

**Life Expectancy, Economic and Political Liberty, and the Pursuit of Understanding
Individual and Population Happiness**

William Galvin

Bainbridge High School

Applied Statistics

Brad Lewis

June 4, 2021

1. Abstract

This paper seeks to examine the relationship between the happiness of individuals and that of populations, and to understand the predictors of population-level human happiness. It finds that significant predictors of individual happiness are also significant predictors of population happiness, but not the most significant ones.

2. Introduction

Happiness—a subjective catch-all for self-reported life satisfaction—is becoming an increasingly prominent consideration in public policy. The national governments of Denmark, New Zealand, and South Korea, for example, explicitly prioritize their citizens' happiness in policy decisions. While often difficult to measure, maximizing happiness is, in abstract, a fundamental function of government. And in practice, it's a viable populist election strategy.

The objective of this paper is to identify predictors of population happiness and discuss its relationship with individual happiness. This paper, however, does *not* seek to establish causality between population-level happiness and any predictor or combination thereof, but only to find and comment on correlations. In that context, should this paper find a positive correlation between happiness and GDP per capita, for example, there is no reason to expect that measures taken to increase GDP per capita would necessarily increase happiness.

3. Prior Research

Much of the existing scientific research on human happiness has been conducted from a psychological perspective, which is necessarily better suited to understanding happiness, or lack thereof, in individuals. While many of the psychological predictors of happiness are difficult to gather data for at large scales—ranking populations by average self-esteem, for example, is nearly impossible—other economic and social factors, such as incomes levels and unemployment, or marriage rates and qualities of education, have been demonstrated to correlate with happiness for individuals and have sufficient available data to be useful at a population level.

In Richard Easterlin's *Does Money Make People Happy?* (2021) and CJ Boyce et al's "Money and Happiness: Rank of Income, Not Income, Affects Life Satisfaction" (2010), researchers find that there is not a direct relationship between happiness and absolute income. As Easterlin writes, people have become much wealthier over time—the average person of any country, he points out, can buy significantly more goods and services today than they could 100 years ago—yet

there has not been a corresponding increase in average happiness. But while absolute income isn't correlated with happiness, *relative* income, Easterlin and Boyce et al find, is. Relative income is best thought of as an individual's income compared with their peers, so solely knowing the income of an individual isn't enough to predict their happiness. For example, someone earning USD 10,000 per year in Sri Lanka, where the median income is USD 1,100, is fabulously rich, and therefore likely happier than their Sri Lankan peers. The same person earning USD 10,000 in the U.S., where median individual income is USD 30,000, would likely be significantly less happy.

The ramifications of these findings for population-level happiness aren't immediately obvious. One possibility is that wealthier countries are comparatively happier than poorer countries, as the average citizen of a wealthy country is relatively wealthier than the average citizen of a poor country. However, if the term "relative" only applies narrowly, within a country or geographic region (and not globally), then average income by country may not be relevant. If Americans only compare themselves to other Americans and Sri Lankans only compare themselves to other Sri Lankans, then the average American wouldn't feel happy for being wealthier than the average Sri Lankan. If that's the case, then measures of income inequality may prove to be more useful than measures of income, itself. Intuition suggests that higher income inequality would correlate with lower happiness, as more individuals would be poorer than average. However, that's based on the assumption that being poorer than average makes people unhappy, as opposed to the theory that being richer than average makes people more happy. If the latter is true, then in a society with a perfectly equal distribution of income, no one would be richer than average, and therefore everyone would be unhappy.

This suggests that while both absolute average income and income inequality should be considered, neither are guaranteed to be significant predictors of population happiness, despite the correlation between relative income and individual happiness and the common belief that increasing wealth will lead to an increase in happiness.

Furthermore, Rafael Di Tella and Robert MacCulloch, in *International Differences in Well-Being* (2010), find that happiness only increases with wealth until a population's "basic needs" are met. (This trend echoes previous research that found that individual happiness increases with wealth, but only to a point—presumably when one can afford necessities.) Such research suggests that metrics such as average income or GDP per capita could be useful in predicting the happiness of poorer countries, but not wealthier ones. As well, "basic needs"—and the cost needed to satisfy them—could vary between regions.

Socially, prior research suggests that three significant predictors of happiness are freedom, marriage, and education. In "Freedom and happiness in nations: why the Finns are happier than the French" (2014), Gaël Brulé and Ruut Veenhoven find that in nations of comparable wealth,

perceptions of freedom are significant predictors of happiness. The study defines freedom as “the possibility for an individual to make choices, typically major life choices.” For the purposes of this paper, freedom will be measured in terms of economic and political freedom, although Brulé and Veenhoven qualify that there are three broad types of freedom—social, potential, and psychological—and that *perceived psychological freedom* is the most significant to happiness. Given the divergence of their findings and the existence of widely available data, the proxy metrics used to gauge freedom may not prove to be significant.

In “Does marriage have positive effects on the psychological well-being of the individual?” (1983), Walter Grove et al acknowledge a correlation between marriage and mental health, suggesting that marriage rates could be significant predictors of happiness. More narrowly, they find that “quality of marriage” is a better predictor of happiness than simply the state of being married or not. Such findings imply that a compound metric of marriage rates and divorce rates may be particularly useful.

Wan-Chi Chen, in “How education enhances happiness: Comparison of mediating factors in four East Asian countries” (2012), finds a link between population happiness and quality of education. The paper discusses a correlation between education and larger social networks and greater engagement with the world, both of which are related to happiness. Therefore, education itself only indirectly relates to happiness, but quality of education still remains useful, as it is relatively easy to measure.

The prior research in this field is largely too narrow to understand global trends in happiness. Even studies that consider populations (and most focus solely on individuals) often only include data from selected countries. While the reasoning behind doing so is sound—creating a blocking effect by using similar countries and thereby mitigating the effects of extraneous or confounding variables—and such research provides valuable insights into population-level happiness, such methodology necessarily precludes any approximation of a global understanding.

4. Scientific Motivation

The scientific motivation for this paper is to increase the efficacy of happiness-driven policy by 1) establishing correlations between population-level happiness and any significant predictors, and 2) delineating the distinction between predictors of population-level and individual happiness.

Although this paper does not seek to claim or establish causality, it may offer a direction to further research that does. Such research would allow policymakers to more efficiently increase population happiness, hopefully beyond an individual scale. If, for example, relative wealth is

only causally related to happiness at an individual level while quality of education is causally related at a population level, happiness-driven programs may be better targeted at increasing a population's quality of education than raising its aggregate income.

