Trends and Fluctuations in Financial Satisfaction and Macroeconomic Indicators in Times of Economic Changes – The case of Latin America

Lucía Macchia[a*], Anke C. Plagnol[b] & Richard A. Easterlin[c]

[a]Lecturer in Psychology, City, University of London. lucia.macchia@city.ac.uk. Rhind Building, EC1V 0HB, London, UK.

[b]Senior Lecturer in Behavioural Economics, City, University of London. anke.plagnol.1@city.ac.uk. Rhind Building, EC1V 0HB, London, UK.

[c]University Professor Emeritus; University of Southern California; IZA Fellow. easterl@usc.edu. Los Angeles, CA 90007

[*]Corresponding author

The authors declare no conflict of interests.

Trends and Fluctuations in Financial Satisfaction and Macroeconomic Indicators in Times of Economic Changes – The case of Latin America

Abstract

The association between subjective well-being and macroeconomic conditions has been extensively studied across the social sciences, with most evidence stemming from the United States and Europe due to data constraints. Using time-series analysis, this article explores trends (long-term tendencies) and fluctuations (short-term movements) of financial satisfaction and macroeconomic indicators in Latin America during a period of great economic changes. We show that between 1996 and 2015, the trend in financial satisfaction was significantly negatively associated with the trend in the unemployment rate but it was not associated with the trends in the log of Gross Domestic Product per capita (GDP) or the inflation rate. In the short-term, financial satisfaction, the unemployment rate, the inflation rate, and the log of GDP per capita move together. This study demonstrates that unemployment is the key macroeconomic indicator to tackle long-term financial satisfaction and thus likely improve citizens' overall well-being.

Keywords: Happiness, financial satisfaction, Easterlin Paradox, Latin America, time-series analysis.

Introduction

To what extent are changes in subjective well-being associated with changes in macroeconomic conditions? Are subjective well-being and macroeconomic indicators related in the long run? The relevance of these questions is clear: They provide insights for governments to improve citizens' well-being (see Hicks et al., 2013; Stiglitz et al., 2009). However, evidence from regions other than the United States and Europe rarely exists. Here, we explore the extent to which trends (long-term tendencies) and fluctuations (short-term movements) in subjective well-being are associated with trends and fluctuations in macroeconomic indicators in a region that has to date received little attention in the subjective well-being literature: Latin America. We hereby focus on a 20-year time period (1996-2015) in which economic conditions, such as unemployment, inflation, and GDP per capita, changed considerably in the countries included in the study. Understanding how subjective well-being is linked to macroeconomic indicators during times of profound economic changes is crucial to improving citizens' well-being.

Subjective well-being and macroeconomic conditions

A growing literature across the social sciences investigates the association between subjective well-being and macroeconomic conditions (see Dolan et al., 2008 for a review). The seminal work that started the field documented the Happiness-Income paradox which states that at one point in time, GDP per capita is significantly positively associated with subjective well-being whereas over time, the association between economic growth and subjective well-being is nil (Easterlin, 1974). Considering the difference between short- and long-term relationships between subjective well-being and income is thus key to comprehending and asserting the existence of the Paradox. Previous research has challenged the validity of the Paradox by claiming

a positive link between subjective well-being and GDP (Sacks et al., 2012; Stevenson & Wolfers, 2008). However, subsequent research showed that the time-series that were used to make these claims were too short as more than ten years of data are required to perform a sound test of the Paradox (e.g., Easterlin et al., 2010). The Happiness-Income paradox has been shown in developed and developing regions (Easterlin, 1995, 2005, 2010; Easterlin et al., 2010), including Latin America (Easterlin et al., 2010). Our study extends the work presented in Easterlin et al. (2010) by exploring additional macroeconomic indicators in a 20-year period of profound economic changes.

Both the unemployment rate and the inflation rate have been found to be negatively associated with subjective well-being (Clark & Oswald, 1994; Di Tella et al., 2003). However, the unemployment rate is a stronger predictor of subjective well-being than the inflation rate (Di Tella et al., 2001). It is possible that the inflation rate is not very salient to people in regions where it tends to remain fairly stable - an aspect which our study addresses by focusing on a region which has seen considerable fluctuations in this indicator. While inflation affects people's purchasing power and thus their financial well-being, unemployment is associated with both pecuniary (i.e., loss of income) and non-pecuniary costs (Winkelmann & Winkelmann, 1998). People do not appear to fully adapt to being unemployed in terms of subjective well-being (Lucas et al., 2004), even displaying evidence of a scarring effect of unemployment: those who were unemployed in the past are, on average, less satisfied than those who have never been unemployed (Clark et al., 2001). In Latin America, unemployment has also been found to be negatively associated with individuals' subjective well-being (Graham & Pettinato, 2001).

Macroeconomic conditions in Latin America from 1996 to 2015

Many of the Latin American countries in our study experienced periods of severe macroeconomic crises between 1996 and 2015. This 20-year time span reflected profound changes in economic growth and unemployment. For example, between 1998 and 2002, a decrease in the prices of agricultural commodities led to a recession in one of the region's main trade activities (Ocampo, 2017). The 1998 Russian financial crisis caused investors to abandon emerging markets resulting in reduced access to international credit and capital for Latin American countries (Talvi, 2015). By 2001, the abandonment of the fixed exchange rate in some of the largest economies of the region, Argentina and Brazil, brought economic imbalance and instability (Independent Evaluation Office, 2003). These internal and external shocks led to an increase in the unemployment rate and a decline in economic growth, with rates between 0% and 2% across the region. Around 2003, most Latin American countries implemented policies and aid packages to address the issues that the crisis had brought. One of the main measures involved stimulus payments to increase local production which resulted in greater employment and economic growth (Stiglitz, 2003).

