



City Research Online

City, University of London Institutional Repository

Citation: Macchia, L. & Plagnol, A. (2019). Life satisfaction and confidence in national institutions: evidence from South America. *Applied Research in Quality of Life*, 14(3), pp. 721-736. doi: 10.1007/s11482-018-9606-3

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/18540/>

Link to published version: <https://doi.org/10.1007/s11482-018-9606-3>

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Life satisfaction and confidence in national institutions: Evidence from South America

Lucia Macchia and Anke C. Plagnol

Abstract

A number of South American countries experienced turbulent democratic, political and economic upheaval over the last 40 years in the form of coup d'états in the 1970s, tumultuous elections, and repeated severe economic crises, some of which happened fairly recently. Starting in 2010, a number of court proceedings across the region have made past military coup d'états the focus of national conversations. South American citizens may, therefore, have lost confidence in national institutions that have repeatedly disappointed their trust and expectations; a situation with potentially detrimental effects on their well-being. Using eight waves of the Gallup World Poll collected between 2009 and 2016 across ten South American countries, we investigate to what extent people's confidence in financial institutions, the honesty of elections, the military, the judicial system, the national government and the police is associated with people's current and expectation of future life satisfaction. We find that people who report confidence in these six institutions rate their current and expected life satisfaction, on average, to be higher than those who lack these types of institutional confidence, even after controlling for demographic factors and macroeconomic indicators. In addition, we investigate changes over time for all six measures of confidence in institutions as well as for current and expectation of future life satisfaction. Our results suggest that the ability of governments to provide a trustworthy environment may contribute positively to subjective well-being in a society. However, our analysis is correlational and we thus cannot rule out reverse causality.

Keywords: Confidence in national institutions; subjective well-being; life satisfaction; South America.

1. Introduction

What happened to people's confidence in national institutions in South America between 2009 and 2016? Given South America's turbulent economic and political history it can be expected that confidence in institutions has been similarly volatile over time. However, do changes in confidence in national institutions actually matter for a society? To investigate this question, we will look at associations between confidence in six national institutions and subjective well-being in South America.

Subjective well-being indicators are frequently employed to investigate the well-being consequences of life circumstances at the individual (micro) level, such as health, friendships, changes in marital status, education, and social capital (e.g., Blanchflower and Oswald, 2004; Putnam, 2001). However, people's quality of life is also affected by the functioning of the government, which establishes and regulates institutions that provide many services crucial for individual well-being (e.g.; Frey and Stutzer, 2000; Helliwell and Huang, 2008). The present study focuses on subjective well-being and its association with six self-reported measures that may serve as indicators of a government's ability to establish trust, namely people's confidence in six national institutions. The objectives of this study are twofold. We first examine trajectories of confidence in six national institutions and subjective well-being in ten South American countries over time and, second, discuss associations between these measures. In particular, we investigate whether indicators of confidence in these institutions are significant predictors of individual subjective well-being. The six national institutions include financial institutions, the military, the judicial system, elections, the national government as well as the police. Subjective well-being is assessed in the form of current life satisfaction and expectation of future life satisfaction. We observe a significant downward trend in confidence in financial institutions, the honesty of elections, the judicial system and the national government and a significant upward trend in confidence in the police between 2009 and 2016. The results further show a significant downward trend in subjective well-being during the same time period. Confidence in these six national institutions is significantly positively associated with individual subjective well-being.

Geographically, we focus on South America, a region that has received little attention from subjective well-being researchers compared to the US and Europe. South American countries experienced several episodes of turbulent political, social and economic changes which may have severely affected the relationship between its national institutions and citizens. Some of these episodes happened only recently, which makes South America distinct from the developed countries and regions that are typically studied in the subjective well-being literature. During the 1970s, a number of South American governments were overthrown in coup d'états and replaced by military governments which showed little respect for human rights and the judiciary. For example, during the 1970s, non-democratic governments in Argentina, Chile, Brazil and Uruguay used the military and police units to kidnap, torture and execute political dissidents (Gunson et al. 1991). Peru and Colombia experienced similar human rights violations during the 1980s. These violent episodes were re-lived in court proceedings that took place more than 30 years later (around 2010) during democratic governments (Amnesty International Report 2016/2017, 2017; Goñi, 2017), thus vividly refreshing citizens' memories of these military governments. Recollections of past political turmoil and human rights abuses may still influence people's confidence in the military, the police, democratic elections and the judicial system. With respect to the economy, the region witnessed numerous sudden and repeated economic crises (De Gregorio, 1992; Ocampo, 2009; Naim, 2015); with the most recent ones occurring in 2001 and 2015 in addition to the impact of the global financial crisis in 2008. The economic instability of the region may thus affect people's confidence in financial institutions. Using data from the

Latinobarómetro, Lagos Cruz-Coke (2001) shows that only a small percentage of the population trusts the judiciary, the police, the national congress and political parties; a result which is in line with the level of institutional trust found in post-communist Europe (Rose and Haerpfer, 1999). The author suggests that these low levels of institutional trust are related to historical, social and institutional factors. We would therefore expect to see changes in confidence in institutions over time in South America.

2. Background

A country's gross domestic product (GDP) has traditionally been regarded to be the key measure of societal progress. However, its many limitations (e.g., Stiglitz et al. 2009) encouraged scholars to consider alternative measures to assess societal well-being (e.g., Diener et al. 2015; Dolan and White, 2007). In recent years, several governments have adopted the use of subjective well-being measures to complement GDP (e.g., in the UK: Hicks et al. 2013; O'Donnell and Oswald, 2015). In our study, we assess the relationship between respondents' subjective well-being and confidence in six institutions in ten South American countries. Economic and political determinants of subjective well-being that have previously been investigated include GDP, government quality, satisfaction with democratic processes and different types of polices (Dorn et al. 2007; Helliwell and Huang, 2008); we will discuss each one in turn below. Although GDP is significantly positively associated with subjective well-being at a specific point in time (e.g., Di Tella et al. 2003; Stevenson and Wolfers, 2008), the Easterlin Happiness-Income paradox (Easterlin, 1974) suggests that over time the association between economic output and subjective well-being is nil, a finding which Easterlin and colleagues also confirmed in more recent studies (e.g., Easterlin et al. 2010). If economic growth, indeed, does not 'improve the human lot' (Easterlin, 1974), do any other macro-level factors affect subjective well-being? How well a government functions and thus provides essential services for its citizens, may be more crucial for individual well-being.

