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Reference Group Income and Subjective Well-Being: Empirical Evidence from Low-Income Transition Economies

Armenak Antinyan[1]

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Abstract This paper aims at studying the connection between reference group income and life satisfaction in the three republics of the South Caucasus: Armenia, Azerbaijan, and Georgia. I illustrate that in low-income transition economies individuals make not only upward comparisons, decreasing their subjective well-being if the reference group members are richer than they are, but also downward comparisons, enhancing their subjective well-being if the reference group members are poorer. This result contradicts Duesenberry's idea that comparisons are mostly upward.

Keywords Subjective well-being · Reference group · Transition economy · Upward comparison · Downward comparison

JEL Classifications D60 · D63 · I31 · P30

1 Introduction

Orthodox economics tends to rely on an absolute formulation of utility. In line with neoclassical models, individuals derive utility from their own consumption with high levels of consumption providing high levels of utility (Luttmer 2005). Nevertheless, theoretical models (e.g., Akerlof 1997; Boskin and Sheshinski 1978; Corneo and Jeanne 1997; Duesenberry 1949; Frank 1985; Knell 1999; Layard 1980; Ljungqvist and Uhlig 2000; Pollak 1976) as well as empirical evidence (e.g., Alpizar et al. 2005; Carlsson et al. 2007; Pingle and Mitchell 2002; Solnick and Hemenway 2005) suggest that individuals possess clear-cut interdependent preferences. In other words, an individual's utility has not only an absolute but also a relative component, i.e., an individual's utility depends on the

✉ Armenak Antinyan
armenak.antinyan@fau.de

[1] Department of Economics, Chair of Economic Theory, University of Erlangen-Nuremberg, Lange Gasse, 20, 90403 Nuremberg, Germany

consumption of relevant others. Moreover, when forming consumption baskets individuals exhibit strong positional concerns and try to keep up with the reference group they are in comparison with (e.g., Frank et al. 2014).

What happens if individuals lag behind their reference group? Studying data from the US, Luttmer (2005) illustrates that individuals diminish their utility if others around them earn more: an increase in neighbors' earnings and a similar-sized reduction of own income both lead to a reduction in the self-reported happiness of about the same order of magnitude (comparison effect).[1] Similarly, using GSOEP (German Socio-Economic Panel) data, Ferrer-i-Carbonell (2005) reports that an individual's well-being is in negative correlation with the income of her reference group. An analogous picture is evidenced in the UK, where the satisfaction level of workers is inversely related to the wage of their reference group (Clark and Oswald 1996). In contrast to abovementioned studies, Senik (2004) reveals that in Russia the reference group income exerts a positive influence on individuals' satisfaction with life. According to the author, the volatile environment of Russian transition is characterized by a high variance in earnings, which makes social comparisons insignificant and relative positions unstable. Given the high degree of uncertainty, individuals use reference group income as an informational device to form expectations regarding prospective opportunities (informational effect). The author concludes: "Transition could well be a case in which people go back to 'fundamentals' and care only about their own outcomes, including the information necessary to predict them" (page 2123). A similar picture is evidenced in post-Transition countries of Eastern Europe (Senik 2008).

This paper aims at studying the connection between reference group income and life-satisfaction in the three low-income transition economies of the South Caucasus: Armenia, Azerbaijan, and Georgia. Understanding the type of externality the reference group exerts on individuals' well-being in these countries is of relevance for economic policy, as comparison effect calls for equalizing income or consumption, while informational effect does not (Senik 2008). For instance, if comparison effect is present, Duesenberry (1949) suggests progressive income taxation to enhance allocational efficiency. Similarly, Frank (1997) discusses progressive consumption tax, which "can help mould the frame of reference in mutually beneficial ways" (p. 1844).

The contribution of the paper with respect to the previous work is twofold. First, the paper provides additional evidence of an understudied region, exploring the connection between life satisfaction and determinants not tackled by previous research (i.e., Habibov and Afandi 2009). Second, it adds to the literature that studies the influence of reference group income on life satisfaction (e.g., Clark and Oswald 1996; Ferrer-i-Carbonell 2005; Luttmer 2005; Senik 2004). In particular, the paper illustrates that in all the three republics of the South Caucasus individuals report low satisfaction with life if their reference group earns more than they do. Hence, unlike Russia (Senik 2004) and post-Transition economies of Eastern Europe (Senik 2008), in low-income transition economies of the South Caucasus the income of the reference group is used for comparison rather than for informational purposes. Moreover, the paper depicts that individuals in the region make not only upward comparisons, decreasing their subjective well-being if the reference group members are richer than they are, but also downward comparisons, enhancing their subjective well-being if the reference group members are poorer. A similar finding was reported by Ferrer-i-Carbonell (2005) for East Germany, albeit the effect was statistically non-

[1] In the paper, I use happiness, subjective well-being, satisfaction with life, utility, and well-being interchangeably.

significant on conventional levels. This result is in contrast to Duesenberry's idea that comparisons are mostly upward (see Ferrer-i-Carbonell 2005, p. 997).[2]

The rest of the paper is structured as follows. Section 2 briefly describes the region and the dataset. Section 3 discusses the empirical strategy. Section 4 illustrates the results. Section 5 concludes the paper.