However, the Great Recession of 2007-09 brought additional economic issues. The region was affected not only by the worldwide economic slowdown but also by a decrease in food production that resulted from a decline in global demand, once again causing an increase in unemployment and reduction in economic growth (Economic Commission for Latin America and the Caribbean, 2008). Brazil, the largest economy of the region, experienced a drop in GDP of 13.6% in the first quarter of 2008 and a loss of 700,000 jobs at the start of 2009 (Regalado, 2009). One of the largest economies of the region, Argentina, similarly suffered from the global financial crisis by experiencing slow economic growth and higher rates of unemployment than in the

preceding two decades (Reuters, 2011). From 2010 onwards, the region entered a recovery period with greater economic growth and lower unemployment. The economic conditions seen in Latin America during this time period provide a unique scenario to explore whether trends and fluctuations in macroeconomic indicators are related to trends and fluctuations in subjective well-being in times of great economic changes.

The present study investigates whether trends and fluctuations in the unemployment rate, the inflation rate, and the log of GDP per capita are related to trends and fluctuations in financial satisfaction in Latin America. We focus on the 1996-2015 time period – two decades of profound economic changes that impacted the macroeconomic indicators studied here. Overall, subjective well-being and the log of GDP per capita trended upwards over the 1996-2015 time period whereas the unemployment and inflation rates trended downwards. The trend in the unemployment rate is significantly positively associated with the trend in financial satisfaction. However, the trend in the log of GDP per capita and the trend in the inflation rate are unrelated to the trend in financial satisfaction. The three macroeconomic indicators included in this study and financial satisfaction move synchronously in the short term.

Methods

Data

The subjective well-being measure used in this study is from the Latinobarómetro (LB, www.latinobarometro.org), a repeated cross-sectional survey that is representative of the population in the majority of the 17 Latin American countries included in the study. The Latinobarómetro includes about 1,000 respondents per country in each survey year, and we average their responses for each country and survey year to obtain country-level indicators of

subjective well-being. Our dependent variable, financial satisfaction, was collected in 17 countries and in 16 years between 1996 and 2015; except for 1999, 2007, 2012, and 2014. Our final dataset is thus restricted to these 17 countries and 16 survey years as the financial satisfaction data is essential for the analysis.

To assess financial satisfaction respondents were asked to provide a subjective assessment of their economic situation: "In general, how would you describe your present economic situation and that of your family?" with answers ranging from very good (1), good (2), about average (3), bad (4) to very bad (5). The measure was reverse coded so that a higher value denotes a more positive evaluation of one's economic situation. This measure was used in Easterlin et al (2010).

The Latinobarómetro further includes a question on life satisfaction. However, after careful consideration, we deemed this measure to be unsuitable for time-series analysis because its response categories changed several times over the survey period. Moreover, the placement of the life satisfaction question in the survey changed over time, which is problematic as responses to subjective well-being questions can be influenced by preceding questions (Schuman & Presser, 1981). In contrast, the questions preceding the financial satisfaction measure remained the same during the survey period.

Our macroeconomic indicators were obtained from World Bank data (WB data, www.data.worldbank.org) and the World Development Indicators (WDI Series, www.data.worldbank.org/data-catalog/world-development-indicators), a specific World Bank publication of global development data. We include the following standard macroeconomic indicators: the unemployment rate computed as a percentage of the total labour force in each country (WB data); the log of GDP per capita (in constant 2010 US$, WDI Series); and the inflation rate measured by the consumer price index (CPI, WDI Series).

Across the survey period, unemployment rates ranged widely across countries and years, from a minimum of 1.3% in Guatemala in 2001 to a maximum of 18.3% in Argentina in 2001. Similarly, inflation rates differed dramatically between countries, ranging from a negative inflation rate of -1.07% in Argentina in 2000 to 99.88% in Venezuela in 1996 (Table 1). Table A.1 in the Appendix shows the mean of each indicator by survey year.

Table 1: Descriptive statistics

Variable	N	Mean	Std. deviation	Min	Max
Financial satisfaction	271	3.028	0.205	2.51	3.5
Unemployment rate (%)	271	7.212	3.391	1.3	18.3
Log GDP per capita	271	8.497	0.688	7.07	9.59
Inflation rate (CPI)	271	8.847	10.861	-1.07	99.88

Note: N=271 represents 17 countries*16 survey years except for Venezuela 2015 due to lack of data. Financial satisfaction presents the population mean.

Statistical analysis

We use time-series analysis, a methodology that has been widely used in prior research on the topic (e.g., Easterlin et al., 2010; Easterlin & O'Connor, 2022). Our study involves two types of time-series analysis to demonstrate the ways in which residents' financial well-being is associated with our three macroeconomic indicators over time: 1. *time trends* (long-term tendencies) and 2. *fluctuations* (short-term movements). Long-term time trends were obtained by fitting OLS trend lines for each country over the full 16-year time span for each variable. Specifically, we ran OLS regressions using the different indicators (i.e., financial satisfaction, the unemployment rate, the log of GDP per capita, and the inflation rate) as the dependent variable and the survey wave (1-16) as the independent variable. We then extracted the survey wave coefficient and created a data set with one data point per country across the four dependent

variables (N=17). Short-term fluctuations were computed as the deviation of the actual value from the fitted trend value in each year. Thus, the fluctuations analysis yielded one data point per country and year (N=271[1]).

To explore the extent to which trends in financial satisfaction were associated with trends in macroeconomic indicators, we first ran simple OLS regressions on trends in financial satisfaction with trends in only one of the macroeconomic indicators as a predictor, and then multiple regression analyses with different combinations of predictors. We repeated the same procedure using fluctuations in financial satisfaction and fluctuations in macroeconomic indicators (see Equations E1 and E2).

$$TREND\_FS_i = \alpha + \beta_1 TREND\_MI_i + \varepsilon_i \quad (E1)$$

where $TREND\_FS_i$ denotes the level of financial satisfaction in country i, $TREND\_MI_i$ is the trend of the relevant macroeconomic indicators in country i, and ε_i represents the usual error term.

$$FLUCTUATION\_FS_{it} = \alpha + \beta_1 FLUCTUATION\_MI_{it} + \eta_i + \varepsilon_{it} \quad (E2)$$

where $FLUCTUATION\_FS_{it}$ denotes the deviation from the trend in financial satisfaction in country i in year t, $FLUCTUATION\_MI_{it}$ is the deviation from the trend in the relevant macroeconomic indicators in country i, η_i represents country fixed effects and ε_{it} the usual error term.