A government's ability to maintain and regulate essential institutions is partly reflected in government quality which has been found to be positively associated with subjective well-being. Using data from the World Values Survey and a governmental quality measure from the Governance Matters IV database (Kaufmann, et al. 2005), Helliwell and Huang (2008) find that the quality of a government strongly dominates per capita income when explaining international differences in life satisfaction. Indicators of the quality of governance that are positively associated with life satisfaction include voice and accountability, stability and lack of violence, government effectiveness, the regulatory framework, the rule of law, and control of corruption (Helliwell, 2003), as well as the quality of economic-judicial and political institutions in general (Bjørnskov, et al. 2010).

The functioning of a government is also reflected in policies, democratic events and the performance of certain macroeconomic indicators. Citizens who live in countries with liberal governments, usually associated with policies that aim to improve people's quality of life, are more likely to report higher subjective well-being than citizens who live in countries led by conservative governments (Bok, 2010; Pacek and Radcliff, 2008; Radcliff, 2001). Similarly, institutions of direct democracy (e.g., referenda) and federalism (Frey and Stutzer, 2000), successful democratic traditions (Dorn et al. 2007; Inglehart et al. 2008) and individuals' pro-market and pro-democracy attitudes (Graham and Pettinato, 2001) have been found to be positively associated with subjective well-being. Some economic indicators that are affected by governmental policies and interventions, such as the unemployment and

inflation rate, display a negative relationship with subjective well-being (Clark and Oswald, 1994; Di Tella et al. 2001).

Using data from the Eurobarometer survey across EU member countries, Hudson (2006) studies the relationship between institutional trust and life satisfaction. The author finds that people who report trust in the national government, the European Central Bank, the law, the United Nations and the European Union report higher life satisfaction than people who say they do not trust these national institutions. Jovanović (2016) collected his own data and created a five-item scale of institutional trust in Serbia. People answered how much they trust the following national institutions on a 11-point Likert-type scale: the government, local authorities, the judiciary, the police, and the media (e.g., newspaper, television). The study suggests that in Serbia the role of institutional trust in predicting three indicators of subjective well-being (life satisfaction, positive and negative affect) is limited; a result that is not in accordance with previous studies.

Using data from the Gallup World Poll, Clausen et al. (2011) find a significant negative association between confidence in the six national institutions employed in this study and corruption. Moreover, confidence in the police is significantly negatively associated with higher homicide rates and significantly positively associated with the level of democracy in a country (Jang, et al. 2010).

To the best of our knowledge, citizens' confidence in national institutions in South America has so far not received any attention in the literature on subjective well-being. Our study fills this gap in the literature by first examining patterns in the average level of confidence in six national institutions and in current and expectation of future life satisfaction between 2009 and 2016. We then analyse the relationship between confidence in national institutions and subjective well-being in order to establish to what extent declining or increasing institutional confidence may matter for societal well-being. As in the EU (Hudson, 2006), we expect to find a positive relationship.

3. Data and methods

3.1. Data

We employ data from the Gallup World Poll which was collected in ten South American countries -Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela - between 2009 and 2016. The data are repeated cross-sections that are representative of the population in every country in each survey year. Although the Gallup World Poll provides data for the 2005-2016 time period, we chose to restrict our dataset to the shorter 2009-2016 time span because of the availability of a larger number of countries and variables in these years. Our final sample of 57,390 observations covers ten countries and eight survey years.

3.2 Measures

3.2.1. Dependent variables

We use Cantril's Ladder of Life Scale (1965), both in relation to present and future well-being, to evaluate the relationship between subjective well-being and confidence in national institutions in South America. Our first dependent variable, *Life satisfaction – Present*, is based on the following question: “Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents

the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?"

Our second dependent variable is *Life satisfaction – Future*, a measure that is based on a very similar question, but reflects people's expectations of future life satisfaction by adding at the end of the description of the ten steps: "Just your best guess, on which step do you think you will stand on in the future, say about five years from now?" As can be inferred from the questions, the scale of both dependent variables ranges from 0 to 10 with higher values denoting a higher level of life satisfaction.

3.2.2 Main independent variables

Five of our six measures of confidence in national institutions are based on the following question "In 'your country' do you have confidence in each of the following, or not? How about *the financial institutions, the honesty of elections, the military, the judicial system, the national government*?" Confidence in each of these national institutions represents a different independent variable with answer categories 'yes' and 'no'. We code these as dummy variables with 1 denoting 'yes' and 0 denoting 'no'.

The variable *Confidence in the police* is based on the following question "In the city or area where you live, do you have confidence in the local police force, or not?" with answer categories 'yes' (1) and 'no' (0).

3.2.3 Control variables

We consider socio-demographic factors that have been found to be associated with subjective well-being as additional explanatory variables: age, gender, level of education, income, marital and employment status (e.g., Frey and Stutzer, 2002). Previous research suggests that subjective well-being is U-shaped in age, i.e., it declines until middle age followed by a gradual increase (e.g., Blanchflower and Oswald, 2008; Frijters and Beatton, 2012; Graham and Pettinato, 2001); therefore, we model age as non-linear by including both age and age squared. As women report, on average, higher subjective well-being than men (e.g., Alesina et al. 2004), we further include gender as a control variable in our models. Unemployment and divorce or marital separation are usually negatively associated with subjective well-being (e.g., Clark, 2003; Clark and Oswald, 1994) and we thus include in our models the respondent's employment and marital status. We also consider the respondent's highest level of education (e.g., Blanchflower and Oswald, 2004) and household income (e.g., Oswald, 1997) as these are usually positively associated with subjective well-being. Our measure of income represents annual household income in international dollars adjusted for inflation, thus making the income measure comparable across time and between countries. Our dataset contains households that report a household income of 0. We therefore use the log of annual household income plus one international dollar, i.e. $\log(\text{household income} + 1)$, in our regressions as it is not possible to take the log of 0.

