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Income Expectations and Happiness: Evidence from British Panel Data

Tufan Ekici · Selda Koydemir

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Abstract We analyze the impact of households' subjective current and future financial measures on their well-being by using three waves of a longitudinal data set—*Understanding Society* -from the UK. We use a fixed-effects regression method to get rid of individual heterogeneity, and find that even after controlling for some demographic characteristics, including equivalent household income, subjective measures of current and future financial well-being are still significant correlates of life satisfaction in UK households. The same results hold for income satisfaction and mental health. Our main contribution however is showing that positive surprises in financial expectations decrease the subjective well-being of the household's, and vice versa for negative surprises. This result shows that even though a household's expectations of its future financial situation may not be accurate, any unexpected shock regarding household income could be significantly correlated with subjective well-being.

Keywords Financial expectations · Life satisfaction · Subjective well-being · Happiness · Expectation surprise

Introduction

Individual happiness has become a significant consideration for national growth and development in many countries. In fact, countries such as the United States and Britain are increasingly focusing government policy on ways to improve and promote well-being and mental capital (Government Office for Science 2008; Stucke 2013). The

T. Ekici (✉)
Middle East Technical University, Northern Cyprus Campus, Economics Program, Kalkanli, Mersin 10, Turkey
e-mail: tufanekici@gmail.com

S. Koydemir
Middle East Technical University, Northern Cyprus Campus, Guidance and Psychological Counseling Program, Kalkanli, Mersin 10, Turkey
e-mail: kselda@metu.edu.tr

scientific study of happiness, thus, has become a popular field not only for psychologists but also for economists.

In economics literature, the well-being of individuals depends on objective conditions and life circumstances (McGillivray and Clarke 2006). Income is one of the most important of these factors, and is assumed to contribute directly to one's well-being since it provides means to buy goods and services (Deaton 2008; Graham 2011). However, the link between one's financial situation and happiness is a complex issue given that the relationship is influenced by methodological issues, the measurement of the outcomes, certain moderating variables, and micro versus macro data (Clark 2011; Graham 2011). Contemporary studies, thus, go beyond focusing on the simple income-happiness relationship. One hypothesis regarding the link between income and happiness pertains to the extent to which expectations about income predict well-being (e.g., Knight and Gunatilaka 2010; Senik 2008). In the current study we examine a) how subjective measures of current and future financial well-being are correlated with current life satisfaction, and b) whether the surprises in expectations are associated with one's happiness. We seek answers to these questions by using three waves of a large-scale British longitudinal household survey data, which has been conducted annually since 2009.

Background

Empirical evidence suggests that income is slightly to moderately correlated with happiness, but this relationship gets smaller as one's income increases (Argyle 1999; Deaton 2008; Diener 1984; Di Tella and MacCulloch 2006; but see Powdthavee 2010 for a challenge). On the other hand, when examined over time, changes in income levels do not necessarily result in changes in happiness. Similarly, increased per capita income may not lead to improvement in life satisfaction, especially in developed countries (Easterlin 1995; Inglehart and Klingemann 2000).

Several explanations have been offered for this paradox. For instance, the hedonic adaptation hypothesis asserts that increases in income only temporarily increase happiness, and that individuals adapt to their current situation and turn to their original happiness level (Diener et al. 1999; Easterlin 1974, 2001). Others (e.g., Stutzer 2004) have suggested that it is relative income that influences happiness, not absolute income. According to the relative income hypothesis (Duesenberry 1949) the satisfaction of consumers depends on their level of consumption relative to others' levels. Empirical evidence showed that when the income of the reference group increases, individual happiness declines (Clark and Oswald 1996; Hagerty 2000; Stutzer 2004; but see Johns and Ormerod 2007 for a challenge). Another perspective on the income-happiness relationship emphasizes the role of aspirations: the gap between one's aspirations and the actual achievement influences one's well-being (Duesenberry 1949; Easterlin 2001; Inglehart 1990; Stutzer 2003).