2 The Region and the Dataset

The three republics of the South Caucasus—Armenia, Azerbaijan, Georgia—are on the border of Eastern Europe and Southwest Asia. Transition in these republics started earlier than in the rest of the Soviet Union, albeit it was accompanied by severe cataclysms: ethnic conflicts, civil unrests, refugee crisis and collapse of economic cooperation with the former republics of the Soviet Union (Habibov and Afandi 2009). Despite hardship, Azerbaijan's economy managed to recover the fastest, mostly due to its rich hydrocarbon reserves. Figure 1 illustrates the Gross Domestic Product of the three republics from 1990 to 2013.

As can be inferred from the figure above, in recent years there has been a large and widening gap between the GDP of Azerbaijan and that of the other two republics. Nevertheless, even after 23 years of transitional processes a substantial amount of poverty (Armenia 32.4 %; Azerbaijan 6 %; Georgia 14.8 %; World Bank 2012), inequality (GINI index) (Armenia 30.7 %, Azerbaijan 33 %, Georgia 40.6 %; World Bank 2008) and non-positive net migration (−3.4 migrants/1000 population, Armenia; 0 migrants/1000 population, Azerbaijan; −5.8 migrants/1000 population, Georgia; United Nations 2013) exist in the South Caucasus. Table 1 illustrates the official statistics of the average monthly gross per capita household income and expenditure by country from 2010 to 2013.

According to the official statistics, the average per capita monthly income is barely enough to cover the per capita monthly expenditure. Moreover, as suggested by "Appendix", the largest part of the per capita income is directed to cover basic expenses on food, utilities, transportation, communication, and the like.

Though Azerbaijan is economically more advanced, it lags behind Armenia and Georgia with respect to political rights and civil liberties. For instance, according to *Freedom in the World Index* developed by Freedom House, Azerbaijan has been constantly rated as not being a free country since the fall of the Soviet Union, while Armenia and Georgia have been characterized as partially free. Similarly, according to *Democracy Index 2013* (The Economist Intelligence Unit 2014), Armenia (country rank 116/167) and Georgia (country rank 78/167) are defined as hybrid regimes, while Azerbaijan (country rank 140/167) as an authoritarian regime. There also exists a significant amount of corruption in all three republics (Transparency International 2011).

While there is substantial evidence of satisfaction with life in transition economies (see Sanfey and Teksoz 2007 and references therein), the determinants influencing individual well-being in the South Caucasus remain relatively understudied. A notable exception is the paper by Habibov and Afandi (2009) which illustrates that the level of household income, university education, and the larger the number of people in a household along with a salary as a major income source positively influence subjective well-being. In

[2] Duesenberry (1949) suggested that poor individuals decrease their satisfaction with life if their peers/reference group is richer than they are, although the opposite claim does not hold. In other words, rich individuals do not increase their satisfaction with life, if their peers/reference group is poorer than they are.

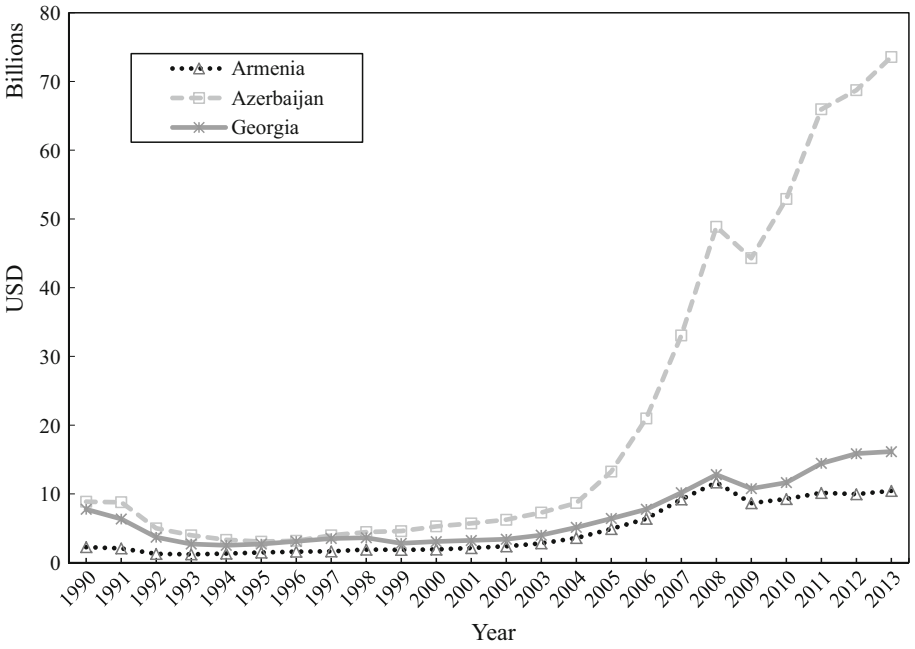

Fig. 1 The Gross Domestic Product in the South Caucasus 1990–2013. *Source:* World Development Indicators of The World Bank