We also include three macroeconomic indicators which may influence people's confidence in national institutions and that have previously been found to be associated with subjective well-being: the unemployment rate (% of total labour force, World Bank, 2017), the inflation rate (CPI, annual %, United Nations, 2017) and the annual growth rate of GDP

per capita (% annual, World Bank, 2017)¹. Table 1 shows the summary statistics of the variables included in the analysis.

Table 1: Summary statistics

Variable	N	Mean (%)	St. Dev.	Min	Max
Life satisfaction – Present	76,169	6.164	2.277	0	10
Life satisfaction – Future	69,882	7.462	2.393	0	10
Confidence in financial institutions	71,390	0.499	0.500	0	1
Confidence in the honesty of elections	72,189	0.389	0.488	0	1
Confidence in the military	72,257	0.503	0.500	0	1
Confidence in the judicial system	72,343	0.327	0.469	0	1
Confidence in the national government	72,800	0.433	0.495	0	1
Confidence in the police	73,058	0.490	0.500	0	1
Male	76,884	39.8%			
Age	76,884	44.895	17.934	18	100
<i>Level of education</i>					
Elementary education (up to 8 years of basic education)	75,759	35.3%			
Four years of education beyond high school and/or a 4-year college degree	75,759	10.5%			
Three years of secondary education and some education beyond secondary education (9-15 years)	75,759	54.2%			
<i>Marital status</i>					
Single/never married	75,932	27.2%			
Domestic partner	75,932	15.7%			
Married	75,932	39.1%			
Separated	75,932	6.1%			
Divorced	75,932	3.2%			
Widowed	75,932	8.7%			
<i>Employment status</i>					

¹ GDP per capita growth data are not available for Venezuela in 2015 and 2016.

Employed full-time for an employer	75,924	26.3%			
Employed full-time for self	75,924	16.1%			
Employed part-time, but want full-time	75,924	6.7%			
Employed part-time, but do not want full-time	75,924	6.2%			
Unemployed	75,924	7.3%			
Out of the workforce	75,924	37.4%			
Log of annual household income +1 (in US dollars)	76,884	8.995	1.291	0	14.050
GDP per capita growth (% annual)	74,976	1.673	3.618	-6.88	10.10
Unemployment rate	76,884	6.569	2.143	2.300	12.070
Inflation rate	76,884	14.220	40.946	1.500	350.00

3.3 Analytical strategy

We first fit ordinary least squares (OLS) trend lines for each of the six variables denoting confidence in national institutions and for the two dependent variables denoting subjective well-being over the full time span available in our dataset. The trend curves were computed by regressing each of the eight variables on survey year. We also tried specifications in which time (survey year) was modelled as non-linear by adding the square of time, but the coefficient for this variable was not significant and we therefore continued with the models that include time as linear. In a second step, we examine the relationship between respondents' confidence in national institutions and subjective well-being using ordered logit and OLS regressions, as our two dependent variables – Cantril's ladder questions about present and future well-being – can be interpreted as being ordered categorical or continuous. The results are similar for both methods and are thus robust to methodology (we report the OLS results in Table 2. The ordered logit results are available from the authors upon request). It has been shown previously that treating subjective well-being measures as either cardinal or ordinal does usually not change results (Ferrer-i-Carbonell and Frijters, 2004). The first set of regressions contains only socio-demographic variables as control variables; we add macroeconomic indicators in a second set of regressions. Both model specifications include country and year fixed effects to account for similarities in cultural, political and economic circumstances within countries and in specific survey years.