Several recent studies examined expectations in relation to one's well-being (e.g., Di Tella and MacCulloch 2006; Frijters et al. 2012; Knight and Gunatilaka 2010). It is known that both past remembered and future expected financial conditions influence one's financial satisfaction (van Praag and Ferrer-i-Carbonell 2004). Furthermore, Brunnermeier and Parker (2005) stated that "agents who care about expected future

utility flows are happier if they overestimate the probability that […] their future labor income is high" (p. 1093), and they described a mathematical model that predicts such behavior. Glaeser (2003) also claimed that "Consumers will be more likely to accept false beliefs when those beliefs make them happier" (p. 15). This suggests that even if individuals' beliefs about the future are not rational in an economic sense, they are still considered "rational" in a psychological sense if they make individuals happy at the moment.

Empirical evidence on this issue is not very abundant. Senik (2008) proposed that expecting an improvement in one's material situation can be an indicator not only of financial satisfaction but also of general life satisfaction. Using data from the Russian Longitudinal Survey she demonstrated that when individuals felt that their financial situation improved, their cumulated satisfaction also improved, and that when individuals had positive expectations about their financial status, their happiness level tended to increase. Similarly, Knight and Gunatilaka (2010) showed that individuals who expect a substantial financial increase in 5 years reported higher happiness than those with static expectations. More recently, Frijters et al. (2012) documented that optimistic income expectations are positively correlated with happiness, whereas pessimistic expectations have a negative effect on happiness. Dolan et al. (2008) asserted that one's perception of his/her financial status could be more important to well-being than actual income.

In the current study we investigate whether expectations are associated with subjective well-being of individuals in the UK, and also analyze the impact of over/under expectations (i.e., expectation surprise) on life satisfaction and other subjective well-being measures. We attempt to replicate and extend previous studies using a British sample surveyed between 2009 and 2012. These periods are important in that they correspond to three consequent years after the economic recession in the UK. The British economy was affected by the global economic downturn which started in 2008, and it officially declared itself to be in recession in early 2009. The recession resulted in a significant fall in Gross Domestic Product, and influenced income at both the national and the household level (Office for National Statistics 2011).

Specifically, we examine whether an optimistic, actual, or pessimistic expectation of one's financial status 1 year in the future is associated with current well-being. We also aim to find whether the gap between actual future financial status and subjective expected financial status is related with happiness. Positive psychology literature has consistently shown that optimistic expectations are positive correlates of a variety of well-being indicators, such as life satisfaction, positive affectivity, physical health, better coping abilities, and lower levels of depression (Carver et al. 2010; Scheier et al. 2001; Wrosch and Scheier 2003). Thus we expect to find that those who expect higher financial status in a year are more likely to be satisfied with their current life than those who have pessimistic expectations. Furthermore, if individuals realize that they have over (under)-predicted their future financial position, they will be more likely to have lower (higher) happiness levels.

We conceptualize happiness as the extent to which individuals positively evaluate the overall quality of their present life as a whole (Veenhoven 2000). We believe that using multiple indicators of happiness is important in making a better assessment of the concept of well-being; thus, besides using a measure of global satisfaction we also use domain satisfaction indicators such as financial satisfaction and mental health.

Data and Empirical Strategy

We use the *Understanding Society* dataset from the UK to analyze the relationship between income expectations and life satisfaction. The dataset has five completed waves, but only three were publicly available at the time of this study. The survey covers around 40,000 households in the UK and collects information on many issues. The households are randomly selected, and all the household members older than 16 years of age are interviewed and asked the same questions. We restrict our sample to those individuals who are between the ages of 25 and 65. We use this age restriction because prior research has shown that well-being over the life cycle has U-shape declining from twenties to the fifties before increasing again during later years that is caused by unmet aspirations (Schwandt 2013). There is also a separate questionnaire that collects information about household characteristics, including household income; that survey is completed by the head of the household. A range of topics are covered in this survey, but we are mainly interested in questions that measure subjective well-being and financial position evaluations.

We concentrate on three dependent variables. These are Life Satisfaction (LS), Income Satisfaction (IS), and Mental Health (MH). LS is created by using the responses given to the question "*How satisfied are you with your life overall*?" where the response options range from 1=very dissatisfied to 7=very satisfied. This question has become the standard measure of subjective well-being in the happiness literature (McBride 2010). Income satisfaction is created by using the responses to the question "*How satisfied are you with the income of your household?*" with the same response options as LS. Finally MH is a derived variable available in the survey that measures the mental health of the respondents by using responses to a series of questions.[1] All these different questions measure different dimensions of individual's subjective well-being.

