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## Article

# The impact of economic growth, inflation and unemployment on subjective financial satisfaction: A New global evidence

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## GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

# The impact of economic growth, inflation and unemployment on subjective financial satisfaction: A New global evidence

Baeyong Lee<sup>1</sup>, Hoolda Kim<sup>1\*</sup> and Assad Tavakoli<sup>1</sup>

**Abstract:** Using the happiness survey data, a robust body of literature has supported that people's subjective well-being is related to economic growth, employment, and inflation. Motivated by "Happiness Economics," this paper focuses on financial satisfaction, a proxy of subjective well-being. It examines the relationship between people's financial satisfaction and nations' macroeconomic performances. We use the World Values Survey and inflation, unemployment, and economic growth data collected from 2010–2014 to 2017–2022. We use the ordered probit and ordinary least squares regressions for the analysis. The findings show that financial satisfaction has a negative relationship with inflation and unemployment and a positive relationship with economic growth. Heterogeneity checks indicate that the association's strength and statistical significance vary by gender, age, household income, marital status, educational attainment level, and employment status. The overall results suggest policymakers should strive to mitigate the economic vulnerability of women, older adults, low-income earners, low-educated, those who are not married but live together, and those who are not in the labor force to maximize the financial satisfaction of individuals and thus promote subjective well-being of them.

**Subjects:** Economics and Development; Economics; Welfare

**Keywords:** financial satisfaction; inflation; unemployment; economic growth; subjective well-being

**JEL Classification code:** D60; E23; E24; E31; I30

## 1. Introduction

Economic development is an essential goal of countries as it is closely related to human well-being (Hayo & Seifert, 2003). Many countries strive to achieve their development goals through economic, social, cultural, political, and technological progress (Coccia, 2019a). Following Richard Easterlin (1974), one of the earliest economists who investigated the relationship between subjective well-being and economic growth, the body of literature on the economics of happiness has been substantially expanded. Over several decades, the social welfare function defined based on inflation and unemployment has been expanded to analyze their relationship with subjective well-being (Blanchard & Fischer, 1989; Burda & Wyplosz, 1993; DiTella et al., 2001; Hall & Taylor, 1997;

Persson & Tabellini, 1990). An extensive body of literature has suggested that subjective well-being is positively associated with economic growth (Deaton, 2008; Diener et al., 2013; Easterlin et al., 2021; Hagerty, 2000; Hagerty & Veenhoven, 2003; Sacks et al., 2010; Schyns, 2001; Stevenson & Wolfers, 2008). An opposed relationship has been found with other measures of macroeconomic performance such as inflation and unemployment (DiTella et al., 2001, 2003; Gandelman & Hernandez-Murillo, 2009; Ouardighi & Munier, 2019; Perovic, 2008; Welsch, 2007; Wolfers, 2003). A multitude of studies have reported that age, income, educational attainment, and employment status are evident predictors of wealth and be correlated with subjective well-being (Ackerman & Paolucci, 1983; Garrett & James, 2013; Gholipour et al., 2022; Hong & Swanson, 1995; Joo & Grable, 2004; Kalsi et al., 2022; Xiao et al., 2014). Marital status and gender have also been discussed as potential contributors to subjective well-being (Calasanti et al., 2021; Fan & Babiarz, 2019; Kalsi et al., 2022; Yamokoski & Keister, 2006). The strength and statistical significance of the associations have appeared heterogeneous based on the choice of subjective well-being measures, macroeconomic performance outcomes, countries, and periods.

Poor economic conditions may trigger financial constraints and distress. Financial problems may induce bigger economic, social, and political problems (French & Vigne, 2019). Many scholars have considered financial satisfaction a good proxy for subjective well-being (Diener & Diener, 2009; Diener & Suh, 2000; Diener et al., 2002; Easterlin et al., 2010; Ng & Diener, 2014; Ngamaba, 2017). A large number of studies have found a significant impact of financial stress on mental, psychological, physical, and self-rated health (de Miquel et al., 2022; Karanikolos et al., 2013; Ryu & Fan, 2023; Sweet et al., 2013), food security (Balistreri, 2016), political stability (Funke et al., 2016), and socioeconomic conditions (Brown & Gray, 2016; Easterlin et al., 2010; Peiro, 2006). Several studies have even argued that low economic growth and high inflation may increase unemployment which may lead to lower levels of subjective well-being including financial satisfaction (Hongo et al., 2020; Lim et al., 2019; Tang & Bethencourt, 2017).

Job losses, high unemployment and inflation, and recession may affect people's psychological and emotional status in general and their financial satisfaction in particular. Especially after the pandemic, many countries have experienced radical economic changes. Unexpected economic changes demand a better understanding of how macroeconomic performance may affect people's financial well-being. Because the extent of the economic impact may vary by the measure of subjective well-being chosen in the analysis (Hayo & Seifert, 2003), we narrow down our interest to financial satisfaction. To have a better understanding of the macroeconomic impact on people's financial satisfaction and provide better guidance for policymakers to promote the financial well-being of their citizens, this study asks the following research question: *To what extent do inflation, unemployment, and economic growth affect the financial satisfaction of individuals?* To answer this research question, we use the recent World Values Survey (WVS) data collected in 2010–2014 and 2017–2022 and two empirical models: ordered probit and Ordinary Least Squares (OLS). We hypothesize that the inflation and unemployment rates of a country negatively affect financial satisfaction while the economic growth of a nation positively affects the financial satisfaction of the citizens. Moreover, we hypothesize that the impact of macroeconomic performances on financial satisfaction varies by sociodemographic characteristics of individuals. To assess the heterogeneity across different demographic and socioeconomic factors and identify the groups that show significant associations between financial satisfaction and macroeconomic measures, we stratify the sample by gender, age, household income, marital status, educational attainment, and employment status.

The paper is organized as follows. We review the literature on the relationship between subjective well-being and macroeconomic outcomes in Section 2. Section 3 introduces data, measures of variables, and empirical strategies. Section 4 presents the results and performs heterogeneity and robustness checks. Section 5 interprets and discusses the findings, and we conclude the paper in Section 6.