5. Data

The data used for this paper, found in full in tables 1A-D in appendix 2, is explained as follows:

- i. **Happiness Score:** The dependent variable of this investigation, a country's Happiness Score is the mean response from a nationally representative sample conducted within its borders by the United Nations. The scores theoretically range from 0–10, as respondents are asked to evaluate the quality of their own lives with zero being the worst possible, and 10 being ideal. The findings of these surveys are published annually in the United Nations Sustainable Development Solutions Network's *World Happiness Report*, and in practice, scores range from around 7.8 (Finland) to around 2.5 (Afghanistan).
- ii. **Human Development Index (HDI):** HDI is a metric created by the United Nations to compare objective human development between countries and across time. It's calculated by taking the geometric mean of three other indices measuring health, education, and income. HDI scores theoretically range between zero and one, with the practical current lower limit being 0.4 (Niger).
- iii. **Education Index:** Provided by the UN, the Education Index is calculated by standardizing the average of mean years of schooling in adults and expected years of schooling in children. As a component of the HDI, the Education Index ranges from zero to one. (Since EI is a component of the HDI, it may not be advantageous to consider both in a predictive model.)
- iv. **Social Progress Index (SPI):** Created by the Social Progress Imperative, the SPI measures the well-being of a society through 54 social and environmental indicators, including health, shelter, sanitation, equality, inclusion, sustainability, and personal freedom and safety. Scores range from zero to 100.
- v. **Healthcare Efficiency Index (HEI):** Measured by the World Health Organization, the HEI ranges from zero to one, and considers population health, access to affordable care, and spending relative to outcomes.
- vi. **Gini Index:** An estimate of income/consumption inequality provided by the World Bank. The Gini Index measures a country's deviation from perfect economic equality, with a score of zero representing perfect equality and a score of 100 representing perfect inequality. In practice, the scores range from 63 (South Africa) to 25 (Ukraine).

- vii. **Index of Economic Freedom:** A metric created by *The Wall Street Journal* and the Heritage Foundation (a conservative American think tank) that measures the “basic institutions that protect the liberty of individuals to pursue their own economic interests.” It considers aspects such as property rights, tax burdens, regulatory efficiency, and market openness. Scores range from zero to 100, with the highest being 89 (Singapore) and the lowest being five (North Korea).
- viii. **Democracy Index:** Created and published by *The Economist*, the Democracy Index measures the state of Democracy in a given country, considering pluralism, civil liberties, and political culture, as measured in 60 indicators. Scores range from zero to 10.
- ix. **Gender Inequality Index (GII):** Created by the World Economic Forum, the GII ranges from zero to one, and quantifies gender inequality (or lack thereof) by considering economic participation and opportunity, educational attainment, political empowerment, and health and survival.
- x. **Environmental Vulnerability Index:** The EVI, created by the South Pacific Applied Geoscience Commission, quantifies an area’s environmental vulnerability using 50 indicators, each of which is included in one of seven subcategories: Climate change, Biodiversity, Water, Agriculture and fisheries, Human health aspects, Desertification, and Exposure to Natural Disasters. Currently, the least at-risk country is French Guiana, with a score of 174, and the most at-risk is Singapore, at 428.
- xi. **Population:** The number of people, both citizens and non-citizens, living within the jurisdiction of a country at any given time. Data provided by the Population Division of the United Nations Department of Economic and Social Affairs.
- xii. **Area:** The topographical area of a country, measured in kilometers squared. Area and population can be used to calculate population density. Data provided by the World Bank.
- xiii. **Electricity Consumption:** Measured in gigawatt-hours per year, the aggregate electricity consumption of a given country. Consumption per capita can be calculated with population. Data provided by CIA’s *World Factbook*.
- xiv. **Unemployment Rate:** The proportion of residents of a country that are actively looking for work, but do not have a job. Specifics may vary from country to country (in the U.S., for example, people younger than 16 aren’t counted), and data is compiled and provided by the World Bank.
- xv. **Gross Domestic Product:** Largely viewed as the best indicator of a country’s productive capacity, GDP is the worth of all final goods and services created in a given country in a fiscal year. Data is provided by the UN and World Bank and measured in 2018 International Dollars. GDP per capita can be calculated by dividing GDP by population.

- xvi. **Median Wealth per Adult:** Measured in USD, average wealth per adult is taken as a median to avoid potential rightward skewing. It includes only adults as, in most countries, children don't accrue significant amounts of wealth, and is largely considered a better (although harder to measure) indicator of economic well-being than GDP per capita. Data is provided by the annual *Global Wealth Databook* of Credit Suisse, a Swiss investment bank.
- xvii. **Government Revenues, Expenditures, and Surpluses or Deficits:** Measured in millions of USD and provided by the CIA's *World Factbook*, government budget measures the "size" of a government, which can be used to approximate the level of involvement in residents' day-to-day lives.
- xviii. **Real GDP Growth Rate:** Taken as a percentage, real GDP growth rate measures the aggregate yearly growth of a nation's economy, adjusted for inflation. Data comes from the International Monetary Fund's World Economic Outlook Database.
- xix. **Net Exports per Capita:** Measured in USD, this is the per person difference in the value of goods and services imported and exported by a country. Information is from the *Statistical Appendix of the Economic Report for the Governor and Legislative Assembly* of the UN.
- xx. **Average Temperature:** Measured in degrees Fahrenheit, average temperature is the mean daily temperature over a given year. Data is provided by the World Population Review.
- xxi. **Natural Disaster Risk:** Sourced from the United Nations University Institute for Environment and Human Security, natural disaster risk is the likelihood that a country falls victim to a severe natural disaster, such as an earthquake, volcanic eruption, storm, flood, drought, or sea-level rise, in a given year, measured as a percentage.
- xxii. **Carbon Dioxide Emissions per Capita:** Measured in metric tons, the per capita output of carbon dioxide in a given year, specifically from the burning of fossil fuels or production of cement. Data sourced from *Our World in Data*.
- xxiii. **Life Expectancy:** At birth, the number of years that any given resident of a country is expected to live. Data from the World Health Organization.
- xxiv. **Under-Five Mortality Rate:** Per 1,000 live births, the number of children that die before the age of five. Data from the World Bank.
- xxv. **Overall Mean Body Mass Index (BMI):** An individual's BMI is their mass in kilograms divided by their height in mass squared. Provided by the World Health organization, this metric is a country's national average BMI.

- xxvi. **Incarceration Rate:** Per 100,000 residents, the number of people imprisoned at any given time. Data from the World Prison Brief.
- xxvii. **Homicide Rate:** Per 100,000 residents per year, the number of intentional homicides within a country. Data provided by the United Nations Office on Drugs and Crime.
- xxviii. **Cultural Diversity:** Measured as ethnic, religious, and linguistic fractionalization. (Fractionalization is the probability that any two individuals will be of the same ethnicity or religion, or speak the same language.) Each of the three indicators is expressed as a probability, between zero and one, and data comes from *The Journal of Economic Growth*.
- xxix. **Marriage and Divorce Rates:** Provided by the World Bank, the number of marriages and divorces per 1,000 residents per year. The two can be divided to calculate the marriage to divorce ratio.
- xxx. **Religiosity:** Sourced from a Gallup poll, the proportion of residents of a given country that answer “Yes” to “Is religion important in your daily life?”