Our main independent variables are future financial expectations and current financial realization. Every adult member of the household is asked, "*How well would you say you are managing yourself financially these days?"* followed by "*Looking ahead, how do you think you will be financially a year from now?*" The response options for current financial realization range from 1=living comfortably to 5=finding it very difficult, whereas the options for future financial expectations are 1=better off than a year ago, 2=worse off than a year ago, and 3=about the same. Although the responses are ordinal (qualitative) variables, consistent with the previous literature (Foster et al. 2012) we assume a linear relationship, and use these variables as quantitative in our estimation. We recode options for both of these questions, so higher numbers indicate better outcomes.

We would like to note two things at this stage. First, our expectation question is different than the one used by Frijters et al. (2012). Their measure asks the respondents to indicate income expectations "5 years ahead." Households may not be so forward looking, so responses given to 5 year expectations may be overly biased. Secondly, since we observe the same individual in approximately 1 year (in the next wave of survey data), we can compare the results of expectation with the realization of the following year, and find out the level of subjective error. This is not possible with cross-sectional data. We also control for the current equivalent household income in our

[1] The questions are presented in Appendix

estimations.[2] We are mainly interested in estimating the following equation for all the well-being measures separately:

$$LS_{it} = \beta_0 + \beta_1 Y^A_{it} + \beta_2 Y^s{}_{it} + \beta_3 E_t Y^s{}_{it+1} + \beta_4 X_{it} + \nu_i + \varepsilon_{it} \quad (1)$$

Here Y^A is the current equivalent household income, Y^s is the subjective current financial realization, E is the expectation operator, and X includes the time dependent observable variables. Future financial expectations are used as a proxy for E_tY_{t+1}. The error has two components: one is individual-specific error and the other is white noise. We use fixed effects estimation which gets rid of individual heterogeneity (ν_i).

Although in a previous study Senik (2008) also applied this technique in this context, we believe that our specification includes certain improvements. Senik (2008) used a panel data of individuals over 10 years. However, she has collapsed the observations into three time blocks where she had reduced the number of observations per person from 10 to 3. Although that step was essential given her purposes, it creates some problems for analyzing the effect of income expectations on life satisfaction. First of all, she did not control for any of the time-varying personal variables. It has been shown that major life events such as divorce or loss of a job could have negative effects on life satisfaction. Even in specifications where she used individual controls, they were taken at the last year of each block. For example, someone who is married at Time 1, divorced at Time 2, and married again at Time 3 will be coded the same as someone who stayed married at all time periods. Furthermore, one of the main variables used in her model measures the "number of periods with household income rise." This variable only captures discrete changes. For example, someone who has experienced a $10 income increase in each period will have the same coding as someone who has experienced $1000 income increase in each period. Because of these deficiencies, we believe that our specification better captures the impact of income expectations on life satisfaction.

Similar cross-sectional analysis has also been conducted before (Frijters et al. 2012; McBride 2010), but our specification has some differences. First, our expectation question measures 1 year ahead which is important for short-term analysis, whereas other studies use 5-year expectations. Secondly, we use longitudinal data, which is better suited for assessing the true impact of a variable. Finally, our dataset is more recent and covers the period right after one of the worst global economic recessions, which has lowered consumer confidence all around the world, including the UK.

After showing the correlation between subjective financial expectations and well-being for the UK data, our main contribution in this paper is disentangling the effects of expectation "surprises" on well-being. We are not interested in whether the expectations are correctly formed, but in, if and when households' expectations are not met, how consumers are affected in terms of their life satisfaction. Thus we create the variable *expectation surprise*, which looks at the difference between future financial expectation at Time 1 and realization at Time 2.[3] Other surveys (such as the University of Michigan survey) have a question worded this way: "Compared to a year ago, how

[2] We originally used total household income but an anonymous reviewer suggested that we use equivalent household income. The results are qualitatively the same. We thank the reviewer for suggesting the use of this variable.