We also conducted fixed effects analyses with micro-level data (N = 297,020) to explore whether this method yields similar results as what we find with the aggregated macro-level data.

[1] Venezuela 2015 is missing due to missing values in the Latinobarómetro and macroeconomic data.

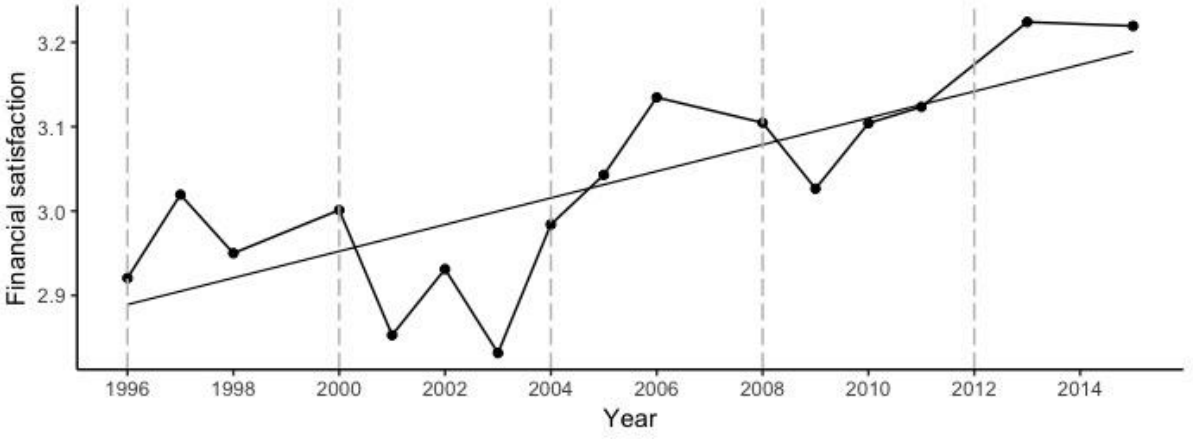
Findings

We first considered time trends in financial satisfaction and our three macroeconomic indicators between 1996 and 2015, before exploring short-term fluctuations in the same measures over the same time span.

Trends

Financial satisfaction steadily increased across Latin America between 1996 and 2015 (Figure 1, straight line). This upward trend is significant in 12 of the 17 Latin American countries studied here (see Table A.2 in the appendix for trends in each country). Despite this general upward trend, financial satisfaction temporarily declined in 2001, 2003, and 2009 (Figure 1, point-to-point graph).

Figure 1: Annual mean unweighted financial satisfaction (point-to-point graph) and trend in financial satisfaction (straight line), 17 Latin American countries, 1996-2015

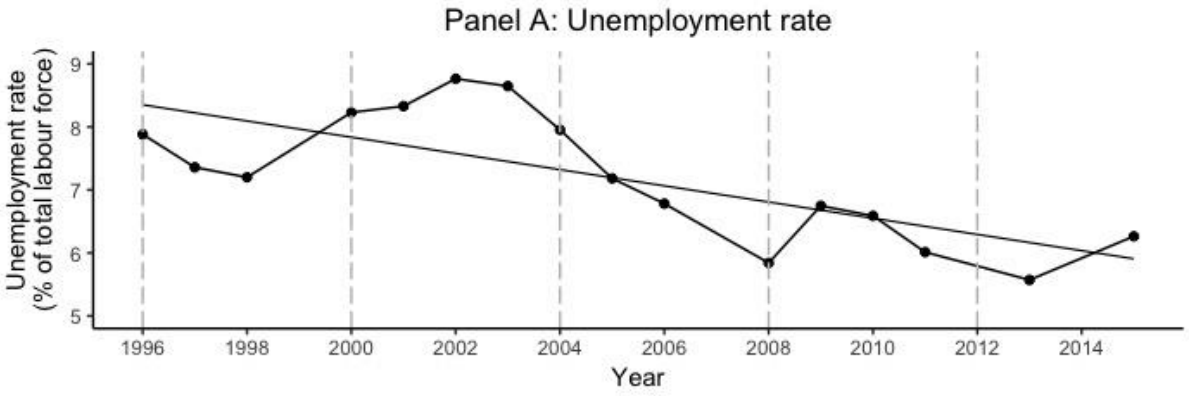


Note: The fitted regression is $y = 2.866 + 0.019x$*(survey wave)*
t-stats (71.63) (4.61)
Adj. $R^2 = 0.57$

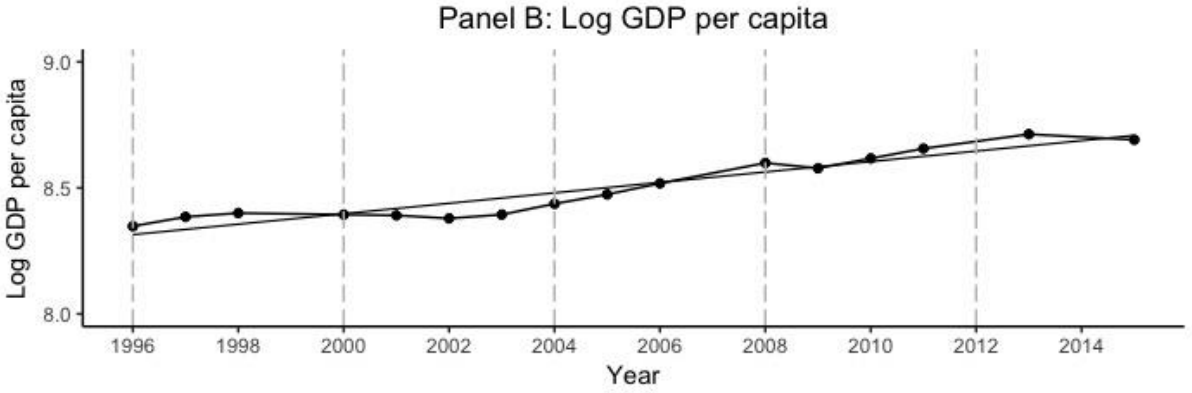
The macroeconomic indicators included in this study also show significant time trends. Overall, the unemployment rate (Figure 2, panel A) and inflation rate (Figure 2, panel C) decreased

significantly between 1996 and 2015 in Latin America, while the log of GDP per capita increased overall (Figure 2, panel B). These time trends were significant in each of the 17 Latin American countries included in the analysis for the log of GDP per capita and in ten of the 17 countries for the inflation rate (see Table A.3 in the appendix for trends in each country). However, the unemployment rate shows considerable variation around the overall downward trend with a peak around 2002 and a temporary increase in 2009 which is also reflected in temporary declines in the log of GDP per capita around the same years. Correlation coefficients between the trend growth rate of the variables included in the analysis can be found in Table A.4.