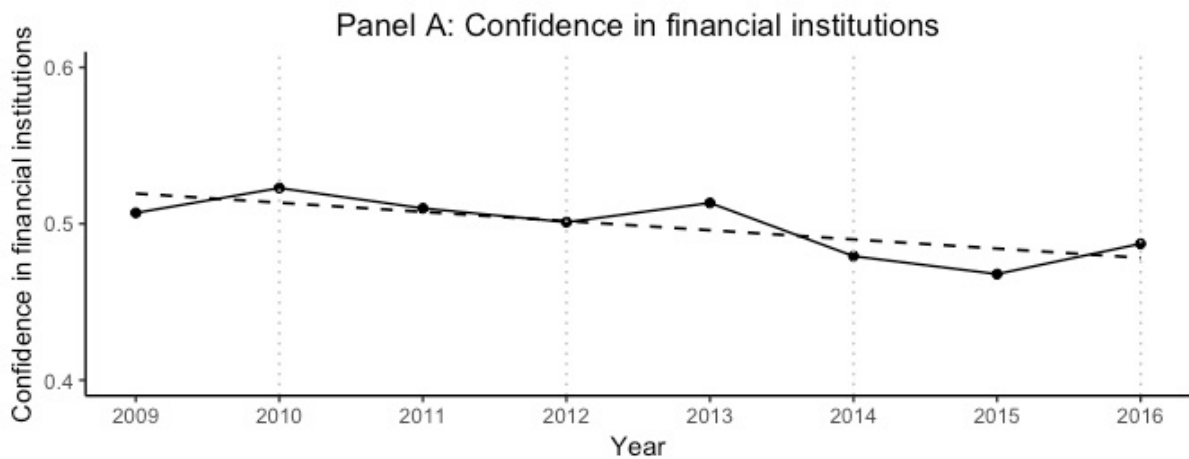
4. Results

4.1 Trends in confidence in national institutions and life satisfaction

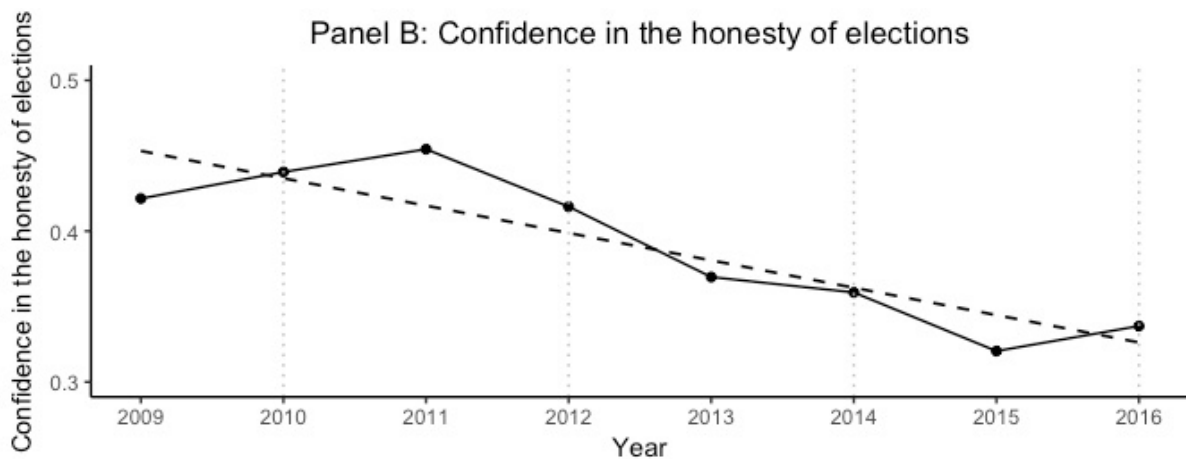
What can be said about trends in confidence in the six national institutions over the 2009-2016 time period? Confidence in financial institutions, the honesty of elections, the judicial system and the national government displays a significant downward trend (Figure 1,

panels A, B, D and E) whereas confidence in the police improved significantly over the same time period (Figure 1, panel F).

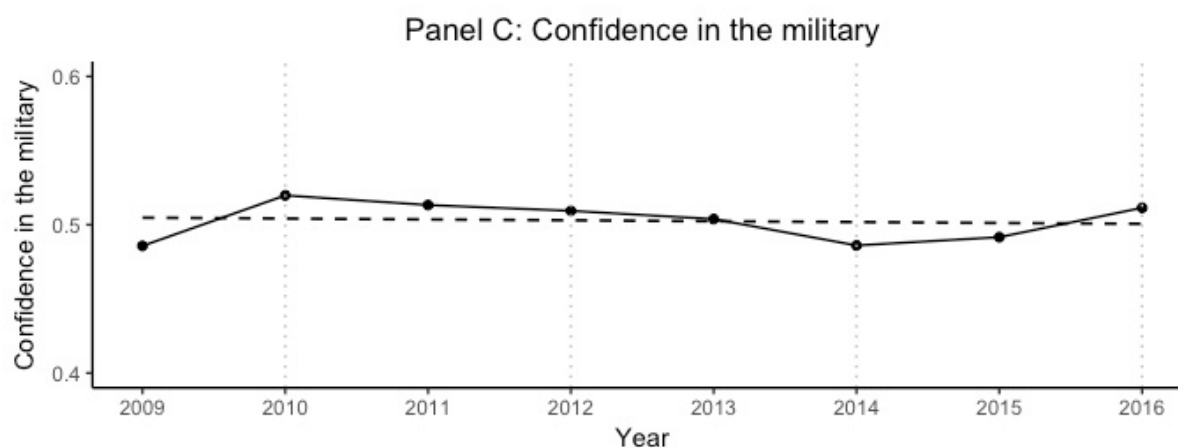
Figure 1: Confidence in national institutions, annually from 2009-2016 in ten South American countries. Mean values (straight line) and fitted regression curve (dashed line).



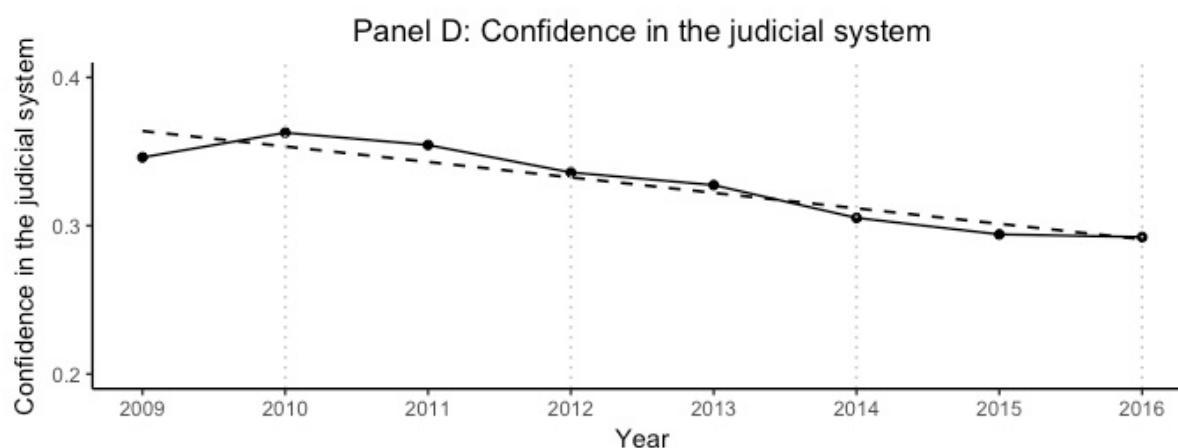
Note: The fitted regression is $y = 0.525 - 0.006x$ (where x = survey wave, range 1-8)
t-stats: intercept = 125.69; slope = -7.12. Adj. $R^2 = 0.001$.



