey, in which we assessed both the *degree of consumption*, absolute and relative, as well as *particular kinds of consumption*. Happiness was measured using a single question on life-satisfaction.

For the degree of *absolute consumption*, we found a negative relationship with life-satisfaction. For the degree of *relative consumption*, we found mixed correlations with life-satisfaction; no correlation with consumption compared to family and neighbors and a negative correlation with higher consumption seen among colleagues. Life-satisfaction appeared to be stronger linked to importance attached to comparison, than to actual comparison.

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For *kinds of consumption* we found mostly negative correlations with life-satisfaction, in particular with housing expenses. The only positive correlation with life-satisfaction was expenses on eating out and vacations. A split across age and sex revealed minor differences.

These results illustrate that the relationship between consumption and happiness is more complex and variable than is commonly assumed and that further research is needed to get a view on what patterns of consumption add most to the happiness of what kinds of people.

Keywords

consumer behavior, experienced utility, contextual variation, social comparison

1. INTRODUCTION

The question "Does consumption affect happiness?" has significant importance, since the consumption of goods and services constitutes an essential part of our lives and constitute the biggest share in the Gross Domestic Product of a nation. Economists often take for granted that the higher level of consumption means greater welfare and increased happiness. Consumption especially contributes to the well-being of the poor by giving them more opportunities to meet physiological and security needs (Veenhoven 1988).

Economists have provided insights into the relationship between absolute consumption and happiness, typically using income as a proxy for the amount of goods and services consumed for several decades. Cross-sectional studies within countries demonstrate that at any given point in time in a specific country, people with higher incomes/consumption levels are happier than people with lower incomes/consumption levels and on average, people living in rich countries are happier than those living in poor countries. These studies, by controlling a large set of socio-economic and demographic variables have revealed that the relationship between income and happiness is statistically significant though modest in size. (Diener et. al., 1995; Inglehart, 2018, Di Tella, MacCulloch, & Oswald, 2001; Easterlin, 1995; Frijters, Haisken-DeNew & Shields, 2004; Frey & Stutzer, 1999; Veenhoven, 1991; Oswald,1997; Stutzer, 2004; Diener, Sandvik, Seidlitz & Diener, 1993 and McBride, 2001).

Although economic theory sees consumption as final utility, little is known about the effects of consumption on happiness. Individuals spend their disposable income on several consumption categories such as food, durables and house care items; however, we do not know which of these contributes most to our happiness, and in particularly not what degree of consumption and what consumption mixes yield the most happiness for what kinds of people. This is no problem if consumers are fully informed about their needs and act rationally, yet we know that this assumption of classic economy is not well met in reality. People can spend their income in ways that do not make them any happier.

Standard economic theory also does not address relative utility. Following Easterlin's seminal research (1974), a number of empirical works demonstrated that a person's subjective well-being not only depends on absolute income, but also depends to a large degree on relative income (McBride 2001; Easterlin, 1974, 1995; Di Tella, Haisken-De New & MacCulloch, 2010; Ferrer-i-Carbonell, 2005; Clark and Oswald, 1996; Stutzer, 2004; Blanchflower & Oswald, 2004; Luttmer, 2005; Easterlin & Angelescu, 2009; Senik, 2004, 2008 and 2009). The relative income theory proposes that people compare their income with those around them and income comparison includes comparison to others in the relevant reference group (social comparisons) as well as and to oneself in the past (adaptation or habituation) and future expectations (aspiration). Studying income comparison effect on happiness, scholars mostly rely on questions on relative income captured by the surveys, which include questions as such "How important is it for you to compare your income with other people's income?" "How much are you concerned, anxious or envious about other people's income?" (Mayraz, Wagner and Schupp, 2009; Clark and Senik 2010; Goerke and Pannenberg 2013; Dumludag, Gokdemir and Vendrik, 2015).

Our aim with this paper is to explore the relationship between aggregate consumption, kinds of consumption, relative consumption and life satisfaction. This is done by using unique survey that provides direct evidence on absolute and relative consumption. The survey was designed by the authors of this paper and applied in 12 regions in Turkey with a total of 3008 respondents.

The paper is organized as follows: In the following section 2 we discuss earlier research on the relationship between consumption and happiness. In the methodological section 3, we report on sampling and measurement how the variables have been measured the methodology on the effect of absolute and relative consumption items on individual well-being is outlined; in this same section, the survey, data, variables, some descriptive statistics and the empirical strategy are given; the subsequent sections contain empirical analyses, a discussion on key results and the conclusions that can be drawn.

2. EARLIER RESEARCH ON CONSUMPTION AND LIFE-SATISFACTION

Economists generally have treated income and consumption interchangeably. This is because, income is easier to report and income data (although may understate some financial resources) is available in most of the (larger) datasets. Questions about consumption expenditures are rarely asked in household surveys and it is costlier to collect them. To collect data on aggregate consumption and consumption categories requires much more time. Using diary methods or asking questions about more than twenty consumption items in single or frequent meetings takes time and effort.[4]

Although existing researches mostly rely on datasets that include income and interpret the role of available income variables as a proxy for consumption, a number of studies have specifically focused on effect of aggregate consumption and/or consumption subcategories on happiness using panel data, cross-section data or unique surveys that include direct measure of consumption.

2.1. Absolute Consumption and Life Satisfaction

Total consumption

In most of the earlier studies a positive and significant relationship has been found between aggregate consumption and happiness. For instance, using US Panel Study of Income Dynamics (PSID) micro-level panel data, Brown and Gathergood (2017) have shown that consumption has much larger effects on life satisfaction than income. Noll and Weick (2015) using German Socio Economic Panel Study (GSOEP) for 2010 (in which a module for consumption is included) showed that life satisfaction increases with increasing consumption expenditures.

Kinds of consumption

The relationship between consumption subcategories and happiness is more complicated. The findings available in the literature demonstrate that not every kind of consumption goes with greater happiness. Noll and Weick (2015) found a significant correlation between happiness and expenditures on clothing and leisure, while the correlation between happiness and expenditures on food and housing was not significant. The observed correlations between happiness and consumption vary across studies. Zhang and Xiong

[4] The most accurate recall-based measure of total expenditure is derived from asking about an exhaustive list of highly disaggregated expenditure items (See: Browning, Crossley & Weber, 2003).

(2015) collecting data from 2,178 respondents residing in various cities across Japan in 2010 found that 41 out of the 77 consumption variables (monetary and nonmonetary) were significantly related to happiness. Examining the association between various components of consumption expenditure and happiness, Deleire and Kalil (2010), using the Health and Retirement Study (HRS), found that spending on leisure goods and activities such as vacations, entertainment, sports, and leisure equipment is associated with higher levels of happiness. They did not find a significant correlation between happiness and other types of consumption such as food, utilities, and health care.

