UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Life Satisfaction in Urban Ethiopia:
Trends and determinants

Yonas Alem and Gunnar Köhlin

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Department of Economics
School of Business, Economics and Law at University of Gothenburg
Vasagatan 1, PO Box 640, SE 405 30 Göteborg, Sweden
+46 31 786 0000, +46 31 786 1326 (fax)
www.handels.gu.se   info@handels.gu.se

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LIFE SATISFACTION IN URBAN ETHIOPIA: TRENDS AND DETERMINANTS[*]

Yonas Alem[†]   Gunnar Köhlin[‡]

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Abstract

Most studies of subjective well-being in developing countries use cross-sectional data, which makes it difficult to control for unobserved individual heterogeneity. In this paper, we use three rounds of panel data and robust non-linear panel data models to investigate the trends and determinants of life satisfaction in urban Ethiopia. Although Ethiopia exhibited rapid economic growth during the analyzed period, the average reported level of life satisfaction declined. Regression results show that despite the significant difference between urban Ethiopia and industrialized countries in terms of economic and social conditions, many of the determinants of life satisfaction are similar. This includes, age, marital status, health, unemployment, economic status, relative position and educational achievement. Our results also indicate that both individual (respondent) and household level versions of these variables are important determinants of life satisfaction. This provides some evidence on the interdependence of individual and household subjective well-being in developing countries. The fact that rapid economic growth was accompanied by a decline in citizens' average reported level of life satisfaction brings the pro-poorness of the recent economic growth in Ethiopia into question. We argue that economic growth that trickles down to the poor and ensures creation of stable jobs would be welfare enhancing.

[†]Corresponding author: Department of Economics, University of Gothenburg, e-mail: yonas.alem@economicss.gu.se.

[‡]Department of Economics, University of Gothenburg, e-mail: gunnar.kohlin@economicss.gu.se.

1 Introduction

In this paper, we use robust linear and non-linear panel data models on three rounds of household data to analyze the determinants of life satisfaction in urban Ethiopia. The practice of using subjective responses to questions on well-being has received increasing attention in recent years. The report from the "Stiglitz Commission,"[1] the conference on "Happiness and Economic Development" in 2011,[2] and the "U.N. Happiness Summit"[3](CNN, 2012) are among the most noticeable events related to the topic. The main message emerging from all these events is that the well-being of citizens cannot be captured solely by economic measures such as income or GDP. Well-being is a broader and multidimensional concept encompassing all aspects of human life. Giving rise to the emergence of this approach, a number of studies on the subject show that, in the past four decades, income in developed countries has increased significantly without a corresponding improvement in the average level of citizens' happiness. This finding is mainly a result of the fact that subjective well-being (SWB) is a positive function of income but a negative function of relative income (Easterlin, 1974; 1995). Consequently, there has been an increasing reliance on self-reported SWB indicators, which appeared to be robust indicators of well-being. Researchers in this emerging field of economics advocate the use of self-reported subjective measures of well-being to examine and evaluate a large number of interesting and relevant economic and non-economic issues.[4] SWB measures have been widely used by psychologists who favor them due to their stability and reliability over time (e.g., see Larsen et al., 1985; Pavot and Diener, 1993; Winter et al., 1999). Economic research on the subject has increased rapidly in the past two decades[5].

One striking reality related to research on SWB is that much of the literature comes from studies in developed countries displaying similar impacts of a set of standard variables. A number of studies indicate that there is a positive but diminishing impact of income on SWB, mainly due

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[1]Assigned by the former French president Sarkozy and led by the Nobel Prize laureates Joseph Stiglitz and Amartaya Sen, the commission critically investigated the inappropriateness of the practice of using traditional measures such as GNP per capita as a sole measure of citizens' well-being. Other Nobel Prize Laureates such as Kenneth Arrow, James Heckman, and Daniel Kahneman, and prominent subject experts such as Angus Deaton, Robert Putnam, Nicholas Stern, Andrew Oswald, and Alan Kreuger, were also a part of the commission.

[2]The conference on "Happiness and Economic Development" was held in one of the poorest but happiest countries, Bhutan, in August 2011, and was hosted by Prime Minister Thinley of Bhutan and Professor Jeffrey Sachs of Columbia University.

[3]This high-level U.N. meeting on "Well-being and Happiness: Defining a New Economic Paradigm" was held as a follow-up to the previous year's "Bhutan Conference on Happiness and Economic Development," and reiterated the idea of integrating the Gross National Happiness index (GNH) into public policy agenda.

[4]Examples of studies using the SWB approach to measure the impact of different variables include: Kountouris & Remoundou (2011) to value the welfare cost of forest fires in Mediterranean European countries; Welsch (2002; 2006), Luechinger (2009), and Ferreira & Moro (2010) to measure the impact of air pollution; and Rehdanz & Maddison (2005), Welsch & Kuehling (2009) to measure the impact of climatic variables.

[5]See Frey & Stutzer (2002) and Dolan et al. (2008) for a literature survey.

to the role of relative income, which affects SWB negatively.[6] Age is an important determinant of SWB, with a robustly documented U-shaped impact - the lowest level is experienced in middle age (Blanchflower & Oswald, 2004; Ferrer-i-Carbonell, & Gowdy, 2007). Women have been reported to have a higher level of SWB compared to men (Alesina et al., 2004), and married people report a higher level than unmarried, divorced, or separated individuals (e.g., Dolan et al., 2008; Frey and Stutzer, 2002; MacKerron, 2011). SWB has also been found to be positively and strongly determined by both physical and psychological health (e.g., Dolan et al., 2008).

The relatively few studies undertaken in developing countries confirm the importance of the basic variables such as income, age, marital status, gender, and unemployment in determining the SWB of citizens. These studies also point out other correlates of SWB relevant in the context of developing countries. Knight and Gunatilaka (2010) for instance find that rural-urban migrants in China had a lower level of life satisfaction than urban dwellers due to high aspiration in relation to success, mainly influenced by their new reference groups in the areas they had to move to. Bookwalter and Dalenberg (2004) find that access to basic services such as transportation, housing, and sanitation as well as access to clean water, energy, education, and health are important determinants of citizens' SWB in South Africa. Similarly, Davis and Hinks (2009) document the negative impact of being a victim of crime and living in a relatively insecure neighborhood on happiness among household heads in Malawi. More recently, Alem & Martinsson (2011) analyze the correlates of SWB in urban Ethiopia using cross-sectional data with a focus investigating policy makers' knowledge of what correlates with citizens' SWB. Interestingly, they find very little knowledge among policy makers regarding relevant SWB correlates.[7]

Most of the studies on SWB in developing countries are based on cross-sectional data, which does not allow controlling for the effect of unobserved individual heterogeneity. Ferrer-i-Carbonell & Frijters (2004) point out that controlling for such unobservables can influence the findings regarding what does and does not determine SWB. However, doing so requires one to have panel data that tracks respondents over time. The current paper analyzes the trends, and determinants of SWB in urban Ethiopia using three rounds of panel data spanning almost a decade (2000-2009). The period under analysis is characterized by noticeable changes in the macroeconomic setup of the country: rapid economic growth (about 11% per annum from 2004 to 2009) and double-digit inflation (IMF, 2012). In this context, analysis of citizens' SWB using robust panel data techniques that control for unobserved individual heterogeneity on panel data spanning a relatively long and

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[6]Clark et al. 2008 provide an extensive survey of the literature on the relationship between income and subjective well-being.