[3] Senik (2006) refers to this as a "surprise" in her working paper thus we continue to use this term in our paper.

are you doing financially these days?" This question is not available in our survey, but we use the two subjective current financial realization (Y^s_{it} and $Y^s_{i,t+1}$) questions in both time periods to create change in financial position within a year, as perceived subjectively by the household member ($\Delta Y^s_{i,t+1}$). If current financial position at Time 2 is better than the financial position at Time 1, then the respondent's current situation compared to a year ago is "better" (value of +1). Otherwise the situation is "worse" (value of −1). In case the respondent reports the exact same answer in both surveys, his or her change in subjective financial position is coded as "the same" (value of 0). Then we take the difference between this variable and financial position expectation at Time 1 to create a so-called "expectation surprise" variable (surprise=$\Delta Y^s_{i,t+1} - E_t Y^s_{i,t+1}$) which can take the values −2, −1, 0, 1, or 2. A value of −2 would mean that the person predicted a "better" state for the future but he/she ended up with a "worse" state. In other words the household has "overpredicted" the future significantly. A value of −1 could mean that the person predicted "better" states but the actual position remained the same. This still indicates "overprediction" but not by an enormous amount. Similarly positive values would indicate "underprediction."

In order to test the relationship between expectation bias and well-being, we create five dummy variables that correspond to the following categories: overpredicted a lot (surprise=−2), overpredicted a little (−1), correctly predicted (0), underpredicted a little (+1), and underpredicted a lot (+2). Then we analyze the effect of over/under expectations on life satisfaction by using Eq. (2), where D_1 to D_4 correspond to the four dummy variables created above for expectation surprise and "correctly predicted" is the omitted category. We once again use the fixed effect method to get rid of individual heterogeneity, but that means we lose 1 year of observation for each individual.

$$LS_{it} = \beta_0 + \beta_1 Y^A_{it} + \beta_2 Y^s_{it} + \beta_3 E_t Y^s_{i,t+1} + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + \beta_7 D_4 + \beta_8 X_{it} + \nu_i + \varepsilon_i \quad (2)$$

A few comments on the actual equivalent household income (Y^A_{it}) variable are in order. We have information on both personal income and household income. In such surveys there could be a lot of missing information on income related variables. However, the survey provider in this case also imputes missing observations.[4] Thus we have good income information available. Since some respondents may not be currently working, they will not have any income data. In order not to drop these observations, we use household income in our analysis.

However, we use income only as a control variable in our estimations. For example, we don't use reported income to calculate change in financial position for two reasons. First, there might be a difference between "financial position" and "income," where the former is a more general measure of wealth. A change in "income" may thus not measure the change in "financial position." Secondly, even if actual income increases, the respondent may feel that his/her financial position is worse simply because there are other psychological factors involved. Alternatively, the respondent could be comparing his/her current situation to an ideal situation: if the ideal has not yet been achieved, then even with a higher income

[4] McFall (2011) provides more technical information on income imputation.

the respondent could report a worse situation. After all, we are interested in how respondents *feel* about their financial situation (subjective measure). In fact, 44 % of the respondents reported that they are doing "worse off" compared to a year ago, even though their household income increased by more than 5 %, and 26 % reported being "better off" even though their actual household income had decreased by more than 5 %.[5]

Results and Discussion

We first present the fixed effect estimation results for subjective current and future income measures (current financial realization and future financial expectation) on subjective well-being, and then we analyze how unforeseen changes are associated with a household's well-being. Finally, we repeat the analyses separately for certain subgroups.

Subjective Financial Measures and Utility

We use fixed effect estimation to estimate the impact of current financial realization and future financial expectations on well-being. The advantage of this method is that all the person-specific unobservable characteristics are eliminated, and thus the true impact of income expectations can be calculated. On the other hand, we cannot see the effects of time-fixed personal variables by this method. Our main independent variables are subjective current income realization and future income expectation and actual household income. We also control for the respondent's marital status and number of kids. The results are displayed in Table 1.