Table 1 Average monthly per capita household income and expenditure by Country 2010–2013

Country	Average per capita income (USD)				Average per capita expenditure (USD)			
	2010	2011	2012	2013	2010	2011	2012	2013
Armenia	92.2	99.4	104.6	111.2	76.7	87.4	86.6	89.8
Azerbaijan	179.7	210.3	243	273.7	183.6	219.1	257.1	282.2
Georgia	100.1	115.8	132.3	148.2	95.3	112.9	128.5	145.5

The structure of Income and Expenditure is provided in "Appendix" for the brevity of the text. Nevertheless, the data on income needs to be treated with caution, since the respondents may hide or under-report their income

The exchange rates from national currencies to USD is the average rate based on daily official statistics reported by the Central Banks for the given year

Source: National Statistical Service of the Republic of Armenia; The State Statistical Committee of the Republic of Azerbaijan; National Statistics Office of Georgia

contrast, being unemployed or a migrant, along with having social transfers as a major source of income, negatively affect subjective well-being.

To shed light on the research question under scrutiny I utilize cross-country, cross-sectional nationally representative survey data, the "Caucasus Barometer," developed by the Caucasus Research and Resource Center (CRRC).[3] The "Caucasus Barometer" survey

[3] It should be noted that this paper is not the first to use cross-sectional data to capture the influence of reference group income on individuals' satisfaction with life. For instance, Clark and Oswald (1996) and

runs annually in Armenia, Azerbaijan, and Georgia based on the same methodological approach and on the same survey instrument. The survey includes a broad set of questions ranging from socio-demographics to economic behavior both on an individual and on a household level. For my purposes I analyze the data from 2010 to 2013, which is justified by the fact that the life satisfaction question was first implemented in the questionnaire in 2010.[4]

3 Empirical Strategy

I estimate a regression equation of the following form:

$$W_{ijt} = \beta_1 \times I_{ijt} + \beta_2 \times DiffRI_{ijt} + \beta_3 \times X_{ijt} + \beta_4 \times T_t + \beta_5 \times C_j + \varepsilon_{ijt} \quad (1)$$

where W_{ijt} is the subjective well-being of individual i in country j at time t; I_{ijt} is a dummy indicating the financial situation of the household of individual i in country j at time t; $DiffRI_{ijt}$ is a dummy specifying the difference between the reference group and the household income of individual i in country j at time t; X_{ijt} is a matrix of individual and household socio-demographic controls such as age, education, employment, and number of household members, specified in line with Ferrer-i-Carbonell (2005); T_t is a matrix of dummy variables capturing year-specific differences; C_j is a matrix of dummies controlling for country-specific differences; ε_{ijt} is the error term. Additionally, I estimate (1) for each country separately, dropping $\beta_5 \times C_j$ term.

The proxy for individuals' well-being is the self-reported life satisfaction question measured on a scale of "1" (not satisfied at all) to "10" (completely satisfied):

> All things considered, how satisfied are you with your own life as a whole nowadays? Please use this CARD, where '1' means "Not satisfied at all" and '10' means "Completely satisfied."

Despite the skepticism by some economists (e.g., Bertrand and Mullainathan 2001), questions assessing individuals' self-reported subjective well-being have proven to be trustworthy approximations to individual utility (see Luttmer 2005, p. 968; Ferrer-i-Carbonell 2005, p. 1003 for a detailed discussion).

I determine the financial situation of the households with the following income question:

> Which of the following statements best describes the current economic situation of your household?

Based on the answers to the question I create income group dummies as follows:

Footnote 3 continued
McBride (2001) adopt a similar approach to study closely related questions. Furthermore, Senik (2004) verifies that the relationship between reference group income and individuals' well-being holds not only with a panel estimator but also with a cross-section one.

[4] The data contain 20339 non-missing observations for the variables under consideration distributed among countries as follows: Armenia 7103, Azerbaijan 5933 and Georgia 7303. Observations coded as "Interviewer Error," "Refuse to Answer," "Break Off," "Don't Know", are excluded from the study.

$$\begin{cases} Very\,Low - Income\,Group = 1\ if\ ``Not\,Enough\,Money\,for\,Food'', otherwise\,0 \\ Low - Income\,Group = 1\ if\ ``Enough\,Money\,for\,Food\,only, but\,Not\,for\,Clothes'', otherwise\,0 \\ High - Income\,Group = 1\ if\ ``Enough\,Money\,for\,Everything\,Necessary'', otherwise\,0 \end{cases}$$

Individuals who answer *"Enough money for food and clothes but not for expensive durables"* and *"Enough money for some durables (fridge,* etc.*)"* are included in the reference category, which in the rest of the paper is called "Average-Income Group."[5]

A challenging issue for researchers is the definition of the reference group. To this date, there are several approaches to solve this problem. For instance, according to Easterlin (1995), individuals' reference group consists of all other citizens of the same country. Ferrer-i-Carbonell (2005) assumes that individuals' reference group is the cohort of individuals with a similar education level, inside the same age bracket, and living in the same region. Similarly, Senik (2004, 2008) considers that individuals compare themselves with their professional peers based on education, years of experience, age, gender and geographical location. Luttmer (2005) defines the reference group as individuals living in the same Public Use Microdata Area (PUMA), illustrating that high PUMA earnings are associated with lower levels of self-reported happiness. In this study, I assume that individuals compare themselves with households situated in their neighborhood. The survey question below measures individuals' perception of their household condition in comparison to that of their neighbors on a scale of "5" (Very Good) to "1" (Very Poor):