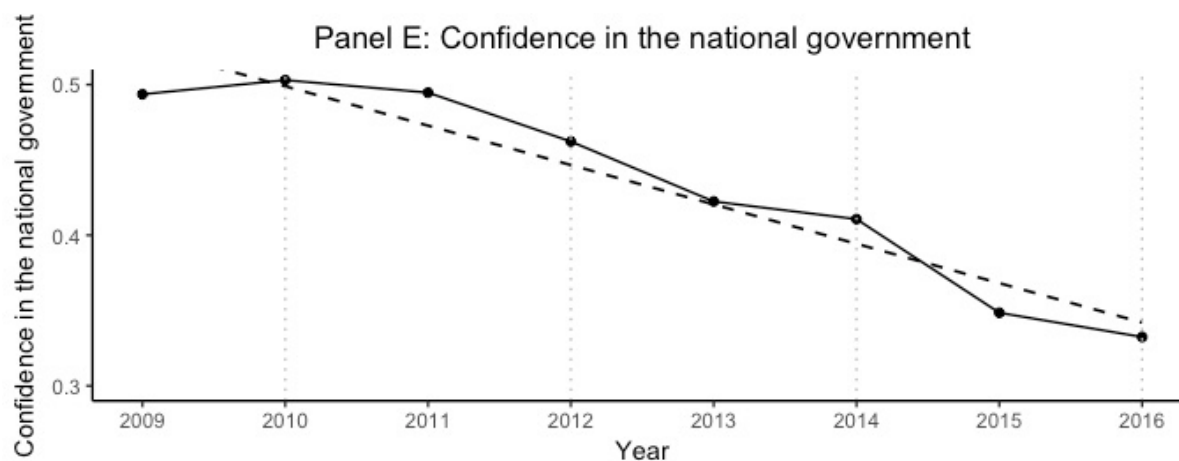
Note: The fitted regression is $y = 0.471 - 0.018x$ (where x = survey wave, range 1-8)
t-stats: intercept = 116.88; slope = -22.81. Adj. $R^2 = 0.007$.



Note: The fitted regression is $y = 0.505 - 0.001x$ (where x = survey wave, range 1-8)
 t-stats: intercept = 122.14; slope = -0.73. Adj. $R^2 = 0.0001$.

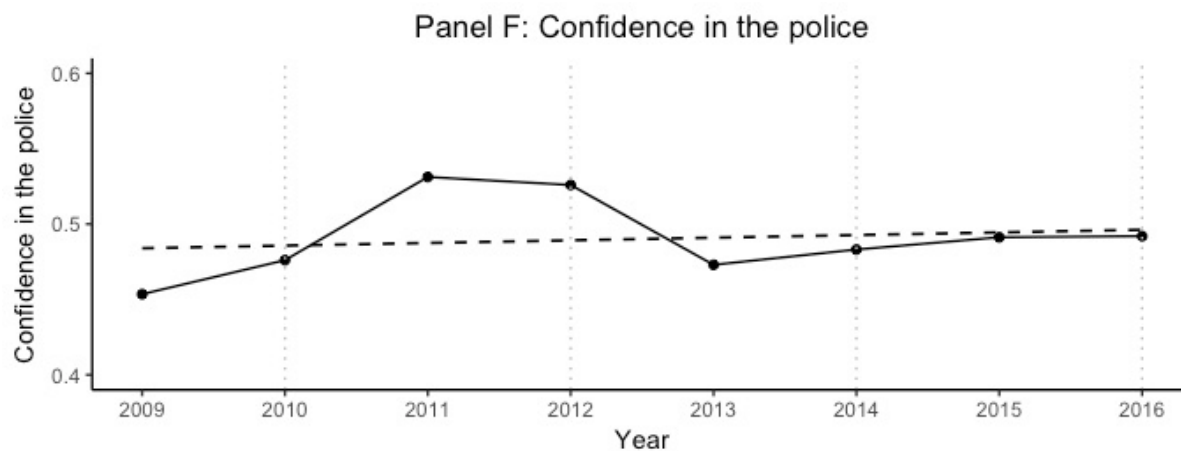


Note: The fitted regression is $y = 0.374 - 0.010x$ (where x = survey wave, range 1-8)
 t-stats: intercept = 96.4; slope = -13.6. Adj. $R^2 = 0.003$.



Note: The fitted regression is $y = 0.552 - 0.026x$ (where x = survey wave, range 1-8)

t-stats: intercept = 135.8; slope = -32.6. Adj. $R^2 = 0.014$.

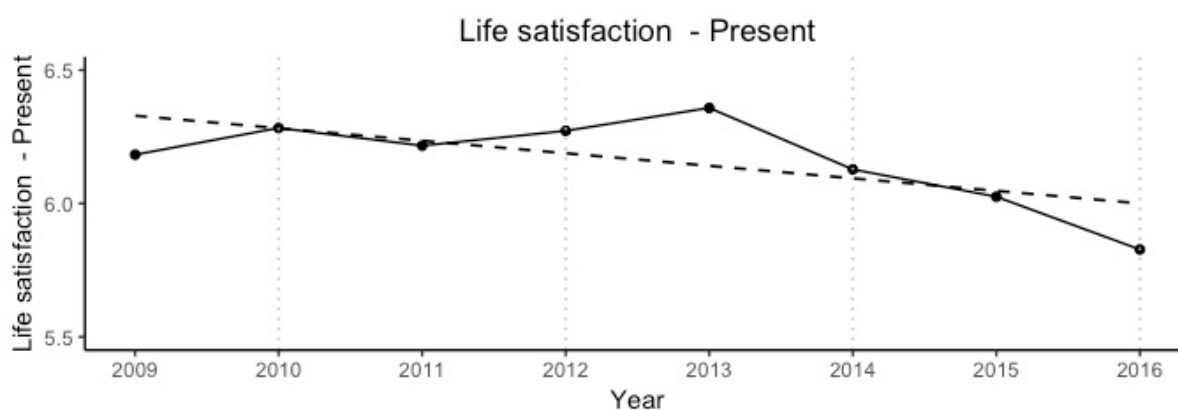


Note: The fitted regression is $y = 0.482 + 0.002x$ (where x = survey wave, range 1-8)

t-stats: intercept = 117.68; slope = 2.165. Adj. $R^2 = 0.001$.

