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RESEARCH ARTICLE

Consumption and life satisfaction at different levels of economic development

Devrim Dumludag

Abstract The present paper proposes to examine the impact of varying consumption categories on life satisfaction at different levels of development by focusing on transition countries and developed European countries. This is done by looking at the Life in Transition Surveys (I and II) that include reported life satisfaction, as well as control variables such as gender, household size, marital status, age, and education (EBRD, http://www.ebrd.com/pages/research/publications/special/lifeintransition.shtml 2007; http://www.ebrd.com/pages/research/publications/special/transitionII.shtml 2011). The study includes several categories such as expenditures on food, education, and durables. The paper also examines the impact of the reduction in several consumption items on life satisfaction after the 2008 crisis. The econometric results reveal that not all consumption items are statistically significant as determinants of life satisfaction. At different levels of development, the relationship between life satisfaction and consumption differs and some consumption categories have a negative impact on life satisfaction. Finally, the reduction in the level of consumption due to economic crises has a negative impact on life satisfaction.

Keywords Life satisfaction · Transition countries · Developed countries · Consumption

JEL Classification D11 · D6 · I31 · O1

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1 Introduction

For most, if not all people, happiness is considered perhaps the single most important goal (Veenhoven 1984). The question of how to achieve greater happiness goes back to Aristotle, who considered happiness as the ultimate motivating factor for all human action. The question of whether and how individuals achieve the happiness they seek in their daily life is of critical concern.

There is an extensive body of literature analyzing the role of subjective well-being with the aim to understand individuals' quality of life (Diener et al. 1999). For the last couple of decades, this subject has been attracting increased interest from other disciplines, including economics. Scholars have begun to research the connection between subjective well-being and several socioeconomic indicators (such as income, unemployment, inflation, and education.) that complement the income-based measure of welfare with the economics of happiness.

Economists often take for granted that the higher the income per capita or higher levels of consumption/income mean, the greater the welfare and increased happiness. Individuals with higher incomes have more opportunities, such as being able to afford to buy more material goods and services. Higher income results in higher utility, while individuals with lower incomes are not as happy as those who have higher incomes. This relationship between income and happiness, at a particular point in time and in a specific country, has been the subject of a large empirical study. Cross-sectional studies within countries demonstrate that people in higher income groups along with higher levels of consumption report higher levels of self-reported happiness than people in lower-income groups (Diener et al. 1995; Inglehart 1990), and the relationship between income and happiness using regressions (controlling a large set of socioeconomic and demographic variables) proves to be statistically significant.

However, the income/consumption effect on utility/happiness is complicated. The first issue is that evidence suggests in developed economies that in the long run, money does not buy happiness, or at least not much (Easterlin 1974; Oswald 1997). Easterlin (1974) revealed that the average self-reported happiness in the USA stayed practically unchanged during the post-war period although real incomes increased, nearly doubled during this time. This paradox is best explained by the relative income hypothesis, which is based on the idea that the impact of income or consumption depends on variable standards, such as those derived from expectancies, spending habits and social comparisons.

Second, how an individual spend his/her money impacts on the level of life satisfaction is not yet explicitly known. Individuals spend their disposable income on several consumption categories such as food, durables, and luxury items; however, we do not know very much about how to spend one's income in order to achieve greater happiness.

The present paper examines the second issue by looking at the connections among consumption categories and life satisfaction at different levels of development by examining the Life in Transition Surveys (I and II). The surveys contain exact measurements of consumption items by focusing on both transition countries and developed European countries.

The study includes different categories (eight in the first survey and seven in the second survey) to assess the importance of the consumption of goods such as food, education, durables, utility, transportation and health on an individual's well-being. In addition, by analyzing the Life in Transition Survey II, the paper examines the impact of the reduction in several consumption items on the level of life satisfaction after the 2008 crisis.

The econometric results show that not all consumption items are statistically significant as determinants of life satisfaction. Moreover, some consumption items have a negative impact on life satisfaction. At different levels of development, the correlation between life satisfaction and consumption differs. Additionally, the reduction in consumption due to economic crises has a negative impact on life satisfaction.

The paper is organized as follows: In the following section, the methodology for the study on the effect of consumption items on individual well-being is outlined; in this same section, the survey, data, variables, some descriptive statistics, and the empirical strategy are provided; the subsequent sections include: empirical analyses, a discussion on key results, and finally the conclusions that can be drawn.

2 Theoretical approaches

2.1 Utility, relative consumption and subjective well-being

According to economic theory, thanks to the ordinalist revolution of the 1930s, individual preferences are only consistent and unwavering for some types of tangible goods. The theory assumes that "more is better" preferences are observable and independent across populations, and a person is assumed to maximize the expected value of a standard utility function U (l, x), where "l" denotes the individual's leisure and "x" means the bundle of consumed commodities.[1] Preference and choice are seen more as objective concepts and most economists refrain from using the more subjective concepts, cardinal utility and interpersonal comparisons of utility.

However, reported subjective well-being can be considered as a useful approximation of utility (Frey and Stutzer 2002). In this case, the resulting evaluation function differs from a neoclassical utility function as it is cardinal, exhibits interdependency, and is interpersonally comparable. An individual evaluates a bundle of goods by comparing it to the bundles of other individuals, and/or to the bundles that the individual previously consumed. Similarly, a person's preferences are determined by changes in outcomes relative to the reference level, and not merely by absolute levels of outcomes. In economics, the oldest and most developed neo-cardinal methodology that led to a cardinal representation of individual utility is known as the Leyden approach, which is based on an intricate

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[1] Two meanings of "utility" are distinguished: "Decision utility" is the weight of an outcome of a decision. "Experienced utility," which is ignored by modern economic theory, is of a hedonic quality and can be reported in real time, or in evaluations of past experiences. Please see: Kahneman et al. (1997).

method involving an infinite number of consumption groups with a cumulative density function of a lognormal distribution (Van Praag 1968).