> Relative to most of the households around you, would you describe the current economic condition of your household as …

I create a dummy variable *Above Reference Group* if the individual indicates that relative to the households around her the economic condition of her household is either *"Very good"* or *"Good."* Similarly, I create a dummy variable *Below Reference Group* if the respondent answers *"Poor"* or *"Very Poor"* to the abovementioned question. The reference category consists of individuals who perceive that they are in a "*Fair"* situation in comparison with surrounding households. Regarding the socio-demographic profile of the respondents Table 2 reports the descriptive statistics of the variables included in matrix *X*.

The whole sample consists of 41.398 % males. Around 35 % of the respondents are single. An average household is composed of four members. The mean age is 47.436 years. The number of respondents with a university education is 28.743 % and 61.675 % of the sample are not working.

4 Results

Figure 2 depicts individuals' average self-reported happiness depending on the perception of their household position in the neighborhood. The numbers on the bars indicate the quantity of respondents.

[5] 12886 individuals indicate that their income is either not enough for food or it suffices for food only. 7117 respondents' households can buy food, clothes and some durables. Just 336 individuals answer that money is enough for everything necessary. The responses of the survey are in line with the statistics reported by the statistical offices of Armenia, Azerbaijan and Georgia discussed in Sect. 2 and "Appendix".

Table 2 Descriptive statistics

Gender		Relationship status		Employment	
% Male	% Female	% Single	% Non-Single	% Working	% Non-working
8420 (41.398 %)	11919 (58.602 %)	7103 (34.923 %)	13236 (65.077 %)	7795 (38.325 %)	12544 (61.675 %)
Education			Number of household members		Age
% University	% Below university		Mean and SD		Mean and SD
5846 (28.743 %)	14493 (71.257 %)		3.825 (1.873)		47.436 (17.763)

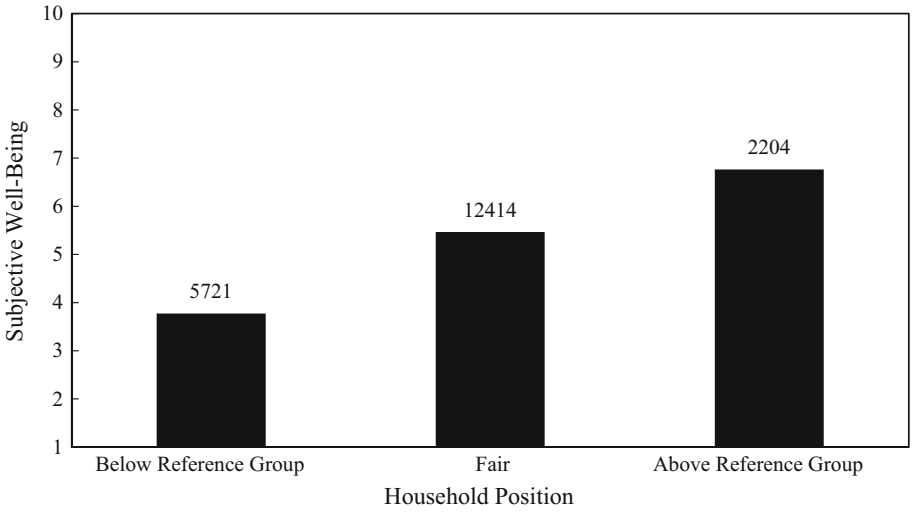

Fig. 2 Relative position versus the reference group

As can be inferred from the abovementioned figure, the relative position in the neighborhood is strongly correlated with self-reported subjective well-being. In particular, individuals who perceive their household to be financially worse off than that of their neighbors are approximately two times less happy than individuals who perceive themselves as living in financially better off households (mean values are 3.774 and 6.764, respectively).

As a next step, I report the results of formal regression analysis. To estimate (1) I use an OLS model, interpreting happiness score as cardinal. Additionally, to check the robustness of the results, I estimate ordered probit model treating the answers to the life satisfaction question as ordinal. The conclusions of the paper are not subject to model manipulation. The econometric results of the ordered probit models are available upon request.

Table 3 depicts the output of the OLS estimations for pooled dataset as well as for the separate countries.

Before proceeding to the discussion of the relationship between W_{ijt} and $DiffRI_{ijt}$, I consider the coefficients of the other variables included in the regressions in order to assess how the findings of the econometric model compare with those in the extant literature.