## 2. Literature review

Various socioeconomic, political, and institutional factors such as health, wealth, knowledge, and technology can contribute to development in society (Coccia, 2010, 2014a, 2014b, 2018b). Notably, economic advancement may positively affect the political system, standard of living, culture, governance, education, safety, and social security (Coccia, 2019a; Todaro & Smith, 2003). On the other hand, economic problems such as unemployment, debt, and poverty may cause financial strains and psychological distress and create even greater social and political problems (French & Vigne, 2019). Many studies have found potential negative consequences of financial dissatisfaction on mental, physical, and self-rated health and psychological distress (de Miquel et al., 2022; Karanikolos et al., 2013; Ryu & Fan, 2023; Sweet et al., 2013), food security (Balistreri, 2016), and political stability (Funke et al., 2016). Because economic development is closely linked to economic performances (e.g., gross domestic product) and non-economic indicators (e.g., the standard of living or subjective well-being), it is critical to examine how economic performances are associated with non-economic indicators. Following Easterlin's (1974) study that examined the link between happiness and income, a growing number of studies have begun to scrutinize the relationship between subjective well-being and macroeconomic outcomes. An extensive body of literature has proved a positive impact of economic growth on life satisfaction (Degutis et al., 2010; Diener et al., 2013; Easterlin et al., 2021; Hagerty, 2000; Hagerty & Veenhoven, 2003; Veenhoven & Vergunst, 2014). Some studies have even found a statistically significant and positive impact of income on the subjective well-being of individuals within countries, across countries, and over time (Deaton, 2008; Sacks et al., 2010; Schyns, 2001; Stevenson & Wolfers, 2008). However, there is also a study that has found mixed results: a positive relationship between GDP (Gross Domestic Product) and life satisfaction in Latin America, North Africa, the Middle East, and Eastern Europe, no relationship in East Asia and Western Europe, and a negative relationship in North America, Oceania, and Africa (Opfinger, 2016). The strength of the association between subjective well-being and economic growth has differed by many factors, such as the classification of countries, time, and unit of observation.

In addition to economic growth, a myriad of studies have examined the relationship between subjective well-being and other economic performances, such as inflation and unemployment. Several studies have found an inverse association between subjective well-being and unemployment and inflation (DiTella et al., 2001, 2003; Gandelman & Hernandez-Murillo, 2009; Ouardighi & Munier, 2019; Perovic, 2008; Welsch, 2007; Wolfers, 2003).

Nonfinancial factors such as demographic and socioeconomic characteristics may also impact individuals' subjective well-being (Frey & Stutzer, 2002). Several studies have investigated the determinants of subjective well-being at the individual level, including gender (Blanchflower & Oswald, 2004; Blanchflower et al., 2014; DiTella et al., 2001, 2003; Gerdtham & Johannesson, 2001; Hayo, 2007; Perovic, 2008), age (Frey & Stutzer, 2000; Hayo, 2007; Perovic, 2008), marital status (Gerdtham & Johannesson, 2001; Hayo, 2007; Perovic, 2008), income (Bhuiyan & Szulga, 2017; Blanchflower & Oswald, 2004; DiTella et al., 2001, 2003; Gerdtham & Johannesson, 2001; Hayo, 2007), educational attainment level (Gerdtham & Johannesson, 2001; Perovic, 2008), and employment status (Gerdtham & Johannesson, 2001; Namazie & Sanfey, 1999; Perovic, 2008). Furthermore, several recent studies have focused on marital status and gender and examined their contribution to subjective well-being and financial satisfaction. Calasanti et al. (2021) have found that males are likely to report higher financial satisfaction after retirement while females are not, implying gender disparity in post-retirement financial satisfaction. Ngamaba (2017) has suggested that various socio-demographic and political factors such as gender, health status, social activity, and political stability may contribute to subjective well-being in addition to several macroeconomic factors such as economic growth and unemployment although their effects vary by country and region. Kalsi et al. (2022) have argued that paid contribution through full-time employment determines subjective financial satisfaction, suggesting a potential gender disparity in financial satisfaction as males are more likely to work full-time than females. Gholipour et al. (2022) have found that individuals with low income, less education, and those who have full-time and non-government jobs tend to prefer higher economic growth in their nations than other socioeconomic groups.

Following the study of Diener and Diener (1995) that has analyzed the association between life satisfaction and financial well-being, many studies have claimed financial satisfaction as a significant predictor of subjective well-being (Brockmann et al., 2009; Ng, 2015; Ng & Diener, 2014; Ngamaba, 2017). Nonetheless, despite a close relationship between financial satisfaction and macroeconomic outcomes, limited research has used financial satisfaction as an indicator of subjective well-being. Peiro (2006) has examined the relationship between financial satisfaction and socioeconomic conditions, but not with measures of macroeconomic performance. Brown and Gray (2016) have claimed that the financial status of households determines their life satisfaction and financial well-being. However, they have not explored the relationship between financial well-being and macroeconomic measures. Easterlin et al. (2010) have examined the relationship between financial satisfaction and the annual growth rate of GDP in 17 Latin American countries but not with other economic measures such as inflation and unemployment.

We shed light on the literature on the relationship between financial satisfaction and macroeconomics and examine their associations using three macroeconomic variables: inflation, unemployment, and economic growth. We test the following hypothesis based on a cross-country analysis of financial satisfaction data:

**Hypothesis 1:** The financial satisfaction score of individuals is positively associated with the economic growth rate of countries and negatively associated with the unemployment and inflation rates of countries.

**Hypothesis 2:** The strength of the association between the financial satisfaction score of individuals and the inflation, unemployment, and economic growth rates of countries varies by demographic and socioeconomic characteristics.

As the associations between individuals' financial satisfaction scores and countries' macroeconomic performances may vary by individual demographic and socioeconomic characteristics, we conduct heterogeneity tests to identify the specific groups whose financial satisfaction level significantly changes as macroeconomic outcomes change.

### 3. Data and empirical strategy

#### 3.1. Sample and data

This study examines the relationship between financial satisfaction and macroeconomic outcomes. It is imperative to investigate their associations as economic policies aim to mitigate the negative consequences of financial dissatisfaction and promote individuals' subjective well-being. We use the 2010–2014 and 2017–2022 WVS data. It has been collecting information on financial satisfaction since 1981; however, the countries selected for the survey have significantly varied between waves. If we set the period of our study long, it leaves us with a small number of countries for the analysis. It may cause a bias due to high attrition. It is also challenging to collect valid macroeconomic outcomes covering the long study period, particularly in developing countries.

Considering our limitations, this study uses the sixth and seventh waves of the World Values Survey. The sixth and seventh waves comprise the surveys collected from 60 countries in 2010–2014 (Inglehart et al., 2018) and 64 countries in 2017–2022 (Haerpfer et al., 2020), respectively. Each country has participated once during each survey period. The survey asks various questions related to social values, well-being, social capital, and economic values, in addition to general demographic information. Remarkably, the WVS contains one question related to individual financial satisfaction, and the survey asked, “How satisfied are you with the financial situation of your household?”<sup>1</sup> We use this financial satisfaction question to measure subjective well-being and examine its relationship with macroeconomic performance.