6. Methods of Analysis

- i. **Inference Tests:** The first component of this paper’s statistical analysis is a series of two-sample difference of means t-tests to determine whether or not the individual predictors of happiness discussed in the prior research section are significantly correlated with population-level happiness. The specific metrics that will be considered are the GDP per capita (it’s more correlated with happiness than median wealth per adult), marriage to divorce ratio, and the Gini, Education, Economic Freedom, and Democracy indices.

To conduct each test, each of the countries with available data will be sorted according to the metric of interest, and placed in either a “high” or a “low” category, depending on its percentile (over or under the 50th). Once each country has been sorted, the two groups, “high” and “low,” will act as the two samples needed to run a two-sample difference of means t-test. The mean, of course, is of the countries’ happiness scores.

In doing so, this paper will determine whether or not the predictors of individual happiness are associated with statistically significant differences in mean population happiness scores.

- ii. **Predictive Model:** The second component of analysis is a multiple linear regression to predict the happiness score of a given country. Theoretically, multiple linear regressions of each of the 30 metrics, and every possible combination of them, could be calculated

and compared to find the model that best explains the variance in happiness scores. However, doing so would be quite costly:

Number of Predictors	Number of Regressions to Calculate	Regressions	Completion Time (seconds)
1	1	1. $\hat{y} = ax_1 + b$	0
2	7	1. $\hat{y} = ax_1 + b$ 2. $\hat{y} = ax_2 + b$ 3. $\hat{y} = ax_1 + bx_2 + c$ 4. $\hat{y} = a(x_1x_2) + b$ 5. $\hat{y} = ax_1 + b(x_1x_2) + c$ 6. $\hat{y} = ax_2 + b(x_1x_2) + c$ 7. $\hat{y} = ax_1 + bx_2 + c(x_1x_2) + d$	0.2
3	127		3.4
4	32,767		980.8 (≈ 16 minutes)
5	2,147,483,647		≈ 2 years
30	$2^{1,073,741,824} - 1$		<i>Heat death of the universe</i>
n	$2^{(2^n-1)} - 1$		

The algorithm to calculate and compare regressions—helpfully provided by Aravind Hebbali of the Comprehensive R Archive Network (CRAN)—is of the $O(2^{2^N})$ complexity class; each additional predictor added doubles the rate by which adding a predictor increases the algorithm’s runtime. On contemporary computers, there is simply no way to calculate $2^{1,073,741,824} - 1$ regressions.

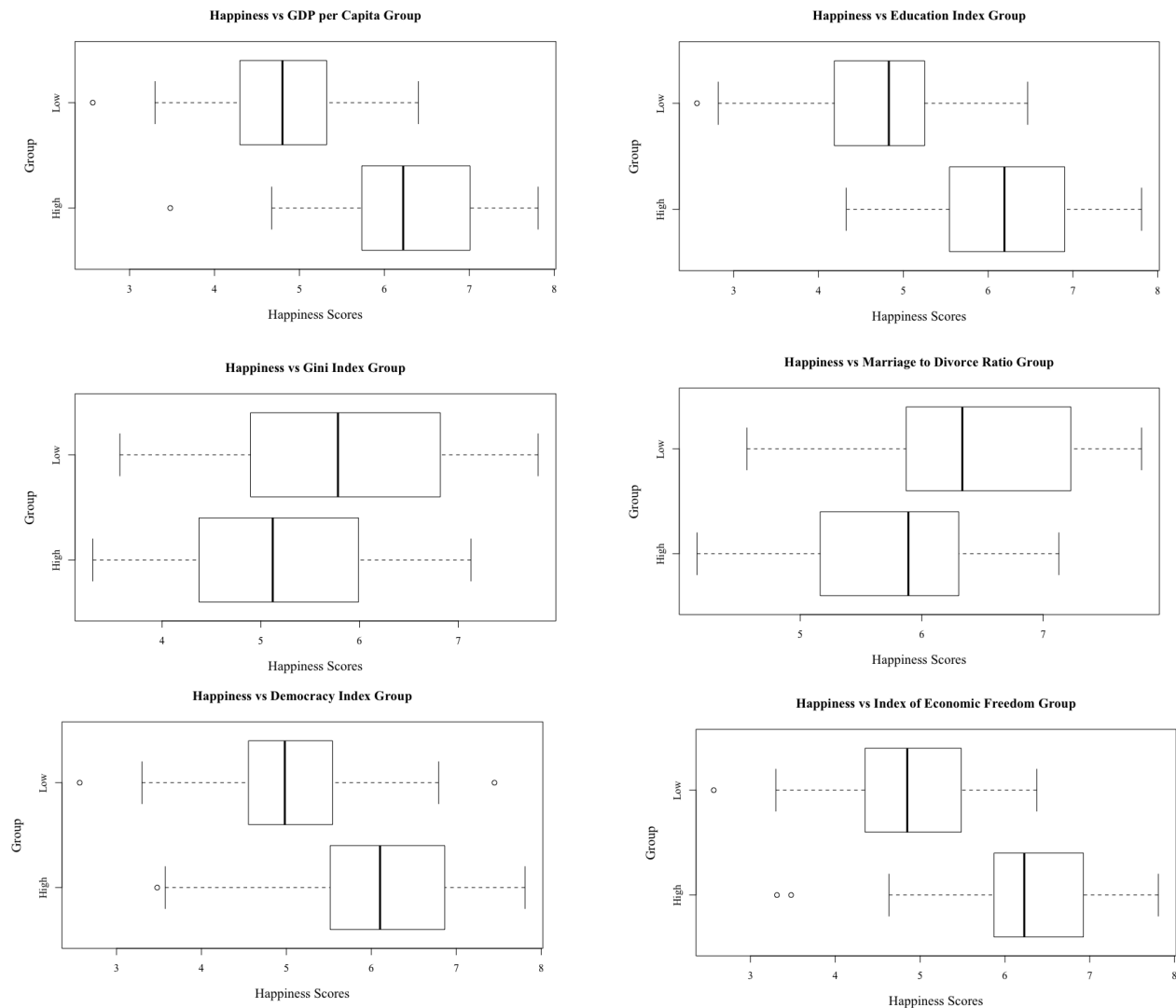
Instead, multiple linear regressions will be constructed only considering the four individual predictors most strongly correlated with happiness. Each predictor will be assessed in a simple linear regression with the happiness scores, and the multiple R^2

values associated with those regressions will be used to select the most relevant predictors.