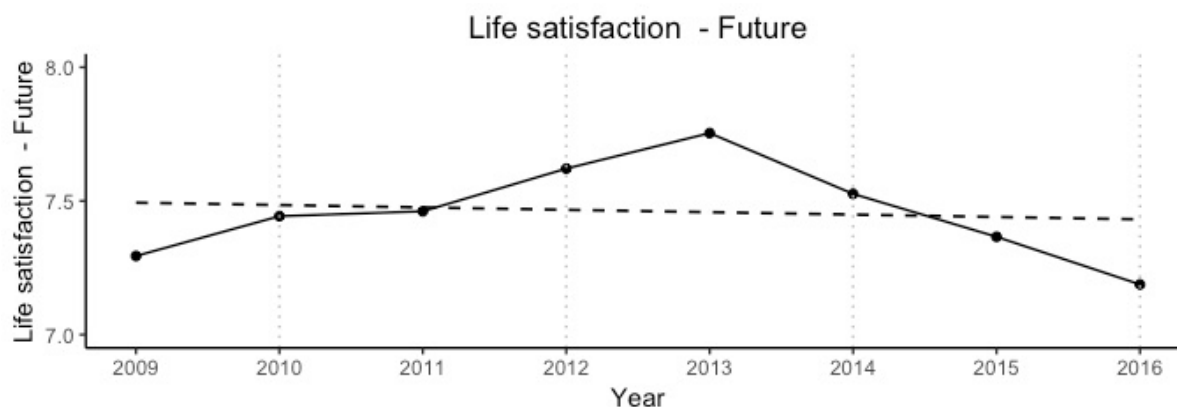
The pattern of life satisfaction, both present and future, over the 2009-2016 time period is in line with the overall trend in confidence in national institutions: current life satisfaction and expectation of future life satisfaction both show a significant downward trend (Figure 2).

Figure 2: Life satisfaction present and future, annually from 2009-2016 in ten South American countries. Mean values (straight line) and fitted regression curve (dashed line).



Note: The fitted regression is $y = 6.376 - 0.047x$ (where x = survey wave, range 1-8)

t-stats: intercept = 348.08; slope = -12.96. Adj. $R^2 = 0.001$.



Note: The fitted regression is $y = 7.502 - 0.009x$ (where x = survey wave, range 1-8)

t-stats: intercept = 371.94; slope = -2.23. Adj. $R^2 = 0.001$.

4.2 Confidence in national institutions and subjective well-being

Over the period of analysis, confidence in national institutions and life satisfaction, both present and future, trend downwards. So, what can be said about the relationship between people's confidence in national institutions and subjective well-being in South America? During the 2009-2016 period, people who report confidence in financial institutions, the honesty of elections, the military, the judicial system, the national government and the police rate their current and expected life satisfaction higher than those who lack this type of institutional confidence (Table 2, columns 1 and 2, respectively). These results are obtained after controlling for socio-demographic factors that have previously been found to be associated with subjective well-being. Women report higher current and future life satisfaction than men. The negative coefficient of age and the positive coefficient of age squared indicate that the relationship between life satisfaction, both present and future, and age is U-Shaped: life satisfaction declines until middle age, followed by an increase thereafter. People who are married, report a higher level of education, are in paid employment and have a higher household income report, on average, higher current and future life satisfaction.

We add macroeconomic indicators in an additional set of regressions (Table 2, columns 3 and 4) and find that people who report confidence in five out of the six national institutions report higher current and expected future life satisfaction. However, people who report confidence in the judicial system only report higher current life satisfaction. The growth rate of GDP per capita is significantly positively associated with people's current life satisfaction and significantly negatively associated with people's expectation of future life satisfaction. The unemployment rate is significantly negatively associated with current life satisfaction whereas the inflation rate is significantly negatively associated with both dependent variables.

Table 2: Ordinary least squares regressions for present and future life satisfaction, ten South American countries, 2009-2016

	<i>Dependent variables</i>			
	Life satisfaction – Present (1)	Life satisfaction – Future (2)	Life satisfaction – Present (3)	Life satisfaction – Future (4)
Confidence in financial institutions	0.176*** (0.021)	0.221*** (0.022)	0.171*** (0.021)	0.230*** (0.022)
Confidence in the honesty of elections	0.171*** (0.023)	0.138*** (0.024)	0.146*** (0.023)	0.117*** (0.024)
Confidence in the military	0.112*** (0.022)	0.094*** (0.023)	0.074*** (0.021)	0.060** (0.022)
Confidence in the judicial system	0.103*** (0.025)	0.048* (0.026)	0.078*** (0.024)	0.034 (0.026)
Confidence in the national government	0.144*** (0.024)	0.213*** (0.025)	0.135*** (0.023)	0.206*** (0.025)
Confidence in the police	0.222*** (0.020)	0.123*** (0.022)	0.204*** (0.020)	0.103*** (0.021)
Male	-0.171*** (0.019)	-0.232*** (0.020)	-0.166*** (0.019)	-0.225*** (0.020)
Age	-0.045*** (0.003)	-0.061*** (0.003)	-0.044*** (0.003)	-0.061*** (0.003)
Age squared/100	0.036*** (0.003)	0.031*** (0.003)	0.034*** (0.003)	0.030*** (0.003)
<i>Level of education (Ref.: Elementary education (up to 8 years of basic education))</i>				
Four years of education beyond high school and/or a 4-year college degree	0.896*** (0.034)	0.817*** (0.036)	0.892*** (0.034)	0.823*** (0.035)
Three years of secondary education and some education beyond secondary education (9-15	0.473*** (0.022)	0.475*** (0.024)	0.458*** (0.022)	0.469*** (0.023)

years)

*Marital Status (Ref.:
Married)*

Single/Never married	-0.106*** (0.025)	0.044* (0.026)	-0.113*** (0.025)	0.039 (0.026)
Domestic partner	-0.324*** (0.028)	-0.078*** (0.030)	-0.312*** (0.028)	-0.078*** (0.029)
Separated	-0.384*** (0.039)	-0.113*** (0.041)	-0.354*** (0.039)	-0.088** (0.041)
Divorced	-0.120** (0.053)	0.021 (0.057)	-0.140** (0.053)	0.007 (0.056)
Widowed	-0.214*** (0.038)	-0.061 (0.041)	-0.185*** (0.038)	-0.037 (0.041)