[7]Other studies on subjective well-being conducted in developing countries include Ravallion and Lokshin (2002) on Russia; Kingdon and Knight (2006); Bookwalter and Dalenberg (2009) on South Africa; Graham and Pettinato (2001; 2002) on Peru and Russia; Appleton and Song (2008), and Smyth and Qian (2008) on urban China; and Knight et al. (2009) on rural China, Litchfield et al. (2011) on Albania. Easterlin, et al. (2011) also study the impact of economic growth on urban-rural differences in subjective well-being in a large set of countries using thee waves of the Gallup World Poll data.

interesting period of time in the country provides important additions to the growing stock of knowledge on SWB in developing countries.

In short, we show that the average reported level of life satisfaction in urban Ethiopia declined during a period of rapid economic growth. Regression results from alternative linear and non-linear panel data models show that despite the significant differences in social and economic structures between urban Ethiopia and industrialized countries, many of the determinants of SWB are similar. However both individual (respondent) and household level versions of these variables are important, including, age and its square, health, education, economic status, and relative position in society. Our findings highlight the importance of considering the interdependence between individual- and household-level SWB when addressing the issue in developing countries. The fact that economic growth was followed by a decrease in the average level of reported life satisfaction brings the pro-poorness of the recent economic growth in Ethiopia into question.

The remainder of the paper is organized as follows. Section 2 presents the data and the empirical strategy. Section 3 presents descriptive statistics of relevant variables. Section 4, presents results from alternative non-linear and linear panel data models for SWB regressions, and Section 5 concludes the paper.

2   Data and Empirical Strategy

We use three rounds of panel data from the Ethiopian Urban Socio-economic Survey (EUSS) collected in 2000, 2004, and 2009. EUSS is a rich data set containing several socio-economic variables at the individual and household level. The first two waves of the data used in this paper were collected by the Department of Economics of Addis Ababa University in collaboration with the University of Gothenburg, and covered seven of the country's major cities: the capital Addis Ababa, Awassa, Bahir Dar, Dessie, Dire Dawa, Jimma, and Mekelle.[8] Representativity of the major socioeconomic characteristics of the Ethiopian urban population was taken into consideration when selecting the cities initially. In proportion to the cities' population, about 1,500 households were distributed over the cities, and the sample households were recruited from half of the kebelles (the lowest administrative units) in all woredas (districts) in each city.

EUSS 2008/09 was collected by one of the authors in late 2008 and early 2009 from a sub-sample of the original sample in four cities - Addis Ababa, Awassa, Dessie, and Mekelle - comprising 709 households.[9] These cities were carefully selected to represent the major urban areas of the country and the original sample.[10] Out of the 709 households surveyed, 128 were new randomly chosen

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[8]Data from these major urban areas were also collected in 1994, 1995, and 1997 (See AAU & GU 1995, for details on sampling. However the waves before 2000 did not incorporate questions on life satisfaction.

[9]Other cities were not covered due to resource constraint.

[10]See Alem & Söderbom (2012) for a detailed description of EUSS - 2008/09

households incorporated in the sampling. The new households were surveyed to address the concern that the group of panel households might have become unrepresentative since 1994 when it was formed. Alem & Söderbom (2012) test for this and show that there is no systematic difference between the new households and the old panel households in welfare as measured by per capita consumption expenditure, which implies that the panel households represent urban Ethiopia quite well. In addition to a specific module on SWB, the data set contains detailed information on households' living conditions including income, expenditure, demographics, health, educational status, occupation, production activities, asset ownership, and other individual - and household-level variables.

Following most of the studies in the literature, the present paper uses responses from the following survey question as a dependent variable: "Taking everything into account how satisfied is the household with the way it lives these days.[11] The respondent can answer on a scale from 1 and 5 where 1 stands for very dissatisfied to 5 for very satisfied.

Studies in Psychology assume the respondent's well-being S to be cardinal and estimate the corresponding life satisfaction regression using linear models such as OLS. Thus, a linear model of life satisfaction for data with a panel dimension can be specified as:

$$s_{it} = x'_{it}\beta + \alpha_i + u_{it} \tag{1}$$

$$\epsilon_{it} = \alpha_i + u_{it} \tag{2}$$

where x_{it} represents a vector of explanatory variables; α_i is a term capturing unobserved individual heterogeneity, and u_{it} is a normally distributed error term with mean zero and variance normalized to one. The subscripts i and t refer to individuals and time periods respectively. Since we are dealing with panel data and due to the presence of α_i, it is a conventional practice to assume that the composite error term ϵ_{it} will be correlated over time even in the absence of serial correlation in the $u_{it}s$. The relevant estimation techniques are panel data techniques such as the fixed and random effects estimators, which control for such a correlation. However, the fixed effects estimator drops any time-invariant variable such as location of residence from the model. On the other hand, it is possible to estimate the random effects estimator, which is based on a strong assumption of independence of the unobserved heterogeneity term, α_i of the x_{it}, provided that the assumption is supported.[12] If the random effects model is not supported, the alternative

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[11] The life satisfaction questions in 2009 was asked as "Taking everything into account, how satisfied are you with the way you live these days". We assume that in both responses, individuals respond on behalf of the household with a great influence of their own individual perception about life satisfaction. We therefore control for both individual-and household-level variables in our SWB regressions. We address this concern in the results section.

[12] The standard test for this is the Hausman test, which tests for the null hypothesis that there is no systematic difference between the parameter estimates of the fixed and random effects estimators (Cameron & Trivedi, 2009).

estimation technique will be the Hausman-Taylor estimator. The model is specified as:

$$s_{it} = \beta_0 + x'_{1,it}\beta_1 + x'_{2,it}\beta_2 + w'_{1i}\gamma_1 + w'_{2i}\gamma_2 + \alpha_i + u_{it}, \tag{3}$$

where the x variables are time varying and the w variables are time invariant. The variables with index 1 are assumed to be uncorrelated with both α_i & u_{it}, while the ones with index 2 are correlated with α_i but not with u_{it}. Hausman and Taylor show that equation (2) can be estimated by instrumental variables using the following variables as instruments: $x_{1,it}, w_{1i}$ & $x_{2,it} - \overline{x}_{2i}, \overline{x}_{1i}$.
[13] Identification requires that the number of variables in $x_{1,it}$ is at least as large as that in w_{2i}.