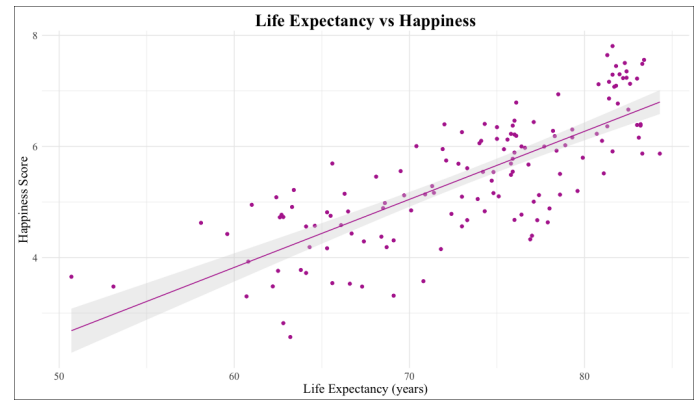
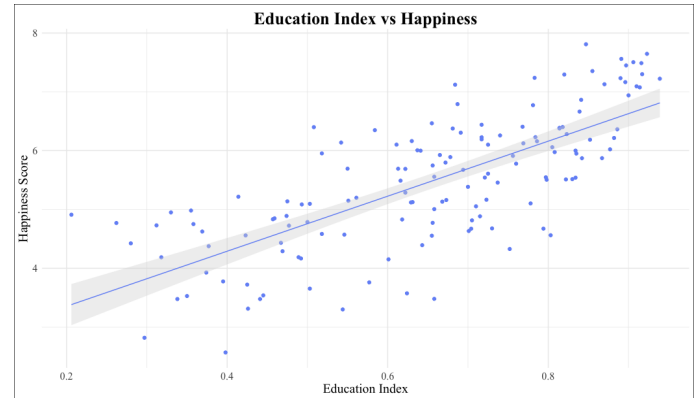
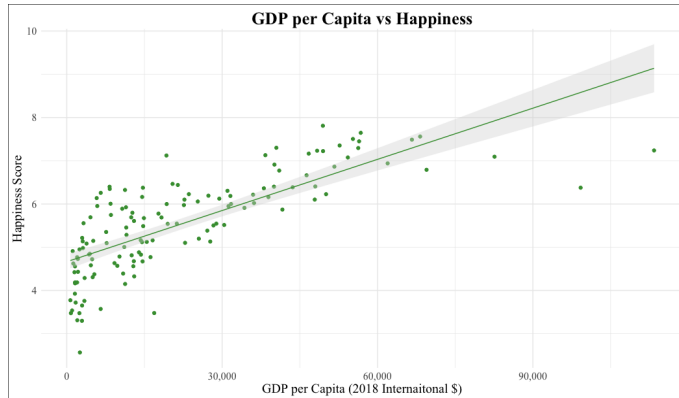
Once a reasonable number of predictors are identified, all possible regressions will be calculated and evaluated considering their R^2 adjusted scores, F-statistics, standard errors, and P-values.

7. Graphs and Displays

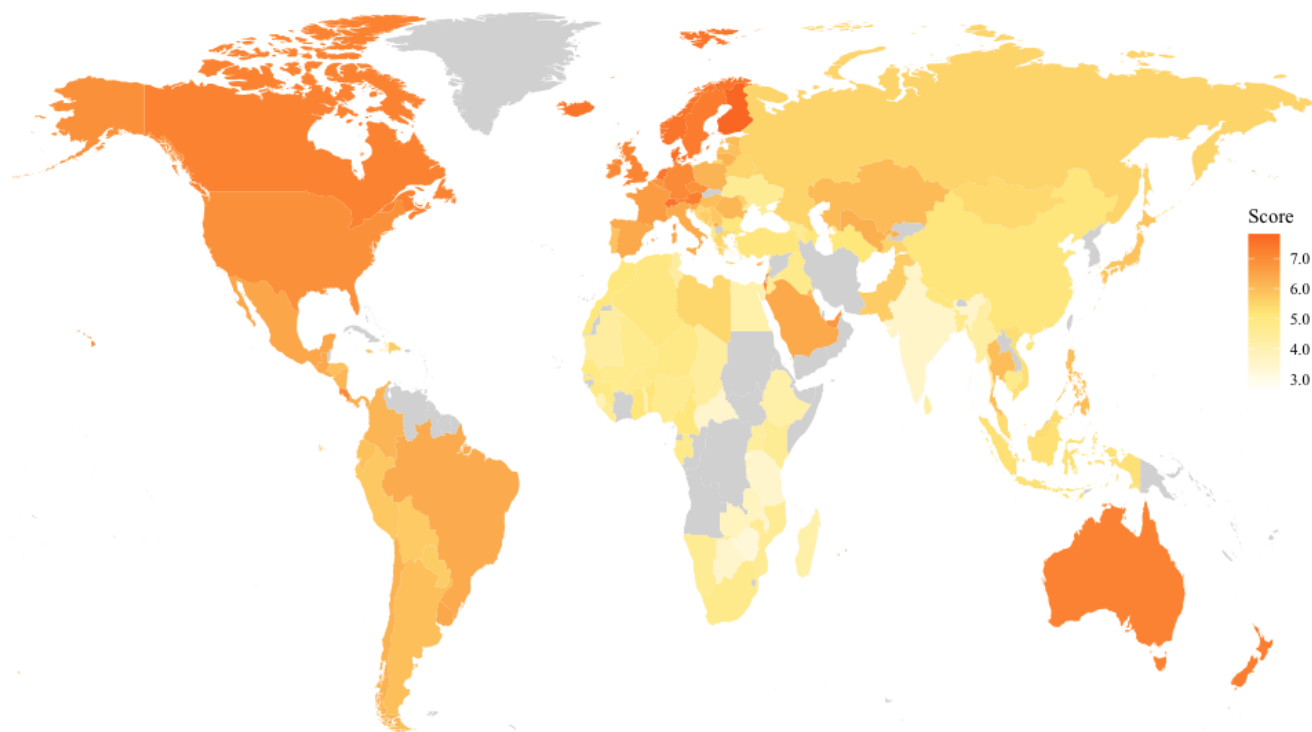
The six boxplots (below) show that there are evident differences in happiness among countries with high and low levels of GDP per capita, marriage to divorce ratios, and Gini, Education, Economic Freedom, and Democracy indices. (Section 8 includes formal inference tests proving the correlations).



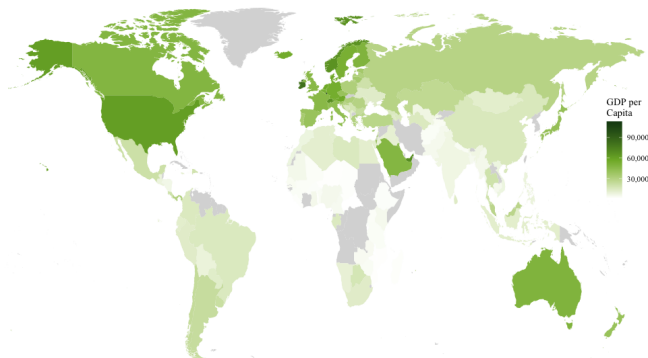
And on a population level, the following scatter plots show the correlations between happiness and its four most significant predictors (discussed in section 9), GDP per capita, Education index, Social Progress Index, and life expectancy. Heat maps of the same predictors follow.