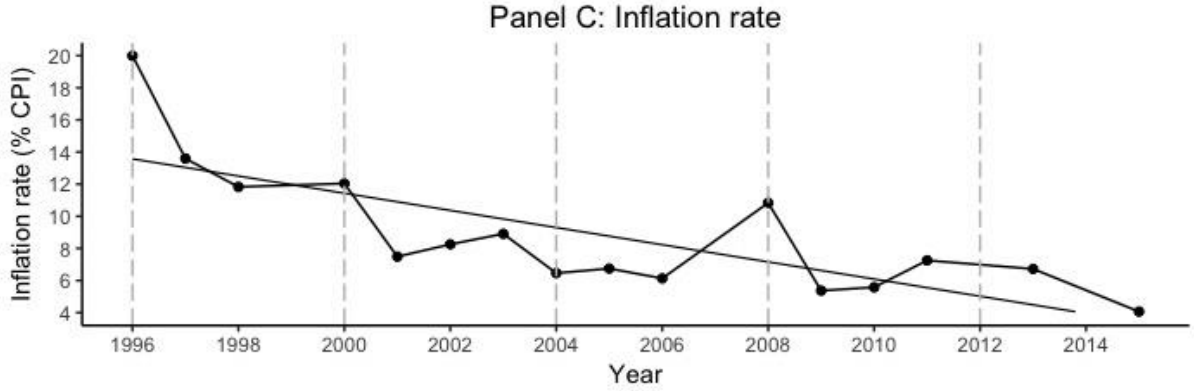
Figure 2: Annual mean unweighted values (point-to-point graph) and trends (straight line) for three macroeconomic indicators, 17 Latin American countries, 1996-2015



Note: The fitted regression is $y = 8.552 - 0.158x$*(survey wave)*
t-stats (23.08) (-4.12)
Adj. $R^2 = 0.52$



Note: The fitted regression is $y = 8.285 + 0.025x$*(survey wave)*
t-stats (396.2) (11.6)
Adj. $R^2 = 0.89$



Note: The fitted regression is $y = 14.414 - 0.656x$*(survey wave)*
t-stats (10.53) (-4.64)
Adj. $R^2 = 0.58$

In the next step, we ran OLS regressions with the trend of one macroeconomic indicator entered as a predictor in each regression[2] (Table 2). The goal of this approach is to explore the association between each macroeconomic indicator and the time trend in financial satisfaction without the influence of other macroeconomic indicators. These models indicate that the trend in financial satisfaction was significantly negatively associated with the trend in the unemployment rate (Table 2, column 1) during the time period we studied. However, the associations between

[2]OLS regressions with only one predictor are statistically equivalent to bivariate correlations. However, we chose OLS regressions for this part of the analysis because we add more predictors to the models in the next set of regressions in Table 3.

the trend in financial satisfaction and trends in the log of GDP per capita (Table 2, column 2) and the inflation rate (Table 2, column 3) were nil. Relatedly, the F-statistics of these models are not significant, suggesting that they do not provide a better fit to the data than models without any predictor variables.

Table 2: OLS regressions of the trend in financial satisfaction on trends in macroeconomic indicators, 17 Latin American countries, 1996-2015. One macroeconomic indicator at a time.

	Dependent variable: Time trend in financial satisfaction		
	(1)	(2)	(3)
Time trend in the unemployment rate	-0.027**	-	-
	(0.010)		
Time trend in the log GDP per capita	-	0.560	-
		(0.306)	
Time trend in the inflation rate	-	-	0.004
			(0.004)
Constant	0.015***	0.004	0.022***
	(0.003)	(0.009)	(0.004)
Number of countries	17	17	17
R^2	0.309	0.182	0.064

Note: *p < 0.1, **p < 0.05, ***p < 0.01. The regression table shows unstandardised regression coefficients with standard errors in parentheses.

We then extended the first models by adding different combinations of macroeconomic trend predictors (Table 3). The significant negative association between the trend in financial satisfaction and the trend in the unemployment rate that was observed in the models shown in Table 2 remained in the regression model that also controlled for the trend in the inflation rate (Table 3, column 2), but not when the time trend of the log of GDP per capita was accounted for (Table 3, columns 1 and 4). However, the F-statistic is not significant for Model 2 (Table 3), suggesting poor model fit. Consistent with the bivariate analyses (Table 2), the association between the trend in financial satisfaction and the trend in the log of GDP per capita was not significant in

any of the regression models that included other macroeconomic indicators (Table 3, columns 1, 3 and 4).

Table 3: Multiple OLS regressions of the time trend in financial satisfaction on time trends in macroeconomic indicators, 17 Latin American countries, 1996-2015.

