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Is a Country's Aggregate Income Related to Its Level of Happiness?

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Abstract

The Easterlin paradox suggests that a greater level of economic prosperity does not translate into more happiness for a society. We investigate this paradox using a methodology new to this literature called quantile regression (QR) analysis. We find evidence that aggregate income is statistically related to a nation's average level of happiness, but (i) the magnitude of this relationship is relatively modest, and (ii) greater levels of income bring about smaller and smaller increases in a nation's happiness. These results provide a more nuanced understanding of the empirical support for and against the Easterlin paradox.

Introduction

Policymakers and economists have long considered economic growth an important policy goal, with the understood notion that, on average, greater prosperity is associated with greater wellbeing. However, some researchers have failed to find a positive link between a nation's aggregate income and its average level of happiness. This lack of positive link--referred to as the Easterlin paradox after Richard Easterlin who has studied this relationship since the 1970s—is considered to be a paradox because there is robust evidence of a positive link between an individual's income and happiness (Sevenson and Wolfers, 2008; note that detailed information on references used in this study is available upon request).

Summary Statistics

	Variable	n	Mean	Min	Max	U.S.
	Happiness Index (0=low to 10=high)	117	5.6	2.9	7.5	7.0
Economy	**GDP per capita** (constant 2010 US$)	117	17,300	229	110,000	51,734
Economy	**Inflation rate** (% change in consumer prices)	114	3.9	-1.6	85.9	1.0
Economy	**Unemployment rate** (% of labor force)	117	8.0	0.2	31.9	5.5
Health and Education	**Life expectancy at birth** (years)	117	74.0	51.2	84.1	78.7
Health and Education	**Secondary school enrollment** (% of gross enrollment)	96	92.8	32.0	165.8	97.6
Health and Education	**Water, access to improved source** (% of population)	113	92.7	51.0	100.0	99.2
Crime, Corruption, and Conflict	**Homicides, intentional** (per 100,000 people)	97	7.7	0.3	86.4	4.7
Crime, Corruption, and Conflict	**Public sector transparency and accountability rating** (1=low to 6=high)	30	2.9	1.7	4.5	n.a.
Crime, Corruption, and Conflict	**Displaced persons due to conflict and violence** (% of population)	36	2.2	0.1	21.7	0.0