However, in a lot of applied research related to the economics of happiness, it is assumed that the respondent's well-being, S, is an unobserved latent outcome conventionally proxied by a self-reported life satisfaction response, S^*, on an ordinal scale with various alternative categories. The estimation procedure therefore needs to account for the ordered nature of the dependent variable, which as stated above takes a value from 1(very dissatisfied) to 5 (very satisfied). In addition, having repeated observations on the same household allows us to control for unobserved household heterogeneity. We formulate a random-effects ordered probit model (Frechette, 2001), which can take the form:

$$s^*_{it} = x'_{it}\beta + \alpha_i + u_{it}, \tag{4}$$

where s^* is unobserved, x_{it} represents a vector of exogenous individual and household variables, and β is a vector of coefficients to be estimated, $i = 1,...,n$, $t = 1,...,T$. The unobserved individual heterogeneity term α_i is treated as random, and u_{it} have an independent and normal distribution with mean 0 and variance σ_u^2 and are assumed independent of x_{it} $\forall$ i and t.

s^* is unobserved. Instead we observe

$$s_{it} = \begin{cases} 1 & \text{if } s*_{it} \leqslant \mu_1; \\ 2 & \text{if } s*_{it} \leqslant \mu_1 < s^*_{it} \leqslant \mu_2, \\ 3 & \text{if } s*_{it} \leqslant \mu_2 < s^*_{it} \leqslant \mu_3, \\ 4 & \text{if } s*_{it} \leqslant \mu_3 < s^*_{it} \leqslant \mu_4, \\ 5 & \text{if } s*_{it} < \mu_4. \end{cases} \tag{5}$$

Let $a_{it} = \mu_{j-1} - \beta'x_{it}$ and $b_{it} = \mu_j - \beta'x_{it}$ if $s_{it} = j$, where $\mu_{-1} = -\infty$ and $\mu_J = \infty$. Then one can specify the log-liklihood function as

$$L = \sum_{i-1}^{N} ln(P(s_{i1}, s_{i2}, ..., s_{iT})) \tag{6}$$

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[13]The exogenous variables serve as their own instruments, $x_{2,it}$ is instrumented by its deviation from individual means (as in the fixed effects approach), and w_{2i} is instrumented by the individual average of $x_{1,it}$. One attractive advantage of the Hausman-Taylor estimator is that it does not require use of external instruments.

where,

$$P(s_{i1}, s_{i2}, ..., s_{iT}) = \int_{-\infty}^{\infty} \prod_{t=1}^{T} [F(b_{it}|\alpha_i) - F(a_{it}|\alpha_i)] d\alpha_i \qquad (7)$$

in which $f(.)$ and $F(.)$ denote the pdf and cdf of the normal distribution function, respectively. One can use Gauss-Hermite quadrature (Butler and Moffit, 1982) to evaluate the integral in the log-likelihood function and estimate the parameters using standard software.

However, the assumption that the time-invariant unobserved individual heterogeneity α_i is independent of the observable variables $x'_{it} \ \forall \ i$ and t is in many cases unrealistic. It is for example possible that motivation, which is captured by α_i, is correlated with some of the observed right-hand side variables such as education, which in turn affects life satisfaction. More precise estimates can be achieved by allowing for correlation following Mundlak 1978 and Chamberlain, 1984 by including $x_i = (x_{i0}, ..., x_{iT})$, or alternatively averages of the x-variables over time as additional regressors in the model yielding the correlated-random- effects ordered probit model. In this paper, we allow for correlation and estimate this model.

3   Variables and Descriptive Statistics

We investigate the correlates of life satisfaction in urban Ethiopia under three headings: respondent's personal characteristics, household-level variables, and geographical variables (city dummies). The individual-level variables constitute the conventional variables used in previous happiness literature: marital status, age, level of education, gender, unemployment, and health status of the respondent.[14] The household-level variables on the other hand include real per capita consumption expenditure adjusted for adult equivalent units, average age in the household, number of children, proportion of unemployed household members, proportion of household members with the different levels of education, proportion of females, a measure of total household health status,[15] a dummy variable indicating whether the household receives international remittances, number of household members with stable jobs, and whether the household owns its own residence. We also control for three types of comparison variables: relative position of the household in terms of poverty status, whether the living standard of the household is different compared to five years ago, and expectation about how life will be in the future. We provide motivations for our choice of main variables below.

Following the standard practice in developing countries, we use real consumption expenditure per adult equivalent units as a measure of economic status of households.[16] Our consump-

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[14]Our health status variable was constructed from responses to the question "Do you suffer from any disability or major chronic health problem?"

[15]Using responses from the same health status related question, we computed the proportion of household members who suffer from disability or a chronic health problem.

[16]There has been a longstanding debate on whether to use income or consumption expenditure to measure economic

tion measure was computed in the following manner: We first computed aggregate household consumption expenditure by adding up reported household expenditure on food and non-food items. The non-food component of consumption includes expenditures on items such as clothing, footwear, energy, personal care, utilities, health, and education. Aggregate household consumption expenditure was converted into adult equivalences to adjust for household size and composition using the units constructed by Dercon and Krishnan (1998). To allow for temporal and spatial comparisons of consumption among households, we computed real household consumption by deflating nominal consumption expenditure using carefully constructed price indices from the survey.

Following the findings of Easterlin (1974), a number of researchers on happiness in both developed and developing countries control for the relative position of respondents in life satisfaction regressions (e.g., McBride, 2001; Luttmer, 2005; Ferrer-i-Carbonell, 2005; Kingdon & Knight, 2007; Caporale et al., 2009; Bookwalter & Dalenberg, 2009; Knight et al., 2009). We therefore control for households' relative economic position using subjective responses to questions regarding economic position in the community they live in. Previous research on the subject also documents how perceptions of how life has changed and expectations about the future affect SWB (e.g., see Appleton & Song, 2008; Knight et al., 2009). We control for both variables in our analysis using the responses to the questions "What do you say about your general standard of living today compared to five years ago?" (response alternatives: improved, remained the same, and deteriorated), and "What do you think life will be like in your community one year from now?" (response alternatives: better, the same, and worth).