There is a growing body of literature on the relativity of utility following earlier classical economists such as Adam Smith, Karl Marx and Thorstein Veblen. On the topic of the growth of wealth, Adam Smith (1937) recognized comparisons as a result of "passions" and Karl Marx (1849) mentioned comparisons in order to explain the social aspect of utility. Thorstein Veblen (1899) used the term conspicuous consumption to suggest that amount a consumer spends on goods is an indication of that the consumer's position in society. Several models have been developed to understand the behavior of individuals with regard to the actions of others (Frank 1985a; Clark and Oswald 1996). In these models, it is asserted that individuals evaluate their consumption by the level of their consumption in the perceived allocation of consumption (Duesenberry 1949; Frank 1985b; Hirsch 1976). Consumption behavior is analyzed by using the idea of "positional goods," which depends mainly on comparisons. At the end, in order to explain human behavior, the examination of interdependent utility functions rather than interpersonally independent ones challenged established welfare ideas (Layard 1980).

Evidence in favor of the relative income approach is found in empirical studies. These studies demonstrate that developed countries (such as the USA and Japan) do not have significant increases in the average level of life satisfaction and happiness over time (in some countries happiness stayed virtually unchanged), despite significant increases in income and consumption (Blanchflower and Oswald 2004; Diener and Oishi 2000; Kenny 1999, 2005; Easterlin 1974, 2005; McBride 2001; Diener et al. 1995). In other words, the connection between income/consumption and happiness seems to be nonlinear, and additional income/consumption does not increase happiness.[2]

2.2 Consumption, income, and subjective well-being

Although some assume that absolute wealth and absolute consumption levels are important determinants of happiness, as summarized above, researchers have drawn a more realistic picture by arguing that happiness depends primarily on relative wealth and relative consumption levels. However, little is known for measuring the amount of utility that a consumer might be able to obtain from a particular good and little is known how one should spend one's income in order to achieve greater happiness.

Lack of data results in the subject being discussed mostly from a theoretical perspective in regard to materialism, hedonic and luxury items (Veblen 1899; Galbraith 1999; Frank 1999). One opportunity to increase happiness might be a competitive form of consumption, such as to keep up with the Joneses. According to Frank, such competition is a waste (Frank 1999). Galbraith also reached a similar conclusion by emphasizing there is no benefit in luxury consumption for

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[2] Although there is a huge debate in the literature as to whether happiness is relative or not (Veenhoven 1991; Oswald 1997; Stutzer 2004; Myers and Diener 1995; Diener et. al. 1993; McBride 2001), most of the economists take it as a matter of course that a higher income leads to greater level of happiness.

society as a whole (Galbraith 1999). In his analysis of affluent people, Galbraith argued that desires of people are artificially created as a result of ever-increasing levels of production (and consumption), which does not lead to an increase of welfare.

The above-mentioned approaches focus on the correlation between luxury (status) consumption and happiness; yet, they leave other consumption categories and their impact on happiness at different levels of development out of the analysis. Veenhoven's (1988, 1991) reply to the Easterlin hypothesis, suggested that income helps people meet their basic needs, and therefore, a connection between consumption and happiness (at least at certain levels of development) is not based on variable factors such as social comparison, expectancies, and/or adaptation. Because those with greater income are more likely to be able to meet their basic needs, such as food, safety, health, and comfortable housing, they are more likely to have greater subjective well-being, regardless of social comparison, etc. Veenhoven also hypothesized that above a certain level of income, there was likely to be a diminishing influence of finances on happiness because satisfying basic needs would no longer be an issue. One may argue that a higher standard of living leads to greater happiness in low income countries; this correlation appears much weaker in richer countries.

Beyond theoretical discussions, there are few empirical studies that focus on consumption categories and happiness. For instance, Deleire and Kalil (2010) examined the association between various components of consumption expenditure and happiness in the Health and Retirement Study, a nationwide sampling of older Americans. One of their findings suggested that not all forms of consumption lead to happiness (only leisure spending has a statistically meaningful association with happiness). Headey et al. (2008) used household economic data from five countries (Australia, Britain, Germany, Hungary and the Netherlands) to provide an assessment of the impact of economic well-being on happiness. They revealed that durable consumption expenditures also prove to be as important to happiness as income for Britain and Hungary, where consumption data are available. Guillen-Royo (2008) explored different aspects of consumption with regard to subjective well-being by using the Resources and Needs Questionnaire (a subsample of 254 households) in Peru during 2004 and 2005. Results revealed that in the Peruvian corridor, consumption has a meaning beyond a mere satisfaction of basic needs. Status concerns, the reference group, the pleasure of consuming, providing for the household basics, and the expectation of escaping social marginalization are aspects of consumption that accurately predict people's happiness. Hudders and Pandelaere (2012) investigated the connection between luxury consumption and materialism with the cognitive and emotional aspects of subjective well-being by analyzing a survey conducted in the Dutch-speaking region of Belgium in 2009. The results demonstrated that luxury consumption leads to an enhanced positive mood, a reduced negative mood and an increased level of satisfaction with life.