The first three columns of Table 1 show the results of estimating the correlates of well-being using the fixed effect estimation method. We see that for all three measures of well-being, respondents whose subjective current financial realization is higher are in better states. Such a positive link between financial conditions and well-being has previously been demonstrated by several studies (for reviews see Clark et al. 2007 and Dolan et al. 2008). In terms of future financial expectations, individuals who are optimistic about their future financial positions are more likely to be satisfied with their lives and report better mental health than those who are less optimistic. We also found that a similar situation applies for income satisfaction. That is, individuals are more satisfied with their income when they are more optimistic about their future financial position. Previously, Brunnermeier and Parker (2005) predicted that optimistic beliefs about future have the potential to increase average felicity. In an empirical study, Frijters et al. (2012) showed that optimistic income expectations are positively associated with individual happiness. Moreover, positive psychology literature evidenced that optimistic expectations in general are positively associated with well-being (Carver et al. 2009, 2010), and negatively with ill-being (Chang and Sanna 2001; Hart et al. 2008). Our findings are, thus, in line with these prior findings and the relationship

[5] The annual inflation rate in 2009 was 2.2 %. We define those whose incomes have changed by less than 5 % as being in the "same" state of financial position. By using 5 % as the benchmark, we take into account real income as well as the errors that could arise during imputations.

Table 1 Correlates of subjective well-being

	Life satisfaction	Mental health	Income satisfaction	Life satisfaction	Mental health	Income satisfaction
Current financial realization	0.450***	2.524***	0.836***	0.494***	2.712***	0.888***
(Subjective ıncome: Y(S))	(0.005)	(0.033)	(0.005)	(0.007)	(0.044)	(0.007)
Future financial expectation	0.113***	0.766***	0.077***	0.075***	0.496***	0.026***
	(0.008)	(0.051)	(0.008)	(0.010)	(0.065)	(0.010)
Log of equivalent household income	0.012	−0.128**	0.238***	−0.001	−0.338***	0.199***
(Actual ıncome: Y(A))	(0.008)	(0.054)	(0.008)	(0.010)	(0.069)	(0.010)
Married	0.190***	1.623***	0.107***	0.191***	1.702***	0.104***
	(0.010)	(0.069)	(0.011)	(0.013)	(0.086)	(0.013)
No of kids	0.002	−0.401***	−0.021***	0.011	−0.443***	−0.020***
	(0.005)	(0.035)	(0.005)	(0.007)	(0.044)	(0.007)
Under predict a lot				−0.252***	−1.813***	−0.478***
				(0.031)	(0.210)	(0.032)
Under predict a little				−0.098***	−0.674***	−0.182***
				(0.016)	(0.110)	(0.017)
Over predict a little				0.142***	0.808***	0.175***
				(0.016)	(0.107)	(0.016)
Over predict a lot				0.239***	1.131***	0.200***
				(0.030)	(0.199)	(0.030)
Constant	6.038***	56.134***	4.560***	6.174***	57.680***	4.928***
	(0.064)	(0.424)	(0.066)	(0.082)	(0.554)	(0.083)
Sample size	76,462	76,462	76,462	49,281	49,281	49,281
R-square	0.119	0.094	0.322	0.125	0.098	0.326

Fixed effect regression estimates; robust standard errors are in parentheses, and each model corresponds to a different dependent variable. Life satisfaction is at time "t", Equivalent household income is at time "t", expectations are from "t" to "t + 1" and surprises (over/under prediction) are from "t-1" to "t"

***, ** and * indicate a statistical significance at 1, 5 and 10 % respectively

between financial expectations and subjective well-being is also documented for the UK.

Other demographic variables have some mixed correlation. Current equivalent household income is found to be negatively correlated with mental health, but positively correlated with income satisfaction. However, we found that it is not significantly correlated with life satisfaction. Married respondents reported more well-being than their counterparts, and number of children is negatively correlated with mental health and income satisfaction.

Incorrect Financial Expectations and Utility

Having shown that current income realization and future income expectations are important correlates of subjective well-being even after controlling for current equivalent household income, we next analyze what happens when expectations are not accurately realized. In other words, in this section we look at how financial surprises are correlated with subjective well-being. The results of estimating Eq. (2) are displayed in the last three columns of Table 1.