	Dependent variable: Time trend in financial satisfaction			
	(1)	(2)	(3)	(4)
Time trend in the unemployment rate	-0.022*	-0.025**	-	-0.022*
	(0.011)	(0.011)		(0.011)
Time trend in the log GDP per capita	0.337	-	0.505	0.304
	(0.300)		(0.331)	(0.300)
Time trend in the inflation rate	-	0.002	0.002	0.001
		(0.003)	(0.004)	(0.004)
Constant	0.007	0.017***	0.007	0.009
	(0.869)	(3.983)	(0.010)	(0.010)
Number of countries	17	17	17	17
R^2	0.367	0.330	0.198	0.374

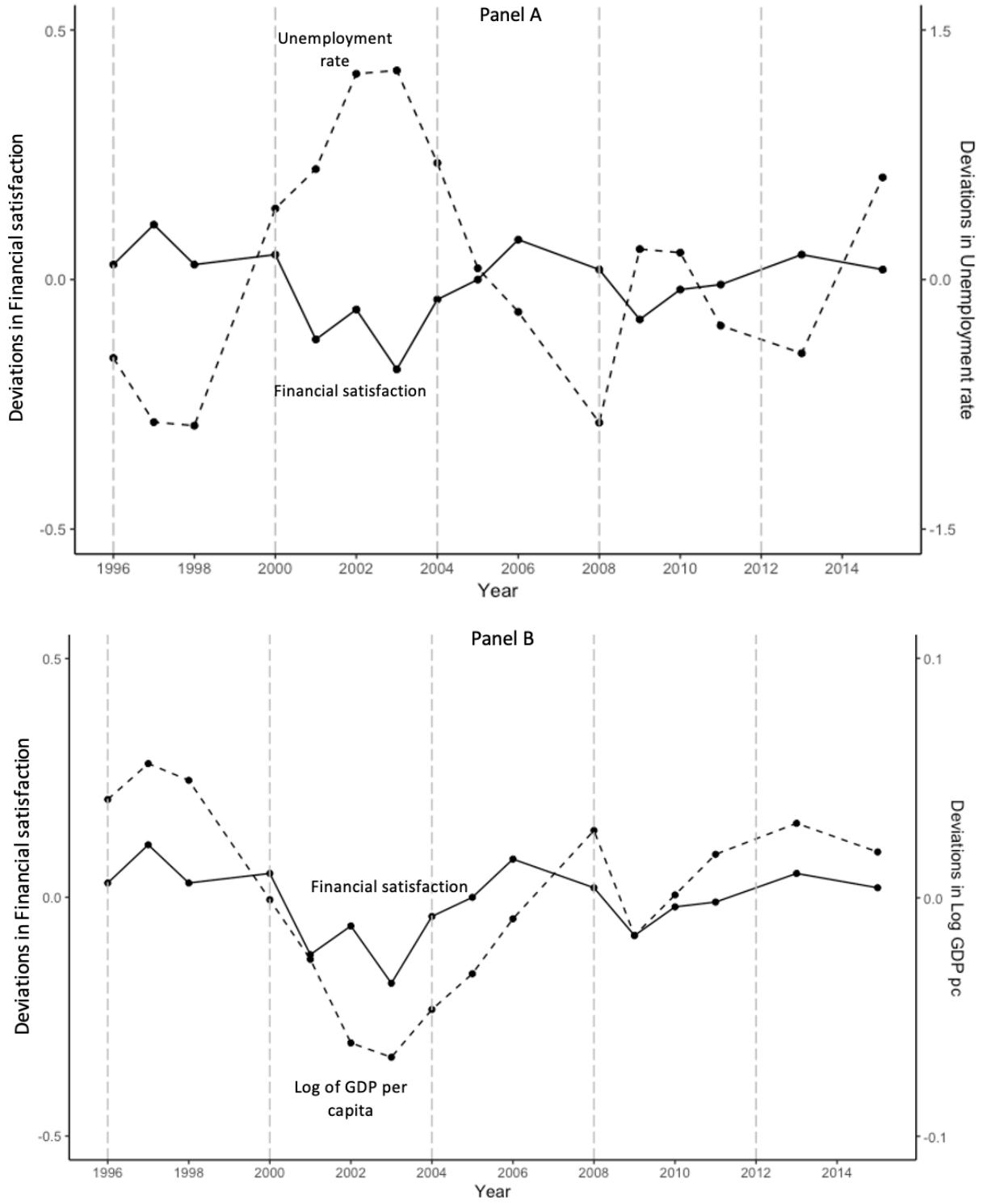
Note: *p < 0.1, **p < 0.05, ***p < 0.01. The regression table shows unstandardised regression coefficients with standard errors in parentheses.

Fluctuations

We saw in the previous section that the *long-term trend* in financial satisfaction appears to be related to the long-term trend in the unemployment rate, but not the other two macroeconomic indicators. In addition, in years in which the unemployment rate fell below the trend, financial satisfaction tended to be above, and when the unemployment rate was above the trend, financial satisfaction was below. Similarly, when the log of GDP per capita was above (below) the trend, financial satisfaction tended to be above (below). However, the association between the trend in financial satisfaction and the trend in the log of GDP per capita was not significant in the regression analysis.

We now turn our attention towards *short-term changes* in financial satisfaction and macroeconomic indicators to investigate whether these show synchronous movements despite their nil relationship - with the exception of the unemployment rate – over the long-term. For this analysis, we computed the mean deviation for all 17 countries of actual financial satisfaction, the unemployment rate, and the log of GDP per capita from their fitted trend value in each survey year. A value of 0 in Figure 3 suggests that the actual value lies on the trend curve, while a value greater (smaller) than 0 suggests a value above (below) the fitted trend lines which we saw in Figures 1 and 2. Across the 17 Latin American countries studied here, financial satisfaction showed synchronous fluctuations – as reflected in similar deviations from their long-term trend - with both the unemployment rate (Panel A, Figure 3) and the log of GDP per capita (Panel B, Figure 3). For example, the unemployment rate deviated substantially from its long-term trend around 2002-2003, the same years in which financial satisfaction was considerably lower than suggested by its long-term trend. The short-term deviations from the long-term trend in the log of GDP per capita resemble closely those in financial satisfaction, suggesting that these two measures are related in the short-run, contrary to their long-term trajectories. Correlation coefficients between the fluctuations in the variables included in the analysis can be found in Table A.5.

Figure 3: Unweighted mean deviations from the long-term trend for financial satisfaction (both panels, solid line), the unemployment rate (Panel A, broken line), and the log of GDP per capita (Panel B, broken line), 17 Latin American countries, annually 1996–2015.
Note: The unemployment rate was rescaled by a factor of 3, and the GDP multiplied by 3 based on the range of the financial satisfaction measure.