It is well established in the development economics literature that shocks (adverse events) affect welfare of households adversely in developing countries. To protect themselves from a decline in welfare due to shocks, households engage in a variety of informal insurance and coping mechanisms (Deaton, 1989; Rosenzweig & Wolpin, 1993; Glewwe & Hall, 1998; Reardon et al., 2007; Porter, 2008; Alem & Söderbom, 2012). One such mechanism is an income diversification strategy that has attracted increasing attention in the past decade - international migration. In 2006, developing countries received a total of US$188 billion - twice the amount of official assistance - in the form of international remittances (World Bank, 2006). Remittances have increased significantly over the past decades in urban Ethiopia as well. Alem (2011) documents that the proportion of the panel households receiving remittances from international sources increased by 141 percent from 2004 to 2009. The period in which the country exhibited a rapid increase in remittances has been characterized by rapid inflation, which was driven by food price inflation. There is some

status of households in developing countries. Income has been argued to be often underreported, volatile and difficult to remember, whereas consumption is more stable and smoothed using different formal and informal smoothing mechanisms. Deaton (1997) and Deaton and Grosh (2000) discuss the controversy in detail, and Filmer & Pritchett (2004) suggest an alternative asset index based approach.

indication that households used remittances to cope with the food price shock,[17] Thus, in our life satisfaction regressions we control for both receiving remittances from a family member from abroad and the number of household members engaged in stable jobs.

Selected macroeconomic variables for Ethiopia for the period of rapid economic growth (2004-2010) are presented in Table 1. It can be seen that the country's real GDP grew by 11 percent per annum on average. However, the double-digit growth rate in real GDP was accompanied with a double-digit and rapid inflation rate starting in 2005. The country experienced the highest rate of inflation in its history in 2008 (a 55.2% general inflation rate). The general inflation rate presented in Table 2 was mainly driven by food price inflation, which in 2008 was about 92%, and affected the welfare of a significant proportion of Ethiopia's urban population (Alem & Söderbom, 2012). Table 1 here

Table 2 presents trends in life satisfaction among respondents in urban Ethiopia for the unbalanced panel (the top section) and for respondents surveyed in all the three years (bottom section). As it is shown in Table 2, the reported level of life satisfaction in urban Ethiopia is low on average: in 2009, 23% responded "Neutral" (neither satisfied nor dissatisfied) and about 39% reported to be either dissatisfied or very dissatisfied in life.[18] This is low compared with findings from other countries.[19] One can also see from Table 2 that there was a sizable increase in reported life satisfaction between 2000 and 2004, whereas there was a corresponding decline during the period of rapid economic growth (2004-2009). In 2004 for instance, 47 percent of the respondents in urban Ethiopia reported to be either satisfied or very satisfied with life. The figure declined to 39 percent in 2009. There was a corresponding 7 percentage point rise in the number of respondents reporting to be dissatisfied with life in 2009. A similar trend is noted from the descriptive statistics for respondents surveyed in all the three periods. This may indicate that economic growth has not been accompanied by a corresponding improvement in the average level of life satisfaction in urban Ethiopia. Table 2 here

Table 3 shows definitions and descriptive statistics of variables in our analysis. Table 3 here

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[17]About 20% of the households coped with the food price shock though financial support from relatives (Alem & Söderbom 2012) and those who were the most vulnerable were the ones with a low level of asset ownership and an unstable labor market status (Alem & Söderbom, 2012).

[18]Only about 3% of the respondents chose the "very satisfied" response and hence we combined the "very satisfied" and "satisfied" responses.

[19]See Frey & Stutzer, 2002 for average life satisfaction in different countries.

4 Results

Table 4 presents estimation results for life satisfaction regressions from different ordered probit estimators for respondents in urban Ethiopia. We examine the correlates of life satisfaction under three headings: respondents' personal characteristics, household level variables, and location variables. To test for the robustness of the different correlates of life satisfaction, we estimate the regression using four alternative econometric specifications: pooled ordered probit, random-effects ordered probit, correlated random-effects ordered probit, and Hausman-Taylor estimators (table 5). The random-effects ordered probit models are estimated in Stata using the *reoprob* command. In a methodological paper, Ferrer-i-Carbonell and Frijters (2004) examine the robustness of findings on the determinants of happiness in Germany and show that their results were not sensitive to the choice between latent variable (ordered probit) and linear (OLS) methods of estimation. Similarly, our random-effects ordered probit and linear (Hausman-Taylor estimator) models yield very similar results i.e., there are no differences in sign and the statistical significance of variables did not change much. Moreover, we do not note a significant difference in the estimated coefficients between the random-effects and correlated random-effects ordered probit estimators. However, since the latter is based on an appealing formulation of allowing for correlation between the unobserved individual heterogeneity term and the explanatory variables, we refer to the results from this estimator in our discussion below.

Table 4 here

Table 5 here

It is clearly evident from both the non-linear and the linear panel data models that both personal characteristics of the respondent and household-level variables are important in explaining life satisfaction in urban Ethiopia. Household location also has a significant effect, as captured by the city dummies introduced. It is convenient to use marginal effects to interpret ordered probit regression results. Table 6 presents the marginal effects computed from table 4 (CREOP results), which when multiplied by 100 show the percentage point change in the probability of belonging in a particular satisfaction category for a marginal change in an explanatory variable.

Table 6 here

We begin with the respondent's personal characteristics. The mean regression estimates are generally in line with findings reported in the existing literature on SWB. Single, widowed, divorced, and separated individuals report a lower level of life satisfaction than married individuals (e.g., Dolan et al., 2008; Frey and Stutzer, 2002; MacKerron, 2011). For example, estimated marginal effects show that moving from being married to divorced or separated increases the probability of reporting to be dissatisfied by 6.7 percentage points and decreases the probability of being satisfied with life by 8.4 percentage points. Both age (negative) and age squared (positive) have significant (at 10%) coefficients. This is consistent with empirical evidence from developed countries (see

Dolan et al., 2008; Litchfield et.al., 2011; Hayo and Seifert, 2003; Sanfey and Teksoz, 2005). Being unemployed reduces the reported level of life satisfaction significantly, a finding documented for other countries by Litchfield et al. (2011), Alesina et al. (2004), Eggers et al. (2006), Hayo and Seifert (2003), Hayo (2007), Sanfey and Teksoz (2005), and Winkelmann and Winkelmann (1998). Becoming unemployed increases the probability of reporting to be dissatisfied by 7.1 percentage points and decreases the probability of being satisfied by 8.8 percentage points. These findings indicate that although life satisfaction-related questions were asked for the whole household, the characteristics of individual respondents are important. However, since the life satisfaction question in the 2009 wave referred to individuals (and not households), the exhibited effect of individual characteristics might be due to such a modification in the live satisfaction question. We addressed this concern by excluding the 2009 sample and estimating the life satisfaction regression using the 2000-2004 sample only. The regression results reported in table A.1 in the Appendix still confirm the strong impact of personal characteristics of respondents on household SWB.