*Employment status (Ref.:
Employed full time for an
employer)*

Employed full-time for self	-0.217*** (0.029)	-0.128*** (0.030)	-0.212*** (0.029)	-0.117*** (0.030)
Employed part-time, but want full time	-0.436*** (0.037)	-0.245*** (0.039)	-0.438*** (0.037)	-0.246*** (0.039)
Employed part-time, but does not want full time	0.038 (0.039)	-0.028 (0.041)	0.022 (0.039)	-0.040 (0.041)
Unemployed	-0.597*** (0.040)	-0.329*** (0.042)	-0.617*** (0.040)	-0.352*** (0.042)
Out of the workforce	-0.085*** (0.025)	-0.210*** (0.027)	-0.082*** (0.025)	-0.221*** (0.027)
Log of annual household income + 1 (in US dollars)	0.199*** (0.008)	0.177*** (0.008)	0.210*** (0.008)	0.169*** (0.008)
GDP per capita growth (% annual)	-	-	0.009** (0.004)	-0.007* (0.004)
Unemployment rate	-	-	-0.098*** (0.013)	-0.022 (0.014)
Inflation rate	-	-	-0.013***	-0.030***

			(0.002)	(0.002)
Country fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Constant	5.459*** (0.112)	7.275*** (0.118)	6.433*** (0.164)	8.068*** (0.172)
Observations	57,390	53,484	55,817	52,116
Adjusted R ²	0.112	0.160	0.115	0.168
Residual Std. Error	2.132 (df = 57351)	2.175 (df = 53445)	2.100 (df = 55775)	2.126 (df = 52074)
F Statistic	191.076*** (df = 38; 57351)	268.145*** (df = 38; 53445)	178.770*** (df = 41; 55775)	257.618*** (df = 41; 52074)

Note: * p<0.1; ** p<0.05; *** p<0.01. Standard errors in parentheses. ‘df’ stands for degrees of freedom.

As our dependent variables are ordered categorical, we also employed ordered logit regressions, which do not assume cardinality of the dependent variable (results not shown. Available from the authors upon request). The similarity between the coefficients of the OLS and those of the ordered logit regressions is very high with respect to the significance and direction of effects.

5. Discussion and conclusion

The present study analyses confidence in national institutions in South America in two steps. We first examine trends in confidence in six national institutions - namely, financial institutions, the honesty of elections, the military, the judicial system, the national government and the police - and subjective well-being over the period of analysis and, second, discuss the relationship between these national institutions and two measures of subjective well-being (current and expectations of future life satisfaction). We use data from the Gallup World Poll across ten South American countries collected between 2009 and 2016.

Confidence in the police shows a significant upward trend between 2009 and 2016; a result that may be related to the turbulent democratic past of the region. After years of non-democratic governments and frustrating elections, successful democratically elected governments may strengthen people’s confidence in the police. In contrast, confidence in financial institutions, the honesty of elections, the judicial system and the national government displays a significant overall downward trend. These results may be related to the emergence of liberal governments² between 2009 and 2016 as these types of governments are publicly (e.g., in the media) associated with corruption (Castañeda, 2016); a factor that is

² In all countries except for Colombia which had centre-left governments instead of a clearly left-wing government.

negatively associated with institutional trust (e.g., Jang, et al. 2010). The time trends of current life satisfaction and expectation of future life satisfaction resemble those of confidence in national institutions as they both show a significant downward trend over the 2009-2016 time period.

To further check the robustness of our results, we attempted to control for people's trust in others in our models to know whether the negative trends in measures of confidence in national institutions are related to individual aspects with regard to trust. However, the Gallup World Poll provides a measure of trust in others in only two of the eight years included in this study. For these two survey years, we analysed the correlations between the measure of trust in others and the six measures of confidence in national institutions. We found these correlations to be positive but low, ranging from 0.07 to 0.16 (See Table 1A in the Appendix); a result that suggests that the negative trend in confidence in national institutions might not be solely influenced by individual feelings of trust in general.

Confidence in these six national institutions is significantly positively associated with both types of life satisfaction, a relationship that persists after controlling for socio-demographic and macroeconomic factors. However, confidence in the judicial system is no longer significantly positively associated with expected life satisfaction once macroeconomic factors are included.

The significant downward trends in confidence in four key national institutions and in our two measures of subjective well-being as well as the significant positive relationship between these measures highlight that the ability of governments to provide a trustworthy environment may be a key determinant of subjective well-being at the macro level. However, we cannot rule out that this association is merely spurious. The parallel downward trends in subjective well-being and several confidence indicators may have been caused by a third variable that we do not observe in our analysis.

In addition, as the Gallup World Poll data are cross-sectional we are not able to speculate about the direction of causality of these relationships. It is possible that low levels of subjective well-being that are caused by other circumstances lead people to express frustration with (and thus little confidence in) all aspects of their lives, including the six institutions studied in this paper. We thus cannot say with certainty that low confidence in institutions causes low subjective well-being; we can merely observe that there is an association between the two. Experimental research or panel data that allow researchers to link past events with current perceptions could establish much better whether South America's turbulent economic and democratic past, which is reflected in present levels of trust and confidence in institutions, still affects people's current as well as expectations of future life satisfaction. However, to the best of our knowledge, such data are currently not available. Our study therefore presents a first step in describing the role of institutions in this region for citizens' subjective well-being.