However, a visual inspection of short-term fluctuations as presented in Figure 3 does not confirm that these are indeed significantly related. To investigate this point further, we ran OLS analyses which showed that between 1996 and 2015 there was a significant negative association between fluctuations of financial satisfaction and fluctuations of the unemployment rate (Table 4, column 1), and fluctuations of the inflation rate (Table 4, column 3). We further observed a significantly positive association between fluctuations of financial satisfaction and fluctuations of the log of GDP per capita (Table 4, column 2). Fluctuations in the log of GDP per capita explained more of the variance in fluctuations of financial satisfaction than fluctuations of the unemployment rate (Unemployment rate R^2= 0.137 vs GDP per capita R^2= 0.230; Table 4).

Table 4: OLS regressions of fluctuations in financial satisfaction on fluctuations in indicated variables, 17 Latin American countries, 1996-2015. One macroeconomic indicator at a time.

	Dependent variable: *Fluctuations in financial satisfaction*		
	(1)	(2)	(3)
Fluctuations in the unemployment rate	-0.040***	-	-
	(0.006)		
Fluctuations in the log GDP per capita	-	1.169***	-
		(0.135)	
Fluctuations in the inflation rate (CPI)	-	-	-0.003**
			(0.001)
Country fixed effects	Yes	Yes	Yes
Constant	-0.003	-0.003	-0.002
	(0.033)	(0.031)	(0.035)
Number of country-year	271	271	271
R^2	0.137	0.230	0.024

Note: *p < 0.1, **p < 0.05, ***p < 0.01. The regression table shows unstandardised regression coefficients with standard errors in parentheses.

These patterns were supported by OLS regression analyses even when all the macroeconomic measures were included in a single regression model (Table 5, column 4). It is worth noting that the regressions displayed a significant negative association between financial

satisfaction and the inflation rate in the short-term but as seen in the previous section, not in the long-term.

These analyses suggest that in the short-term financial well-being varies in lockstep with macroeconomic conditions: between 1996 and 2015, fluctuations of financial satisfaction were significantly negatively associated with fluctuations of the unemployment and the inflation rate and significantly positively associated with fluctuations of the log of GDP per capita. Fixed effects analyses with country clustering using individual-level data confirm these results and can be found in Table A.6.

Table 5: OLS regressions of fluctuations in financial satisfaction on fluctuations in indicated variables, 17 Latin American countries, 1996-2015. Multiple macroeconomic indicators combined.

	Dependent variable: *Fluctuations in financial satisfaction*			
	(1)	(2)	(3)	(4)
Fluctuations in the unemployment rate	-0.013*	-0.043***	-	-0.016**
	(0.008)	(0.006)		(0.007)
Fluctuations in the log GDP per capita	0.990***	-	1.207***	0.990***
	(0.171)		(0.132)	(0.166)
Fluctuations in the inflation rate	-	-0.004***	-0.004***	-0.004***
		(0.001)	(0.001)	(0.001)
Country fixed effects	Yes	Yes	Yes	Yes
Constant	-0.003	-0.003	-0.003	-0.003
	(0.031)	(0.032)	(0.030)	(0.029)
Number of country-year	271	271	271	271
R^2	0.238	0.178	0.267	0.280

Note: *p < 0.1, **p < 0.05, ***p < 0.01. The regression table shows unstandardised regression coefficients with standard errors in parentheses. Standardised coefficients from model 4: Fluctuations in the unemployment rate= -0.145, Fluctuations in the log GDP per capita= 0.406, Fluctuations in the inflation rate= -0.205.

Discussion and conclusions

This article contributes to the study of macroeconomic conditions and subjective well-being by focusing on Latin America - a region that has received less attention in the subjective

well-being literature than regions with more stable economic conditions. We use a cross-national data set that consists of 17 Latin American countries covering a 20-year time span that was marked by profound economic changes. We explore whether trends and fluctuations in macroeconomic indicators are linked to trends and fluctuations in financial well-being in Latin America between 1996 and 2015.

Over this time period, financial satisfaction trended upward with clear peaks and troughs. Troughs in financial well-being in 2001, 2003, and 2009 may reflect the consequences of the economic crises that the region experienced. The recovery of financial satisfaction starting in 2003 may be related to the policies that governments implemented to attenuate the negative impact of the 1998-2002 economic crisis (see also Graham & Sukhtankar, 2004).

Macroeconomic indicators also show clear patterns. The unemployment rate and the inflation rate trended downwards whereas the log of GDP per capita trended upwards. Around 2002, during the first economic crisis covered in the period of analysis, the unemployment rate showed a peak whereas the log of GDP per capita exhibited a trough. The same movements can be observed around 2009, possibly reflecting the consequences of the 2007-09 global financial crisis.

Our study shows that changes in financial satisfaction were related to changes in macroeconomic conditions affected by the crises that Latin America experienced in the 1996-2015 time period. Regression analyses show that the long-term tendency in the unemployment rate was significantly negatively related to the long-term tendency in financial satisfaction. In the short-term, the unemployment rate, the inflation rate, and the log of GDP per capita show synchronous movements with subjective well-being. Overall, during economic crises that led to a decline in

employment and economic growth, people reported lower financial satisfaction. In years of greater employment and economic growth people reported greater financial well-being.

It is worth noting that fluctuations of the log of GDP per capita are related to fluctuations of financial satisfaction whereas trends in the log of GDP per capita are not related to trends in financial satisfaction. This finding supports the Happiness-Income Paradox that suggests that economic growth and subjective well-being are related in the short but not in the long run (Easterlin, 1974, 2021; Easterlin et al., 2010). As in previous research that explores the Paradox, the short-term relationship between economic growth and financial satisfaction is statistically significant whereas the long-term relationship is nil.