Next, we examine the effects of household-level variables. Many of the variables introduced have statistically strong impacts on life satisfaction in urban Ethiopia. As with studies for other countries, economic status measured by real per capita consumption expenditure increases the reported level of life satisfaction significantly. A one percent increase in real per capita consumption expenditure reduces the probability of a dissatisfied response by 6.5 percentage points, while it increases the probability of a satisfied response by 8.6 percentage points. The strong correlation between per capita consumption expenditure and life satisfaction is clearly evident from Figure 1, which plots life satisfaction scores for each household per capita consumption quintile. After the lowest quintile, there was a monotonic relation: higher consumption per capita is associated with higher level of reported life satisfaction. The regression results also confirm the importance of other household-level variables. Households with a larger proportion of educated members reported a higher level of life satisfaction, as can be seen from the statistical significance of the variables "proportion of members with completed secondary schooling" and "proportion of members with completed tertiary schooling." The proportion of household members with disability or a chronic health problem was only 6.3 percent on average, but the impact is strong: a one percent rise increases the probability of choosing a dissatisfied response by 15.5 percentage points and reduces the probability of choosing a satisfied response by 20.2 percentage points. Average age in the household exhibits the common U-shape, although not statistically significant.

Figure 1 here

Our regression results also confirm the hypothesis on international remittances and labor market status of household members. The correlated random-effects ordered probit regression results show that households receiving international remittances report a higher level of life satisfaction. Being an international remittance-receiving household reduces the probability of choosing a dis-

satisfied response by 4.7 percentage points and increases the probability of a satisfied response by 6.4 percentage points. This finding is in line with Alem (2011), who documents both a significant increase in the flow of international remittances in the past decade in urban Ethiopia and that households may have been using remittances as a way out of poverty and as a livelihood diversification strategy. The other variable introduced to capture households' ability to cope with shocks, "proportion of members in stable jobs," also has a strong impact on life satisfaction.

Consistent with previous studies in other countries (e.g., McBride, 2001; Luttmer, 2005; Ferrer-i-Carbonell, 2005; Kingdon & Knight, 2007; Caporale et al., 2009; Bookwalter & Dalenberg, 2009; Knight & Gunatilaka, 2009), the relative position of one's household is important determinant of life satisfaction in urban Ethiopia. These variables exhibit the largest marginal effects of all variables included in the life satisfaction regressions. Moving from feeling like a middle income household to feeling like a poor household increases the likelihood of reporting to be dissatisfied by 20.6 percentage points and reduces the likelihood of a satisfied response by 27.3 percentage points. The other comparison variables we introduced to capture the effect of change in living standard over the past five years and expectation about the future are also important determinants of life satisfaction. Compared to feeling that the household's living standard remained the same over the past five years, feeling that the household's living standard deteriorated increases the likelihood of choosing a dissatisfied response by 12.7 percentage points and reduces the likelihood of a satisfied response by 16.2 percentage points.

Finally, the location variables affect the life satisfaction of respondents strongly. Compared to households located in Mekelle (the reference group)[20], households in all three other cities reported a low level of life satisfaction.[21] This poses an important question as to why households in the city of Mekelle report a higher level of life satisfaction. One possible difference among these cities is ethnic composition. The reference city Mekelle is mainly inhabited by Tigrians, who consequently make up about 98 % of the respondents. Dessie on the other hand is predominantly inhabited by Amharas (94% of the respondents). The other two cities, Addis Ababa and Awassa are more ethnically diverse.[22] One major phenomenon that took place between the 2004 and 2009 surveys is the controversial national election in 2005, after which followed massive political unrest, death, and arrest of active opposition party leaders. In the election, the ruling party lost all the parliamentary seats in the captial Addis and a significant proportion in Awassa and Dessie except in Mekelle, where it won all the seats (IPU, 2012). One important factor likely captured by

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[20]Mekelle is the capital city of the Tigray regional state, located on the north of Ethiopia.

[21]We also confirmed similar findings from three ordered probit regressions run separately for each wave. The results are available on request.

[22]The 2009 wave of the survey shows that the capital city of the federal government, Addis Ababa, comprises 50 % Amharas, 22 % Oromos, 17% Guraghe and 11% other nations and nationalities, whereas Awassa, the capital city of the Southern Nations and Nationalities regional state, comprises 39% Amharas, 24% Wolaitas, 14% Oromos, 9% Guraghe, and 14% other nations and nationalities.

the city dummies is therefore level satisfaction with governance of the country.

5 Conclusion

Being probably the first to use panel data on a study of subjective well-being in Sub-Saharan Africa, this paper investigates trends and correlates of life satisfaction in urban Ethiopia using data spanning 2000-2009. The period under analysis has been characterized by contradictory developments in the macroeconomic setup of Ethiopia: rapid economic growth coupled with a double digit inflation rate. Life satisfaction in urban Ethiopia was generally low compared to other countries. Only about 39 percent of the respondents reported to be satisfied or very satisfied with life and an almost equivalent proportion reported to be either dissatisfied or very dissatisfied. Moreover, there was a sizable reduction in the proportion of respondents reporting to be satisfied during the period when the country experienced rapid economic growth (2004-2009).

We show that many of the determinants of life satisfaction in urban Ethiopia are similar to those found to be important in studies of citizens in other countries. Single, widowed, divorced and separated individuals reported a lower level of life satisfaction than married individuals. Consistent with empirical evidence from developed countries, age exhibited the common U-shaped impact on life satisfaction. Being unemployed reduced life satisfaction significantly, and healthy individuals reported a higher level of life satisfaction than people with serious health problems. This shows that even when the well-being question is asked for the whole household, personal characteristics of the respondent matter and there is a significant interdependence between individual and household subjective well-being. In addition, despite the significant differences between urban Ethiopia and industrialized countries in terms of economic and social structures, the impact of these basic variables on subjective well-being is remarkably similar.

Most of the household-level variables introduced are also significant determinants of life satisfaction in urban Ethiopia. As expected, economic status as measured by per capita consumption increases the reported level of life satisfaction. Consistent with earlier findings in both developed and developing countries, relative position of households is a significant and strong determinant of subjective well-being and yield's the largest marginal effects. The comparison variables introduced to capture the effect of change in living standard over the past five years and expectation about the future are also important correlates of life satisfaction. Compared to respondents who perceived no change in living standard over the past five years, respondents who perceived improvement report a higher level of life satisfaction while those with a negative perception reported a lower level. Similarly, having a positive expectation about the future increases reported life satisfaction, while a negative expectation reduces it.

