Determinants of Well-Being: Applying the Easterlin Paradox, Life Expectancy, Carbon Emissions, and Education Across Countries
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Abstract
This study estimates well-being as a function of Gross Domestic Product per capita, life expectancy, primary education completion rates, and carbon dioxide emissions per capita using panel data from 78 countries in time periods 2006 and 2009. We find that well-being increases at a decreasing rate as GDP per capita increases, which is consistent with the Easterlin Paradox. We also find a statistically significant, positive relationship between well-being and life expectancy and a negative relationship between well-being and carbon dioxide emissions.

Data
Sample Size: 156
Panel Data Set: captures changes in well-being explained by both cross sectional and time sensitive variables as indicated by the subscript “it”
Sources
WB: gathered by the Gallup World Poll through a survey called the “Ladder of Life”
GDP: obtained by the International Human Development Indicators of the United Nations Development Programme
LIFE: obtained by the International Human Development Indicators of the United Nations Development Programme
PCR: obtained from the World Bank, gathered by UNESCO
CO2: gathered from the World Bank

Theory
WBt = β0 + β1 ln(GDPit) + β2LIFEit + β3PCRit + β4CO2it + εit

WB: Well-being, 0 represents the worst possible life and 10 the best possible life
GDP: Gross Domestic Product per capita, measures the market value of all final goods and services produced within the boundaries of a county in a given calendar year
LIFE: Life expectancy, measures the average number of years that a person may expect to live
PCR: Primary completion rate, measures the percentage of the total population entering the last grade of primary education
CO2: Carbon dioxide emissions, measures the burning of fossil fuels in metric tons per capita
*i* designates countries t = 1...78; “t” designates years t = 2006, 2009

Empirical Results

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Equation 1</th>
<th>P-Value</th>
<th>Equation 2</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(GDP)</td>
<td>0.477*</td>
<td>0.000</td>
<td>0.473*</td>
<td>0.000</td>
</tr>
<tr>
<td>LIFE</td>
<td>0.039*</td>
<td>0.000</td>
<td>0.038*</td>
<td>0.000</td>
</tr>
<tr>
<td>PCR</td>
<td>-0.001</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>CO2</td>
<td>-0.014</td>
<td>0.162</td>
<td>-0.014</td>
<td>0.162</td>
</tr>
<tr>
<td>Adjusted R-Squared</td>
<td>0.545</td>
<td></td>
<td>0.547</td>
<td></td>
</tr>
</tbody>
</table>

n = 78
*Indicates Statistically significant at 5% level

Summary & Implications
Well-being may seem more relevant to psychologists than economists. However, understanding economic factors that relate to individual well-being is crucial when making policy decisions. Well-being is also very similar to economic utility – a concept economists have so far been unable to measure in a meaningful way. This study was inspired by a desire to understand how levels of well-being are determined on the macroeconomic level.

We set out to test the Easterlin Paradox and we found that in fact, it does appear to exist. While we find that the Easterlin Paradox holds true, we question whether it is truly a paradox. Economic theory suggests that the marginal utility of income diminishes, which is directly in line with the Easterlin Paradox. We therefore assert that the Easterlin Paradox is no paradox at all.

Interpretation of Results
- Every 1% increase in GDP is correlated with a 0.47 increase on the well-being scale, holding all else constant
- Every 1 year increase in LIFE is correlated with a 0.03 increase on the well-being scale, holding all else constant
- Every increase of 1 metric ton per capita of CO2 is correlated with a 0.01 decrease on the well-being scale, holding all else constant – But the result is not statistically significant