Similar results were observed in other studies**,** Dumludag (2015) by using the Life In Transition Surveys (LITS) I (2006) and LITS II (2010) revealed that among seven consumption categories clothing, transport and communication, entertainment, furnishings and durable goods expenditures were positively related to life satisfaction, only health expenditure was not statistically significant for transition countries: The regression results also revealed that the relationship between consumption categories and life satisfaction differs at different levels of development. Using the same LITS 2 dataset, Gokdemir (2015) analyzed the relationship between consumption and life satisfaction in Turkey. She found that among the seven consumption subcategories only expenditure on durables was significantly related to life satisfaction. Using household economic data from Britain and Hungary, Headey, Muffels and Wooden (2008) analyzed the relationship between expenditures on nondurables (sum of expenditures on food and groceries, meals out and leisure etc.) and happiness and observed that durable consumption expenditures also prove to be equally strongly related to happiness as income for Britain and Hungary, where consumption data are available. In a case study for seven communities in Peru, Guillen-Royo (2008) by using the Resources and Needs Questionnaire (RANQ) (a sub-sample of 254 households for the years 2004 and 2005) showed that higher expenditure is related to increased happiness controlling for socio-demographic characteristics and levels of intermediate needs.

Some of the studies in the literature revealed that some kinds of consumption go with less happiness. Dumludag (2015) found that among seven consumption categories education expenditures was negatively related to life satisfaction in transition countries. Gokdemir (2015) by running regressions for males and females in Turkey demonstrated that expenses on durables go with greater happiness among both sexes, but that among females, expenses on clothing and footwear were negatively related to life satisfaction. The results of the longitudinal analysis of Hungary, (Headey, Muffels and Wooden, 2008) demonstrated that changes in wealth and income are significantly and positively related to changes in life-satisfaction, however, the effects of changes in consumption are significant but negative. A possible post hoc explanation of authors is that people become worried and dissatisfied if their consumption rises for a given level of

income and wealth. As a matter of straightforward accounting, if consumption exceeds income, then a net loss of wealth (dissaving) occurs, which is likely to reduce satisfaction.

2.2. Relative Consumption and Life Satisfaction

People compare themselves with others, and the attitudes that arise from consumption comparisons have been known since Veblen (1899) coined the term ‘‘conspicuous consumption’’ to refer to expenditure on goods that signal the consumer’s position in society. Later, Frank (1985), Hirsch (1976), Pollak (1976), Van Praag (1968), and Kapteyn (1977), set out models of ‘interdependent preferences’ that depend on other people’s consumption and formalized the notion of ‘relative utility’ into a theory of preference formation.

Since Easterlin’s (1974) seminal work on relative income and subjective well-being, there has been a substantial increase in the number of empirical studies on the influence of income comparisons on happiness. The majority of these studies have been carried out for developed countries due to the greater availability of data. The findings of the numerous studies reveal that economic and social comparison has significant effects on subjective well-being (e.g., Clark and Oswald, 1996; McBride, 2001; Van Praag and Ferrer-i-Carbonell, 2004; Ferrer-i-Carbonell, 2005; Luttmer, 2005; Senik, 2009; Layard, Mayraz, & Nickell, 2010; D’Ambrosio & Frick, 2012; Vendrik, 2013).

Thanks to the availability of a few surveys that include questions about reference groups (such as neighbors, colleagues, etc.) scholars are able to analyze the impact and direction of income comparisons and the interaction effects on life satisfaction (Mayraz, Wagner and Schupp, 2009; Clark and Senik 2010; Goerke and Pannenberg 2015; Dumludag, Gokdemir and Vendrik, 2015). In these surveys the reference group comparison section generally comprises two questions: ‘‘How important is it to compare your income with the reference groups below?’’ and ‘‘How do you evaluate your income in regard to these reference groups?’’ Using these statements, the scholars mentioned above (except Dumludag et.al., 2015) found negative correlations between the perceived importance of social reference groups per se and life satisfaction. These negative correlations are consistent with findings in psychology which show that people who often engage in social comparison tend to be less happy than people who do not (Schwartz et al.,2002). In regard to gender analysis, Mayraz, Wagner and Schupp, (2009) found significant relative income effects only for males and the reference groups of same sex and same profession.

A limitation of the above surveys is that they do not include direct questions on consumption comparison and relative consumption. A unique survey designed for the project reported here allowed us to analyze the relationship between relative consumption and life satisfaction directly.

2.3 Research questions

The literature review presented leads us to develop our research questions. First, we try to understand how much consumption is optimal happiness wise, both absolutely and relatively. Secondly, we try to find out what kinds of consumption yield the most happiness.

3. METHOD

3.1 Survey

The data we have analyzed to answer the research questions were gathered as part of a unique survey about consumption, income and life satisfaction in different regions of Turkey. The survey was conducted between January 2016 and April 2016. In total a representative sample of 3,008 individuals were selected (randomly for face-to-face interviews), across 12 regions, in parallel with Turkish Statistical Institute classification of level 2.[5] All survey interviews were carried out face to face and door to door. Within a selected household, one respondent (not necessarily the head of household) was surveyed. The survey asks several series of general questions about household and expenses, personal characteristics and life satisfaction. The data comprised 1506 men and 1502 women.[6]

3.2 Variables

3.2.1 Consumption variables

Absolute consumption

In this study, for representation and comparison concerns, we use 12 main consumption categories similar to the Turkish household budget survey (TUIK) which does not include subjective well-being question. In order to collect a detailed and specific data, we included 38 consumption sub-categories in our survey. The question for the consumption categories such as food, rent and utilities was "During the past 30 days, approximately how much did your household spend on …..?"each of particular consumption sections such

[5] Cities in twelve regions are: Istanbul, Tekirdag, İzmir, Bursa, Ankara, Antalya, Adana, Kayseri, Samsun, Trabzon, Erzurum, Malatya, Gaziantep
[6] The average happiness of the sample is 6.03 which is close to the average happiness score of 5.8 in Turkey (World Database of Happiness, 2018)

as education, durables and vacations, the questions ask about household expenditures over the past twelve months. The annual categories were then converted to monthly consumptions and the monthly/annual expenditures calculated in the local currency. As a robustness check a separate question "How much Turkish Lira did your household spend last month?" was asked as an open question.

Relative consumption

A key comparative advantage of our survey is that it provides direct information on the intensity of consumption comparisons and perceived relative consumption of respondents with respect to an exogenously given set of four reference life-domain groups: colleagues/friends, neighbors, relatives and family members. In the first question, respondents were requested to indicate the importance of consumption comparisons with the four reference groups on a 1-5 scale ranging from "completely unimportant" to "very important". The second question asked respondents to report how their household consumption compared with the reference groups on a 1-5 scale ranging from "much lower" to "much higher".