3 Data, descriptive evidence, and variables

Although economic theory suggests that consumption serves as a significant indicator for material well-being, economists generally have treated income and consumption interchangeably and predominantly use income to measure well-being. This is mostly because, first, income is easier to report (although income data may understate some financial resources) and second, income data are available in most of the (larger) datasets providing much strength to test hypotheses whereas questions about consumption expenditures are rarely asked in household surveys.

Components of consumption can provide a direct measure of well-being as well as total consumption. It becomes possible to measure well-being using expenditures in key categories such as food, utilities, and luxury items. Despite its advantages, in comparison with income (as a better measure of overall material well-being), consumption data are much more costly to collect; therefore, the number of datasets and research studies on happiness and consumption are relatively low.[3]

3.1 Survey

In this paper, the Life in Transition Surveys I and II are examined. These surveys were conducted by EBRD and the World Bank in 2006 and 2010 in Central Eastern Europe and the Baltic states (CEB), South East Europe (SEE), the Commonwealth of Independent States and Mongolia (CIS + M). The coverage area of the second survey was expanded to include five Western European "comparator" countries—France, Germany, Italy, Sweden, and the UK—allowing scholars to benchmark the transition region against other advanced market economies. This approach provided a clearer perspective on the ongoing challenges facing transition countries. The EBRD, in collaboration with the World Bank, conducted surveys on 29,000 people in 2006 and 38,858 in 2010 across the region to analyze and understand how the transition has affected the lives of people in the region, and what their views are on various issues such as democracy, the role of the state, and prospects for the future.

The first survey was conducted between August and October in 2006 and included 29 countries. In each country, a sample of 1,000 individuals was selected randomly for face-to-face interviews, making a total of 29,000 interviews across the entire region. Within a selected household, either one or two respondents were surveyed. The first respondent—either the head of household or another household member with knowledge of the household expenses—was selected to answer the questions in section 1 (household composition) and section 2 (housing and expenses). The remainder of the survey was completed with a randomly selected household member, aged 18 and over. In 60 % of the cases, the head of the household and the principal respondent were the same person; in the remaining 40 %, two different interviews were required in the same household. However, since most of the sections include life satisfaction and other related questions with set variables, it is important to monitor the respondents who answered all sections,

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[3] The most accurate recall based measure of total expenditure is derived from asking about an exhaustive list of highly disaggregated expenditure items (Please see: Browning et al. 2003).

which means there was only a single respondent to all the survey questions. This resulted in a loss of 40 % (using a sample of 16,933 instead of 28,000—excluding Turkey, since Turkey is not officially in the transition economies category) of the total observations.

In the Life in Transition Survey II, respondents were selected randomly, using a two-step sampling method, with census areas as primary sampling units, and households as secondary sampling units. Similar to the first survey, the second survey asks several series of general questions about household and expenses to a first respondent (sections 1, 2 and 8) including the three subjective ranking of ten-scale questions, and asks all the other questions (sections 3–7) to the person in the household selected at the bottom of section 1. Since section 7 includes life satisfaction and other related questions with control variables, it is important to monitor the respondents who answered all sections. Therefore, observations are kept only if there was one respondent in the household survey. This involves a loss of 40 % (using a sample of 22,671 instead of 38,865) of total observations, just as in the first survey. Finally, the 22,671 was comprised of 4,573 from developed European countries and 18,098 from transition countries.

The main objectives of this paper are to provide evidence on the relationship between consumption items across transition and Western European developed countries and to determine the empirical correlation between the reduction in consumption to the level of life satisfaction through the information extracted from the Life in Transition Survey II, an EBRD and the World Bank survey.

3.2 Descriptive evidence on consumption

A key comparative advantage of the Life in Transition Survey I and II data is that they provide direct information on the consumption categories shown in

Table 1 Consumption categories in transition countries including Central Eastern Europe and the Baltic states (CEB), South East Europe (SEE), the Commonwealth of Independent States and Mongolia (CIS + M) (LITS 2007)

Countries	Transition (all)	CEB + SEE	CIS + M
Consumption items (in %)			
Food, beverages, and tobacco	49.4	50.1	47.1
Clothing and footwear	15.7	13.5	23.1
Transport and communication expenses	13.6	14.4	11.3
Recreation, entertainment, and meals outside the home, etc.	6.1	6.1	6.1
Education	3.6	3.7	3.4
Health	4.2	4.4	3.6
Furnishings	1.3	1.3	1.3
Household durable goods	6.1	6.5	4.1
Number of observations	16,934	10,622	6,312

Table 2 Consumption categories in developed countries and Central Eastern Europe and the Baltic states (CEB), South East Europe (SEE), the Commonwealth of Independent States and Mongolia (CIS + M) (LITS 2011)

Countries	Developed	CEB + SEE	CIS + M
Consumption items (in %)			
Food, beverages, and tobacco	39.8	47.6	51.4
Utilities	19.2	23.9	15
Transportation	12.6	10.9	10.7
Education	3.1	3.8	4.2
Health	4.2	4.2	4.8
Clothing and footwear	5.3	4.7	8.6
Durable goods	15.8	4.9	5.3
Number of observations	4,574	10,128	8,015

Tables 1 and 2. According to the Life in Transition Survey, consumption items include "Food, beverages, and tobacco," "Clothing and footwear," "Transport and communication expenses" (fixed line phone, mobile phone and internet), "Recreation, entertainment, and meals outside the home, etc.," "Education" (including tuition, books and kindergarten expenses), "Health" (including health insurance), "Furnishings" (sheets, towels, blankets, linen, etc.), "Household durable goods" (e.g., furniture, household appliances, TV, car.). In the Life in Transition Survey II (2011), the number of consumption items was reduced to seven from eight. The standard of living is measured using a series of questions regarding household expenditures (during the past 12 months) based on a comprehensive list of several items including: "Food, beverages, and tobacco;" "Utilities" (electricity, water, gas, heating, fixed line phone); "Transportation" (public transportation, fuel for car); "Education" (including tuition, books, kindergarten expenses); "Health" (including medicine and health insurance); "Clothing and footwear," and "Durable goods" (e.g., furniture, household appliances, TV, car).