### 3.2. Measures of variables

Previous studies have used various macroeconomic outcomes such as inflation, unemployment, long-term interest rate, GDP per capita, and the Gini coefficient to understand the relationship between subjective well-being and macroeconomics (Blanchflower et al., 2014; DiTella et al., 2001; Perovic, 2008; Sanfey & Teksoz, 2007; Welsch, 2007; Wolfers, 2003). Because the WVS surveys were collected from 60 countries once in 2010–2014 and from 64 countries once in 2017–2022, we match the year of the survey and the year that the macroeconomic statistics were computed. However, some developing countries' macroeconomic data were unavailable in a particular year. To maximize the sample size, we select three macroeconomic measures that are most available across countries: inflation, unemployment, and real GDP growth rates. We collect these macroeconomic performance data primarily from the International Monetary Fund (IMF, 2023a, 2023b, 2023c). If the macroeconomic data in a particular year or country is unavailable through the IMF, we use the World Bank as a secondary data source (World Bank, 2023a, 2023b, 2023c).

In addition to financial satisfaction used as a dependent variable, we select six demographic and socioeconomic factors from the WVS data as control variables: age, gender, educational attainment level, marital status, employment status, and household income level. Marital status is separated into three groups: married, not married but live together, and divorced, separated, widowed, or single. Educational attainment level is grouped into low education (from no education to second secondary education) and high education (from post-secondary education to doctorate). Employment status is categorized into three groups: employed, unemployed, and not in the labor force. Household income level is aggregated into three groups: low-income (from the first decile to the third decile), middle-income (from the fourth decile to the sixth decile), and high-income (from the seventh decile to the tenth decile). Appendix Table A1 lists the dependent, independent, and control variables used for the analysis. It summarizes the questions, responses, and the source of each variable.

### 3.3. Models and data analysis procedure

Modern macroeconomics assumes that the social welfare function is defined based on inflation and unemployment (DiTella et al., 2001). Although the existence of a social welfare function has not been proved, it has mainly been used in the theoretical literature of macroeconomics. Unemployment, inflation, and GDP have been demonstrated to be the main determinants of satisfaction and happiness (Frey & Stutzer, 2002; Perovic, 2008).

Unemployment is the most used macroeconomic variable in the study of subjective well-being as it affects both employed and unemployed. The unemployed may fear the possibility of not getting employed. Being unemployed may negatively impact occupational skills, cause social isolation, and eventually lower individual well-being and social welfare (Kassenboehmer & Haiken DeNew, 2009; Paul, 2001; Perovic, 2008). The happiness and life satisfaction of the employed can also be negatively affected by high unemployment. Employed people may feel bad about unemployed people, be anxious about losing their jobs, or dislike taking a significant burden of unemployment taxes (Frey & Stutzer, 2002; Luechinger et al., 2010). High unemployment may cause fear among employed individuals and indirectly lower their subjective well-being (Green et al., 2000; Perovic, 2008).

When inflation is very high, it may harm the economy. It could be costly to reduce inflation as it often requires extra unemployment (DiTella et al., 2001). On the other hand, stable and predictable low inflation is not a significant economic problem. However, people's views on inflation differ from those of economists. According to the study of Shiller (1996), people believe that inflation may lower their standard of living, cause corruption and political violence, create moral issues, and damage national reputation. To consider the different perspectives of economists and the general population, we include inflation as a determinant of subjective well-being.

The positive impact of GDP on subjective well-being has been observed in many countries over time (Degutis et al., 2010; Diener et al., 2013; Hagerty, 2000; Hagerty & Veenhoven, 2003; Veenhoven & Vergunst, 2014). Yet, high income is not the only contributor to higher happiness levels. Other factors may raise the level of happiness along with an increased income, such as health, human rights, freedom, and equality (Perovic, 2008). People may not report a higher level of happiness or satisfaction when their absolute income has increased but when their relative income position has improved (Frey & Stutzer, 2002). To consider the relative income impositions of households, we include three income groups (high, medium, and low-income) as a control variable in addition to the real GDP growth rate.

To estimate the association between financial satisfaction and three macroeconomic outcomes, we follow the approach of DiTella et al. (2001):

$$FS_{ij} = \alpha Inflation_j + \beta Unemployment_j + \gamma GDP_j + X_{ij} + \varepsilon_{ij} \quad (1)$$

where  $FS_{ij}$  is the self-rated level of financial satisfaction of an individual  $i$  in country  $j$ .  $Inflation_j$  is the inflation rate of country  $j$ ,  $Unemployment_j$  is the unemployment rate of country  $j$ , and  $GDP_j$  is the real GDP growth rate of country  $j$ .  $X_{ij}$  includes demographic and socioeconomic characteristics of individual  $i$  in country  $j$  such as age, gender, educational attainment level, marital status, employment status, and household income.  $\varepsilon_{ij}$  is the error term.  $\alpha$ ,  $\beta$ , and  $\gamma$  are the coefficients of interest that explain to what extent financial satisfaction is related to inflation, unemployment, and real GDP growth, respectively. These estimates provide the magnitude of the association for each macroeconomic outcome variable. Because the WVS was conducted one time between 2010 and 2014 and another time between 2017 and 2022, we select macroeconomic values computed in the same years that the WVS data were collected.

Inflation, unemployment, and economic growth are presumed to be associated. If inflation, unemployment, and economic growth have a significant association, it may distort the results or cause multicollinearity. To address this concern, we have checked the correlation between macroeconomic outcomes variables and found that the correlation coefficients are less than 0.7. Also, there could be a multicollinearity problem as we use three macroeconomic outcomes as explanatory variables. We have employed a variance inflation factor to check the multicollinearity issue. The values between 1 and 2 suggest a moderate correlation but not severe.

Our model does not include the county-fixed effect as we use macroeconomic variables that are collected at the country level. However, the standard errors are clustered at the country level, assuming independence across countries but not across individuals within each country. Clustering is designed for the data with many clusters and a relatively small number of observations in each cluster (Leoni, 2005). If the number of observations in each cluster is too large, it can inflate the standard errors and make the estimates severely biased downward (Moulton, 1990; Perovic, 2008). Since we have approximately 60 countries and 800 to 1200 individuals in each cluster in the sample, we present the regression models with and without the cluster options to compare the results.

Financial satisfaction measured on a scale of 1 through 10 is a cardinal variable. We employ an ordered probit model to estimate the coefficients,  $\alpha$ ,  $\beta$ , and  $\gamma$ , in Equation (1). Several scholars have argued that using a cardinal variable as a subjective well-being measure in the ordered logit or probit models or in the OLS regression does not make a statistically significant difference (Ferrer-I-Carbonell & Frijters, 2004; Welsch, 2007), so we employ OLS to evaluate the robustness of the results.