Having a family member abroad sending money in times of need and having a higher number

of household members with stable jobs also increases the reported life satisfaction, which confirms the hypothesis that in a setup where shocks are formally uninsured, households' income diversification strategies play a significant role. We also note that households with a larger proportion of educated members reported a higher level of life satisfaction while those with a larger proportion of members with serious health problems reported a lower level. Finally, location variables strongly affect the life satisfaction of respondents probably capturing association with the existing governance. Compared to households located in Mekelle (the reference group), households in all three other cities reported a low level of life satisfaction.

We argue that the analysis of the correlates of life satisfaction in urban Ethiopia using robust non-linear panel data models reveals interesting information. In the correlated random-effects ordered probit regression, the conventional positive income and negative unemployment effects provide some support for the view that economic growth (which results in an increase in the economic status of the average citizen) and increased stable job creation have a positive effect on citizens' welfare. Moreover, the reported decline in life satisfaction during the period of rapid economic growth provides some evidence that growth might not have trickled down to the average urban citizen and that the negative effects of the double digit inflation outweighed the positive effect of economic growth. According to Alem and Söderbom (2012), 87 percent of the households in urban Ethiopia feel that the food price inflation was the most influential shock during the period, and a separate life satisfaction regression for the 2009 wave of the survey indicates that perceiving that one's consumption had been affected negatively by the food price shock had a significant negative impact on life satisfaction.[23] This, coupled with the large impact of relative standing and decline in living standard, indicates that price control and ensuring economic growth that favors the poor would be welfare enhancing. More future research using panel data on what makes people feel relatively better-off than others can provide important information for policy makers.

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[23]In the 2009 survey, households were asked whether they perceived that their consumption expenditure had been affected by the food price inflation during the period, which allows us to introduce a dummy variable capturing the effect. The regression results are available upon request.

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Table 1: Selected Macroeconomic Indicators of Ethiopia 2004-2010

Variable	Units	Scale	2004	2005	2006	2007	2008	2009	2010
GDP, constant prices	National currency	Billions	74.40	83.80	93.47	104.50	116.19	127.84	138.08
GDP, constant prices	Percent change		11.73	12.64	11.54	11.80	11.19	10.03	8.01
GDP, current prices	National currency	Billions	86.66	106.47	131.64	171.99	248.30	335.38	383.36
GDP, current prices	U.S. dollars	Billions	10.05	12.31	15.17	19.55	26.64	32.25	29.72
GDP, deflator	Index		116.48	127.05	140.83	164.58	213.70	262.34	277.64
GDP per capita, constant prices	National currency	Units	1,022.697	1,122.460	1,219.848	1,328.735	1,439.548	1,543.797	1,628.339
GDP per capita, current prices	National currency	Units	1,191.281	1,426.083	1,717.929	2,186.877	3,076.365	4,049.917	4,520.858
GDP per capita, current prices	U.S. dollars	Units	138.21	164.83	197.90	248.62	330.09	389.43	350.44
GDP based on PPP	Current international dollar	Billions	40.76	47.24	54.39	62.57	71.11	79.07	86.39
GDP based on PPP per capita GDP	Current international dollar	Units	560.33	632.69	709.80	795.59	881.05	954.83	1,018.711
GDP based on PPP share of world total	Percent		0.08	0.08	0.09	0.09	0.10	0.11	0.12
Total investment	Percent of GDP		26.52	23.76	25.20	22.12	22.36	22.72	22.35
Gross national savings	Percent of GDP		24.58	19.98	18.13	23.54	19.19	19.54	20.72
Inflation, average consumer prices	Index		109.90	117.42	131.81	152.69	191.34	260.98	268.25
Inflation, average consumer prices	Percent change		8.62	6.84	12.26	15.84	25.32	36.40	2.79
Inflation, end of period consumer prices	Index		110.17	124.48	138.88	159.88	248.24	254.94	273.56
Inflation, end of period consumer prices	Percent change		1.75	12.99	11.57	15.12	55.27	2.70	7.30
Population	Persons	Millions	72.75	74.66	76.63	78.65	80.71	82.81	84.80
Current account balance	U.S. dollars	Billions	-0.14	-0.77	-1.39	-0.87	-1.50	-1.62	-1.29
Current account balance	Percent of GDP		-1.36	-6.28	-9.14	-4.45	-5.65	-5.02	-4.35

Source: www.imf.org - World Economic Outlook Database, April 2012.

Table 2: Trends in life satisfaction

	2000	2004	2009
All Households			
Very Dissatisfied	9.12	4.14	9.73
Dissatisfied	34.85	21.60	28.63
Neutral	25.00	27.09	22.99
Satisfied	31.02	47.16	38.65
Total	100.00	100.00	100.00
Observations	1096	1111	709
Panel Households			
Very Dissatisfied	9.71	3.71	8.68
Dissatisfied	37.75	24.45	28.63
Neutral	24.50	26.86	23.21
Satisfied	28.04	44.98	39.48
Total	100.00	100.00	100.00
Observations	457	457	457

Table 3: Definition and descriptive statistics of variables

Variable	Coeff.	SD
Respondents' Personal Characteristics		
Single	0.187	0.390
Widowed	0.245	0.430
Divorced /separated	0.097	0.297
Married*	0.471	0.499
Age	45.297	15.218
Primary schooling completed	0.370	0.483
Secondary schooling completed	0.273	0.446
Tertiary schooling completed	0.075	0.264
Illiterate*	0.281	0.450
Female	0.660	0.474
Male*	0.340	0.474
Unemployed	0.090	0.286
Working/out-of-labor-force*	0.910	0.286
Disabled/suffer from chronic health problem	0.093	0.290
No disability/chronic health problem*	0.762	0.426
Household Level Variables		
Log real consumption per AEU	4.735	0.763
Average age in household	22.301	17.880
Number of children	1.481	1.426
Proportion of household members unemployed	0.233	0.369
Proportion of members with completed primary schooling	0.347	0.313
Proportion of members with completed secondary schooling	0.397	0.314
Proportion of members with completed tertiary schooling	0.087	0.186
Proportion of females	0.570	0.246
Proportion of members with chronic health problem	0.063	0.157
Household receives international remittances	0.145	0.353
Household does not receive international remittances*	0.855	0.353
Number of members in stable jobs	0.818	1.079
Household lives in owned home	0.454	0.498
Household lives in rented home*	0.546	0.498
Relatively rich	0.032	0.175
Relatively poor	0.501	0.500
Relatively middle income*	0.467	0.499
Current living standard better than five years ago	0.271	0.445
Current living standard worse than five years ago	0.378	0.485