In the first survey, "utilities" fell under the transportation and communication section, but in the second survey, it had its own section. "Furnishings" was a separate section in the first survey; however, in the second survey, it fell under the "durable goods" section. Finally, the section related to "recreation, entertainment, and meals outside the home, etc." was removed in the second survey.

The question for the consumption categories "Food, beverages, and tobacco," "Clothing and footwear," "Transport and communication," and "Recreation, entertainment, and meals outside the home, etc." was "During the past 30 days, approximately how much did your household spend on?" For the following consumption section, the questions ask about household expenditures over the past 12 months. In this paper, monthly expenditures are multiplied by twelve to make it much easier to compare consumption categories. In the second survey, the question "Approximately how much does your household spend on each of these items per month?" is directed toward the consumption categories "Food,

beverages, and tobacco," "Utilities" and "Transportation." Whereas, for the consumption categories "Education," "Health," "Clothing and footwear" and "Durable goods" the question "Approximately how much does your household spend on each of these items annually?" was asked. The monthly/annual expenditures were calculated in US dollars in the 2006 survey. In the second survey, the monthly/annual expenditures were calculated in the local currency. Then, the local currency was converted into US dollars based on the exchange rates in December 2010. In the Life in Transition Survey II, the differences in spending between the countries were calculated using exchange rates, for and purchasing power parities to account for the differences of the cost of living from country to country. The consumption units were based on purchasing power parity by using the purchasing power parity conversion factor (GDP) to market exchange rate ratio.[4]

Tables 1 and 2 suggest that food, beverages, and tobacco consumption has the largest percentage in total consumption in every country group. The share of food, beverages, and tobacco, (39.8 %) in total consumption, is relatively small in developed countries in comparison with other country groups. The higher percentage of spending on clothing and footwear in the first survey can be explained by the changing of the method of calculation (with regard to time period) in the second survey. Utilities and transportation items also have a large percentage of total consumption. Education has a small percentage of consumption because a significant number of respondents (elderly couples, adults with no children, etc.) declared zero consumption for education.

Tables 1 and 2 suggest that the share of clothing and footwear in total consumption is higher in CIS + M countries in comparison with the other countries. Durable goods represent the largest group of consumption items in developed countries with a share of 15.8 %. The share of durable goods is 4.9 % in CEB + SEE and 5.3 % in CIS + M. The share of food, beverages, and tobacco (39.8 %) in total consumption is relatively small in developed countries in comparison with CEB + SEE (47.6 %) and CIS + M (51.4 %) countries.

Section 8 of the Life in Transition Survey II includes questions examining the impact of the economic crisis of 2008. The question asked to evaluate the impact of crisis on consumption was: "In the past 2 years, have you or anyone else in your household had to take any of the following measures as the result of a decline in income or other economic difficulty?" The answer choices offered to this question included milk/fruits/vegetables/bread, luxury goods, alcoholic drinks such as beer, wine, as well as regular medications. The question was framed for a "yes/no" answer rather than stating an absolute numbers the amount of reduction. In section 4.2, the impact of the reduction in several consumption categories on life satisfaction is examined.

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[4] For detailed information about the methodology please see: (The World Bank (2014) http://data.worldbank.org/indicator/PA.NUS.PPPC.RF.

3.3 Other variables

The dependent variable in the regression models of this study is life satisfaction. The first survey is composed of individual responses to the statements/questions; the life satisfaction question was "All things considered, I am satisfied with my life now." The answer options were "Strongly disagree," "Disagree," "Neither disagree nor agree," "Agree," "Strongly agree." These categories were assigned numerical values ranging from 1 to 5, respectively. The choices "Not applicable" (numerical value 6) and "Don't know" (numerical value 7) were omitted from this study. In the second survey, the life satisfaction question was "All things considered, how satisfied or dissatisfied are you with your life as a whole, these days?" The answer option was to grade on a scale from 1 to 10, where 1 means "completely dissatisfied" and 10 means "completely satisfied." Answers to these questions are based on respondents' self-assessments and are recognized measures of subjective well-being.

In addition to standard variables, there are socioeconomic and socio-demographic variables, which include gender, age, age-squared, and household size, marital status, number of children, education, and employment and country controls. Since household income is not included in the surveys, as a substitute for income variable, an income ladder evaluation is applied. The question in order to evaluate income level is "Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest 10 % of people in our country, and on the highest step, the tenth, stand the richest 10 %. On which step of the ten is your household today?" Answers were on a scale from 1 to 10.