Table 3 Determinants of life satisfaction in the South Caucasus

	Pooled	Armenia	Azerbaijan	Georgia
Intercept	9.081***	9.871***	8.464***	9.189***
	(0.170)	(0.314)	(0.268)	(0.285)
Male	−0.193***	−0.231***	−0.168***	−0.166***
	(0.032)	(0.059)	(0.053)	(0.052)
Single	−0.339***	−0.438***	−0.389***	−0.227***
	(0.033)	(0.061)	(0.055)	(0.053)
ln(Age)	−0.824***	−1.002***	−0.727***	−0.780***
	(0.039)	(0.073)	(0.064)	(0.064)
Number of household members	−0.001	0.009	0.007	−0.015
	(0.009)	(0.015)	(0.014)	(0.015)
Working	0.019	−0.034	−0.031	0.108**
	(0.033)	(0.062)	(0.056)	(0.055)
University education	0.272***	0.309***	0.270***	0.267***
	(0.035)	(0.064)	(0.062)	(0.054)
Very low income group	−1.366***	−1.267***	−1.635***	−1.262***
	(0.043)	(0.078)	(0.074)	(0.073)
Low income group	−0.705***	−0.642***	−0.759***	−0.706***
	(0.037)	(0.071)	(0.059)	(0.062)
High income group	0.906***	1.293***	1.089***	0.461**
	(0.118)	(0.243)	(0.169)	(0.203)
Below reference group	−1.064***	−1.168***	−1.036***	−0.980***
	(0.037)	(0.073)	(0.060)	(0.061)
Above reference group	0.831***	0.641***	0.875***	0.981***
	(0.051)	(0.089)	(0.074)	(0.103)
Azerbaijan	−0.136***			
	(0.038)			
Georgia	0.278***			
	(0.036)			
Year 2011	0.046	−0.154*	0.259***	0.036
	(0.046)	(0.085)	(0.073)	(0.077)
Year 2012	0.013	−0.055	0.105	−0.061
	(0.045)	(0.085)	(0.070)	(0.077)
Year 2013	0.127***	0.025	0.459***	−0.119
	(0.045)	(0.089)	(0.068)	(0.077)
Adjusted R^2	0.24	0.209	0.325	0.220
F-statistics (or χ^2)	401.3	135	205.2	147.9
$p > F$ (or χ^2)	0.000	0.000	0.000	0.000
Observations	20339	7103	5933	7303

Ordinary least squares regression (OLS). Dependent variable: *Self-Reported Life Satisfaction* ranging from "1" (not satisfied at all) to "10" (completely satisfied). Independent variables. *Male* = 1 if the respondent is male, 0 otherwise; *Single* = 1 if the respondent is never married, divorced, separated, widow/widower, 0 otherwise; *Working* = 1 if the respondent has a job or is self-employed, 0 otherwise; *University Education* = 1 if the respondent has higher education, incomplete higher education or a postgraduate degree, 0 otherwise; *Number of Household Members*- integer number indicating the number of the members of the respondent's household; *Age*-integer number indicating the age of the respondent; *Very Low-Income Group* = 1, if money is not enough for food, 0 otherwise; *Low-Income Group* = 1 if money is enough for food, but not for clothes, 0 otherwise; *High-Income Group* = 1 if money is enough for everything necessary, 0 otherwise; *Below Reference Group* = 1 if the respondent is poor or very poor than her neighbors, 0 otherwise; *Above Reference Group* = 1 if the respondent is richer than her neighbors, 0 otherwise; *Azerbaijan*, *Georgia* = 1 if the respondent is from Azerbaijan, Georgia, respectively, 0 otherwise

* $p < 10$; ** $p < 5$ %; *** $p < 1$ %

First, I focus my attention on the pooled regression in column 1. As can be inferred, the model explains around 24 % of the variance of subjective well-being, which is in line with the claim that demographic and socio-economic variables are able to explain around 15 % of the variance of satisfaction with life (Diener 1984; cited in Ferrer-i-Carbonell and Frijters 2004, p. 645). Being male substantially decreases satisfaction with life (e.g., Ferrer-i-Carbonell 2005). In comparison to people in a relationship, single people are significantly less happy with their lives (e.g., Argyle 2003; Ferrer-i-Carbonell and Frijters 2004). Life satisfaction decreases with age (e.g., Luttmer 2005; Ferrer-i-Carbonell 2005; Senik 2004).[6] University education exerts a positive and significant impact on satisfaction with life (Gerlach and Stephan 1996; Argyle 2003), whereas employment has no effect. In comparison to people in an average-income group, individuals in a very low-income group and individuals in a low-income group are significantly less satisfied with life. On the contrary, individuals in a high-income group are more satisfied with their lives. This is in line with the studies demonstrating that households expressing discontent with food consumption, housing, hygiene, health or clothing possess significantly lower subjective well-being, than do households who can satisfy their needs (Howell and Howell 2008). In addition, if one controls for the influence of other variables, people in Georgia are happier than in Armenia, whereas people in Azerbaijan are less happy compared to those in Armenia. Empirical research illustrates that a higher level of democratization of a country leads to a higher level of self-reported happiness (e.g., Dorn et al. 2007). As discussed in Sect. 2, Georgia is considered as more democratic than Armenia (e.g., *Democracy Index 2013*), while Azerbaijan, despite its economic advancements, lags behind the two countries. Hence, the differences in the countries may be due to the differences in the development of the democratic institutions.