We see in Table 1 that even after controlling for current equivalent household income, current financial realization, and future income expectations, the surprises in expectations are significantly associated with subjective well-being. Those who have over-predicted their financial position are likely to have lower life satisfaction compared to those whose expectations are exactly realized, all other things being equal. On the other hand, people who find out that their financial situation is better than what they had expected a year ago report higher satisfaction levels. The same results hold for income satisfaction and mental health. We see this as evidence that even though the expectations may be biased in an economic sense, individuals' well-being is related with these expectations.

It is also interesting to note that there is no evidence of loss-aversion.[6] The households in our sample have lower well-being when confronted by negative surprise and higher well-being when confronted by positive surprises, although the results do not indicate that they prefer positive surprises to negative surprises. However, we can say that the households prefer positive large surprises to positive small surprises and vice versa for negative surprises.

Expectation Bias Among Demographic Groups

The results of the previous section show that expectation bias is an important correlate of life satisfaction and mental health. One of the shortcomings of the previous analysis is that due to fixed effects estimation we get rid of time-invariant variables. Therefore, in this section we repeat our estimation separately for various demographic groups. In particular, we estimate our main model according to gender, age, and education. This allows us to evaluate whether some variables have different effects on subjective well-being for different groups. We find no such differences between men and women, and among different age categories.[7]

[6] We thank an anonymous referee for pointing this out.
[7] The results are available upon request

We do however find some differences between university educated and the rest of the sample. Table 2 shows that overpredicting/underpredicting a lot seems to have the similar effect among different education categories, but "little" surprises for university educated are not correlated with individual's life satisfaction. This indicates that higher educated individuals are not as much affected as less educated if they make small forecast errors. Given that education is positively correlated with rational decision-making (Bengtsson and Ekeblom 2014), it is also the case that when confronted by small surprises, the highly educated can cope easier with the associated stress and not panic because they also make less forecast errors in terms of their economic conditions (Bengtsson and Ekeblom 2014).

As discussed, optimism is positively related with several aspects of well-being (see Carver et al. 2009; Peterson and Bossio 2002 for reviews). The theory of optimism suggests that optimistic people expect positive outcomes, believe that desired outcomes can be attained, and tend to persist in goal-directed efforts (Scheier and Carver 1985). Thus, one reason why optimistic income expectations tend to be positively linked to well-being could be that optimists are known to manage challenging life situations better than pessimists do, and therefore they may engage in actions that will lead to positive outcomes (Scheier and Carver 1993). Further research may examine this

Table 2 Life satisfaction by education categories

	University	High school	GCSE level
Under predict a lot	−0.242***	−0.254***	−0.194***
	(0.062)	(0.056)	(0.062)
Under predict a little	−0.055*	−0.064**	−0.157***
	(0.030)	(0.029)	(0.032)
Over predict a little	0.045	0.164***	0.179***
	(0.028)	(0.028)	(0.032)
Over predict a lot	0.147***	0.238***	0.278***
	(0.052)	(0.049)	(0.059)
Current financial realization	0.428***	0.501***	0.526***
	(0.013)	(0.011)	(0.012)
Future financial expectation	0.092***	0.039**	0.087***
	(0.017)	(0.016)	(0.020)
Log of equivalent household income	0.012	0.019	0.064***
	(0.018)	(0.019)	(0.022)
Constant	6.091***	6.146***	5.845***
	(0.155)	(0.149)	(0.174)
N	12,468	16,394	14,023
R-square	0.103	0.120	0.132

Fixed effect regression estimates; robust standard errors are in parentheses. Life satisfaction is at time "t", Equivalent household income is at time "t", expectations are from "t" to "t+1" and surprises (over/under prediction) are from "t−1" to "t". Marital status and number of children are also controlled for in these estimations

***, ** and * indicate a statistical significance at 1, 5 and 10 % respectively

assumption by including and testing the mediating role of the individual's actual actions on the relationship between income expectations and well-being.

Conclusions

In this study, we examined several relationships between subjective measures of a household's financial position and its members' subjective well-being. We first analyzed whether optimistic versus pessimistic expectations for one's future financial status relate to the current happiness of individuals. Using longitudinal household data collected in Britain, we found that subjective measures of current and future financial position are both significant correlates of various measures of subjective well-being. Furthermore, we find that the errors in judgment of future income expectations also have an impact on current life satisfaction. That is, unexpected positive (negative) changes in subjective household income are positively (or negatively) associated with a person's life satisfaction.