4 Model and results

4.1 Life satisfaction and consumption categories

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

$$S_i = X_i \beta + \sum \gamma C_{ij} + e_i,$$

where S_i equals the level of life satisfaction of the respondent I; X_i represent the controls; C_{ij} is consumption expenditure in consumption category "j," the Greek symbols indicate parameters; and e_i is an idiosyncratic error. Theoretically, ordered probit or logit estimations are appropriate to utilize the ranking information contained in the originally scaled dependent variable "satisfaction with life." In this paper, the cross-section model is estimated using ordinary least-squares (OLS) regressions, which treat life satisfaction as a cardinal construct. The results of cardinal models are more intuitive and easier to interpret than estimates from ordinal probit models. In addition, cardinal and ordinal analyses of life satisfaction yield, in general, similar results (Ferrer-i-Carbonell and Frijters 2004).[5]

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[5] The results 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.

Since for most of the consumption categories respondents declared zero consumption in the regressions Ln(1 + food), Ln(1 + clothing and footwear), Ln(1 + transport and communication), Ln(1 + Recreation, entertainment.), Ln(1 + Education Ln(1 + health), Ln(1 + Furnishing), and Ln(1 + Household durable goods) were estimated.

It should be noted that coefficients of the consumption categories are relatively smaller in comparison with other socioeconomic and demographic control variables, whereas the sum of the coefficients is similar to the other variables. The results for consumption effects demonstrate that all consumption expenditures (except health expenditures) are relevant and exert a significant impact on subjective well-being for the whole sample in regression 1 in Table 3. However, regressions 2 and 3 in Table 3 suggest that not all categories of consumption lead to happiness in CEB + SEE countries and CIS + Mongolia. Education and health categories have a negative value; yet, they are statistically insignificant in relationship with life satisfaction in these countries. In transition countries, consumption categories with higher coefficients are food, beverages, and tobacco with a coefficient of 0.046 and transportation and communication with a coefficient of 0.039. Expenditure on education has the lowest coefficient (-0.007). One of the interesting results is the coefficient of basic consumption expenditures are higher than expenditures on entertainment, furnishings, and durable goods.

Since for most of the consumption categories respondents declared zero consumption in the regressions Ln(1 + food), Ln(1 + clothing and footwear), Ln(1 + transport and communication), Ln(1 + utilities), Ln(1 + transportation), Ln(1 + Education Ln(1 + health), Ln(1 + Clothing and footwear), and Ln(1 + Durable goods) were estimated.

Regressions in Table 4 suggest that not all categories of consumption are significantly connected with life satisfaction. In regression 1, only expenditures on clothing and footwear and durable goods are statistically significant with coefficients 0.084 and 0.027, respectively. The regression results reveal that basic consumption categories such as food and utilities are statistically insignificant in developed countries. It can be inferred from the regression results that as the level of development increases, luxury items become more important with regard to life satisfaction. On the other hand, regression 2 reveals that basic consumption categories have an association with life satisfaction. Expenditures on utilities and education have positive coefficients with 0.109 and 0.015, respectively; however, food expenditure is -0.046. This can be considered a paradox for countries considered to be at the lower level end of development. However, it should be mentioned that the relationship between food consumption and life satisfaction disappears for CEB + SEE and CIS + M in regressions 3 and 4. In regression 2, expenditures on utilities have the highest coefficient of 0.109. This is also the case for the CIS + M category (with a coefficient of 0.139), whereas clothing and footwear has the highest coefficient (0.104) in CEB + SEE.

The above regressions suggest that the relationship between life satisfaction and consumption expenditures varies at different levels of development. However, they do not reveal how an individual spent his/her money and its effect on life satisfaction since the data does not include an income category. In the regressions,

Table 3 OLS Estimates of coefficients of consumption variables for the Life in Transition Survey I

Dependent variable:	Regression 1		Regression 2		Regression 3	
Life satisfaction (1–5)	Transition (All)		CEB + SEE		CIS + M	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Food, beverages, and tobacco	**0.046***	0.012	**0.094***	0.018	**0.030***	0.018
Clothing and footwear	**0.016***	0.003	0.004	0.004	**0.037***	0.005
Transport and communication	**0.039***	0.005	**0.066***	0.007	0.003	0.007
Recreation, entertainment, etc.	**0.024***	0.003	**0.029***	0.004	**0.018***	0.006
Education	**−0.007**	0.004	−0.007	0.005	−0.010	0.006
Health	−0.007	0.005	−0.004	0.007	−0.001	0.007
Furnishings	**0.018***	0.005	**0.013**	0.006	**0.023***	0.008
Household durable goods	**0.022***	0.004	**0.021***	0.004	**0.030***	0.006
R2	0.210		0.216		0.237	
Observations	15,547		9,776		5,771	

Controls: Age, age square, gender, household size, health, education, country dummies, employment, and income ladder

Bold values indicate variable is statistically significant

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 4 OLS Estimates of coefficients of consumption variables for the Life in Transition Survey II

Dependent var.	Regression 1		Regression 2		Regression 3		Regression 4	
Life satisfaction (1–10)	Developed		Transition (all)		CEB + SEE		CIS + M	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Food, beverages, and tobacco	0.049	0.033	**−0.046***	0.026	−0.016	0.032	−0.038	0.047
Utilities	−0.024	0.035	**0.109***	0.021	**0.060***	0.029	**0.139***	0.035
Transportation	0.003	0.019	−0.007	0.008	0.006	0.009	**−0.039***	0.018
Education	0.001	0.012	**0.015***	0.007	**0.020***	0.009	0.011	0.012
Health	−0.012	0.014	−0.006	0.009	−0.018	0.011	0.017	0.016
Clothing and footwear	**0.084***	0.026	**0.081***	0.010	**0.104***	0.012	0.024	0.018
Durable goods	**0.027***	0.011	**0.035***	0.006	**0.026***	0.008	**0.046***	0.010
R2	0.227		0.311		0.356		0.244	
Observations	3,300		10,186		6,418		3,768	