Turning to the relationship between each individual's relative position in the community and their subjective well-being, I manifest that individuals decrease their subjective well-being in the presence of rich neighbors, which is captured by the significant and negative coefficient of the *Below Reference Group* dummy. This finding is in line with the existing evidence from developed countries (e.g., Ferrer-i-Carbonell 2005, for Germany; Luttmer 2005, for the USA; Clark and Oswald 1996, for the UK), although it contradicts the evidence from transition (i.e., Senik 2004, for Russia) and post-Transition (i.e., Senik 2008, for Eastern Europe) economies. Thus, in low-income transition economies the comparison effect dominates the informational effect.

Interestingly, in contrast to the extant literature, which manifests that comparisons are asymmetric (e.g., Ferrer-i-Carbonell 2005; Senik 2008), comparisons in the republics of the South Caucasus are symmetric, i.e., comparisons are directed not only upward, but also downward. The positive and significant coefficient of the *Above Reference Group* dummy illustrates that rich individuals substantially increase their well-being in the presence of poorer neighbors. Furthermore, the magnitude of upward comparisons is almost as strong as the magnitude of downward comparisons.[7]

[6] I also estimate regression models in which I include $\ln(\text{Age})^2$ to capture the curvilinear relationship between age and subjective well-being. In line with previous studies (e.g., Luttmer 2005, Ferrer-i-Carbonell 2005) I evidence non-linear relationship between the abovementioned variables given the positive and significant coefficient of $\ln(\text{Age})^2$. Moreover, the main conclusions of the paper remain intact. However, to avoid multicollinearity, I drop $\ln(\text{Age})^2$ in the main regression analysis. The output of the regressions is available upon request.

[7] One can argue regarding the presence of reverse causality in the study, i.e., individuals, who are unhappy with their lives, may perceive that they are poorer than their reference group. Alternatively, individuals, who are happy with their lives, may perceive that they are richer than their reference group. My answer to such

Columns 2–4 report results from the same regression model for the separate countries. A quick inspection of the results illustrates a large number of similarities. One of the main differences is the coefficient of the *Working* dummy, which is positive and significant for Georgia, whereas it is insignificant both for Armenia and Azerbaijan. The latter may be a result of the differences in the working conditions in Georgia relative to Armenia and Azerbaijan. However, I am not aware of studies that formally compare the conditions in the workplace across the three countries. Given the importance of the question, future research may try to fill in this gap.

5 Conclusion

The early years of transition in Armenia, Azerbaijan, and Georgia, as well as in the other former republics of the Soviet Union, were harsh both politically and economically. The economic performance of the post-Soviet republics was much worse than that of the Baltic States and of Eastern Europe (Svejnar 2002). Compared to 1989, in 1992 the aggregate GDP of the post-Soviet republics declined by 16 %, while in 1996 it was approximately 60 % of the 1987 level (Milanovic 1998). The real wages dropped between 40 and 60 %, while the poverty level went up (Milanovic 1998). The intra-country political processes were accompanied by "coups, successful and unsuccessful popular uprisings, and assassination attempts" (Milanovic 1998, p. 5). Even nowadays, the republics of the South Caucasus region (as well as other post-Soviet republics) are characterized by low levels of development of democratic institutions (e.g., *Freedom in the World Index*) and high corruption (e.g., Transparency International 2011). On top of intra-country problems, inter-country bloody ethnic and territorial conflicts erupted in the South Caucasus (e.g., Habibov and Afandi 2009). In the mid-2000s, Armenia, Azerbaijan, and Georgia, among other transition economies, overcame the "transition recessions" of the 1990s and were characterized by solid levels of economic growth (EBRD 2005, 2006), although many problems, such as massive unemployment, ubiquitous poverty, severe drop of living standards, that came with transition were far from being resolved (Sanfey and Teksoz 2007). The global crisis of 2008–2009 exacerbated the existing problems in transition economies, resulting in a high amount of job losses, wage reductions and declines in remittances of households (EBRD 2011).[8]

In summary, despite achievements, including solid pre-crisis economic growth (e.g., EBRD 2006), the transitional processes have caused startling inequalities, ubiquitous poverty, high unemployment, corruption, social dislocations, and a substantial drop in living standards, resulting in massive feelings of disappointment and dissatisfaction among

Footnote 7 continued
an argument is twofold. First, to the best of my knowledge, I am not aware of any study which illustrates that satisfaction with life influences how individuals compare their economic situation with that of their peers (e.g., if individuals are satisfied with life they think that they are richer than their reference group). On the contrary, there is considerable evidence of the reverse relationship, i.e., economic situation of individuals' reference group affects their satisfaction with life (see the citations in this paper). Second, individuals tend to make wealth comparisons based on visible goods (e.g., car, size of one's house, quality of wardrobe, see e.g., Frank 1985, 2001). Hence, individuals can objectively assess their wealth vis-à-vis that of their reference group members, which should not be influenced by satisfaction with life. To state it differently, if an individual is satisfied with life, her FIAT 500 will not become better than the Bentley Continental of her peer, making her richer than her peer.

