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ABSTRACT
The Easterlin paradox states that, although richer people report higher levels of well-being within one country, no such relationship exists across countries or over time. Several authors disagree and claim a robust positive relationship. A percentage increase of income always leads to higher well-being. This article reassesses the relationship, but analyses regional differences. I find that the positive relationship is strong in Eastern Europe, the Middle East and North African countries and Latin America. The relationship is not significant in Western Europe and Asia. In North America/Oceania and Sub-Saharan Africa, the marginal effect even becomes negative. Materialistic attitudes or the degree of collectivism may serve as explanations for the findings.

I. Introduction

Research on the economics of happiness has from its beginning been influenced by a puzzling finding. Easterlin (e.g. 1973; 1995) investigated the relationship between income and happiness and did not find a statistically significant relationship across countries or over time. This is remarkable as researchers also observe that *within* one country, richer people are happier than the less well-off. This apparent contradiction became known as the Easterlin paradox.

Lately, several studies raised doubt about the existence of the Easterlin paradox. In an extensive study, Stevenson and Wolfers (2008) found a significant and positive relationship between subjective well-being and income. This finding is 'remarkably robust across countries, within countries, and over time' (Stevenson, Wolfers 2008, p. 2). Deaton (2008) and Sacks, Stevenson, and Wolfers (2010) also provided similar evidence.

The main contribution of this study is to evaluate whether the relationship between GDP and subjective well-being varies across regions. Several arguments make it feasible to assume that income might affect well-being differently in different parts of the world. For example, colonization or a Communist past may influence the relationship. Different stages of economic development may lead to other effects

in Western Europe and North America compared to, for example, Africa or Asia.

Indeed, the analysis finds remarkable differences in the relationship between GDP and well-being. It appears that log(GDP per capita (pc)) has a strong positive effect on life satisfaction in Eastern Europe, the Middle East and North African (MENA) countries and Latin America. The effect is smaller, however still significant, when Europe is regarded without separation into Eastern and Western Europe. GDP does not significantly affect life satisfaction in East Asia and Western Europe. In North America/Oceania and in Africa, the relationship becomes negative.

II. Data and methodology

Following Sacks, Stevenson, and Wolfers (2010), I focus on life satisfaction as a measure for subjective well-being. Data are taken from the World Values Survey (WVS) where a question asks: 'All things considered, how satisfied are you with your life as a whole these days?' Answers from 1 to 10 are possible. Stevenson and Wolfers (2008) calculated a measure of average national life satisfaction to make the data comparable across countries. I adopt their approach for the newest two waves of the WVS which leaves me with 262 observations.[1]

[1]Stevenson and Wolfers (2008) reported that some observations have to be excluded because of nonrepresentative country samples.

Information on income is taken from the World Bank; I use GDP pc at 2005 constant US-Dollars, transformed into logarithmic terms.

First, I reevaluate the Easterlin paradox by regressing the average national life satisfaction on the log of GDP pc. I begin with a pooled OLS estimation and make use of the panel structure later. The final model takes the form:

$$lsat_{it} = \alpha + \beta * \log{(\text{GDP pc})}_{it} + \theta_i + \omega_t + \epsilon_{it},$$

where θ_i and ω_t are country and wave fixed effects (FE), respectively. To evaluate the differing effects across regions, I include interaction terms between log(GDP pc) and various *region* dummy variables. The model becomes:

$$lsat_{it} = \alpha + \beta * \log{(\text{GDP pc})}_{it} + \gamma_1 * \log{(\text{GDP pc})}_{it} * reg_1 + \ldots + \gamma_n * \log{(\text{GDP pc})}_{it} * reg_n + \theta_i + \omega_t + \epsilon_{it}$$

We can calculate the effect of log(GDP pc) on life satisfaction for every region. Suppose, the region we are interested in is Asia ($reg_{Asia} = 1$). Since the remaining interaction terms are zero, $\beta + \gamma_{Asia}$ displays the marginal effect of income on life satisfaction for the Asian countries.