After examining the association between financial satisfaction and macroeconomic performances using the 2010–2014 and 2017–2022 cross-sectional data, we repeat the same analysis



using pooled data from two waves. Following the approach of Perovic (2008), we include the year-fixed effect,  $\delta_t$ , to capture the global changes that might have affected countries in each wave:

$$FS_{ijt} = \alpha Inflation_{jt} + \beta Unemployment_{jt} + \gamma GDP_{jt} + X_{ijt} + \delta_t + \varepsilon_{ijt} \quad (2)$$

The association between financial satisfaction and macroeconomic outcomes can be heterogeneous depending on individuals' social and economic status within a country. We separate the sample by age, gender, household income, marital status, educational attainment level, and employment status and perform heterogeneity checks. We also use the Misery Index, the sum of the annual inflation and unemployment rates created by Arthur Okun in the 1970s, for a sensitivity check. We use STATA for statistical analysis.

## 4. Results

### 4.1. Descriptive statistics

Table 1 presents descriptive statistics of individuals in each wave. From 2010–2014 to 2017–2022, the financial satisfaction score increased by 0.39 points while all three macroeconomic outcomes declined. The inflation rate decreased by 1.72%, the unemployment rate decreased by 1.21%, and the real GDP growth rate decreased by 0.09%.

The real GDP growth rate reports a large standard deviation. It may partly be due to the inclusion of 60 countries with different levels of economic development. We find similar proportions of males and females between the two waves. While the share of married people is about the same, we find increasing shares of people who are not married but live together, divorced, or separated. Regarding the education attainment level, we observe an increase in the shares of people with primary, first-secondary, and second-secondary education. While there is a slight decrease in the share of people with no education, the share of people with doctoral degrees declines substantially. More people tend to work full-time or are self-employed, and fewer people are not in the labor force. While the share of workers in the public sector declines, the share in the private sector inclines simultaneously.

We further present the descriptive statistics of financial satisfaction by demographic and socioeconomic characteristics in Table 2. The financial satisfaction scores of males are higher than those of females. Young adults and people in the high-income group report higher scores of financial satisfactions. Married couples tend to be financially more satisfied than people who are unmarried but live together, divorced, separated, widowed, or single. Individuals with high levels of education report higher scores of financial satisfactions. The financial satisfaction scores are about the same between the employed and those who are not in the labor force.

### 4.2. Association between financial satisfaction and macroeconomic measures

Table 3 reports the results of the ordered probit model for the periods of 2010–2014 and 2017–2022, respectively. From 2010 to 2014, when we cluster the standard errors, financial satisfaction shows a negative association with inflation and a positive association with real GDP growth, as we hypothesized. Without clustering, financial satisfaction consistently shows a statistically significant negative association with inflation and unemployment and a positive association with real GDP growth. For example, when the inflation rate increases by one percentage point, the predicted log odds of reporting a higher financial satisfaction score decrease by 0.022. When the unemployment rate increases by one percentage point, the predicted log-odds of a reporting higher financial satisfaction score decrease by 0.007. When the real GDP growth rate rises by one percentage point, the predicted log odds of reporting a higher financial satisfaction score increase by 0.039.

From 2017 to 2022, we find similar results. With clustering standard errors, the results present financial satisfaction's negative relationship with inflation and unemployment and a positive

**Table 1. Descriptive statistics and measures of 60 countries in 2010–2014 and 64 countries in 2017–2022**

	2010–2014		2017–2022	
	Mean	s.d.	Mean	s.d.
Financial satisfaction (1–10)	5.884	(2.485)	6.277	(2.374)
<b>Macroeconomic variables</b>				
Inflation (%)	5.213	(3.601)	3.493	(2.515)
Unemployment (%)	7.723	(5.160)	6.509	(4.479)
GDP growth (%)	2.902	(4.335)	2.808	(3.915)
<b>Demographic and socioeconomic characteristics</b>				
Male	0.477	(0.499)	0.472	(0.499)
Age group				
16–29	0.286	(0.452)	0.243	(0.429)
30–49	0.391	(0.488)	0.398	(0.489)
50 and older	0.323	(0.468)	0.359	(0.480)
Marital status				
Married	0.559	(0.496)	0.556	(0.497)
Not married but live together	0.068	(0.252)	0.082	(0.274)
Divorced	0.038	(0.190)	0.043	(0.203)
Separated	0.019	(0.135)	0.022	(0.147)
Widowed	0.061	(0.239)	0.057	(0.232)
Single	0.256	(0.436)	0.240	(0.427)
Educational attainment level				
No education	0.061	(0.240)	0.050	(0.218)
Primary education	0.057	(0.233)	0.119	(0.324)
First secondary education	0.110	(0.313)	0.151	(0.358)
Second secondary education	0.076	(0.264)	0.258	(0.438)
Post-secondary but not tertiary education	0.188	(0.391)	0.089	(0.284)
Tertiary education	0.080	(0.272)	0.083	(0.276)
Bachelor	0.176	(0.381)	0.174	(0.379)
Master	0.076	(0.265)	0.065	(0.246)
Doctoral	0.176	(0.380)	0.011	(0.105)
Employment status				
Full-time	0.318	(0.466)	0.371	(0.483)
Part-time	0.092	(0.289)	0.087	(0.282)
Self-employed	0.125	(0.331)	0.142	(0.349)
Homemakers	0.123	(0.328)	0.127	(0.333)
Student	0.152	(0.359)	0.133	(0.339)
Unemployed	0.075	(0.263)	0.057	(0.232)
Other	0.096	(0.294)	0.071	(0.257)
Sector	0.019	(0.138)	0.011	(0.106)
Government or public	0.289	(0.453)	0.256	(0.436)
Private	0.537	(0.499)	0.669	(0.471)
Private non-profit organization	0.072	(0.258)	0.075	(0.263)

(Continued)

	2010–2014		2017–2022	
	Mean	s.d.	Mean	s.d.
Other	0.102	(0.303)		
Household income level				
Bottom 10%	0.081	(0.273)	0.073	(0.261)
10–20%	0.074	(0.262)	0.059	(0.236)
20–30%	0.117	(0.322)	0.113	(0.316)
30–40%	0.138	(0.345)	0.140	(0.347)
40–50%	0.215	(0.411)	0.237	(0.425)
50–60%	0.154	(0.360)	0.159	(0.365)
60–70%	0.120	(0.325)	0.118	(0.323)
70–80%	0.067	(0.251)	0.061	(0.240)
80–90%	0.019	(0.135)	0.019	(0.137)
Top 10%	0.015	(0.120)	0.020	(0.141)
Number of observations	89,565		86,993	