Table 3 – continued from previous page

Variable	Coeff.	SD
Current living standard same as five years ago*	0.349	0.477
Expect better life	0.293	0.455
Expect worse life	0.390	0.488
Expect no change in life*	0.315	0.465
Location Dummies		
Lives in Addis	0.717	0.451
Lives in Awassa	0.090	0.286
Lives in Dessie	0.098	0.297
Lives in Mekelle*	0.096	0.294
Observations	2916	

* Denotes reference group

Table 4: Life satisfaction regressions: Results from different ordered probit estimators

	POP		REPOP		CREOP	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Respondents′ Personal Characteristics						
Single	-0.205**	0.082	-0.212**	0.084	-0.210**	0.084
Widowed	-0.138**	0.060	-0.139**	0.063	-0.141**	0.063
Divorced or separated	-0.233***	0.079	-0.239***	0.080	-0.242***	0.080
Age	-0.020**	0.009	-0.021**	0.009	-0.021**	0.009
Age squared	0.020**	0.009	0.021**	0.009	0.021**	0.009
Primary schooling completed	0.016	0.069	0.021	0.070	0.023	0.070
Secondary schooling completed	0.014	0.077	0.022	0.078	0.027	0.078
Tertiary schooling completed	-0.098	0.123	-0.099	0.129	-0.105	0.129
Female	-0.012	0.054	-0.011	0.057	-0.011	0.057
Unemployed	-0.247***	0.072	-0.252***	0.077	-0.253***	0.077
Disabled/suffer from chronic health problem	0.020	0.093	0.025	0.094	0.023	0.094
Household Level Variables						
Log real consumption per AEU	0.231***	0.037	0.233***	0.036	0.237***	0.036
Average age in household	0.009	0.015	0.010	0.014	0.010	0.014
Average age in household squared	-0.004	0.018	-0.005	0.016	-0.005	0.016
Number of children	0.014	0.018	0.014	0.018	0.014	0.018
Proportion of household members unemployed	0.021	0.061	0.018	0.063	0.020	0.063
Proportion of members with completed primary schooling	0.205	0.128	0.213	0.133	0.211	0.133
Proportion of members with completed secondary schooling	0.328**	0.134	0.338**	0.138	0.335**	0.138
Proportion of members with completed tertiary schooling	0.406**	0.207	0.419**	0.208	0.428**	0.208
Proportion of females	0.136	0.100	0.144	0.101	0.147	0.101
Proportion of members with chronic health problem	-0.535***	0.188	-0.544***	0.179	-0.543***	0.179
Household receives international remittances	0.174**	0.068	0.186***	0.069	0.316***	0.104
Number of members in stable jobs	0.066***	0.022	0.065***	0.023	0.064***	0.023
Continued on next page						

Table 4 – continued from previous page

	POP		REPOP		CREOP	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Household lives in owned home	0.021	0.046	0.022	0.049	0.024	0.049
Relatively rich	0.067	0.162	0.076	0.153	0.067	0.153
Relatively poor	-0.750***	0.051	-0.771***	0.054	-0.776***	0.054
Current living standard better than five years ago	0.350***	0.060	0.357***	0.061	0.359***	0.061
Current living standard worse than five years ago	-0.447***	0.052	-0.455***	0.054	-0.455***	0.054
Expect better life	0.196***	0.057	0.204***	0.058	0.202***	0.058
Expect worse life	-0.154***	0.052	-0.157***	0.054	-0.156***	0.054
Location & Time Dummies						
Lives in Addis	-0.558***	0.090	-0.573***	0.091	-0.567***	0.091
Lives in Awassa	-0.579***	0.111	-0.588***	0.112	-0.589***	0.112
Lives in Dessie	-0.728***	0.107	-0.749***	0.110	-0.746***	0.110
Year 2000	-0.029	0.067	-0.033	0.066	-0.022	0.066
Year 2004	0.552*	0.303	0.579**	0.294	0.594**	0.295
Cut 1	-1.606***	0.423	-1.650***	0.407	-1.621***	0.408
Cut 2	-0.214	0.421	-0.220	0.406	-0.189	0.407
Cut 3	0.662	0.421	0.681*	0.406	0.712*	0.407
Rho	-	-	0.054**	0.023	0.053**	0.021
Log Likelihood	-3032.147		-3030.948		-3029.578	
Observations	2916		2916		2916	

POP: Pooled Ordered Probit estimator.

REOP: Random-effects Ordered Probit estimator.

CREOP: Correlated Random-effects Ordered Probit estimator.

$* * * p < 0.01, * * p < 0.05, * p < 0.1.$

Table 5: Life satisfaction regression: Results from Hausman-   r
Taylor estimator

	Coeff.	SE
Respondents' Personal Characteristics		
Single	-0.132**	0.059
Widowed	-0.072*	0.043
Divorced or separated	-0.150***	0.055
Age	-0.013*	0.007
Age squared	0.013**	0.006
Primary schooling completed	0.075	0.065
Secondary schooling completed	0.099	0.073
Tertiary schooling completed	-0.145	0.118
Female	-0.020	0.039
Unemployed	-0.175***	0.053
Disabled/suffer from chronic health problem	0.022	0.063
Household Level Variables		
Log real consumption per AEU	0.132***	0.026
Average age in household	0.005	0.011
Average age in household squared	0.001	0.012
Number of children	0.007	0.013
Proportion of household members unemployed	-0.009	0.044
Proportion of members with completed primary schooling	0.309**	0.136
Proportion of members with completed secondary schooling	0.368**	0.146
Proportion of members with completed tertiary schooling	0.482**	0.197
Proportion of females	0.123*	0.071
Proportion of members with chronic health problem	-0.346***	0.122
Household receives international remittances	0.220***	0.065
Number of members in stable jobs	0.032**	0.015
Household lives in owned home	0.006	0.035
Relatively rich	-0.018	0.087
Relatively poor	-0.544***	0.036
Current living standard better than five years ago	0.180***	0.039
Current living standard worse than five years ago	-0.361***	0.037
Expect better life	0.118***	0.038
	Continued on next page	

Table 5 – continued from previous page

	Coeff.	SE
Expect worse life	-0.110***	0.037
Location & Time Dummies		
Lives in Addis	-0.390***	0.063
Lives in Awassa	-0.369***	0.079
Lives in Dessie	-0.511***	0.078
Year 2000	-0.039	0.047
Year 2004	0.368*	0.220
Intercept	1.743***	0.342
Observations	2916	

$* * * p < 0.01, * * p < 0.05, * p < 0.1.$

Table 6: Marginal effects: computed from Table 5 Column 3.