III. Empirical results

Table 1 presents the results of the reevaluation of the Easterlin paradox without the inclusion of the region dummies. In columns 1, 3 and 4, SEs are clustered at the country level.

The results resemble those from Deaton (2008), Sacks, Stevenson, and Wolfers (2010) and Stevenson and Wolfers (2008). A positive and statistically significant relationship emerges between the average national life satisfaction and the log of GDP pc. In the pooled model, the relationship is significant at the 1% level. In the following columns, I make use of the panel structure. The between effects (BE) estimator in column 2 resembles closely the result in

column 1. Including country FE leads to a larger coefficient in column 3. Finally, the inclusion of wave FE reduces the coefficient to a magnitude that we observed in column 1. The positive relationship remains significant at the 5% level. Here, one SD higher log(GDP pc) correlates with 60% of a SD higher average national life satisfaction.

The following tables present the main results. Interaction terms between log(GDP pc) and the respective region dummies are included, as are country and wave FE. SEs are clustered at the country level. In Table 2, the region dummies reflect the geographical allocation of countries to continents. North America and Oceania are pooled together because each consists of only two countries (Canada, USA/Australia, New Zealand). These should be fairly similar as they are typically classified as Western offshoots.

Since the allocation of countries to continents is rather superficial, it has been refined in Table 3. Europe is separated into Western and Eastern

Table 2. Separation along continents.

	Coeff.	SE	Obs. per group (total = 262)
Log(GDP pc)	0.258***	0.070	148
Log(GDP pc) × Africa	−0.748**	0.330	21
Log(GDP pc) × Asia	−0.053	0.088	45
Log(GDP pc) × North America/Oceania	−0.685***	0.219	16
Log(GDP pc) × Latin America	0.101	0.321	32

Note: *** and ** denote statistical significance at the 1% and 5% level.

Table 3. Refined geographical separation.

	Coeff.	SE	Obs. per group (total = 262)
Log(GDP pc)	−0.078	0.195	69
Log(GDP pc) × Eastern Europe	0.395**	0.189	79
Log(GDP pc) × MENA	0.270	0.493	15
Log(GDP pc) × Sub-Saharan Africa	−0.398	0.453	16
Log(GDP pc) × Non-MENA Asia	0.200	0.154	35
Log(GDP pc) × North America/Oceania	−0.558***	0.208	16
Log(GDP pc) × Latin America	0.404	0.340	32

Note: *** and ** denote statistical significance at the 1% and 5% level.

Table 1. Reassessment of Easterlin paradox.

	(1)		(2)		(3)		(4)	
	Pooled OLS		BE		Country FE		Country and wave FE	
Estimation method	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Log(GDP pc)	0.209***	0.022	0.190***	0.024	0.301***	0.057	0.204**	0.093
Obs.	262		262 (91 countries)		262		262	

Notes: *** and ** denote statistical significance at the 1% and 5% level.

Table 4. Separation along cultural lines, following Inglehart and Welzel.

	Coeff.	SE	Obs. per group (total = 253)
Log(GDP pc)	−0.116	0.203	35
Log(GDP pc) × Confucian	0.239	0.161	15
Log(GDP pc) × Orthodox	0.542***	0.204	35
Log(GDP pc) × Islamic	0.471**	0.217	31
Log(GDP pc) × Africa	−0.350	0.462	16
Log(GDP pc) × South Asia	0.008	0.007	12
Log(GDP pc) × Latin America	0.536	0.339	32
Log(GDP pc) × English	−0.013	0.233	24
Log(GDP pc) × Catholic Europe	0.409***	0.148	53

Note: *** and ** denote statistical significance at the 1% and 5% level.

Europe; Africa is split into two groups, of which one covers the Sub-Saharan African countries. The others are classified as North Africa and form the so-called MENA countries together with the Middle Eastern countries. The remaining Asian countries are termed 'Non-MENA Asia'.