Kinds of consumption

In both surveys housing and rent expenditures, and food and non-alcoholic beverages expenditures constituted close to half of the total consumption expenditures of a respondent. In both surveys, the third biggest category of expenditures was transportation; the share of transportation was much smaller in our survey in comparison to TUIK data. The other significant difference was for expenditure on entertainment and culture: in our survey the share of entertainment expenditures was 6.12 whereas its share was 2.87 in TUIK data. Education had a small percentage of consumption because a significant number of respondents (elderly couples, adults with no children, etc.) declared zero consumption for education.

Subcategories: In our study, for representation and comparison concerns, we used 12 main consumption categories similar to TUIK household budget survey which does not include a subjective well-being question. However, in our survey, in order to collect a detailed and specific data, we included 38 consumption sub-categories. Rather than using TUIK's consumption category titled "miscellaneous goods and services" we derived two categories "financial expenditures" and "gifts and donations". Rather using "clothing and footwear", we preferred to use the term "appearance", (which is more comprehensive) related to the appearance of the respondents. We replaced the term "Experience" with "Entertainment and Culture", since the subcomponents of the category are related to more than expenditure on entertainment and culture.

Table 1. The expenditure categories used in the models are shown below:

Categories	Contents
Appearance	Clothing, dry cleaning, expenditure on personal care products (haircut, perfume, etc.), jewelry, watches.
Communication	Postal services, cell phone, telephone, internet and other services.
Eating Outside and Vacation	Foods and beverages in restaurants, cafe and pubs, hotels, motels, pension, holiday resort etc.
Education	Educational services (pre-school education, primary education, secondary education, higher education, pre-university education and other type of education), other education programs at no defined levels (computer course, foreign language course, music and art course), fee for entrance form and private course fees
Experience	Entertainment (entrance fee for cinema, theater, museum etc.) and culture, paperwork (pen, notebook, and water colors), newspapers, magazine, bets (lotteries), book, computer game, electronic products (cd player, video camera, computer etc.), computer programs, sport facilities and sport equipment.
Financial Services	Insurances (housing, health, transportation and other), banking expenses and financial services.
Food and Beverages	Food (rice, bread, meat, fish, milk, yoghurt, cheese, etc.) and non-alcoholic beverages such as coffee, tea, mineral water, and fruit and vegetable juices
Gifts and Donations	Gifts and donations made by household members
Housing	Rent, house maintenance and repair, utility services for housing, water supply, electricity, gas, etc., expenditures related to the furniture, house decorations, home textile products, white goods etc., parent care, cleaner, cleaning products and furniture and pet care and other household services necessary to maintain a home
Medical	Medical product, treatment tools and equipment, services provided in and out of the hospital, dental services etc.
Tobacco and Alcohol	Alcoholic beverages: liqueurs, wine, beer etc., cigarette, cigars and tobacco.
Transportation	Passenger transportation (rail, road, air and sea), and gasoline.

3.2.2 Life satisfaction

The dependent variable used in this study was the subjective enjoyment of one's life as a whole, which is called 'happiness' or 'life-satisfaction' (Veenhoven, 1984). In the survey, this variable was measured using responses to the following question: "All things considered, how satisfied or dissatisfied are you with your life as a whole, these days?" The answer options were graded from 0 to 10, where 0 indicates "completely dissatisfied" and 10 "completely satisfied.".

3.2.3 Background variables

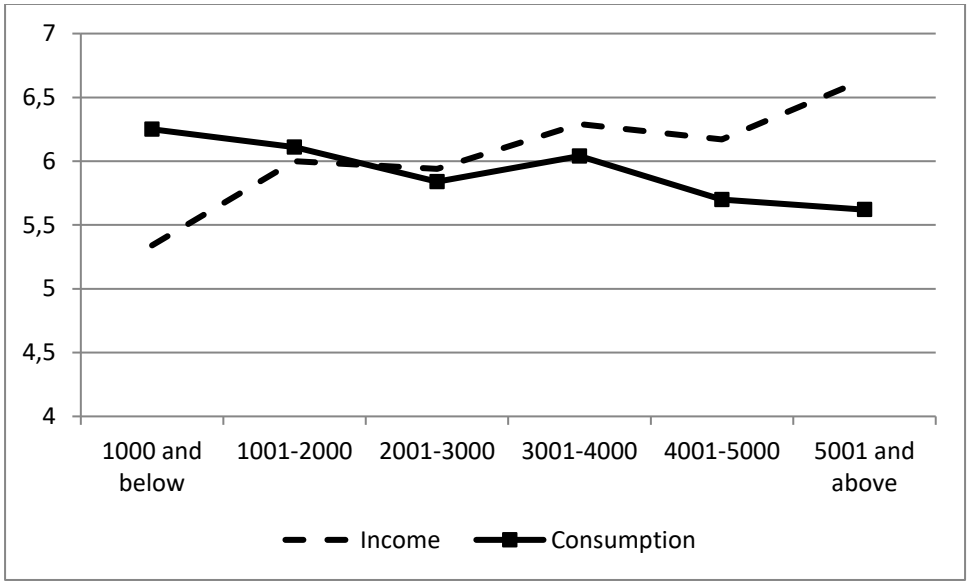
We included the following background variables in our study: The Big Five personality traits (Gosling, Rentfrow, & Swann Jr, 2003), there are socioeconomic and socio-demographic variables, which include gender, age, age squared, and household size, marital status, number of children, education, and employment, price levels and region controls.

4. DESCRIPTIVES and RELATIONS[7]

4.1 Descriptive Evidence on Aggregate Consumption

A higher household income goes together with greater happiness in Turkey, but more consumption does not. While, the relationship between income and happiness is positive, the relationship between consumption and happiness is negative, the biggest spenders being the least happy. Consequently, we saw a positive relationship between saving and happiness in Turkey, as visualized in Figure 2