Authors' calculation using the 2010–2014 and 2017–2022 WVS data. Financial satisfaction is measured on a scale of 1 through 10 (1-completely dissatisfied, 10-completely satisfied). Inflation, unemployment, and GDP growth rates are measured at the country level. The mean values for the age group, gender, marital status, educational attainment level, employment status, and household income level variables indicate the share of people in each category across countries. Full-time workers are those who work 30 hours a week or more. Part-time workers are those who work less than 30 hours a week. Homemakers are those who are not employed.

relationship with real GDP growth. These results are aligned with the hypothesis claim on the association between financial satisfaction and macroeconomic outcomes. Once we remove the clustering option, financial satisfaction consistently presents a negative association with inflation and unemployment and a positive association with real GDP growth. For instance, the predicted log odds of reporting a higher financial satisfaction score fall by 0.025 when the inflation rate rises by one percentage point. The predicted log-odds of reporting a higher financial satisfaction score fall by 0.022 when the unemployment rate rises by one percentage point. The predicted log-odds of reporting a higher financial satisfaction score rise by 0.029 when the real GDP growth rate rises by one percentage point.

Table 4 presents the OLS regression results. The inflation and unemployment rates consistently show negative relationships with financial satisfaction, whereas the real GDP growth rate shows a positive relationship. For instance, in 2010–2014, when the inflation and unemployment rates increased by one percentage point, the financial satisfaction score fell by 0.052 units and 0.018 units, respectively. When the real GDP growth rate increased by one percentage point, the financial satisfaction score rose by 0.084 units. In 2017–2022, when the inflation and unemployment rates increased by one percentage point, the financial satisfaction score declined by 0.049 units. When the real GDP growth rate increased by one percentage point, the financial satisfaction score increased by 0.063 units.

We use pooled data from 2010–2014 and 2017–2022 to carry out the ordered probit and OLS regression analyses in Table 5. We confirm our hypothesis that financial satisfaction has a negative association with inflation and unemployment and a positive association with real GDP growth regardless of the regression model we use for the analysis.

#### 4.3. Robustness check

The main results present a negative relationship between financial satisfaction and two macroeconomic outcomes: inflation and unemployment. To check the sensitivity of the results, we use the Misery Index which can be computed by adding the inflation and unemployment rates. Table 6 provides results that are aligned with the leading results. Across all waves, financial satisfaction

**Table 2. Descriptive statistics of financial satisfaction by socioeconomic characteristics**

	2010–2014			2017–2022		
	Number of obs.	Financial satisfaction		Number of obs.	Financial satisfaction	
		Mean	s.d.		Mean	s.d.
<b>By gender</b>						
Male	42,449	5.935	(2.460)	40,805	6.309	(2.353)
Female	46,428	5.836	(2.507)	45,698	6.249	(2.389)
<b>By age group</b>						
16–29	25,479	5.950	(2.459)	20,836	6.376	(2.327)
30–49	34,747	5.841	(2.448)	34,213	6.173	(2.346)
50 or above	28,594	5.875	(2.554)	31,074	6.327	(2.428)
<b>By household income</b>						
Low income (first decile–third decile)	23,345	4.681	(2.702)	20,642	5.192	(2.721)
Middle income (fourth decile–sixth decile)	43,549	5.969	(2.170)	44,851	6.294	(2.122)
High income (seventh decile–tenth decile)	19,003	7.143	(2.152)	18,573	7.386	(1.966)
<b>By marital status</b>						
Married	49,652	6.010	(2.435)	48,443	6.386	(2.345)
Not married but love together	6,053	5.873	(2.499)	6,625	6.309	(2.343)
Divorced, separated, widowed, or single	33,078	5.695	(2.546)	31,034	6.100	(2.411)
<b>By education attainment level</b>						
No education—secondary	20,114	5.539	(2.597)	48,018	6.130	(2.482)
Post-secondary—doctoral degree	52,638	5.863	(2.460)	37,675	6.463	(2.208)
<b>By employment status</b>						
Employed	46,876	6.007	(2.391)	51,193	6.347	(2.272)
Unemployed	10,053	5.105	(2.666)	7,248	5.454	(2.651)
Not in the labor force	30,562	5.933	(2.533)	27,092	6.362	(2.433)

Authors' calculation using the 2010–2014 and 2017–2022 WVS data.

shows a negative relationship with the Misery Index and a positive relationship with real GDP growth. For instance, for 2010–2022, when the Misery Index increases by one unit, the ordered log odds of reporting a higher satisfaction score decrease by 0.018. When the real GDP growth rate increases by one percentage point, the ordered log odds of reporting a higher satisfaction score also increase by 0.034.

#### 4.4. Heterogeneity checks

Depending on demographic and socioeconomic characteristics, people may evaluate their subjective well-being differently. To test the second hypothesis that the strength of the association between financial satisfaction and macroeconomic outcomes varies by demographic and socioeconomic factors, we stratify the sample based on age, gender, household income, marital status, educational attainment level, and employment status. We use the ordered probit model without clustering standard errors for these subgroup analyses.

Regarding gender, the changes in the real GDP growth rates affect the financial satisfaction of males more than of females. In contrast, females' financial satisfaction appears to be more affected by the change in the inflation rate than males (Appendix Table A2). As for age, the financial satisfaction of adults aged 50 and above is more likely to be affected by changes in

**Table 3. Relation between financial satisfaction and macroeconomic measures using ordered probit**

Dependent variable	Financial satisfaction			
	2010–2014		2017–2022	
Inflation	–0.022** (0.011)	–0.022*** (0.001)	–0.025* (0.013)	–0.025*** (0.002)
Unemployment	–0.007 (0.007)	–0.007*** (0.001)	–0.022*** (0.006)	–0.022*** (0.001)
Real GDP growth	0.039*** (0.008)	0.039*** (0.001)	0.029*** (0.008)	0.029*** (0.001)
Cluster standard errors	Yes	No	Yes	No
Individual characteristics	Yes	Yes	Yes	Yes
Pseudo R2	0.0424	0.0424	0.0363	0.0363
Wald or LR Chi-squared	916.99	15767.05	915.38	12972.53
p-value	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Number of observations	83,792	83,792	82,036	82,036

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

macroeconomic outcomes. Individuals aged 16–29 show the most negligible association of their financial satisfaction with macroeconomic performances (Appendix Table A3). Regarding the household income level, the low-income group shows the strongest association of financial satisfaction with all three macroeconomic measures. While the low- and middle-income groups show a negative association of financial satisfaction with inflation and unemployment and a positive association with real GDP growth, as we find in the main results, the high-income group shows no statistically significant association between their financial satisfaction and unemployment (Appendix Table A4). As for marital status, compared to married couples, financial satisfaction scores of couples who are not married but live together are more likely to be affected by the changes in inflation and real GDP growth but not by the changes in unemployment (Appendix Table A5). Regarding the educational attainment level, the financial satisfaction of individuals with higher levels of education tends to be less influenced by the changes in macroeconomic measures (Appendix Table A6). As for the employment status, the financial satisfaction of those who are not in the labor force appears to be affected the most by the changes in inflation and unemployment, while the financial satisfaction of employed and unemployed people is more likely to be affected by the changes in real GDP growth (Appendix Table A7).