Controls: Age, age square, gender, household size, marital status, education, health, country dummies, employment, and income ladder

Bold values indicate variable is statistically significant

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

the income ladder is used as a substitute for income. The ladder question is "Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest people and on the highest step, the tenth, stand the richest. On which step of the ten

is your household today?" Tables 5 and 6 demonstrate the relationship between consumption categories and life satisfaction among various income ladder groups to see whether this varies based on the individuals standing on the economic ladder. The tables below demonstrate the connection between consumption categories and life satisfaction among various income ladders among the countries. The income ladder is to be split into three categories: income ladder 1–3 (individuals who state that their standing on the economic ladder in society is the lowest level between 1 and 3); income ladder 4–6 (mid-level) and income ladder 7–10 (highest level).

The regressions in Table 5 demonstrate the relationship between consumption categories and life satisfaction with regard to various income ladder categories in transition countries. The results of regression 1 reveal that (except health expenditure) all consumption categories are statistically significant for individuals who claim they stand at 1–3 on the income ladder. Expenditure on food, beverages, and tobacco has the highest coefficient of 0.063. Interestingly, the coefficient of expenditures on education is −0.015. The coefficient of food expenditure (0.044) is highest in regression 2, as it was in regression 1. However, the relationship between food expenditure and life satisfaction disappears in regression 3 for individuals standing on the 7–10 section of the ladder. Expenditure on health is statistically significant only in regression 3 with a coefficient of −0.041. Regarding variable that have negative values, it can be stated that consumption on education is statistically significant just for individuals standing on the 1–3 section of the ladder, whereas consumption on health is statistically significant only for individuals standing on the 7–10 section of the ladder.

In Table 6, the data allow us to analyze the correlation between consumption categories and life satisfaction in developed countries as well. The regression results

Table 5 OLS estimates of coefficients of consumption variables for the Life in Transition Survey I (Dependent Variables Life satisfaction: 1–5)

Category	Regression 1		Regression 2		Regression 3	
Transition	Income ladder 1–3		Income ladder 4–6		Income ladder 7–10	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Food, beverages, and tobacco	**0.063*****	0.021	**0.044*****	0.016	0.044	0.040
Clothing and footwear	**0.022*****	0.006	**0.015*****	0.004	**0.020***	0.011
Transport and communication	**0.047*****	0.008	**0.033*****	0.008	**0.039****	0.019
Recreation, entertainment	**0.030*****	0.007	**0.027*****	0.004	**0.038*****	0.010
Education	**−0.015***	0.008	−0.006	0.005	0.009	0.011
Health	−0.008	0.009	−0.008	0.007	**−0.041*****	0.015
Furnishings	**0.030*****	0.009	**0.017*****	0.006	0.006	0.014
Household durable goods	**0.034*****	0.007	**0.020*****	0.004	**0.025*****	0.010
R2	0.071		0.047		0.108	
Observations	5,433		8,683		1,431	

Controls: Same as in Table 3 except for income ladder

Bold values indicate variable is statistically significant

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 6 OLS estimates of coefficients of consumption variables for the Life in Transition Survey II (dependent variables life satisfaction: 1–10)

Category	Regression 1		Regression 2		Regression 3	
Developed	Income ladder 1–3		Income ladder 4–6		Income ladder 7–10	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Food, beverages, and tobacco	0.030	0.085	0.063	0.039	−0.029	0.078
Utilities	−0.023	0.089	−0.034	0.042	0.063	0.081
Transportation	−0.021	0.043	0.019	0.022	−0.048	0.057
Education	**0.062***	0.036	−0.011	0.014	−0.009	0.023
Health	−0.010	0.036	0.006	0.016	**−0.097***	0.034
Clothing and footwear	**0.117***	0.064	**0.069****	0.031	**0.202***	0.069
Durable goods	0.032	0.028	**0.023***	0.012	0.022	0.069
R2	0.191		0.159		0.124	
Observations	677		2,018		605	
Category	Regression 4		Regression 5		Regression 6	
Transition (all)	Income ladder 1–3		Income ladder 4–6		Income ladder 7–10	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Food, beverages, and tobacco	−0.056	0.049	−0.054	0.034	0.003	0.089
Utilities	**0.160***	0.036	**0.076***	0.029	0.118	0.079
Transportation	−0.007	0.013	0.001	0.011	−0.007	0.037
Education	**0.038***	0.014	0.008	0.009	0.021	0.022
Health	0.007	0.016	−0.016	0.012	−0.006	0.032
Clothing and footwear	**0.098***	0.016	**0.101***	0.014	−0.044	0.042
Durable goods	**0.060***	0.012	**0.036***	0.008	0.028	0.020
R2	0.111		0.098		0.086	
Observations	3,739		5,655		792	