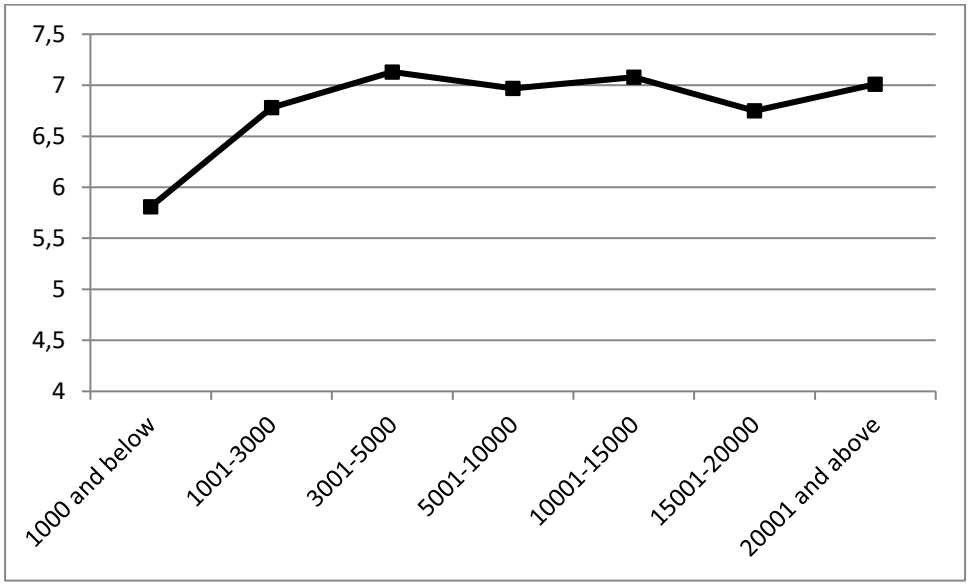
Figure 1. Household Income, Aggregate consumption and Happiness in Turkey



Life satisfaction score rises substantially from 5.81 for savings of 1,000 and below level to 7.13 for 30,001 and 5,000 Turkish Lira saved and then it stagnates until it reaches to 7.08 score at 10,001 and 15,000 Turkish Lira level. Following, life satisfaction score slightly diminishes to 6.75 at 15,001 and 20,000 Turkish Lira level. Above 20,001 Turkish Lira level life satisfaction level reaches to 7.01.

[7] Descriptive of socioeconomic, sociodemographic and financial variables are presented at appendix.

Figure 2. Annual Savings and Life Satisfaction in Turkey



4.2. Descriptive Evidence on Aggregate Consumption

A key comparative advantage of our survey was that its consumption categories were designed to parallel with Turkish Statistical Institute Household Budget Data.[8] Both surveys are designed to obtain direct information on the twelve consumption categories shown in Table 2 and the shares of these categories were remarkably similar for most of the items.

Table 2. (%) Distribution of total household consumption expenditure for full sample in comparison with subsample of Turkish Statistical Institute (TUIK)

Consumption Categories in %	Our Sample	TUIK (2015)
Food and non-alcoholic beverages	21.24	20.2
Alcoholic beverages, cigarette and tobacco	6.46	4.17
Clothing and footwear	4.25	5.19
Housing and rent	25.54	26.04
Furniture, houses appliances and home care services	7.98	6.14
Health	1.10	2
Transportation	9.01	16.97
Communication	5.25	3.65
Entertainment and culture	6.12	2.87
Educational services	2.34	2.17
Restaurant and hotels	6.82	6.35
Various good and services	3.90	4.25

[8] The main differences are; TUIK (Turkstat, 2018) survey is applied throughout a year, our survey applied once a time, between January and April, 2016 the reference year was 2015 for the respondents. The TUIK survey does not include a question on happiness.

4.3. Descriptive Evidence on Relative Consumption

Surveys that include questions on comparison mostly ask questions related to income comparisons. A key comparative advantage of our survey is that it provides us with direct information on the intensity of consumption comparisons (completely unimportant to compare (1), completely important to compare (5)) and perceived relative consumption (much lower (1), much higher (5)) of respondents with respect to an exogenously given set of four reference life-domain groups: colleagues/friends, neighbors, relatives and family members.

Table 3. Perceived importance of comparison and perceived relative consumption for reference groups

Reference Group	Colleagues/ Friends	Neighbors	Relatives	Family
Perceived importance of comparison (in %)				
1 completely unimportant	18.9	24.1	22.00	8.00
2	34.2	35.3	33.30	12.80
3	26.7	21.2	22.33	20
4	17.3	16.7	21.00	41.72
5 very important	2.96	2.52	1.46	17.40
Mean	2.51	2.38	2.47	3.48
Standard Error	3.59	1.10	1.09	1.55
Number of observations	3010	3010	3010	3010
Perceived relative consumption (in %)				
1 much lower	4.12	3.65	3.89	3.09
2	27.21	24.29	26.28	26.92
3	52.79	50.66	50.20	50.83
4	14.19	19.50	17.80	16.05
5 much higher	1.69	1.89	1.83	3.12
Mean	2.82	2.92	2.88	2.89
Standard Error	0.78	0.81	0.81	0.82
Number of observations	3010	3010	3010	3010

From table 3 it can be seen that about 59 percent of the respondents find it important (rather or very) to compare their household consumption with that of their family members. The ratio for comparison intensity was 22.46 for relatives, 19.22 for neighbors and 20.26 for colleagues and friends. More than 31.33 percent of the respondents perceive their household consumption as lower (very low and somewhat lower) than that of colleagues or friends. The percentages are 27.94 for neighbors, 30.17 for relatives and 30.01 for family members.

5. RESULTS

This research was conducted with the aim of addressing the questions: "What kinds of consumption yield the most happiness?" and, "How much consumption is optimal happiness wise? Both absolutely and relatively?" To answer these questions, we estimated cross-section models by using ordinary least squares (OLS) regressions, treating life satisfaction as a cardinal construct. The results of cardinal models are more intuitive and easier to interpret than estimates obtained using ordinal probit models. In addition, cardinal and ordinal analyses of life satisfaction have been shown to yield similar results (Ferrer-i-Carbonell and Frijters, 2004).[9]

5.1. Degree of consumption

Absolute consumption

The results of our study suggest that the life satisfaction levels of respondents with higher consumption levels are lower than those of the respondents with lower consumption levels. Our regression results also suggested that an increase in aggregate consumption had a negative effect on life satisfaction and we found that household income and savings had a positive relationship with life satisfaction, which was statistically significant. See table 4. As a robustness check, it can be inferred that given the many negative signs in table 7 (for consumption subcategories), aggregate consumption must be negatively related to happiness.

Table 4. OLS Estimates of Coefficients of Aggregate Consumption Variables for the All Sample

Dependent variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	1.096*** (0.311)	0.563** (0.223)	-	-	0.040 (0.156)
Ln monthly household consumption (declared)	-1.202*** (0.326)	-	-0.280* (0.152)	-	-
Ln monthly household consumption (calculated)	-	-0.654*** (0.226)	-	-0.348** (0.144)	-
Savings	-	-	0.179*** (0.025)	0.182*** (0.025)	0.165*** (0.030)
Observations	3006	3006	3006	3006	3006
Adjusted R-squared	0.116	0.115	0.091	0.092	0.090

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

[9] All the results presented in this paper were substantively the same whether OLS or an ordinal level technique (ordered probit) was used, the results of ordered probit regressions are available to researchers upon request.