## 5. Discussion

Everyone wishes to be happy and satisfied with their financial situation. Policymakers are interested in identifying the determinants of subjective well-being and pursuing policies that maximize people's happiness and life satisfaction. Every country strives to achieve a higher standard of living and economic growth while maintaining price stability and providing sustainable employment opportunities. Financial satisfaction is presumed to be a strong proxy of subjective economic well-being. However, the link between macroeconomic measures and the financial satisfaction of individuals has yet to be extensively explored. Although various economic, political, and social problems have arisen after the pandemic, our understanding of the macroeconomic impact on financial satisfaction and the subjective well-being of individuals is limited. To improve our understanding, this study has investigated the relationship between financial satisfaction and macroeconomic performance using the World Values Survey collected from about 60 countries during two survey periods, 2010–2014 and 2017–2022.

**Table 4. Relation between financial satisfaction and macroeconomic measures using OLS**

Dependent variable	Financial satisfaction			
	2010–2014		2017–2022	
Inflation	–0.052** (0.024)	–0.052*** (0.002)	–0.049* (0.029)	–0.049*** (0.003)
Unemployment	–0.018 (0.016)	–0.018*** (0.002)	–0.049*** (0.013)	–0.049*** (0.002)
Real GDP growth	0.084*** (0.017)	0.084*** (0.002)	0.063*** (0.017)	0.063*** (0.002)
Cluster standard errors	Yes	No	Yes	No
Individual characteristics	Yes	Yes	Yes	Yes
R-squared	0.1786	0.1786	0.154	0.154
F-test	52.98	674.37	47.59	574.1
p-value	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Number of observations	83,792	83,792	82,036	82,036

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

The findings suggest that financial satisfaction is positively related to economic growth and is negatively related to inflation and unemployment. These relationships are persistent across countries in both waves. The results are aligned with the previous studies that have found a positive link between subjective well-being and economic growth (Deaton, 2008; Degutis et al., 2010; Diener et al., 2013; Hagerty, 2000; Hagerty & Veenhoven, 2003; Sacks et al., 2010; Schyns, 2001; Stevenson & Wolfers, 2008) and a negative link with inflation and unemployment (DiTella et al., 2001, 2003; Gandelman & Hernandez-Murillo, 2009; Perovic, 2008; Welsch, 2007; Wolfers, 2003). Unlike many previous studies that have been interested in a particular region or country, this study uses 60 high- and low-income countries. Although we observe a relatively large variation due to the nature of the sample, the overall results imply that financial satisfaction has a positive association with economic growth and a negative association with unemployment and inflation across nations.

The results of the study are aligned with the findings of previous studies. However, subjective well-being is a complex concept and cannot be interpreted merely based on the financial satisfaction of individuals. Financial success may not directly fulfill the needs of individuals but indirectly help them improve utility through the purchase of designed goods (Ryan & Deci, 2000). The positive association of financial satisfaction with economic growth and the negative association with inflation and unemployment suggests that economic growth, price stability, and strong job markets may satisfy people's financial needs. However, well-being cannot be achieved solely by financial needs but also by other enduring needs such as self-acceptance and affiliation (Coccia, 2019b). Society should encourage individuals to promote their intrinsic interest to fully achieve their well-being besides economic performances that provide monetary compensation.

Regarding the socioeconomic and demographic groups that show a strong association between financial satisfaction and macroeconomic performances, we find that females, older adults, individuals with low income, couples who are not married but live together, individuals with less education, and those who are not in the labor force as the groups whose financial satisfaction scores are more likely to be affected by changes in macroeconomic measures compared to other groups. While previous studies suggest that females are likely to be happier than males (Blanchflower & Oswald, 2004; DiTella et al., 2003), our study finds that the financial satisfaction of females is more likely to be associated with macroeconomic performances than that of males.



**Table 5. Relation between financial satisfaction and macroeconomic measures using both waves (2010–2022)**

Dependent variable	Financial satisfaction			
	Ordered probit		OLS	
Inflation	–0.026*** (0.008)	–0.026*** (0.001)	–0.056*** (0.018)	–0.056*** (0.002)
Unemployment	–0.014** (0.006)	–0.014*** (0.001)	–0.032** (0.014)	–0.032*** (0.001)
Real GDP growth	0.033*** (0.006)	0.033*** (0.001)	0.071*** (0.013)	0.071*** (0.002)
Cluster standard errors	Yes	No	Yes	Yes
Year Fixed effect	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes
R-squared			0.1708	0.1708
Pseudo R2	0.0404	0.0404		
Wald or LR Chi-squared	1338.96	29503.94		
F-test			72.25	1219.98
p-value	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Number of observations	165,828	165,828	165,828	165,828

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

**Table 6. Relation between financial satisfaction and Misery Index**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
Misery index	–0.012*** (0.001)	–0.023*** (0.001)	–0.018*** (0.000)
Real GDP growth rate	0.040*** (0.001)	0.029*** (0.001)	0.034*** (0.001)
Cluster standard errors	No	No	No
Year Fixed effect	No	No	Yes
Individual characteristics	Yes	Yes	Yes
Number of observations	83,792	82,036	165,828