[8] For instance, Armenia and Georgia were characterized by negative growth in 2009 (−14.4 and −3.8 %, respectively). However, the Economy of Azerbaijan continued to grow (9.4 %) (source, the World Bank).

the population in transition economies (e.g., Sanfey and Teksoz 2007; Ekiert et al. 2007). As scholars of the "economics of happiness" fairly argue, the goal of a society should not only be stable economic development, but also the highest possible levels of satisfaction with life (Frank 1997). In order to enhance society's satisfaction with life, the impact of variables such as family, health, work utility and the like on the latter should be taken into account (Easterlin 2003), since economic growth alone is not capable of boosting happiness in a country (e.g., Easterlin 1995).[9] One of the main variables influencing an individual's satisfaction with life is the income of the reference group, i.e., the income of the members of the society with whom the given individual compares herself (e.g., Ferrer-i-Carbonell 2005). In this direction, McBride (2001) poses a series of policy-relevant questions that can be answered only after the impact of the reference group income on well-being has been uncovered: "If economic growth only has minor effects on well-being then should other social goals receive more attention? Should equality of incomes be a more prominent social goal? Would a reduction in inequality increase dynamic efficiency? What is the proper way to index poverty?. The answers, however, depend on our understanding of the influence of relative-income on well-being." (p. 252).

The paper studies the influence of reference group income on individuals' subjective well-being in the three low-income republics of the South Caucasus. First, I illustrate that individuals' subjective well-being is in negative correlation with the income of their reference group. In other words, in the low-income transition economies of the South Caucasus unlike in Russia (Senik 2004) and in the post-Transition countries of Eastern Europe (Senik 2008), the comparison effect dominates informational effect. This effect is (probably) a consequence of low expectations of upward mobility because of widespread corruption, high unemployment, and insufficient economic development discussed above.

Second, I illustrate that in low-income transition economies comparisons with the reference group are not only upward but are also downward, i.e., individuals increase their subjective well-being if the households around them are poorer. As discussed by Frank (1985), being relatively wealthier than the reference group allows households to invest in goods and services unattainable to other members of the group (e.g., size and condition of one's house, the quality of one's car or wardrobe, organized and participated events, yearly vacations) which enhances the social status of the household in the reference group. According to formal economic models, status is a component of a utility function and high status increases individuals' utility (e.g., Congleton 1989; Konrad and Lommerud 1993). Similarly, research in sociology illustrates that social status is a valuable resource that carries a positive intrinsic value (e.g., Huberman et al. 2004). Moreover, in line with empirical evidence, the higher Hofstede's power distance index is,[10] the higher the desirability to display status and the more intense status-seeking activities are (Huberman

[9] For an excellent review of the literature on happiness, see (Dolan et al. 2008).

[10] Power distance dimension deals with the fact, that not all individuals in societies are equal—it expresses the attitude of the culture toward these inequalities amongst us. Power distance is defined as the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. If country scores high on power distance dimension, it means that dependent, hierarchical, superiors are often inaccessible and the ideal boss is a father figure. Power is centralized and low power individuals rely on higher power individuals and on rules. Employees expect to be told what to do. Control is expected and the attitude toward high power individuals is formal. Communication is indirect and the information flow is selective. The same structure can be observed in the family unit, where the father is a kind of patriarch to whom others submit. See: http://geert-hofstede.com/cultural-tools.html.

et al. 2004).[11] In light of this framework, being richer than the members of the reference group enhances the status of the individuals living in Armenia, Azerbaijan, and Georgia, which increases their subjective well-being (i.e., provides utility). Alternatively, social status can be considered as a symbol of power and means to obtain resources (e.g., Lin 1994), which can be particularly important for low-income transition economies where formal institutions are not as developed as in the western world and the level of corruption is high (Transparency International 2011).

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Appendices: Structure of Average Monthly per Capita Household Income and Expenditure by Country in 2013

See Tables 4, 5, 6, 7, 8 and 9.

Table 4 Average monthly per capita household income in Azerbaijan in Azerbaijani Manat

	2010	2011	2012	2013
Total income	144.2	166.0	190.9	214.7
Income from employment	50.0	54.4	62.1	70.7
Income from self-employment	36.3	42.2	48.6	55.2
Income from agriculture	20.1	23.3	26.3	29.8
Income from rent	1.3	1.4	1.5	1.6
Income from property	0.3	0.4	0.4	0.5
Current transfers received	21.8	27.5	32.2	34.6
Pensions	17.9	23.2	27.4	29.3
Benefits and social contributions	2.6	2.9	3.1	3.4
Social transfers in kind	1.3	1.4	1.7	1.8
Other income	14.3	16.8	19.7	22.3
Income from other households	10.5	12.2	14.4	16.5
Money received from Abroad	3.8	4.6	5.3	5.8

[11] To the best of my knowledge, to this date, there is no official score of the power distance index for the three republics of the South Caucasus. However, there is empirical evidence and discussion in the literature that Armenian and Georgian cultures can be considered as high power distance (e.g., Khzrtian and Samuelian 2012; Tkeshelashvili, 2009). Given the cultural similarities between Azerbaijan and Turkey which is also reflected in the famous slogan-"One nation, two States" (see http://en.president.az/articles/736/print)—I take the high power distance index of Turkish culture as a rough approximation of Azeri culture.