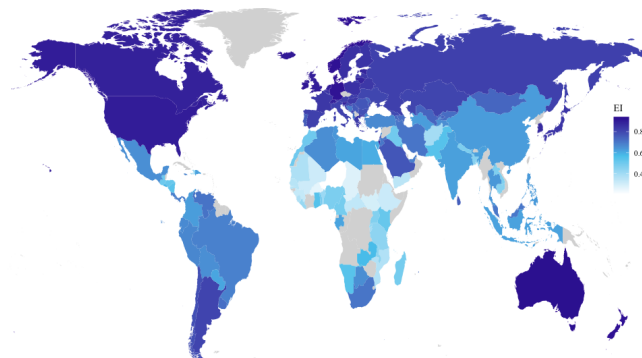
Happiness Scores



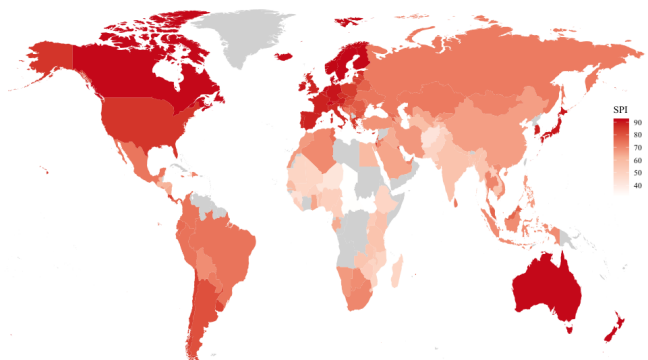
GDP per Capita



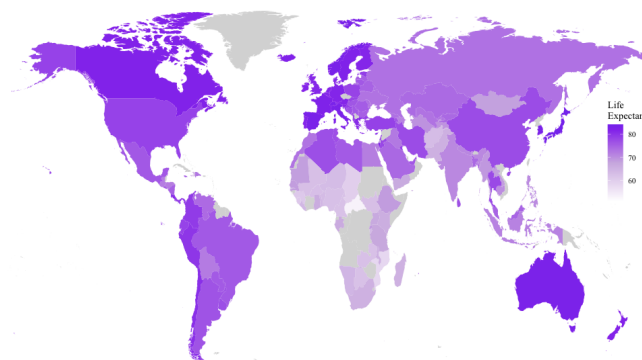
Education Index



Social Progress Index



Life Expectancy



8. Two-Sample Difference of Means t-Tests

As demonstrated in the following six two-sample difference of means t-tests, each of the predictors that prior research shows is correlated with individual happiness is also statistically significantly correlated with population level happiness.

This suggests that, while happiness is individualistic by definition, population-level conditions play a significant role in determining not just the happiness of groups, but also that of individuals.

i. GDP per Capita

The following inference tests proves that wealthy countries have higher mean happiness scores than poor countries, suggesting that as wealth rises, so does happiness. As discussed in section 3, Di Tella and MacCulloch find that this is likely because being unable to afford basic necessities makes people unhappy, rather than the idea that buying luxuries makes people more happy.

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low GDPs per capita

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l > 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.1 in appendix 1) shows that the distribution of happiness scores is approximately normal.
- Unbias: Presumably, the data for both GDP per capita and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(6.278 - 4.793) - 0}{\sqrt{\frac{0.8362995^2}{68} + \frac{0.8437943^2}{68}}} = 10.306 \text{ with df} = 133.99$$

$$P(t > 10.306 \text{ w/ df} = 133.99) = 0$$

Since $P(0)$ is less than $\alpha (.05)$, there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low GDP per capita groups.

ii. Marriage to Divorce Ratio

The following inference test shows that countries with lower marriage to divorce ratios have higher mean happiness scores. This supports the idea that either a) happy people are more likely to get married, or b) marriage makes people happier, discussed by Grove et al.

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low marriage to divorce Ratios

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l < 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.2 in appendix 1) shows that the distribution of happiness scores is approximately normal.
- Unbias: Presumably, the data for both marriage to divorce ratio and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(5.749 - 6.415) - 0}{\sqrt{\frac{0.7343915^2}{41} + \frac{0.8234356^2}{44}}} = -3.94 \text{ with df} = 82.85$$

$$P(t < -3.94 \text{ w/ df} = 82.85) = 0$$

Since $P(0)$ is less than $\alpha (.05)$, there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low marriage to divorce ratio groups.

iii. Gini Index

The following inference test shows that countries with low levels of income inequality have higher mean happiness scores than countries with high levels of income inequality. This is congruent with the prior research by Eaterlin and Boyce et al (section 3) that indicates a correlation between individual happiness and relative income.

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low Gini indices

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l < 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.3 in appendix 1) shows that the distribution of happiness scores is approximately normal.
- Unbias: Presumably, the data for both Gini index and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(5.139 - 5.837) - 0}{\sqrt{\frac{1.03242^2}{64} + \frac{1.087532^2}{64}}} = -3.73 \text{ with } df = 125.66$$

$$P(t < -3.73 \text{ w/ } df = 125.66) = 0.0001$$

Since P (.0001) is less than α (.05), there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low Gini index groups.

iv. Education Index

The following inference test proves that countries with higher quality of education have mean happiness scores higher than countries with lower quality of education, as found by Wan-Chi.

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low Education indices

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l > 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.4 in appendix 1) shows that the distribution of happiness scores is approximately normal.
- Unbias: Presumably, the data for both Education index and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(6.182 - 4.775) - 0}{\sqrt{\frac{0.8699671^2}{71} + \frac{0.901013^2}{71}}} = 9.46 \text{ with df} = 139.83$$

$$P(t > 9.46 \text{ w/ df} = 139.83) = 0$$

Since P (0) is less than α (.05), there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low Education index groups.

v. Index of Economic Freedom

The following two inference tests support the conclusions from Brulé and Veenhoven that freedom and happiness are correlated, as countries with high indices of Economic Freedom and Democracy are happier than those with low indices.

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low Indices of Economic Freedom

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l > 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.5 in appendix 1) shows that the distribution of happiness scores is approximately normal.