Controls: Same as Table 4 except for income ladder

Bold values indicate variable is statistically significant

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

for developed countries reveal that not all consumption categories are statistically significant. In regression 1, expenditures on education (with a coefficient of 0.062) and clothing and footwear (0.117) are statistically significant, whereas in regression 2, consumption of clothing and footwear (with a coefficient of 0.069) and durable goods (with a coefficient of 0.023) are statistically significant for individuals standing on the 4–6 section of the ladder. In regression 3, expenditures on health (with a coefficient of −0.097) and clothing and footwear (with a coefficient of 0.202) are statistically significant for individuals standing on the 7–10 position on the ladder. Expenditure on clothing and footwear is statistically significant and has the highest coefficient in all regressions in developed countries. Similar to the education expenditure in Table 5, the results of regression 3 reveal that education expenditure has a negative value and is statistically significant only

for the individuals standing on the 7–10 section of the ladder. On the other hand, the results of regressions 4, 5, and 6 reveal that the relationship is very different in transition countries. Regression 4 demonstrates that expenditures on utilities (with the highest coefficient of 0.160), education (with a coefficient of 0.038), clothing and footwear (with a coefficient of 0.098) and durable goods (with a coefficient of 0.060) are statistically significant in transition countries. In regression 5, clothing and footwear consumption has the highest coefficient (0.101). Utilities consumption has a coefficient of 0.076 and durable consumption has a coefficient of 0.036. Interestingly, regression 6 reveals that not any consumption category is statistically significant in relation to life satisfaction for the individuals standing on the 7–10 section of the ladder.

4.2 Life satisfaction and reduction in consumption categories

In the Life in Transition Survey II, section 8 includes questions to evaluate the impact of economic crises on individuals living in transition countries and developed European countries. "In the past 2 years, have you or anyone else in your household had to take any of the following measures as the result of a decline in income or other economic difficulty?" is the question in section 8 related to consumption. The answer to this question is either yes or no rather than stating an exact amount in the reduction in consumption. By using the available data, this paper examines the impact of reduction in several consumption items on life satisfaction after the 2008 crisis.

Table 7 OLS Estimates of coefficients of reduction in consumption variables for the Life in Transition Survey II

Dependent variable Life satisfaction (1–10) Reduction	Model 1 Developed		Model 2 Transition (all)		Model 3 CEB + SEE		Model 4 CIS + M	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Staple foods	−0.017	0.095	**−0.541*****	0.031	**−0.521*****	0.041	**−0.554*****	0.048
Luxury goods	0.022	0.066	−0.036	0.030	0.020	0.039	**−0.098****	0.047
Alcoholic drinks	**−0.232****	0.102	−0.051	0.039	**−0.122****	0.048	0.055	0.066
Regular medications	0.072	0.213	**−0.304*****	0.045	**−0.316*****	0.064	**−0.281*****	0.064
Utilities	−0.107	0.114	**−0.288*****	0.038	**−0.208*****	0.050	**−0.361*****	0.060
R2	0.180		0.295		0.340		0.240	0.280
Observations	3,361		15,022		8,576		6,446	13,073

Controls: Age, age square, gender, household size, marital status, education, country dummies, employment, and income ladder

Bold values indicate variable is statistically significant

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The results in Table 7 show that the reduction in several consumption categories has a negative impact on life satisfaction. In model 1, only the reduction in alcoholic drinks is statistically significant and has a negative coefficient of −0.232. In models 2, 3, and 4 the reduction in staple foods is statistically significant and the coefficients in these models are higher than the other categories. For instance, a single unit reduction in staple foods diminishes life satisfaction by 0.554 units in CIS + M. The coefficient is −0.521 for CEB + SEE countries and −0.541 for the entire transition sample. On the other hand, the reduction in staple foods is insignificant in the developed countries sample. A reduction in luxury goods is relatively lower than other variables and is statistically significant only in the CIS + M sample. The coefficient of reduced luxury goods is −0.098 in model 4. "Reduced regular medications" is not statistically significant in developed countries but significant in models 2, 3 and 4. Finally, a reduction in "utilities" lowers life satisfaction and is significant in all models except for developed countries.

5 Discussions

The findings in the regressions suggest that not all categories of consumption lead to happiness. For instance, Table 4 suggests that food, beverages, and tobacco expenditures are not statistically significant in developed countries. This can be explained as follows: Once people's basic needs are met, other factors such as status, luxury consumption, and status and comparisons are more significant in determining subjective well-being at higher levels of development (Layard 2005; Veenhoven 1988). Veenhoven (1988, 1991), suggested that income helps people meet basic needs and because those with greater income are more likely to be able to meet their basic needs, such as food, safety, health, and comfortable housing, they may more likely to have greater subjective well-being consuming luxury goods. This relationship can also be seen among individuals at different levels of standings on the income ladder in transition and developed countries. In addition, a higher coefficient of food, beverages, and tobacco in comparison with recreation, entertainment, and meals outside can be explained by this interpretation of the 2006 data: Spending on recreation, entertainment, and meals might enhance life satisfaction because these activities are often enjoyed in the company of relatives and friends. In developed countries, the consumption of food, beverages clothing, and footwear is not statistically significant, whereas the consumption of clothing and footwear has the highest coefficient of 0.84 which can be connected with the material aspects (status goods) of consumption. Another material aspect is durable goods. In all models, "durable goods" is statistically significant. The consumption of durable goods may increase life satisfaction by making life easier and reflect the status of the individuals.

At different levels of development, the correlation between consumption categories and life satisfaction varies. Expenditure on utilities has a positive coefficient in transition countries, whereas it is statistically insignificant in developed countries. Expenditures on utilities such as electricity, water, gas, heating, and fixed line telephones are necessities. The increased consumption of utilities also reduces the resources for luxury items or vacations (since they are

important after a certain level of development), which may cause a negative effect on life satisfaction.