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

Older adults are found to be happier than young or prime-age adults (Frey & Stutzer, 2000; Perovic, 2008). Similarly, we find that the financial satisfaction of older adults is associated with macroeconomic measures more than that of young or prime-age people. Regarding income level, many studies find that individuals with high income tend to report higher satisfaction and happiness scores (Bhuiyan & Szulga, 2017; Blanchflower & Oswald, 2004; DiTella et al., 2001, 2003; Gerdtham & Johannesson, 2001; Hayo, 2007; Hayo & Seifert, 2003). When we look at the association between financial satisfaction and macroeconomic outcomes, the financial satisfaction of individuals with low incomes is more likely to be affected by the changes in macroeconomic measures than those with high incomes. As for education, many studies provide evidence of a positive association between happiness and educational attainment level (Gerdtham & Johannesson, 2001; Hayo & Seifert, 2003; Perovic, 2008). Our study suggests that the financial satisfaction of individuals with

less education tends to be affected by changes in macroeconomic performance than those with more education. Numerous studies find married couples as the happiest group (e.g., DiTella et al., 2003), while others find singles as the happiest group (Gerdtham & Johannesson, 2001; Perovic, 2008). We find couples who are not married but live together as the group whose financial satisfaction is more likely to be affected by the changes in macroeconomic measures. As for employment status, several studies suggest that the employed are happier than the unemployed (Gerdtham & Johannesson, 2001; Hayo, 2007; Hayo & Seifert, 2003), while others claim that those who are not in the labor force are happier than the employed people (Namazie & Sanfey, 1999; Perovic, 2008). When we examine the association between financial satisfaction and macroeconomic performances across all demographic and socioeconomic groups, the financial satisfaction of those who are not in the labor force is found to be affected the most by the changes in inflation and unemployment rates compared to employed or unemployed individuals. In contrast, the financial satisfaction of employed and unemployed individuals is more likely to be associated with economic growth than those not in the labor force.

To our knowledge, this is the first study that assesses the variation in the strength of the association between financial satisfaction and macroeconomic outcomes by separating the micro-data sample based on age, gender, household income, marital status, educational attainment level, and employment status. The overall results suggest potential gender disparity and socioeconomic inequality across countries as the study finds females, older adults, individuals with low income, couples who are not married but live together, individuals with less education, and those who are not in the labor force as the groups whose financial satisfaction are highly associated with macroeconomic performance. Gender and socioeconomic inequality may affect their financial satisfaction, happiness, and well-being and cause adverse environments and violence within society (Coccia, 2018a). Socioeconomic policies should be designed and implemented to promote happiness and well-being, particularly in countries where socioeconomic inequality and gender disparity are high. Furthermore, we should note that various economic, social, political, and cultural factors may play a role in the assessment of the association between financial satisfaction and macroeconomic performance. Particularly, cultural differences are closely related to various factors such as economic factors, religion, and social belongingness. These differences may lead people to evaluate their financial satisfaction and, to a more considerable extent, well-being and life differently (Noguchi, 2022). For instance, the happiness levels of people in economically advantaged societies or countries may not significantly change even with substantial success, such as those in European countries. People in societies and countries where religious faith or social belonging is highly valued may be more satisfied with their lives when they are religious and belong to their community, such as those in Asian and Central American countries (Noguchi, 2022).

## 6. Conclusion

This study considers financial satisfaction as a measure of subjective economic well-being. The overall results imply that inflation, unemployment, and economic growth are significant factors that affect the subjective economic well-being of individuals. Nevertheless, the impact of the changes in macroeconomic performances on financial satisfaction varies by demographic and socioeconomic factors. The findings suggest that policymakers should be aware of the close relationship between people's financial satisfaction and macroeconomic performance and that the magnitude of its relationship may vary by gender, social, and economic factors. Recognizing potential gender and socioeconomic disparities, targeted public policies can be formulated to promote subjective well-being. Tailored interventions for vulnerable groups, such as females, older adults, low-income households, people who are not married but live together, low-education, and those who are not in the labor force can be effective in mitigating the effects of economic fluctuations on socioeconomic inequality and enhancing people's financial well-being.

There are a few caveats to consider when interpreting the results. WVS conducts the survey approximately every five years. We have found inconsistency in some questionnaires between the waves. Many countries participated in one wave but did not participate in the following wave.

Getting reliable macroeconomic data, particularly for low-income countries, has also been demanding. We use the two most recent waves to maintain consistency and sufficient sample size and run the regression using cross-sectional data. It limits us from exploring other dynamic regression analysis that needs multiple waves. Therefore, all the estimates presented in this study should be cautiously interpreted as they may not fully address all the potential issues that dynamic models may address with longitudinal data. When a new WVS dataset is available, we may use three waves and employ the dynamic model to consider the lagged effects. We may also explore other datasets that contain various subjective well-being measures, including financial satisfaction and reliable macroeconomic data, to check the consistency.

We assess various socioeconomic factors that may drive financial satisfaction. However, other factors, such as health status, freedom of choice, and political stability, could be closely related to financial satisfaction but have yet to be tested. In future research, we will consider these factors and examine if they improve the financial satisfaction of individuals.

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#### Disclosure statement

No potential conflict of interest was reported by the author(s).

#### Data availability statement

The data that support the findings of this study are available from the corresponding author, Hoolda Kim ([hkim7@uncfsu.edu](mailto:hkim7@uncfsu.edu)), upon reasonable request.

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#### Note

1. It is measured on a scale of 0–10: (1-completely dissatisfied, 10-completely satisfied).

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**Table A1. Selected Dependent, independent, and control variables**

Variable	Question	Response	Sources
Financial satisfaction	How satisfied are you with the financial situation of your household?	1 - completely dissatisfied 10 - completely satisfied	WVS
Inflation	Inflation rate. Annual percentage change	Percent	IMF/World Bank
Unemployment	Unemployment rate, percent	Percent	IMF/World Bank
Real GDP growth	Real GDP growth, annual percentage change	Percent	IMF/World Bank
Age	This means you are _____ years old	Age in two digits	WVS
Gender	Respondent's sex	1 - Male 2 - Female	WVS
Education	What is the highest educational level that you have attained?	0 - Early childhood education 1 - Primary education 2 - Lower secondary education 3 - Upper secondary education 4 - Post-secondary non-tertiary education 5 - Short-cycle tertiary education 6 - Bachelor or equivalent 7 - Master or equivalent 8 - Doctoral or equivalent	WVS
Marital status	Are you currently	1 - Married 2 - Living together as married 3 - Divorced 4 - Separated 5 - Widowed 6 - Single	WVS
Employment status	Are you employed now or not? If yes, about how many hours a week? If more than one job: only for the main job	1 - Full time employee 2 - Part time employee 3 - Self employed 4 - Retired/pensioned 5 - Housewife not otherwise employed 6 - Student 7 - Unemployed	WVS
Household income level	On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in.	1 - Lowest group 10 - Highest group	WVS

**Table A2. Relation between financial satisfaction and macroeconomic measures by gender**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
<b>Panel A: Males</b>			
Inflation	–0.023*** (0.002)	–0.021*** (0.002)	–0.024*** (0.001)
Unemployment	–0.009*** (0.001)	–0.022*** (0.001)	–0.015*** (0.001)
Real GDP growth	0.042*** (0.002)	0.029*** (0.002)	0.035*** (0.001)
Number of observations	40,164	38,897	79,061
<b>Panel B: Females</b>			
Inflation	–0.022*** (0.002)	–0.029*** (0.002)	–0.027*** (0.001)
Unemployment	–0.006*** (0.001)	–0.022*** (0.001)	–0.014*** (0.001)
Real GDP growth	0.037*** (0.002)	0.029*** (0.001)	0.031*** (0.001)
Number of observations	43,628	43,139	86,767