- Unbias: Presumably, the data for both Index of Economic Freedom and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(6.230 - 4.849) - 0}{\sqrt{\frac{0.9124022^2}{71} + \frac{0.8097279^2}{71}}} = 9.54 \text{ with df} = 138.05$$

$$P(t > 9.53 \text{ w/ df} = 138.05) = 0$$

Since P (0) is less than α (.05), there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low Index of Economic Freedom groups.

vi. Democracy Index

$\mu_h - \mu_l$ = the true difference in mean happiness scores between the countries with high and low Democracy indices

$$H_o: \mu_h - \mu_l = 0$$

$$H_a: \mu_h - \mu_l > 0$$

$$\alpha = .05$$

Checks:

- Normality: the normal probability plot (Figure 1.6 in appendix 1) shows that the distribution of happiness scores is approximately normal.
- Unbias: Presumably, the data for both Democracy index and happiness was collected in an unbiased manner.

$$t = \frac{(\bar{x}_h - \bar{x}_l) - (\mu_h - \mu_l)}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}} = \frac{(6.013 - 4.99) - 0}{\sqrt{\frac{1.01898^2}{73} + \frac{0.9482985^2}{73}}} = 6.24 \text{ with df} = 143.26$$

$$P(t > 6.24 \text{ w/ df} = 143.26) = 0$$

Since $P(0)$ is less than $\alpha (.05)$, there is enough evidence to reject the null hypothesis and conclude that there is a difference in mean happiness scores of countries in the high and low Democracy index groups.

9. Multiple Linear Regression

The following multiple linear regression shows the best predictors of population happiness are factors that are often only applicable to populations, and not individuals.

The most significant predictors of happiness score are shown below (of the 38 predictors, 11 had R^2 values greater than .3):

Predictor	R^2
Social Progress Index (SPI)	0.652295965
Human Development Index (HDI)	0.6325815671
Life Expectancy	0.6052498322
Healthcare Efficiency Index (HEI)	0.5662067064
GDP per capita	0.5645023883
Education Index	0.5377178731
Index of Economic Freedom	0.4570584084
Child Mortality Rate	0.443427149
Wealth per Adult	0.4252058476
Religiosity	0.3976437951
Electricity Consumption per capita	0.3239198394

Although SPI and HDI are both relatively strongly correlated with happiness, they're also strongly correlated with one another. The same is true of life expectancy and HEI. Therefore, the four most significant predictors of happiness—and the ones that are used to make the multiple linear regression—are GDP per capita, Education index, SPI, and life expectancy.

The best predictor of a country's happiness score is:

$$\hat{y} = 2.979 + .00025x_1 + .00058x_5 - .10x_6 - .000000042x_7 + .0010x_8 - .0000041x_9 + 000000057x_{10}$$

where:

\hat{y} = predicted happiness score

x_1 = GDP per capita

x_2 = Education index

x_3 = SPI

x_4 = life expectancy

$x_5 = x_3 * x_4$

$x_6 = x_2 * x_3$

$x_7 = x_1 * x_3 * x_4$

$x_8 = x_2 * x_3 * x_4$

$x_9 = x_1 * x_2 * x_4$

$x_{10} = x_1 * x_2 * x_3 * x_4$

F-Statistic	R ² (adjusted)	S _e	P-Value
45.45	.7101	.6106	2.2e-16

Since the regression's R² value is .7101, it can explain approximately 71% of the variance in global happiness scores.

Model Utility F-Test

H₀: $\beta_1 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$

H_a: one of the slopes is not 0

$\alpha = .05$

Checks:

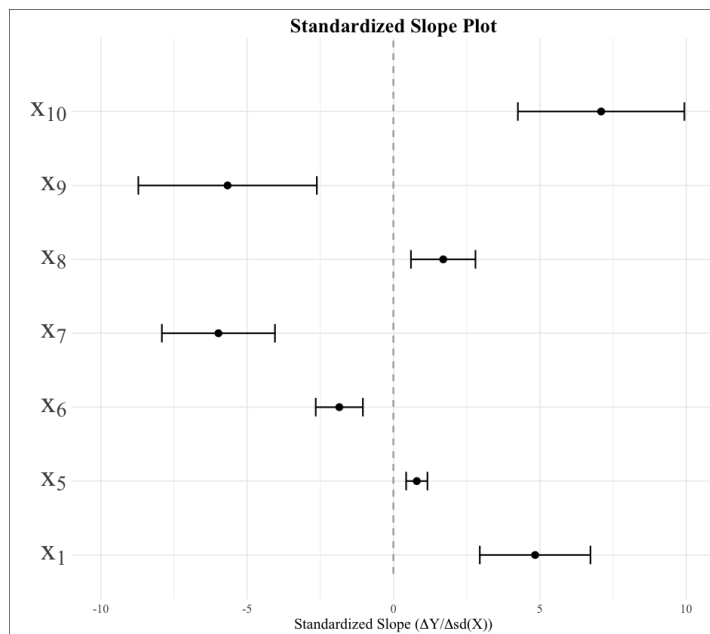
- Linearity: The scatter plots (above) show that the predictors have linear correlations with happiness
- Normality: The normal probability plot (figure 2.2 in appendix 1) shows that the standardized residuals of predicted happiness are normally distributed
- Equal Variance: The residual plot (figure 2.1 in appendix 1) shows that residual values and happiness scores are not correlated

$$F = \frac{R^2/k}{(1-R^2)/(n-(k+1))} = \frac{0.7261/7}{(0.2739)/(120)} = 45.45 \quad \text{w/ df} = 7/120$$

$$P(F > 45.45) = 0$$

Since $P(0)$ is less than $\alpha(.05)$, there is enough evidence to reject the null hypothesis and conclude that at least one of the predictors is statistically significant, and that the predictive model is useful.

Graphically, a standardized slope plot shows the significance of the predictors:



To create a standardized slope plot, the regression is first “z-transformed.” Each individual observation is transformed into a z-score, and the regression is recalculated. While the coefficients of the transformed predictors are different, the R^2 values and F-statistic are identical between the original and z-transformed regressions, meaning they are essentially the same. With the z-transformed regression, however, the predictor coefficients are on the same scale, and

therefore can be directly compared to consider their relative importances to predicted happiness. On the plot (above), the coefficient of each predictor is plotted along the x-axis, with error bars made from their standard errors (indicating precision), such that the larger the distance that a predictor has from zero, the more significant it is to predicted happiness.

10. Analysis

The two-sample difference of means t-tests show that the predictors of individual happiness (discussed in section 3) are also significant predictors of population-level happiness. Intuitively, this finding is logical: since a country's happiness score is calculated as the average of its residents' individual feelings of happiness, it follows that national happiness scores are higher in countries with widespread conditions correlated with individual happiness. For example, since more educated individuals are happier, it makes sense that populations with better educational systems reported higher happiness, too.

What is more significant, however, is the finding that many of the predictors with the most significant correlations with population-level happiness are those that cannot be considered when predicting individual happiness. As seen in the table in section 9, predictors such as Social Progress Index (SPI), life expectancy, and electricity consumption per capita, are relatively highly correlated with happiness scores, yet, conceptually, aren't applicable to individuals. (SPI considers the tendencies of a society—individuals, by definition, cannot be a society; individuals rarely, if ever, have a reliable sense of their own life expectancy; and electricity consumption per capita includes that used in manufacturing and production, not just personal electricity use.)