Happiness & Income
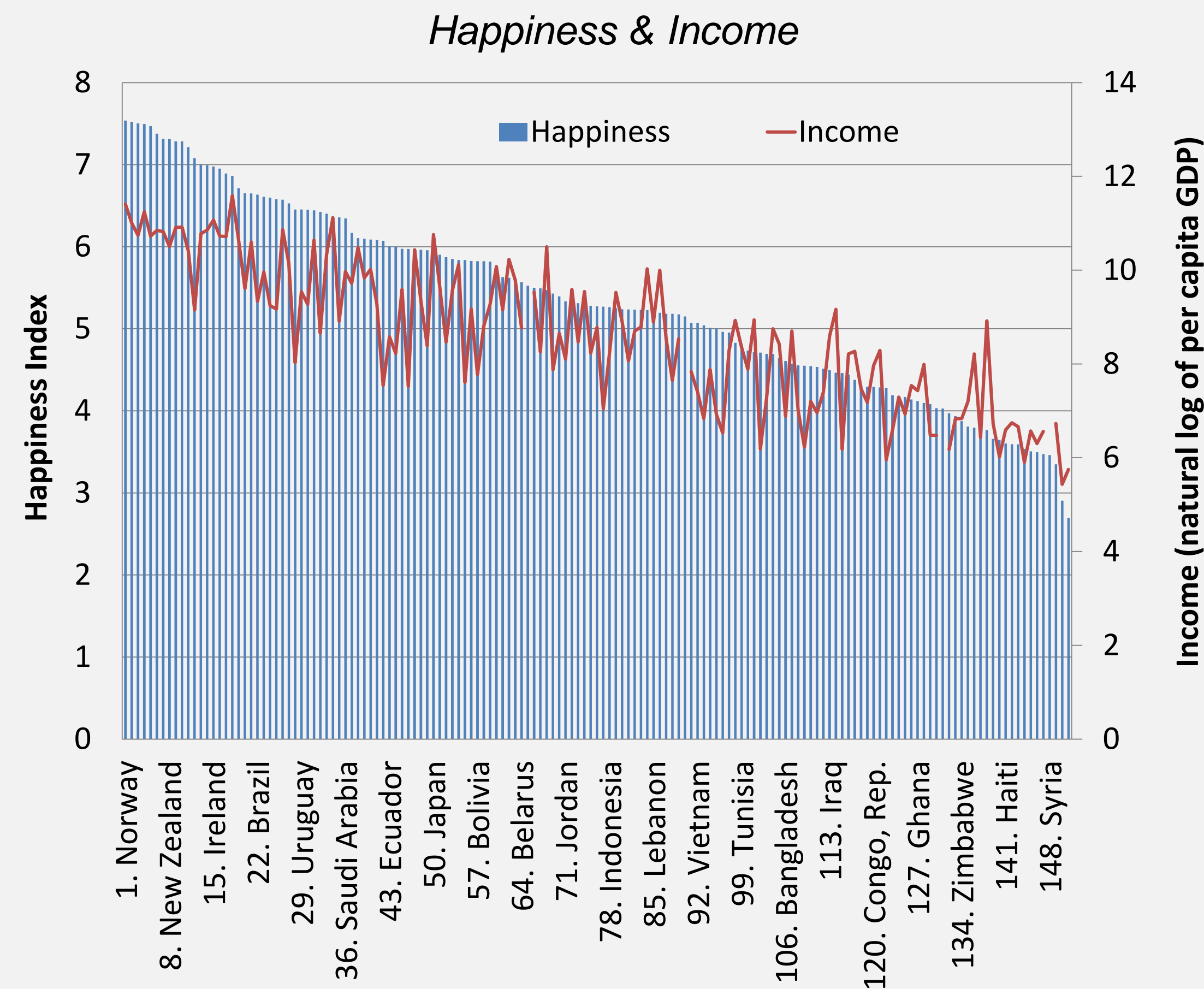
Data & Methodology

This study uses survey data from a Gallup World Poll on a nation's level of happiness over the 2015-17 period. A country's happiness score ranges between 0 (the worst possible life imagined by respondents) and 10 (the highest possible life imagined by respondents). We also obtain annual data on a variety of measures associated with a nation's wellbeing from the World Bank that has been averaged over the years 2012-15 to help smooth any short-run fluctuations. The table on your left provides summary statistics for some of the variables used in this study. The last column of this table provides values for the United States to facilitate comparison for the reader.

The primary variable of interest to this study is GDP per capita since this is a measure of a nation's average income per person. As illustrated in the bar graph above, we observe a positive relationship between happiness and per capita GDP (in natural logs). To formally investigate the income-happiness relationship, we employ quantile regression (QR) analysis. This methodology is robust to outliers and non-normal distributions. Simply put, QR allows us to compare how an increase in income affects happiness for countries that are at different points of the happiness distribution after having controlled for mitigating factors.

Selected Results

The QR results are shown in the table below, and are based off of the full sample using a country's unemployment rate and average life expectancy as controls. These estimates are similar to what we obtain using other regression specifications. The results show that the coefficient for GDP per capita is positive and statistically significant at the 1% level for each quantile. However, the magnitude decreases for higher quantiles, meaning that a unit increase in income is associated with a smaller increase happiness for countries that are happier to begin with (i.e., higher quantiles). Furthermore, the income-happiness link is estimated to be quite modest even at the lowest quantile. For example, the estimate at the 30th quantile implies that a 10% increase in per capita GDP is associated with a 0.067 increase in a country's happiness score.

Conclusion

We estimate a positive statistical correlation between aggregate income in a country and its average level of happiness, although the magnitude of this relationship is modest and it becomes even smaller for happier countries. Taken together, our findings suggest that while average income does influence a society's average level of happiness, Easterlin's paradox holds approximately true in de facto terms for many countries. While income may be important for an individual's wellbeing, an *average* increase in society's income does not appear to be a major factor for society's overall level of happiness.

Quantile Regression Results

	Quantile	GDP per capita (natural log US$)	Unemployment (% of labor force)	Life expectancy (years)
Quantile Regressions (more happy ↔ less happy)	q30	0.669*** (0.0925)	-0.0363*** (0.0100)	-0.00543 (0.0178)
	q40	0.591*** (0.0933)	-0.0319** (0.0124)	-0.00543 (0.0178)
	q50	0.544*** (0.0658)	-0.0306** (0.0126)	0.0255* (0.0140)
	q60	0.462*** (0.0729)	-0.0298** (0.0121)	0.0363** (0.0153)
	q70	0.440*** (0.0839)	-0.0388*** (0.0107)	0.0381* (0.0200)

Note: The dependent variable is a country's level of happiness. Each row shows the estimated relationship of a covariate with the dependent variable conditioned at the specified quantile. For brevity, the constant is not reported. Bootstrapped standard errors in parentheses. Statistical significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1.