One limitation of this study concerns the cross-sectional nature of the data, which does not allow us to establish causality. The relationships shown in this study do not prove that a change in macroeconomic indicators necessarily causes a change in subjective well-being. However, the long time span used in this study provides a unique opportunity to examine how economic conditions and subjective well-being are related. Furthermore, it could be argued that aggregating micro-level data on financial satisfaction leads to some loss of information on the variability in financial satisfaction within countries. We contend that this approach is appropriate for the purpose of this analysis as we are interested in the trends and fluctuations of macroeconomic indicators over time. In addition, our fixed effects analysis of individual-level data confirms that this statistical approach yields the same substantive results as the macro-level analysis.

Despite these limitations, the current study provides additional evidence for the Easterlin Paradox. It further provides valuable information for policymakers and other researchers who are interested in promoting citizens' quality of life by highlighting the role of employment in increasing long-term wellbeing. Prior work has shown that welfare state policies tend to increase

the happiness of nations (Easterlin & O'Connor, 2022). Our study complements this work by documenting that in Latin America, citizens' financial satisfaction is associated with the unemployment rate, the inflation rate, and GDP per capita in the short term. However, only the unemployment rate is associated with financial satisfaction in the long term, suggesting that policy efforts could be focused on lowering unemployment rates and lessening the negative consequences of unemployment. For instance, local governments could support those who are looking for employment by establishing or expanding job centres which provide job training, interview practice, and support with job applications. Overall, policies that create opportunities for and keep people in employment should be carefully considered by governments.

References

Clark, A. E., Georgellis, Y., & Sanfey, P. (2001). Scarring: The psychological impact of past unemployment. *Economica, 68*(270), 221–241.

Clark, A. E., & Oswald, A. J. (1994). Unhappiness and unemployment. *The Economic Journal, 104*(424), 648–659. https://doi.org/http://www.jstor.org/stable/2234639

Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *The Review of Economics and Statistics, 85*(4), 809–827. https://doi.org/10.1162/003465303772815745

Di Tella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *The American Economic Review, 91*(1), 335–341. https://doi.org/http://www.jstor.org/stable/2677914

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology, 29*, 94–122. https://doi.org/10.1016/j.joep.2007.09.001

Easterlin, R. A. (1974). Does economic growth improve the human lot? In P. A. David & M. W. Reder (Eds.), *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*. Academic Press.

Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior & Organization*, *27*(1), 35–47.

Easterlin, R. A. (2005). Diminishing marginal utility of income? Caveat emptor. *Social Indicators Research, 70*(3), 243–255. https://doi.org/10.1007/s11205-004-8393-4

Easterlin, R. A. (2010). *Happiness, growth, and the life cycle*. New York: Oxford University Press.

Easterlin, R. A. (2021). *An economist's lessons on happiness: Farewell dismal science!* New York, Springer.

Easterlin, R. A., Angelescu McVey, L., Switek, M., Sawangfa, O., & Smith Zweig, J. (2010). The happiness-income paradox revisited. *Proceedings of the National Academy of Sciences of the United States of America*, *107*(52), 22463–22468. https://doi.org/10.1073/pnas.1015962107

Easterlin, R. A., & O'Connor, K. J. (2022). Explaining happiness trends in Europe. *Proceedings of the National Academy of Sciences of the United States of America*, *119*(37), 1–4. https://doi.org/10.1073/pnas.2210639119

Economic Commission for Latin America and the Caribbean. (2008). *Latin America risks reverting progress in poverty reduction*. https://www.cepal.org/prensa/noticias/notas/3/34963/Notes59ENGFinal.pdf

Graham, C., & Pettinato, S. (2001). Happiness, markets, and democracy: Latin America in comparative perspective. *Journal of Happiness Studies*, *2*(3), 237–268. https://doi.org/10.1023/A:1011860027447

Graham, C., & Sukhtankar, S. (2004). Does economic crisis reduce support for markets and democracy in Latin America? Some evidence from surveys of public opinion and well being. *Journal of Latin American Studies*, *36*(2), 349–377. https://doi.org/10.1017/S0022216X0400745X

Hicks, S., Tinkler, L., & Allin, P. (2013). Measuring subjective well-being and its potential pole in policy: Perspectives from the UK Office for National Statistics. *Social Indicators Research*, *114*(1), 73–86. https://doi.org/10.1007/s11205-013-0384-x

Independent Evaluation Office. (2003). *The role of the IMF in Argentina, 1991-2002*.

Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2004). Unemployment alters the set point for life satisfaction. *Psychological Science*, *15*(1), 8–13. https://doi.org/10.1111/j.0963-7214.2004.01501002.x

Ocampo, J. A. (2017). Commodity-led development in Latin America. In *Alternative Pathways to Sustainable Development: Lessons from Latin America, International Development Policy series No.9* (pp. 51–76). Geneva, Boston: Graduate Institute Publications, Brill-Nijhoff).

Regalado, A. (2009). *Brazil's economic outlook becomes focus in political battle*. The Wall Street Journal. https://www.wsj.com/articles/SB123792987606830301

Reuters. (2011). *https://www.reuters.com/article/argentina-economy-unemployment-idUSN1E7AK1D520111121*. https://www.reuters.com/article/argentina-economy-unemployment- idUSN1E7AK1D520111121

Sacks, D. W., Stevenson, B., & Wolfers, J. (2012). Subjective Well-Being, Income, Economic Development, and Growth. In P. Booth (Ed.), *…and the Pursuit of Happiness: Well-Being and the Role of Government* (pp. 59–97). London: The Institute of Economic Affairs.

Schuman, H., & Presser, S. (1981). *Questions and answers in altitude surveys. Experiments on question form, wording and context.* New York: Academic Press.