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

**Table A3. Relation between financial satisfaction and macroeconomic measures by age group**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
<b>Panel A: Age 16–29</b>			
Inflation	–0.017*** (0.002)	–0.029*** (0.003)	–0.023*** (0.002)
Unemployment	–0.003* (0.001)	–0.011*** (0.002)	–0.007*** (0.001)
Real GDP growth	0.039*** (0.002)	0.024*** (0.002)	0.031*** (0.001)
Number of observations	24,097	19,755	43,852
<b>Panel B: Age 30–49</b>			
Inflation	–0.018*** (0.002)	–0.021*** (0.002)	–0.022*** (0.001)
Unemployment	–0.004*** (0.001)	–0.019*** (0.001)	–0.011*** (0.001)
Real GDP growth	0.041*** (0.002)	0.031*** (0.002)	0.034*** (0.001)
Number of observations	33,100	32,956	66,056
<b>Panel C: Age 50 or above</b>			
Inflation	–0.034*** (0.002)	–0.029*** (0.003)	–0.035*** (0.002)
Unemployment	–0.016*** (0.002)	–0.031*** (0.002)	–0.023*** (0.001)
Real GDP growth	0.039*** (0.002)	0.034*** (0.002)	0.035*** (0.001)
Number of observations	26,595	29,325	55,920

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

**Table A4. Relation between financial satisfaction and macroeconomic measures by household income**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
<b>Panel A: Low-income households</b>			
Inflation	–0.035*** (0.002)	–0.012*** (0.004)	–0.028*** (0.002)
Unemployment	–0.027*** (0.002)	–0.026*** (0.002)	–0.025*** (0.001)
Real GDP growth	0.037*** (0.002)	0.037*** (0.002)	0.037*** (0.001)
Number of observations	22,900	20,095	42,995
<b>Panel B: Middle-income households</b>			
Inflation	–0.024*** (0.002)	–0.022*** (0.002)	–0.026*** (0.001)
Unemployment	–0.006*** (0.001)	–0.022*** (0.001)	–0.013*** (0.001)
Real GDP growth	0.037*** (0.002)	0.036*** (0.001)	0.035*** (0.001)
Number of observations	42,363	43,791	86,154
<b>Panel C: High-income households</b>			
Inflation	–0.006** (0.002)	–0.040*** (0.003)	–0.024*** (0.002)
Unemployment	0.012*** (0.002)	–0.015*** (0.002)	–0.000 (0.001)
Real GDP growth	0.042*** (0.003)	0.006*** (0.002)	0.020*** (0.002)
Number of observations	18,529	18,150	36,679

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

**Table A5. Relation between financial satisfaction and macroeconomic measures by marital status**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
<b>Panel A: Married</b>			
Inflation	–0.022*** (0.001)	–0.022*** (0.002)	–0.024*** (0.001)
Unemployment	–0.011*** (0.001)	–0.028*** (0.001)	–0.019*** (0.001)
Real GDP growth	0.034*** (0.001)	0.031*** (0.001)	0.031*** (0.001)
I			
Number of observations	47,286	46,455	93,741
<b>Panel B: Not married but live together</b>			
Inflation	–0.032*** (0.006)	–0.099*** (0.012)	–0.046*** (0.006)
Unemployment	–0.003 (0.003)	0.010** (0.005)	–0.000 (0.002)
Real GDP growth	0.053*** (0.005)	0.011 (0.009)	0.045*** (0.004)
Number of observations	5,591	6,402	11,993
<b>Panel C: Divorced, separated, widowed, or single</b>			
Inflation	–0.023*** (0.002)	–0.026*** (0.003)	–0.026*** (0.001)
Unemployment	–0.004*** (0.001)	–0.015*** (0.002)	–0.009*** (0.001)
Real GDP growth	0.043*** (0.002)	0.025*** (0.002)	0.034*** (0.001)
Number of observations	30,915	29,179	60,094

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.

**Table A6. Relation between financial satisfaction and macroeconomic measures by level of educational attainment**

Dependent variable	Financial satisfaction		
	2010–2014	2017–2022	2010–2022
<b>Panel A: No education—secondary education</b>			
Inflation	−0.028*** (0.003)	−0.016*** (0.002)	−0.021*** (0.002)
Unemployment	−0.012*** (0.002)	−0.025*** (0.001)	−0.021*** (0.001)
Real GDP growth	0.047*** (0.003)	0.030*** (0.001)	0.033*** (0.001)
Number of observations	18,793	46,018	64,811
<b>Panel B: Post-secondary education—Doctoral degree</b>			
Inflation	−0.022*** (0.001)	−0.045*** (0.003)	−0.028*** (0.001)
Unemployment	−0.007*** (0.001)	−0.016*** (0.002)	−0.011*** (0.001)
Real GDP growth	0.039*** (0.001)	0.024*** (0.002)	0.034*** (0.001)
Number of observations	50,088	36,018	86,106

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.



**Table A7. Relation between financial satisfaction and macroeconomic measures by employment status**

Dependent variable	Financial satisfaction		
Year	2010–2014	2017–2022	2010–2022
<b>Panel A: Employed</b>			
Inflation	–0.025*** (0.002)	–0.029*** (0.002)	–0.028*** (0.001)
Unemployment	–0.003*** (0.001)	–0.015*** (0.001)	–0.010*** (0.001)
Real GDP growth	0.041*** (0.002)	0.031*** (0.001)	0.034*** (0.001)
Number of observations	45,058	49,327	94,385
<b>Panel B: Unemployed</b>			
Inflation	–0.009*** (0.003)	–0.000 (0.006)	–0.010*** (0.003)
Unemployment	–0.003* (0.002)	–0.023*** (0.003)	–0.009*** (0.001)
Real GDP growth	0.049*** (0.003)	0.022*** (0.004)	0.036*** (0.002)
Number of observations	9,628	6,890	16,518
<b>Panel C: Not in the labor force</b>			
Inflation	–0.026*** (0.002)	–0.027*** (0.003)	–0.029*** (0.002)
Unemployment	–0.016*** (0.001)	–0.032*** (0.002)	–0.023*** (0.001)
Real GDP growth	0.031*** (0.002)	0.027*** (0.002)	0.028*** (0.001)
Number of observations	29,106	25,819	54,925

\*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Note: Standard errors are in parentheses.