	V.Dissatisfied	Dissatisfied	Neutral	Satisfied
Respondents' Personal Characteristics				
Single	0.0151**	0.0581**	0.0003	-0.0736**
Widowed	0.0098**	0.0395**	0.0014	-0.0507**
Divorced /separated	0.0185***	0.0671***	-0.0019	-0.0837***
Age	0.0013**	0.0057**	0.0004*	-0.0075**
Age squared	-0.0013**	-0.0056**	-0.0004*	0.0074**
Primary schooling completed	-0.0025	-0.0108	-0.0009	0.0142
Secondary schooling completed	-0.0009	-0.0037	-0.0003	0.0048
Tertiary schooling completed	0.005	0.0203	0.0009	-0.0261
Female	0.0004	0.0018	0.0001	-0.0023
Unemployed	0.0198***	0.0709***	-0.0026	-0.0881***
Disabled/suffer from chronic health problem	-0.0015	-0.0067	-0.0006	0.0088
Household Level Variables				
Log real consumption per AEU	-0.0152***	-0.0658***	-0.0050***	0.0860***
Average age in household	-0.0006	-0.0027	-0.0002	0.0035
Average age in household squared	0.0003	0.0014	0.0001	-0.0018
Number of children	-0.0007	-0.0031	-0.0002	0.0041
Proportion of household members unemployed	-0.0014	-0.0061	-0.0005	0.008
Proportion of members with completed primary schooling	-0.012	-0.0515	-0.0039	0.0674
Proportion of members with completed secondary schooling	-0.0209**	-0.0900**	-0.0068*	0.1177**
Proportion of members with completed tertiary schooling	-0.0248*	-0.1070*	-0.0081	0.1400*
Proportion of females	-0.0085	-0.0368	-0.0028	0.0481
Proportion of members with chronic health problem	0.0359***	0.1547***	0.0117**	-0.2023***
Household receives international remittances	-0.0100***	-0.0474**	-0.0068*	0.0642***
Number of members in stable jobs	-0.0041***	-0.0175***	-0.0013**	0.0229***
Household lives in own home	-0.0014	-0.006	-0.0005	0.0079
Relatively rich	-0.0043	-0.0194	-0.0022	0.0258
Relatively poor	0.0522***	0.2056***	0.0153***	-0.2731***
Current living standard better than five years ago	-0.0202***	-0.0974***	-0.0162***	0.1338***
Current living standard worse than five years ago	0.0334***	0.1268***	0.0019	-0.1621***
Expect better life	-0.0122***	-0.0560***	-0.0068**	0.0750***
Expect worse life	0.0104***	0.0435***	0.0025**	-0.0563***
Location & Time Dummies				
Lives in Addis	0.0303***	0.1513***	0.0318***	-0.2135***
Lives in Awassa	0.0598***	0.1604***	-0.0297**	-0.1905***
Lives in Dessie	0.0830***	0.1951***	-0.0479***	-0.2302***

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Table 6 – continued from previous page

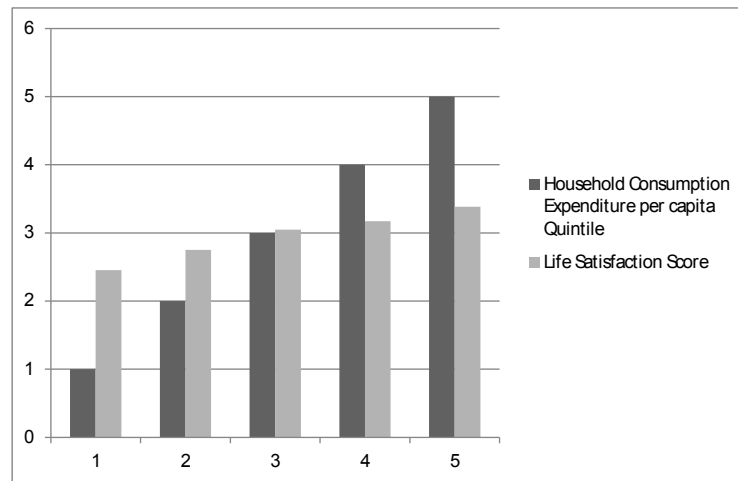|	V.Dissatisfied	Dissatisfied	Neutral	Satisfied
Year 2000	0.0016	0.0069	0.0005	-0.0089
Year 2004	-0.0337*	-0.1539*	-0.0228	0.2104*

$***p < 0.01, **p < 0.05, *p < 0.1.$

Figure 1: Life satisfaction score by consumption expenditure quintile.

Appendix: Tables

Table A.1. Life satisfaction regressions: Results from Correlated r
Random-effects Ordered Probit estimator: 2000-2004

	CREOP	
	Coeff.	SE
Respondents' Personal Characteristics		
Single	-0.144	0.099
Widowed	-0.147**	0.074
Divorced or separated	-0.209**	0.094
Age	-0.019*	0.011
Age squared	0.018*	0.011
Primary schooling completed	0.067	0.080
Secondary schooling completed	0.011	0.086
Tertiary schooling completed	-0.052	0.159
Female	-0.046	0.065
Unemployed	-0.316***	0.085
Disabled/suffer from chronic health problem	0.106	0.110
Household Level Variables		
Log real consumption per AEU	0.263***	0.041
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	CREOP	
	Coeff.	SE
Average age in household	-0.008	0.017
Average age in household squared	0.009	0.019
Number of children	0.030	0.020
Proportion of household members unemployed	-0.014	0.070
Proportion of members with completed primary schooling	0.195	0.149
Proportion of members with completed secondary schooling	0.415***	0.156
Proportion of members with completed tertiary schooling	0.746***	0.268
Proportion of females	0.101	0.117
Proportion of members with chronic health problem	-0.611***	0.206
Household receives international remittances	0.162*	0.088
Number of members in stable jobs	0.062**	0.028
Household lives in owned home	0.054	0.057
Relatively rich	0.028	0.167
Relatively poor	-0.761***	0.064
Current living standard better than five years ago	0.318***	0.070
Current living standard worse than five years ago	-0.516***	0.063
Expect better life	0.215***	0.067
Expect worse life	-0.102	0.064
Location & Time Dummies		
Lives in Addis	-0.556***	0.111
Lives in Awassa	-0.699***	0.142
Lives in Dessie	-0.521***	0.137
Year 2000	-0.247	0.345
Cut 1	-2.090***	0.391
Cut 2	-0.593	0.386
Cut 3	0.365	0.385
Rho	0.076**	0.034
Log Likelihood	-2249.407	
Observations	2207	

CREOP: Correlated Random-effects Ordered Probit estimator.

$***p < 0.01, **p < 0.05, *p < 0.1$.