In the happiness economics literature, health is recognized as one of the most important aspects of well-being. The available data suggest that there is a positive association between happiness and health (Graham 2008). Regressions of the current study suggest by controlling the health variable, health expenditure, is statistically insignificant in most of the regressions and has a negative coefficient. However, at the 7–10 level on the income ladder, the connection between health consumption and life satisfaction is statistically significant and has a negative value in transition countries (2007 data) and developed countries (2011 data).

Although food consumption is not statistically significant in transition countries, reduction in food consumption is statistically significant with a negative and a high coefficient in models 2, 3, and 4. However, it should be noted that reductions in consumption categories are not in absolute terms. Respondents gave yes/no answers rather than stating an absolute amount of reduction. In developed economics, the reduction in staple foods is statistically insignificant. In developed countries, only alcoholic drinks reduction is statistically significant.

Luxury goods are often regarded as wasteful (Veblen 1899; Galbraith 1999). For example, Robert Frank (1999) stated that people who own luxuries are no happier than people without luxuries. However, spending money on luxury and leisure goods may increase happiness by increasing the individual's status. On the other hand, Deleire and Kalil (2010) reject the conventional wisdom that "material goods can't buy happiness," and instead suggest a potential role for social connections and status in the production of subjective well-being. In the present paper, the reduction in luxury items is statistically significant only for CIS and Mongolia. The decrease in a single unit of luxury goods diminishes life satisfaction by 0.098.

However, it should be mentioned that the present paper has several limitations. First, consumption categories are not clearly defined as luxury goods, leisure activities, which represent material, or status goods. Expenditures on clothing or durables may reflect the status or visibility effect, yet it is hard to generalize since they can be purchased to fulfill basic needs as well. Consumption categories may reflect an individual's positions in society. The correlation between happiness and various consumption categories may reflect how people create their identity through consumption. In this case, categorizing consumption expenditures with regard to self-image becomes significant. Second, for some categories, the amount of money spent was calculated on a monthly basis and for the other categories on an annual basis. This raises the problem of the standardization of the categories. Third, how respondents spent their money is based on personal characteristics and plays a significant role in examining the correlation between happiness and consumption. Data that included consumption categories and personal characteristics would be very useful in the understanding of the impact of consumption on subjective well-being and identity. Finally, conducting surveys that include consumption categories across a wide spectrum of countries would give a better idea of the role of consumption on happiness at different levels of development and make it possible to more accurately test the current arguments. For instance, it would be very valuable to test whether after a certain level of development if basic consumption categories lose their importance or not.

6 Conclusion

It is widely accepted that there is a significant correlation between happiness and consumption and aggregate consumption has a positive impact on an individual's level of life satisfaction. However, this paper focuses on specific categories and reveals that not all consumption categories are statistically significant in relation to life satisfaction. Second, the relationship between consumption categories and life satisfaction differs at different levels of development.

Another substantive finding is that the effect of reduction in consumption categories on life satisfaction varies among different levels of development. Reduction in luxury consumption goes with lower happiness in CIS + M sample. On the other hand, the reduction in staple foods is insignificant in the developed countries sample, whereas it is significant and has a negative coefficient in transition countries.

Appendix

See Tables 8 and 9.

Table 8 Descriptive statistics—country groups (EBRD 2007)

	CEB + SEE			CIS + M		
	Value	St. dev.	Min–max	Value	St. dev.	Min–max
Weight	0.63	1.1	0–1	0.37	0.46	0–1
Household size	2.52	1.49	1–10+	3.08	1.79	1–10+
Age	52.64	17.26	18–97	49.33	16.14	18–97
Gender	0.47	0.5	0–1	0.49	0.5	0–1
Life Satisfaction	3.09	1.17	0–5	3.05	1.13	0–5
Education	3.36	1.21	0–6	3.62	1.12	0–6
Consumption						
Food, beverages, and tobacco	7.68	0.76		6.85	0.85	
Clothing and footwear	4.12	3.33		4.34	3.12	
Transport and communication	5.81	1.91		4.47	2.20	
Recreation, entertainment, and etc.	2.52	3.15		1.64	2.70	
Education	2.31	2.82		2.15	2.39	
Health	4.22	2.15		3.25	1.98	
Furnishings	2.06	2.30		2.08	1.99	
Durable goods	2.45	3.09		1.62	2.51	

Table 9 Descriptive statistics—country groups (EBRD 2011)

	Transition countries			Developed European countries		
	Value	St. dev.	Min–max	Value	St. dev.	Min–max
Weight	0.79	1.1	0–1	0.21	0.86	0–1
Household size	2.57	1.53	1–10+	2.18	1.23	1–10+
Age	50.0	17.1	14–97	51.42	16.28	18–94
Gender	0.44	0.5	0–1	0.48	0.50	0–1
Life Satisfaction	5.13	2.084	0–10	7.02	2	0–10
Health	3.34	0.95	1–5	3.83	0.87	1–5
Marital Status	0.53	0.5	0–1	0.49	0.5	0–1
Education	3.24	1.44	0–6	3.29	1.69	0–6
Consumption						
Food, beverages, and tobacco	7.98	0.92		8.26	0.61	
Utilities	6.95	1.04		7.46	0.73	
Transportation	5.45	2.50		5.63	2.92	
Education	2.73	3.02		2.49	3	
Health	4.67	2.06		4.56	2.59	
Clothing and footwear	4.95	2.26		5.98	1.45	
Durable goods	2.39	3.10		4.99	3.22	

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