Controls for model 1-2:age, age^2, education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5) (Controls for the model 3-4-5 are same except , borrowed, spend savings, saved money, neither borrowed nor saved (ref).

The results for our analysis are presented in 5 steps in Table 4. First, we estimated a model including only monthly household income and monthly household consumption. As expected, income was positively related to life satisfaction however; monthly household consumption (declared by the respondents) was significantly correlated with a decrease in life satisfaction. In the second step we computed an alternative "monthly household consumption" as the sum of the consumption categories. Once more, we found the result that monthly consumption (calculated) was negatively related to life satisfaction but the impact was a bit lower than the declared consumption. In the third step, since saving money can reduce financial stress we wanted to see if there is any link to subjective well-being.

From the results we could clearly see that saving money increased life satisfaction. However, the coefficient of household consumption was smaller than first and second models coefficients when we did not include income but savings to the third step. From another perspective, the negative impact of household consumption is higher than the positive impact of savings on life satisfaction. When we change declared consumption to calculated consumption we again saw the correlation with life satisfaction as those seen in in model 4. Finally, we estimated a model that included monthly household income and savings. Results show that only savings is positively correlated with life satisfaction.

Interestingly for the gender analysis, (see Appendix Table A2 and Table A3) when we compared the results for female participants with those for males, there were significant differences. We found that the impact of income on life satisfaction was significant for females and males but the impact was higher for females. In the second model for females, neither income nor calculated consumption had significant impacts on female life satisfaction, while for males, income was positively and consumption was negatively correlated with life satisfaction, and the negative effect of consumption was higher than the positive effect of income. From the third model we could see a significant positive relationship between savings and happiness, both for females and males, despite declared consumption only being significantly correlated with a decrease in life satisfaction for males. In the fourth model again we did not see any significant correlation between consumption and life satisfaction, however among males consumption was accompanied by lower life satisfaction. The results of the fifth model showed the same impact for females and males, only savings was positively correlated with life satisfaction.

We also examined of age (see Appendix table A4, A5 and A6), running regressions for different age groups (18–29, 30-44 and 45 or over). The estimated coefficients and significance levels varied among the different age groups. For example, the only significant variable for 18- to 29-year-olds was savings where the coefficients were all positive for models 3-4 and 5. Among the 30 to 44 years olds in Model 1, we found a negative correlation between consumption and life satisfaction and a positive correlation between income and life satisfaction. We found almost the same result when we changed the declared consumption with calculated consumption variable. When we ran regression using declared consumption and savings together we saw a positive correlation between savings and happiness and a negative correlation with spending among individuals aged 30 to 44. Finally, for model 5, only savings were associated with higher levels of satisfaction. Individuals aged 45 or above, in model 1, had a negative correlation between consumption and life satisfaction and positive correlation between income and life satisfaction. For model 2 the relationships between income and life satisfaction or consumption and life satisfaction were not statistically significant, while for models 3-4 and 5, only savings were statistically significant related to greater happiness.

Relative consumption

We used the following baseline model for assessing the relation between life-satisfaction and relative consumption:

$$S_i = \alpha + \sum_{j=1}^{m}(\beta_j I_i^{Rj} + \boldsymbol{\gamma}_j \boldsymbol{C}_i^{Rj} + \boldsymbol{\delta}_j I_i^{Rj} \boldsymbol{C}_i^{Rj}) + \kappa ln C_i + \sum_{k=1}^{p} \lambda_k X_i^k + e_i, \quad (2)$$

where $\boldsymbol{S_i}$ is the life satisfaction of respondent *i*, $\boldsymbol{I_i^{Rj}}$ is a measure of the perceived importance of the consumption level of reference group *j*, $\boldsymbol{Y}_i^{Rj}$ is a vector or scalar measure of the perceived household consumption relative to reference group *j*, $\boldsymbol{C}_i$ is household consumption. The interaction terms of perceived importance and relative consumption $\boldsymbol{C}_i^{Rj}$ are also included in the model for estimation (1). The set of reference groups incorporated in model (2) included colleagues, family members, relatives and neighbors.

Table 5 includes estimations for relative income effect on life satisfaction for the full sample, female and male subsamples. The estimations include importance of comparison, consumption evaluation variables and interaction terms.

Table 5. OLS Estimates of Coefficients of Ordinal Variables for Reference Groups

	All Sample		Female		Male	
Dependent variable: Life satisfaction (0-10)	Estimated Effect	Standard Error	Estimated Effect	Standard error	Estimated effect	Standard Error
Consumption in comparison to colleagues	- 0.341	0.351	0.067	0.506	- 0.484	0.485
Consumption in comparison to neighbors	0.412	0.449	0.534	0.667	0.388	0.599
Consumption in comparison to relatives	0.064	0.438	- 0.565	0.618	0.535	0.605
Consumption in comparison to family	-0.080	0.435	- 0.499	0.602	0.038	0.625
Importance of comparison with colleagues	- 0.374**	0163	- 0.196	0.223	- 0.422*	0.231
Importance of comparison with neighbors	0.269	0.206	0.314	0.278	0.234	0.293
Importance of comparison with relatives	0.092	0.198	- 0.280	0.259	0.354	0.287
Importance of comparison with family	- 0.341	0.351	0.090	0.169	0.108	0.178
Ln consumption	0.104	0.147	0.141	0.206	0.050	0.206
Importance of comparison with colleagues x Consumption in comparison to colleagues (interaction effect)	0.101**	0.049	0.034	0.070	0.130*	0.068
Importance of comparison with neighbors x Consumption in comparison to neighbors (interaction effect)	- 0.097	0.061	- 0.075	0.081	- 0.059	0.088
Importance of comparison with relatives x Consumption in comparison to relatives (interaction effect)	-0.003	0.060	0.055	0.078	- 0.060	0.089
Importance of comparison with family x Consumption in comparison to family (interaction effect)	-0.025	0.040	0.016	0.054	- 0.047	0.058
Observations	3006		1498		1512	
R-squared	0.103		0.125		0.131	

Controls: age, age^2, (for the all sample) education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)

Happier when consuming more than colleagues, but less happy the more importance attached to comparison with colleagues

The results of the first estimation (for the full sample) revealed that among relative consumption variables only attaching high importance to comparison with colleagues was statistically significant and this had a negative correlation with life satisfaction. The negative sign of the estimates of the coefficient β_j of I_i^{Rj} in the model was in line with previous literature on effects of perceived importance of reference groups on subjective well-being (Mayraz, Wagner & Schupp, 2009; Clark & Senik, 2010; Goerke & Pannenberg, 2013, 2015).

Among the interaction terms only one variable was statistically significant: Attaching a high importance of comparison with colleagues and perceiving to have a higher household consumption than colleagues had a significant and positive correlation with the life satisfaction of the respondent. However, a second estimation for the female subsample revealed that no variable, including interactions, was statistically significant. The regressions of the male subsample demonstrated similar results to those of the full sample with slightly higher coefficients.