Together, these findings implicate that happiness-driven policy makers have a variety of tools at their disposal. Obviously—as many current and historical policies aim(ed) to do—promoting conditions and incentivizing behavior that correlates with individual happiness also correlates with happier populations. But government intervention in individual happiness is, at best, an incredible expansion of government powers, and, at worst, an unethical and dangerous overreach. In that context, governments and policy makers can still work to increase a country's

happiness levels by exploring correlated predictors that are less individualistic, such as access to quality healthcare or infant mortality rates.

11. Limitations

The major limitations of this paper is that it does not establish causality between any predictors of happiness and happiness itself. None of this paper's findings are reason to believe that policies that increase a country's SPI, Education index, GDP per capita, or life expectancy will necessarily increase its happiness score, as well—despite the fact that all of those are correlated with happiness, and that the multiple linear regression model (section 9) would predict an increase in happiness score.

The other limitation of this paper—perhaps more philosophical than statistical—is that it does not consider whether or not happiness-driven policy is either a) appropriate for a government to attempt to implement, or b) the best way to increase the overall well-being of a population. After all, many of the countries with the highest happiness scores don't have a robust history of pursuing explicitly happiness-driven policy.

12. Conclusion

This paper found that predictors of individual happiness are significant for population-level happiness, although the inverse isn't necessarily true or applicable. Although this paper found that Human Development Index, Social Progress Index, Education index, and life expectancy are relatively correlated with population happiness, further research is needed to establish causality between happiness and any of the aforementioned predictors, or combinations thereof. Until those relationships are proven, this paper is likely of limited practical use to policymakers seeking to improve the overall happiness of their countries.

References

- Alesina, A., R. Baqir, and W. Easterly. (1997). "Public Goods and Ethnic Divisions," *Quarterly Journal of Economics* 114, 1243-1284.
- Boyce, C. J., Brown, G. D., & Moore, S. C. (2010). Money and happiness: Rank of income, not income, affects life satisfaction. *Psychological science*, 21(4), 471-475.
- Brulé, G., & Veenhoven, R. (2014). Freedom and happiness in nations: Why the Finns are happier than the French. *Psychology of Well-Being*, 4(1), 1-14.
- Chen, W. C. (2012). How education enhances happiness: Comparison of mediating factors in four East Asian countries. *Social indicators research*, 106(1), 117-131.
- "Compendium of Environmental Sustainability Indicators." SEDAC, South Pacific Applied Geoscience Commission,

sedac.ciesin.columbia.edu/data/set/cesic-environmental-vulnerability-index-2004
- "Democracy Index 2020." Economist Intelligence Unit, 2020,

www.eiu.com/n/campaigns/democracy-index-2020/.
- Di Tella, R., & MacCulloch, R. (2008). Happiness Adaptation to Income Beyond" Basic Needs" (No. w14539). National Bureau of Economic Research.
- Easterlin, R. A. (2021). Does Money Make People Happy?. Springer Books, 19-32.
- "Economic Freedom of the World." Fraser Institute, 28 Dec. 2016,

www.fraserinstitute.org/economic-freedom/map
- Fearon, J.D. Ethnic and Cultural Diversity by Country*. *Journal of Economic Growth* 8, 195–222 (2003). <https://doi.org/10.1023/A:1024419522867>
- "Gender Inequality Index (GII)." Human Development Reports, The United Nations,

hdr.undp.org/en/content/gender-inequality-index-gii.

Gove, W. R., Hughes, M., & Style, C. B. (1983). Does marriage have positive effects on the psychological well-being of the individual?. *Journal of health and social behavior*, 122-131.

Helliwell, John F., Richard Layard, Jeffrey Sachs, and Jan-Emmanuel De Neve, eds. 2020. *World Happiness Report 2020*. New York: Sustainable Development Solutions Network

“Human Development Reports.” Education Index | Human Development Reports, The United Nations, 2020, hdr.undp.org/en/content/education-index.

“Social Progress Index.” Social Progress Imperative, 2018, www.socialprogress.org/.

Tandon, A., Murray, C. J., Lauer, J. A., & Evans, D. B. (2000). *Measuring overall health system performance for 191 countries*. Geneva: World Health Organization.

United Nations Development Programme. (2020). *Human Development Reports*.
<http://hdr.undp.org/en/2020-report>.

US Census Bureau. “Gini Index.” The United States Census Bureau, 25 Jan. 2016,
www.census.gov/topics/income-poverty/income-inequality/about/metrics/gini-index.html

“World Risk Report 2016: Inadequate Infrastructure Pushes Up the Risk of Disaster.” United Nations University, The United Nations, 2016,
unu.edu/media-relations/releases/wrr-2016-inadequate-infrastructure-pushes-up-risk-of-disaster.html#info.

Appendix 1:

Figure 1.1: Normal Probability Plot of Happiness as a Function of GDP per Capita

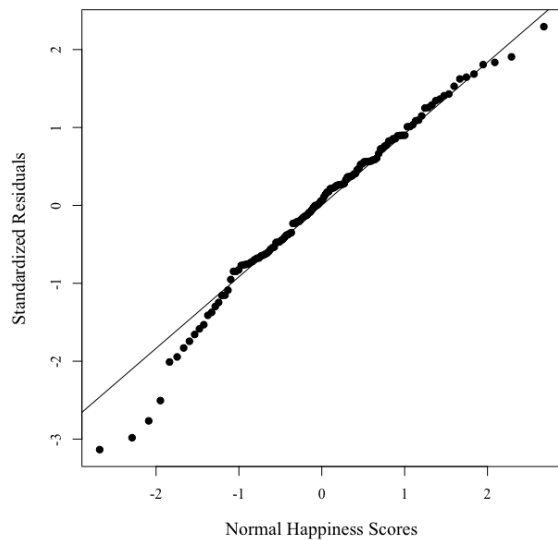


Figure 1.2: Normal Probability Plot of Happiness as a Function of Marriage to Divorce Ratio