Our research makes several contributions to the literature. First of all, given the importance of the relationship between future financial expectations and life satisfaction, it is necessary to replicate relevant studies in different countries. Our study is the first to tackle this relationship in the UK. Secondly, different than previous studies, we use longitudinal data, income expectations rather than aspirations, and focus on 1-year advance expectations. By using fixed effects on longitudinal data, we are able to eliminate the innate personal characteristics and focus only on environmental factors. Finally, our main contribution is the analysis of the association between expectation surprises and life satisfaction. To the best of our knowledge our study is the first attempt to examine such a relationship. Financial expectations are used widely in predicting consumption, and their effects on other consumer outcomes such as well-being deserve more attention.

The disciplines of economics and psychology have much common ground that behavioral economists have been exploring. In this research, we show that people take into account how their own expectations make them happy even though the expectations themselves may be biased. Although it is not entirely clear how expectations are formed, their usefulness in predicting current individual behavior should be important for policy makers. It is our hope that economists will not ignore subjective measures of income alongside other variables when they try to model the behavior of agents in an economy. The analysis of the factors that influence variations in expectations is still an open research question for behavioral economists and psychologists alike.

Our work is not without limitations. Given that rationality requires longer horizons to form correct expectations, this analysis should be repeated when more waves of the survey are available. Also, the financial expectations in our survey are measured as a discrete option. It is hard to convert a discrete choice into a cardinal number. It is, however, very likely that the degree of bias in expected financial position could influence subjective well-being in different ways. Thus, future surveys should focus on collecting data about cardinal income expectations rather than just ordinal measures. The responses will shed more light on the debate of how income expectations matter for life satisfaction. Furthermore, we did not control for individual difference variables such as broad personality traits which are known to be closely related with subjective

well-being. Future studies may benefit from including variables such as extraversion, neuroticism, and self-esteem.

Appendix

The survey provider's documentation on the construction of Mental Health variable is given as below[8]: "Mental Component Summary (MCS) measure converts valid answers to the following questions into a single mental functioning score, resulting in a continuous scale with a range of 0 (low functioning) to 100 (high functioning). For complete details on scoring methods see Ware et al. (2001), How to Score Version 2 of the SF-12 Health Survey (With a Supplement Documenting Version 1), Lincoln, RI, QualityMetric Incorporated."

1. In general would you say hour health is (excellent, very good, good, fair, poor)?
2. Now I am going to read you a list of activities that you might do during a typical day. As I read each item, please tell me if your health now limits you a lot, limits you a little, or does not limit you at all in these activities. First moderate activities, such as moving a table, pushing a vacuum cleaner, bowling etc.
3. Climbing several flights of stairs?
4. During the past 4 weeks, how much of the time have you accomplished less than you would like as a result of your physical health? (All of the time, most of the time, some of the time, a little of the time, none of the time)
5. During the past 4 weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of your physical health? (All the time, most of the time, some of the time, a little of the time, none of the time)
6. During the past 4 weeks, how much of the time have you accomplished less than you would like as a result of any emotional problems (such as feeling depressed or anxious)? (All of the time, most of the time, some of the time, a little of the time, none of the time)
7. During the past 4 weeks, how much of the time did you work or other regular daily activities less carefully than usual as a result of any emotional problems, such as feeling depressed or anxious? (All of the time, most of the time, some of the time, a little of the time, none of the time)
8. During the past 4 weeks, how much did pain interfere with your normal work including both work outside the home and housework? Did it interfere… (not at all, a little bit, moderately, quite a bit, extremely)
9. How much of the time during the past 4 weeks have you felt calm and peaceful? (All of the time, most of the time, some of the time, a little of the time, none of the time)
10. How much of the time during the past 4 weeks did you have a lot of energy? (All of the time, most of the time, some of the time, a little of the time, none of the time)

[8] Available at https://www.understandingsociety.ac.uk/documentation

11. How much of the time during the past 4 weeks have you felt downhearted and depressed? (All of the time, most of the time, some of the time, a little of the time, none of the time)
12. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities like visiting friends or relatives? (All of the time, most of the time, some of the time, a little of the time, none of the time)

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