Thus, according to our findings, our respondents in general, and males in particular, were less satisfied with their life when they compared their consumption with their colleagues; however, in addition to comparison intensity, respondents were happier if they consumed more than the reference group.

Happier with downward comparison

As generally known, social comparison consists of upward and downward comparisons (see e.g. Weiss and Fershtman 1998; Festinger 1954; Suls, Martin & Wheeler, 2002; Knippenberg 1989; Tajfel & Turner 1979). Upward comparison refers to comparing one's self with others who are doing better, whereas downward comparison refers to comparing with others who are doing worse. Interaction terms revealed that downward comparison (when attaching an importance to the comparison) had a positive impact on one's life satisfaction.

Stronger among 45+ aged

The correlation between relative consumption and life satisfaction for different age categories is shown in Table 6. Interestingly none of comparison intensity and relative consumption variables are statistically significant for the categories aged 18-29 and 30-44. For the category aged 45 and above, the estimations results revealed that, in parallel with the full sample, high importance attached to consumption comparison with colleagues was statistically significantly related to lower life satisfaction. Looking at the interaction terms, as with the results of the full sample, attaching a high importance to comparing oneself with colleagues and perceiving yourself to have higher household consumption than your colleagues, was positively and significantly related to the life satisfaction of a respondent.

It could be possible that people who retire at the age of 65 and 67 or even earlier (due to previous social security system regulations) may lost their interest following their colleagues after retirement. Therefore, as a next step we excluded retired respondents (around 323 respondents and run the regressions again. There was no significant change in the results for relative consumption variables. The estimation results for the restricted sample can be seen in the appendix table A7.

Table 6. OLS estimates of coefficients of ordinal variables for reference groups among age categories

	18-29		30-44		45+	
Dependent variable: Life satisfaction (0-10)	Estimated effect	Standard Error	Estimated Effect	Standard error	Estimated effect	Standard error
Consumption in comparison to colleagues	0.268	0.658	-0.502	0.667	-0.484	0.560
Consumption in comparison to neighbors	-0.094	0.808	0.912	0.804	0.519	0.731
Consumption in comparison to relatives	0.465	0.675	0.450	0.883	-1.014	0.747
Consumption in comparison to family	0.349	0.744	0.912	0.804	0.250	0.792
Importance of comparison with colleagues	0.007	0.303	-0.468	0.302	-0.594**	0.265
Importance of comparison with neighbors	0.130	0.362	0.417	0.364	0.284	0.344
Importance of comparison with relatives	0.119	0.333	0.295	0.359	-0.212	0.330
Importance of comparison with family	0.277	0.208	-0.164	0.220	0.245	0.230
Ln consumption	0.032	0.278	0.039	0.249	0.140	0.253
Importance of comparison with colleagues x ln consumption in comparison to colleagues (interaction effect)	0.024	0.084	0.073	0.093	0.174**	0.085
Importance of comparison with neighbors x ln consumption in comparison to neighbors (interaction effect)	-0.027	0.108	-0.159	0.106	-0.104	0.100
Importance of comparison with relatives x ln consumption in comparison to relatives (interaction effect)	-0.093	0.010	0.001	0.107	0.108	0.100
Importance of comparison with family x ln consumption in comparison to family (interaction effect)	-0.071	0.067	0.078	0.070	-0.060	0.077
Observations	942		980		1084	
R-squared	0.148		0.104		0.118	

Controls: education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)

5.2 Kinds of consumption

In its most basic form, the baseline cross-section model we employed for life satisfaction is specified as follows:

$$S_i = X_i\beta + \sum \boldsymbol{\gamma C}_{ij} + e_i,$$

Where S_i equals the level of life satisfaction of the respondent I; X_i represent the controls; $\boldsymbol{Cij}$ is consumption expenditure in consumption category "j," the Greek symbols indicate parameters; and e_i is an idiosyncratic error.

In our study we distinguished 12 consumption categories, in parallel with TUIK's Household Budget Survey classification. The results show that not all these kinds of consumption were statistically significant

related to life satisfaction. Moreover, expenses on some consumption items were seen to go with less happiness among out Turkish respondents.

Table 7. OLS Estimates of Coefficients of Sub-Consumption Variables

	All		**Females**		**Males**	
Dependent variable: Life satisfaction (0-10)	Estimated Coefficient	Standard Error	Estimated coefficient	Standard Error	Estimated coefficient	Standard error
Ln Appearance	-0.066	0.079	0.006	0.113	-0.068	0.110
Ln Communication	0.102	0.105	0.206	0.150	0.020	0.139
Ln Tobacco	-0.047**	0.020	-0.030	0.027	-0.068**	0.031
Ln Eating outside and vacation	0.070**	0.032	0.046	0.044	0.071	0.048
Ln Education	-0.054**	0.026	-0.052	0.036	-0.050	0.037
Ln Experience	-0.038	0.031	-0.010	0.045	-0.074*	0.044
Ln Food	-0.195*	0.114	-0.152	0.151	-0.220	0.171
Ln Gifts and Donations	-0.024	0.032	-0.036	0.044	-0.010	0.046
Ln Housing	-0.306**	0.138	-0.097	0.165	-0.523	0.209
Ln Medical	0.014	0.037	-0.002	0.049	-0.009	0.056
Ln Financial	-0.084***	0.025	-0.048	0.036	-0.109***	0.036
Ln Transport	-0.035	0.042	-0.066	0.053	-0.044	0.067
Observations	3006		1498		1508	
Adjusted R-squared	0.120		0.118		0.160	

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls: age, age^2, education, gender (for the first model), number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, sped savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5), household income (Note: For females and males gender is not included)

Less happy the more spent on food and housing

Regressions shown in Table 7 suggest that not all categories of consumption are significantly associated with life satisfaction. In regression 1 (full sample) expenditures on food and housing stand out as the most negatively related to life-satisfaction. Note that income is controlled, so this is not a matter of poverty.

Happier the more spend on eating out and vacation

The only significant positive association found was with eating out and vacationing. The size of this association is small, which suggest that the evident benefits of leisure life a balanced in some way.

More difference among males than females

Among females, none of the kinds of consumption we considered was significantly related to life-satisfaction. Among males, expenses on tobacco, experiences and financial services went together with less life satisfaction.

Little difference among age categories

A split into three age categories reduced the number of statically significant correlations, but did not change the effect sizes very much. The above observed strongest negative correlation of expenses on housing appeared to be most pronounced among those aged 30 to 44 years. The negative relationship with expenses on tobacco was strongest among those aged 18 to29 and the positive correlation with eating out and vacationing is also most pronounced in this age category. The negative correlation with expenses on financial services is more pronounced among the 45+ aged.