Stevenson, B., & Wolfers, J. (2008). Economic growth and subjective well-being: Reassessing the Easterlin paradox. *Brookings Papers on Economic Activity*, *2008*(1), 1–87. https://doi.org/10.1353/eca.0.0001

Stiglitz, J. E. (2003). Whither reform? towards a new agenda for Latin America. *CEPAL Review/Revista de La CEPAL*, *80*, 7–37. http://proxy.library.carleton.ca/login?url=http://search.proquest.com/docview/59979309?ac

countid=9894%5Cnhttp://wc2pu2sa3d.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info:ofi/enc:UTF-8&rfr_id=info:sid/ProQ:pais&rft_val_fmt=info:ofi/fmt:kev:m

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of economic performance and social progress*. https://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report

Talvi, E. (2015). *Thirty-five years of recurring financial crises in Latin America: Toward a new (and better) paradigm?* Brookings. https://www.brookings.edu/opinions/thirty-five-years-of-recurring-financial-crises-in-latin- america-toward-a-new-and-better-paradigm/

Winkelmann, L., & Winkelmann, R. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica*, *65*(257), 1–15. https://doi.org/10.1111/1468-0335.00111

Appendix

Table A.1: Mean of each variable by survey year across 17 Latin American countries

Year	Financial satisfaction	Unemployment rate	Log GDP per capita	Inflation rate (CPI)
1996	2.921	7.882	8.348	19.995
1997	3.019	7.359	8.385	13.594
1998	2.950	7.200	8.400	11.829
2000	3.001	8.229	8.394	12.042
2001	2.853	8.329	8.391	7.489
2002	2.931	8.765	8.379	8.254
2003	2.832	8.647	8.394	8.907
2004	2.984	7.953	8.437	6.461
2005	3.043	7.182	8.474	6.745
2006	3.135	6.782	8.518	6.133
2008	3.105	5.841	8.599	10.836
2009	3.026	6.747	8.578	5.371
2010	3.104	6.588	8.617	5.579
2011	3.124	6.012	8.656	7.253
2013	3.224	5.571	8.713	6.724
2015	3.219	6.263	8.691	4.066

Table A.2: Trend coefficients for financial satisfaction, 17 Latin American countries in rank order, 1996-2015

Country	*Financial satisfaction*
Mean	**0.019*****
Argentina	0.047***
Uruguay	0.036**
Brazil	0.034***
Panama	0.030**
Peru	0.028***
Nicaragua	0.025**
Colombia	0.022**
Ecuador	0.020*
Paraguay	0.019**
Venezuela	0.015
Bolivia	0.014**
Costa Rica	0.014**
Chile	0.012**
Mexico	0.008
Honduras	0.007
Guatemala	-0.001
El Salvador	-0.005

Note: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.3: Trend coefficients for the unemployment rate, log of GDP per capita and the inflation rate, 17 Latin American countries in rank order, 1996-2015.

A		*B*		*C*	
Country	*Unemployment rate*	*Country*	*Log GDP per capita*	*Country*	*Inflation rate (CPI)*
Mean	**-0.158*****	***Mean***	**0.025*****	***Mean***	**-0.656*****
Panama	-0.801***	*Panama*	0.051***	*Ecuador*	-3.107**
Argentina	-0.714***	*Peru*	0.044***	*Venezuela*	-1.888
Venezuela	-0.423**	*Uruguay*	0.033***	*Mexico*	-1.309**
Colombia	-0.329**	*Costa Rica*	0.032***	*Colombia*	-1.049***
Uruguay	-0.228***	*Chile*	0.031***	*Honduras*	-0.964***
Ecuador	-0.162	*Colombia*	0.029***	*Uruguay*	-0.748**
Peru	-0.162***	*Bolivia*	0.026***	*Costa Rica*	-0.695***
Bolivia	-0.121**	*Nicaragua*	0.026***	*Paraguay*	-0.407**
El Salvador	-0.102**	*Ecuador*	0.024***	*Guatemala*	-0.345**
Paraguay	-0.079	*Honduras*	0.024***	*Peru*	-0.331**
Brazil	-0.061	*Argentina*	0.023***	*El Salvador*	-0.262
Chile	-0.014	*Brazil*	0.023***	*Nicaragua*	-0.233
Guatemala	0.018	*El Salvador*	0.021***	*Brazil*	-0.219
Honduras	0.077	*Paraguay*	0.017***	*Chile*	-0.195
Mexico	0.095	*Guatemala*	0.015***	*Bolivia*	-0.039
Nicaragua	0.156**	*Venezuela*	0.014**	*Panama*	0.229
Costa Rica	0.201**	*Mexico*	0.011***	*Argentina*	0.666

Note: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.4: Correlation coefficients between the trend growth rate of indicated variables, 17 Latin American countries, 1996-2015.

	Financial satisfaction	*Unemployment rate*	*Log GDP per capita*
Unemployment rate	-0.556 (p= .02)	-	-
Log GDP per capita	0.427 (p= .09)	-0.368 (p= .14)	-
Inflation rate (CPI)	0.253 (p= .33)	-0.202 (p= .44)	0.317 (p= .21)

Table A.5: Correlation coefficients between deviations from the trend of indicated variables, 17 Latin American countries, 1996-2015.

	Financial satisfaction	*Unemployment rate*	*Log GDP per capita*
Unemployment rate	-0.369 (p<.001)	-	-
Log GDP per capita	0.478 (p<.001)	-0.618 (p<.001)	-
Inflation rate (CPI)	-0.152 (p= .012)	-0.131 (p= .031)	0.082 (p= .179)

Table A.6: Fixed effects analyses, 17 Latin American countries, 1996-2015.

	Dependent variable: Financial satisfaction			
	(1)	(2)	(3)	(4)
Unemployment rate	-0.028***	-	-	-0.021*
	(0.008)			(0.010)
Log of GDP per capita	-	0.767***	-	0.549*
		(0.163)		(0.226)
Inflation rate	-	-	-0.003**	-0.004**
			(0.001)	(0.001)
Constant	3.286***	-3.923**	2.991***	-1.638
	(0.110)	(1.464)	(0.044)	(2.098)
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Individual observations	297,020	297,020	297,020	297,020
R^2	0.044	0.044	0.041	0.046

Note: *p < 0.1, **p < 0.05, ***p < 0.01. The regression table shows unstandardised regression coefficients with standard errors clustered by country in parentheses.

Data availability: Scripts for analysis can be found in https://osf.io/pwvn4/?view_only=dac512fb88b94b46af8399d3250bd651. The Latinobarómetro data can be accessed for free at https://www.latinobarometro.org/lat.jsp