Table 5 Average monthly per capita household expenditure in Azerbaijan in Azerbaijani Manat

	2010	2011	2012	2013
Consumption expenditure	147.4	173.0	202.0	221.4
Food and non-alcoholic beverages	71.1	82.4	87.3	91.8
Alcohol	0.8	0.9	1.0	1.1
Tobacco	1.7	2.0	2.1	2.2
Clothes and footwear	10.4	11.3	13.8	15.9
Housing, water, electricity, gas and other fuels	9.9	12.5	14.9	17.0
Furnishing, household equipment and routine maintenance of the house	10.1	11.6	17.0	19.8
Health	5.4	6.8	9.2	10.3
Transport	8.6	10.9	12.4	14.2
Communication	3.9	5.1	6.1	6.8
Recreation and culture	4.7	6.0	8.3	9.3
Education	2.2	3.1	3.9	4.3
Restaurants, cafes and accommodation	12.6	13.9	17.2	18.7
Miscellaneous goods and services	5.8	6.5	8.7	10.0

Table 6 Average monthly per capita household income in Armenia in Armenian Dram

	2010	2011	2012	2013
Monetary income, *including*	31,553	34,206	39,056	42,404
Hired employment	16,738	18,135	20,453	21,869
Self-employment	2193	2325	3038	3429
Sales of agricultural products and livestock	1181	1731	2223	2441
Income on property (rental income, interest, equity gain)	30	141	112	177
Public pensions and benefits	5888	6502	7192	7576
Transfers, of which	3927	4127	4223	4778
From relatives residing in Armenia	494	554	490	560
From relatives residing outside of Armenia	3431	3571	3731	4218
Other income	1596	1245	1815	2134
Non-monetary income, *including*	2881	2844	2987	3126
Consumption of own production food	2537	2499	2696	2873
Non-food products and services received free of charge	344	345	291	253
Total gross income	34,434	37,050	42,043	45,530

Table 7 Average monthly per capita household expenditure in Armenia in Armenian Dram

Expenditure items	2010	2011	2012	2013
Consumption expenditure, *including*	28,646	32,585	34,921	36,787
Food *of which*	14,844	17,184	17,059	17,622
Food consumed away from home	452	434	439	612
Alcoholic beverages	272	245	242	235

Table 7 continued

Expenditure items	2010	2011	2012	2013
Tobacco	1009	1123	1199	1289
Non-food products	4439	5022	6159	6568
Services, *including*	8082	9011	10,262	11,073
Healthcare	1136	686	876	1407
Education	141	167	440	511
Utilities	3008	3567	4305	4501
Transport	906	1003	1227	1138
Communication	1424	1570	2009	2068
Culture	4	12	178	20
Legal services	121	92	184	525
Other services	1342	1914	1043	903

Table 8 Average monthly per capita household income in Georgia in Georgian Lari

	2010	2011	2012	2013
Cash income and transfers	132.1	141.6	161.5	191.6
Wages	56.1	59.3	68.5	82.6
From self-employment	15.3	15.1	18.5	20.2
From selling agricultural production	10.5	13.0	13.3	14.0
Property income (leasing, interest on deposit etc.)	1.9	1.5	1.2	2.1
Pensions, scholarships, assistances	22.8	24.1	26.6	34.6
Remittances from abroad	6.9	8.0	8.0	9.7
Money received as gift	18.5	20.6	25.5	28.5
Non-cash income	22.6	25.8	25.1	23.5
Income, total	154.7	167.4	186.6	215.1
Other cash inflows	23.9	27.8	31.8	31.4
Property disposal	3.1	4.4	5.8	2.2
Borrowing and dissaving	20.8	23.4	25.9	29.3
Cash inflows, total	156.0	169.4	193.3	223.1
Cash and non-cash inflows, total	178.6	195.2	218.4	246.6

Table 9 Average monthly per capita household expenditure in Georgia in Georgian Lari

	2010	2011	2012	2013
Cash consumption expenditure	121.6	131.5	141.8	162.9
On food, beverages, tobacco	46.4	53.2	54.0	61.0
On clothes and footwear	4.7	4.8	5.2	6.3
On household goods	4.6	5.0	5.6	7.6
On healthcare	16.8	15.3	16.3	19.1
On fuel and electricity	13.8	16.3	18.2	18.4
On transport	11.7	12.6	14.5	17.4
On education	5.0	4.8	6.1	6.5

Table 9 continued

	2010	2011	2012	2013
Other consumption expenditure	18.6	19.5	22.0	26.6
Non-cash expenditure	22.6	25.8	25.1	23.5
Consumption expenditure, total	144.2	157.4	167.0	186.4
Cash non-consumption expenditure	25.8	33.0	45.2	55.7
On agriculture	2.9	4.0	4.4	5.5
On transfers	5.0	5.4	6.4	7.5
On saving and lending	11.6	14.3	26.8	33.5
On property acquirement	6.2	9.3	7.6	9.1
Cash expenditure, total	147.4	164.5	187.1	218.6
Expenditure, total	170.0	190.3	212.2	242.1

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