Table 8. OLS Estimates of Coefficients of Sub-Consumption Variables for Age Categories

	18-29		**30-44**		**45 +**	
Dependent variable: Life satisfaction (0-10)	Estimated Coefficient	Standard Error	Estimated Coefficient	Standard Error	Estimated coefficient	Standard error
Ln Appearance	0.019	0.118	-0.164	0.158	0.033	0.138
Ln Communication	0.056	0.180	0.287	0.176	0.027	0.198
Ln Tobacco	-0.112***	0.036	-0.069*	0.037	0.034	0.035
Ln Eating outside and vacation	0.112*	0.061	0.080	0.057	0.036	0.053
Ln Education	-0.067	0.047	-0.043	0.044	-0.072	0.048
Ln Experience	-0.070	0.061	-0.057	0.061	-0.043	0.051
Ln Food	-0.132	0.169	-0.131	0.248	-0.366	0.235
Ln Gifts and Donations	-0.075	0.058	0.040	0.056	-0.049	0.056
Ln Housing	-0.271	0.209	-0.495*	0.288	-0.158	0.251
Ln Medical	-0.012	0.065	0.055	0.065	0.019	0.067
Ln Financial	-0.098**	0.046	-0.034	0.045	-0.120**	0.048
Ln Transport	-0.004	0.085	0.012	0.072	-0.091	0.067
Observations	942		980		1084	
Adjusted R-squared	0.122		0.122		0.116	

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls: education, gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, sped savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5), household income

6. DISCUSSION

6.1 Findings on degree of consumption

Our first research question was how much consumption is optimal with respect to happiness. Looking at absolute level of consumption, we found a negative correlation between total consumption and happiness. Since income was controlled, this means that our respondents tended to be less happy the more of their disposable income they consumed. One possible explanation is that saving adds more to happiness than spending, at least in Turkey, which fits an earlier observation by Dumludag (2015) in another sample in this country. Another explanation is that happiness reduces consumption, since happy people can more easily do without, or conversely, unhappiness may foster consumption, possibly as a way to feel better. Note: the one explanation does not exclude the other.

With respect to relative consumption we found *no* significant correlation between one's own life-satisfaction and *perceived differences* in consumption with reference groups. This unexpected finding differs from results obtained in studies in other countries (e.g. Clark and Oswald, 1996), and does not fit the common theory that happiness depends largely on thinking one is doing better than the Jones. One explanation for this finding could be that social comparison matters less for happiness in Turkey, or at least, that consumption is less important as an issue in social comparison in this country. It is also possible that it is better not to differ too much from the Jones in this collectivistic society. Another explanation could be that there is an effect of happiness, in this case that satisfaction with life reduces the tendency to compare oneself with other people. Again, these effects can exist in concert.

With respect to *perceived importance* of relative consumption, we found a significantly negative association between life-satisfaction and the importance our respondents attached to achieving similar levels of consumption as their colleagues. This finding fits the notion that extrinsic motivation works out negatively on life-satisfaction (Mayraz, Wagner & Schupp, 2009; Clark & Senik, 2010; Goerke & Pannenberg, 2015) To our surprise we found no significant correlation between a person's life-satisfaction and the importance attached to two other reference groups; neighbors and family. One explanation may again be in the effect of comparison on happiness, that Turkish people typically prefer not to stand out from their neighbors and family.

Our findings that more consumption does *not* go with greater happiness contradict the commonly held view in economics that consumption marks final utility. Our findings also show that social comparison is a less universal tendency than has been assumed on the basis of studies done in developed economies. This is another blow to the Easterlin Paradox for which the now available data show that it describes the exceptions rather than the rule (e.g. Veenhoven & Vergunst 2014).

6.2 Findings on kinds of consumption

In line with the above reported negative relation between life-satisfaction and total consumption, we found negative correlations between life-satisfaction and most consumption categories. The negative correlations differed in size, and the most negative correlations with life-satisfaction were found for expenditure on food and housing. One possible explanation is that prioritizing these basic necessities goes at the cost of more satisfying ways of spending one's disposable income. Another explanation could be that unhappiness fosters spending on these basics in some ways, such as by seeking security.

The main surprise was that the only significantly positive correlation was for expenditure on eating out and vacations. The many control variables we used make a spurious correlation improbable. One possible causal explanation is that buying pleasurable experiences enhances one's life-satisfaction, even when this goes at the cost of savings. Another explanation could be that happiness fosters a preference for pleasurable social activities, while unhappiness fosters expenditure on things rather than experiences. Again, both effects can work independently in concert.

We found few clues to answer to our question of what kinds of consumption add most to the happiness of what kinds of people. Our splits by age and gender did not reveal substantial differences, though the negative correlation between life-satisfaction and expenditures on housing was most pronounced among 30-44 aged starters on the housing market.

On this issue of kinds of consumption our findings do not contradict any commonly held views in economics.

6.3 Limitations

As we have seen above, the cross-sectional data used here cannot be used to inform us about the direction of causality behind the observed statistical relationships. The causal mechanisms we have suggested sound plausible, but to support these ideas we need to carry out an empirical check for which we will need longitudinal data that allow us to do a fixed effect analysis. Laboratory experiments would be almost impossible for major consumption goods, but we may be able to learn from natural experiments and case studies such as looking at effects of inherited goods, status goods or financial services that become publicly available (e.g. Frank, 2000; Frey, 2018). Our data also fall short with respect to specification across subgroups. The sample was too small to split further then across age and gender and we used the other background variables as controls. Pooling our data with new survey data that include answers to the same questions would solve this problem.

A last limitation is in the controls used in this analysis. We followed the common practice in econometric analysis of controlling many background variables that are related to life-satisfaction and might therefore create spurious correlation; these variables are specified at the bottom of table 4. Yet this practice involves the risk of over-control and subsequent underestimation of the relationship between consumption and life-satisfaction. For instance, in the case of expenditure on housing, control for married status may prevent us seeing that the correlation with life-satisfaction is boosted by the fact that married people tend to dwell in bigger houses. Cheap cramped dwelling may reduce the chance that you will get married or that your marriage will survive. Such problems cannot be solved in the cross-sectional design used here, what we will require is a fixed effect analysis of follow-up data.

7. CONCLUSIONS

The relationship between consumption and happiness appears to be more complicated than commonly assumed. Empirical research shows different correlations across and within countries, which are open to different interpretations. In this case of contemporary Turkey, more consumption goes together with less happiness and consuming more than the Jones is unrelated to happiness. In Turkey, the only kind of consumption that goes with greater happiness is spending on eating out and vacations. This contextual variation implies that empirical happiness research will not produce universal recommendations for ways of consumption that adds to a more satisfying life. Evidence based consumption counseling will require constant monitoring of the effects of consumption among different people and contexts.