References

- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88(9), 2009–2042.
- Amnesty International Report 2016/2017. (2017). <https://www.amnesty.org/en/>. Accessed 29 October 2017.
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2010). Formal institutions and subjective well-being: Revisiting the cross-country evidence. *European Journal of Political Economy*, 26(4), 419–430.
- Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics*, 88(7), 1359–1386.
- Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle? *Social Science & Medicine*, 66(8), 1733–1749.
- Bok, D. (2010). *The politics of happiness: What governments can learn from the new research on well-being*. Princeton, NJ: Princeton University Press.
- Cantril, H. (1965). *The pattern of human concerns*. NJ: Rutgers University Press.
- Castañeda, J. (2016). The death of the Latin American left. *The New York Times*. Accessed 29 October 2017.
- Clark, A. E. (2003). Unemployment as a social norm: Psychological evidence from panel data. *Journal of Labor Economics*, 21(2), 323–351.
- Clark, A., & Oswald, A. (1994). Unhappiness and unemployment. *Economic Journal*, 104, 648–659.
- Clausen, B., Kraay, A., & Nyiri, Z. (2011). Corruption and confidence in public institutions: Evidence from a global survey. *World Bank Economic Review*, 25(2), 212–249.
- De Gregorio, J. (1992). Economic growth in Latin America. *Journal of Development Economics*, 39(1), 59–84.
- Diener, E., Oishi, S., & Lucas, R. E. (2015). National accounts of subjective well-being. *American Psychologist*, 70(3), 234–242.
- Di Tella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over inflation and unemployment: evidence from surveys of happiness. *American Economic Review*, 91 (1), 335–341.
- Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics and Statistics*, 85(4), 809–827.
- Dolan, P., & White, M. P. (2007). How can measures of subjective well-being be used to inform public policy? *Perspectives on Psychological Science*, 2(1), 71–85.
- Dorn, D., Fischer, J. A., Kirchgassner, G., & Sousa-Poza, A. (2007). Is it culture or democracy? The impact of democracy and culture on happiness. *Social Indicators Research*, 82(3), 505–526.
- Easterlin, R. A. (1974). Does economic growth improve the human lot? Some empirical evidence. In: David, P. A., Reder, M. W. (Eds.). *Nations and households in economic growth: Essays in honor of Moses Abramovitz* (pp. 89–125). Academic Press, New York.

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), 22463–8.

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *Economic Journal*, 114, 641–659.

Frey, B. S., & Stutzer, A. (2000). Happiness, economy and institutions. *Economic Journal*, 110(466), 918–938.

Frey, B. S., & Stutzer, A. (2002). *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton University Press.

Frijters, P., & Beaton, T. (2012). The mystery of the U-shaped relationship between happiness and age. *Journal of Economic Behavior & Organization*, 82(2–3), 525–542.

Goñi, U. (2017). Fury in Argentina over ruling that could see human rights abusers walk free. The guardian. <https://www.theguardian.com/world/2017/may/04/argentina-supreme-court-human-rights>. Accessed 29 October 2017.

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

Gunson, P., Chamberlain, G. & Thompson, A. (1991). *The dictionary of contemporary politics of Central America and the Caribbean*. London: Routledge.

Helliwell, J. F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling*, 20, 331–360.

Helliwell, J. F., & Huang, H. (2008). How's your government? International evidence linking good government and well-being. *British Journal of Political Science*, 38(4), 595–619.

Hicks, S., Tinkler, L., & Allin, P. (2013). Measuring subjective well-being and its potential role in policy: Perspectives from the UK Office for National Statistics. *Social Indicators Research*, 114(1), 73–86.

Hudson, J. (2006). Institutional trust and subjective well-being across the EU. *Kyklos*, 59(1), 43–62.

Inglehart, R., Foa, R., Peterson, C., & Welzel, C. (2008). Development, freedom and rising happiness: A global perspective (1981-2007). *Perspectives on Psychological Science*, 3(4), 264–285.

Jang, H., Joo, H. J., & Zhao, J. (2010). Determinants of public confidence in police: An international perspective. *Journal of Criminal Justice*, 38(1), 57–68.

Jovanović, V. (2016). Trust and subjective well-being: The case of Serbia. *Personality and Individual Differences*, 98, 284–288.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2005). Governance Matters IV: Governance Indicators for 1996–2004. Washington, D.C.: World Bank.

Lagos Cruz-Coke, M. (2001). Between stability and crisis in Latin America. *Journal of Democracy*, 12(1), 137–145.

Naim, M. (2015). The coming turmoil in Latin America. The Atlantic. <https://www.theatlantic.com/international/archive/2015/10/latin-america-economic-crisis-middle-class/409675/>. Accessed 29 October 2017.

- Ocampo, J. A. (2009). Latin America and the global financial crisis. *Cambridge Journal of Economics*, 33(4), 703–724.
- O'Donnell, G., & Oswald, A. J. (2015). National well-being policy and a weighted approach to human feelings. *Ecological Economics*, 120, 59–70.
- Oswald, A. J. (1997). Happiness and economic performance. *Economic Journal*, 107, 1815–1831.
- Pacek, A., & Radcliff, B. (2008). Welfare policy and subjective well-being across nations: An individual-level assessment. *Social Indicators Research*, 89(1), 179–191.
- Putnam, R.D. (2001). Social capital: measurement and consequences. *Canadian Journal of Policy Research*, 2, 41–51.
- Radcliff, B. (2001). Politics, markets, and life satisfaction: the political economy of human happiness. *American Political Science Review*, 95, 939–952.
- Rose, R & Haerpfer, C. (1999). *New Democracies Barometer V: A 12- Nation Survey*. Studies in Public Policy 306. Glasgow: University of Strathclyde.
- Stevenson, B., & Wolfers, J. (2008). Economic growth and subjective well-being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity*, 39(1), 1–102.
- Stiglitz, J. E., Sen, A., & Fitoussi, J. P. (2009). *Report by the commission on the measurement of economic performance and social progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress. www.stiglitz-sen-fitoussi.fr
- United Nations (2017). World Economic Situation and Prospects 2017. https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/2017wesp_full_en.pdf
- World Bank (2017). World Development Indicators. Retrieved from <http://data.worldbank.org>, 10th October, 2017.

Appendix

Table 1A Correlation coefficients between ‘trust in others’ and six measures of confidence in national institutions (2009 and 2010; all correlations are significant at $p < 0.001$).

	Trust in others
Confidence in financial institutions	0.07
Confidence in the honesty of elections	0.13
Confidence in the military	0.09
Confidence in the judicial system	0.11
Confidence in the national government	0.11
Confidence in the police	0.16

In the Gallup World Poll, the variable ‘Trust in others’ is available for South American countries only in the years 2009 and 2010. People answered the following question: “Generally speaking, would you say that most people can be trusted or that you have to be careful in dealing with people?” We coded the answers to this question 1 if the respondent answered ‘Yes’, and 0 otherwise.