The first line in Table 2 displays the relationship between GDP pc and life satisfaction for the European countries, as this is the omitted category, i.e. there is no log(GDP pc)*Europe interaction. The effect is positive and significant at the 1% level. The coefficient is slightly larger compared to column 4 of Table 1.

The following lines display the results on the interaction terms. In the second line, the dummy takes the value 1 for all African countries. The interaction term is negative and significant. The marginal effect for these countries is the sum of the coefficients on log(GDP pc) and the interaction term. It is also negative and reaches statistical significance when seen in relation to the estimated SE on log(GDP pc).

The third line shows that the marginal effect is reduced in the Asian countries. It remains positive and statistically significant. The interaction term between log(GDP pc) and North America/Oceania reveals a similar result compared to the African countries. However, in both cases, we have to take into account that the findings might be affected by the limited sample size. In the final line, the relationship between income and life satisfaction in Latin America is similar to that in the European countries. The interaction itself is not significant. If at all, the relationship appears somewhat stronger than in the European countries.

Table 3 delivers further important insights, especially with regard to Europe. The first line represents the relationship in Western Europe, and here we find that the relationship is not significant; the coefficient is even slightly negative. However, a large positive marginal effect is found for the Eastern European countries, which is also statistically significant.

The marginal effect is positive in the MENA countries and similar in magnitude compared to Table 1. However, here the relationship fails to reach statistical significance. The result on Sub-Saharan Africa resembles that for whole Africa, and the non-MENA Asian countries reveal a similar effect that we found for whole Asia. Also, for North-America/Oceania, we find again a strong and significant negative effect, whereas the effect in Latin America is once more positive. It appears that the positive relationship in Table 1 emerges to a good deal due to the Eastern European and Latin American countries and, to a lesser extent, the MENA countries.

A further division of countries has been carried out based on the cultural map by Inglehart and Welzel. Since the authors do not include all the countries I have data for, I sort these countries into the existing categories as adequately as possible or exclude those for which no category seems to be appropriate.

We find a strong positive relationship for Catholic European, Orthodox, Latin American and Islamic countries. This estimation also confirms the negative relationship for the remaining African countries. In Protestant Europe (the omitted category), Confucian countries, South Asia and English Speaking countries, the relationship is not significantly different from zero. The strong negative effect for North America/Oceania does not emerge when the countries are combined with European English speaking countries. It appears that the division along cultural differences delivers similar results to the division along geographical lines.

IV. Concluding remarks

This article reassesses the discussion on the Easterlin paradox: the effect of higher levels of GDP pc on life satisfaction. The results generally support a positive relationship between the two variables, which is also meaningful in magnitude. However, the inclusion of interaction terms between GDP and dummy

variables for specific regions leads to more differentiated results.

Specifically, I find that the positive relationship is very pronounced in the Eastern European, the MENA and the Latin American countries. The effect is not significantly different from zero in Western Europe and non-MENA Asia and appears to be even negative in Sub-Saharan Africa and North America/Oceania. A division along cultural lines delivers very similar insights.

The results allow for possible explanations that should be evaluated more closely in future research. The findings on the Western countries propose that the marginal effect may decrease with the level of economic development, which would support Easterlin's original idea of a satiation point. In countries that are catching up economically (Eastern Europe, MENA, Latin America), material welfare appears to be important for well-being. But possibly, life satisfaction is influenced by factors other than income in the richest societies. These can be summarized as post-materialistic attitudes. However, the results on Africa remain puzzling as they do not fit in this pattern. Maybe, materialistic attitudes have not yet taken over in the least developed countries. Pre- and post-materialistic attitudes might be rather similar concepts. This explanation contradicts the importance of economic development or the idea of an existing satiation point.

Additionally, a high degree of collectivism within a society should decrease the importance of the average income for life satisfaction. This may explain the results for East Asia, where societies are suggested to be more collectivistic. The results might indicate that collectivist attitudes become stronger in Western countries as well. Overall, it appears that factors other than income are necessary to explain differences in life satisfaction around the world.

Disclosure statement

No potential conflict of interest was reported by the authors.

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