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Appendix

Table A1.
Basic Descriptive of Socioeconomic and Sociodemographic Variables

	Mean	**St. Dev.**	**Min-Max**
Life Satisfaction	6,03	2,826	0-10
Sociodemographic and Socioeconomic Variables			
Age	38,87	14,023	18-87
Education	3,61	1,340	1-6
Gender	0,50	0,500	0-1
Number of children	1,48	1,485	0-11
Household size	3,73	1,460	1-13
Household Income*	2614,23	1801,728	500-20000
Household Consumption*	2224,72	1079,177	500-12000
Household Savings**	0,84	2,017	0-8
Marital Status			
Single	0,32	0,465	0-1
Widowed	0,04	0,196	0-1
Divorced	0,03	0,159	0-1
Live separate	0,00	0,041	0-1
Employment Status			
Unemployed	0,02	0,156	0-1
Housewife	0,22	0,416	0-1
Retired	0,11	0,311	0-1
Student	0,10	0,300	0-1
Employed	0,54	0,498	0-1
Car ownership	0,27	0,444	0-1
Room number	3,52	0,719	1-10
Residence ownership	0,56	0,496	0-1
Financial Situation			
Borrowed	0,26	0,440	0-1
Spend savings	0,12	0,328	0-1
Saved Money	0,18	0,383	0-1
Neither borrowed nor saved	0,44	0,496	0-1

Table A2. OLS Estimates of Coefficients of Aggregate Consumption Variables for Female Sample

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable variable: Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	1.067** (0.449)	0.335 (0.332)	-	-	0.122 (0.224)
Ln monthly household consumption (declared)	-1.041** (0.444)	-	-0.113 (0.032)	-	-
Ln monthly household consumption (calculated)	-	-0.213 (0.317)	-	-0.032 (0.201)	-
Savings	-	-	0.141*** (0.032)	0.140*** (0.032)	0.124*** (0.039)
Observations	1498	1498	1498	1498	1498
Adjusted R-squared	0.120	0.117	0.115	0.115	0.115

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls for model 1-2:age, age^2, education,, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5) (Controls for the model 3-4-5 are same except , borrowed, spend savings, saved money, neither borrowed nor saved (ref).

Table A3. OLS Estimates of Coefficients of Aggregate Consumption Variables for Male Sample

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable variable: Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	0.870** (0.441)	0.725** (0.290)	-	-	-0.053 (0.216)
Ln monthly household consumption (declared)	-1.048** (0.481)	-	-0.418* (0.217)	-	-
Ln monthly household consumption (calculated)	-	-0.997*** (0.295)	-	-0.645*** (0.201)	-
Savings	-	-	0.217*** (0.038)	0.228*** (0.038)	0.210*** (0.046)
Observations	1508	1508	1508	1508	1508
Adjusted R-squared	0.153	0.156	0.096	0.100	0.093

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls for model 1-2: age, age^2, education,, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5) (Controls for the model 3-4-5 are same except , borrowed, spend savings, saved money, neither borrowed nor saved (ref).

Table A4. OLS Estimates of Coefficients of Aggregate Consumption Variables for Age Group: 18-29

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable variable: Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	0.468 (0.536)	0.153 (0.383)	-	-	-0.111 (0.291)
Ln monthly household consumption (declared)	-0.674 (0.585)	-	-0.321 (0.285)	-	-
Ln monthly household consumption (calculated)	-	-0.332 (0.385)	-	-0.284 (0.262)	-
Savings	-	-	0.142*** (0.041)	0.143*** (0.041)	0.146*** (0.053)
Observations	942	942	942	942	942
Adjusted R-squared	0.110	0.109	0.099	0.099	0.098

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls: education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)

TableA5: OLS Estimates of Coefficients of Aggregate Consumption Variables for Age Group: 30-44

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable variable: Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	0.955** (0.465)	0.975*** (0.360)	-	-	-0.015 (0.259)
Ln monthly household consumption (declared)	-1.183** (0.512)	-	-0.353 (0.259)	-	-
Ln monthly household consumption (calculated)	-	-1.337*** (0.381)	-	-0.695*** (0.245)	-
Savings	-	-	0.196*** (0.039)	0.207*** (0.039)	0.187*** (0.048)
Observations	980	980	980	980	980
Adjusted R-squared	0.121	0.129	0.093	0.099	0.092

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls: education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)

Table A6: OLS Estimates of Coefficients of Aggregate Consumption Variables for Age Group: 45+

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable variable: Life satisfaction (0-10)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)	Estimated Coefficient (Std. Error)
Ln monthly household income	1.690*** (0.625)	0.540 (0.401)	-	-	0.160 (0.268)
Ln monthly household consumption (declared)	-1.596*** (0.617)	-	-0.192 (0.254)	-	-
Ln monthly household consumption (calculated)	-	-0.360 (0.385)	-	-0.130 (0.241)	-
Savings	-	-	0.235*** (0.049)	0.234*** (0.049)	0.209*** (0.058)
Observations	1084	1084	1084	1084	1084
Adjusted R-squared	0.114	0.109	0.083	0.083	0.083

Note: *** = p < 0.01, ** = p < 0.05,* = p < 0.10.

Controls: education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)

Table A7: OLS estimates of coefficients and derived effects of ordinal variables for reference groups among 45+ aged (retired people excluded)

Dependent variable: Life satisfaction (0-10)	Estimated effect	Standard error
Ln consumption in comparison to colleagues	-0.933	0.786
Ln consumption in comparison to neighbors	-0.213	1.033
Ln consumption in comparison to relatives	0.430	1.047
Ln consumption in comparison to family	0.201	0.947
Importance of comparison with colleagues	-0.591*	0.356
Importance of comparison with neighbors	0.087	0.450
Importance of comparison with relatives	0.044	0.439
Importance of comparison with family	0.190	0.280
Ln consumption	0.310	0.278
Importance of comparison with colleagues x ln consumption in comparison to colleagues (interaction effect)	0.162	0.109
Importance of comparison with neighbors x ln consumption in comparison to neighbors (interaction effect)	0.005	0.129
Importance of comparison with relatives x ln consumption in comparison to relatives (interaction effect)	0.007	0.128
Importance of comparison with family x ln consumption in comparison to family (interaction effect)	-0.065	0.089
Observations	761	
R-squared	0.142	

Controls: education gender, number of children, household size, single, separated and divorced, widowed, married (ref), unemployed, housewife, retired, student, employed (ref), car ownership, room number, residence ownership, borrowed, spend savings, saved money, neither borrowed nor saved (ref), region price, region dummies, personal characteristics (big 5)