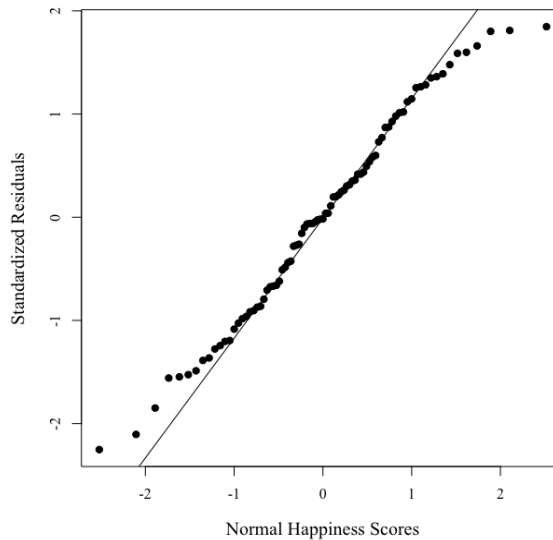


Figure 1.3: Normal Probability Plot of Happiness as a Function of Gini Index

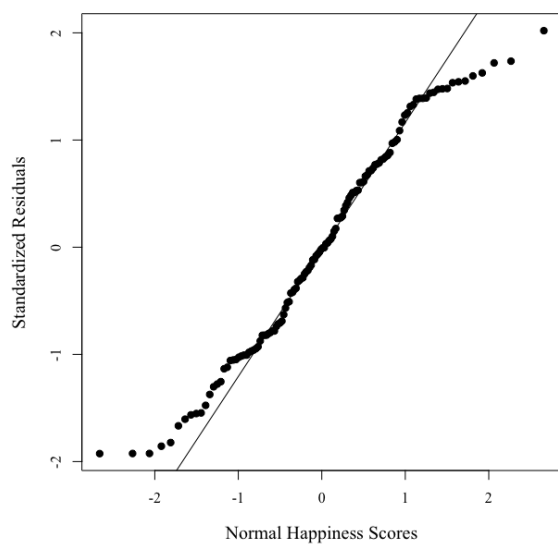
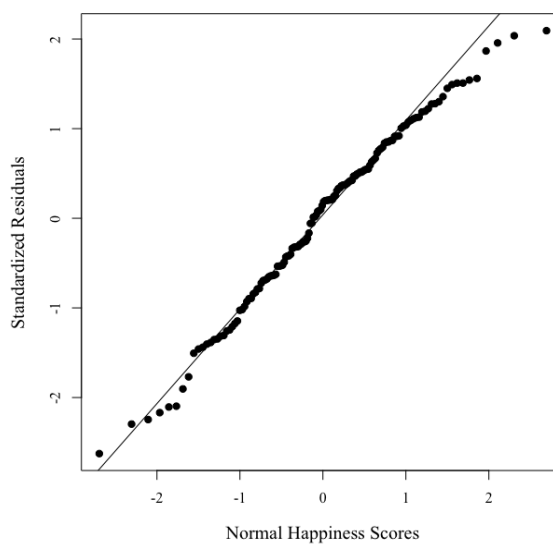
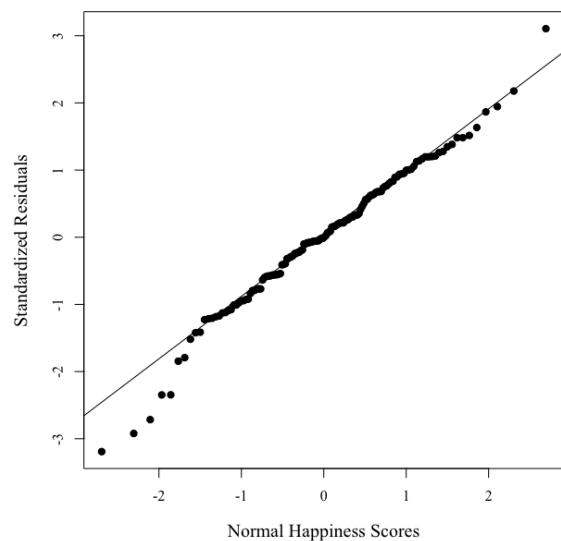


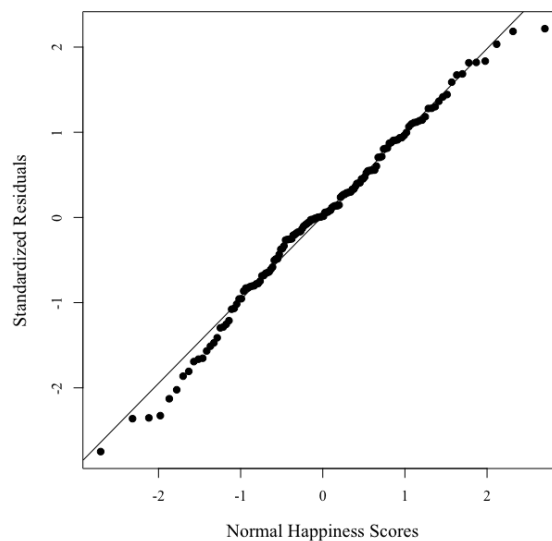
Figure 1.4: Normal Probability Plot of Happiness as a Function of Education Index



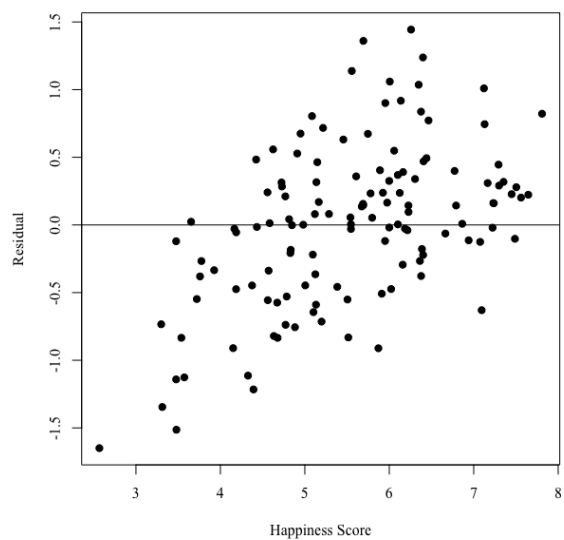
**Figure 1.5: Normal Probability Plot of Happiness
as a Function of Index of Economic Freedom**



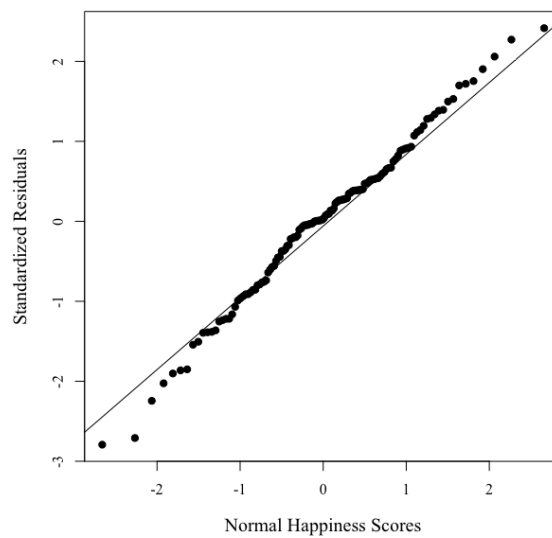
**Figure 1.6: Normal Probability Plot of Happiness
as a Function of Democracy Index**



**Figure 2.1:
Residual Plot of Multiple Linear Regression**



**Figure 2.2: Normal Probability Plot of
Multiple Linear Regression**



Appendix 2

Table 1A

Country	Happiness Score	Human Development Index (HDI)	Population	Area (km ²)	Population Density (Pop./km ²)	Unemploy ment Rate	GDP (2018 International)	Electricity Consumption (GWh/year)	Gini Index	Index of Economic Freedom
Afghanistan	2.57	0.51	32,890,171	652,860	50.38	11.2	83,337,636,266	6,023	—	53.0
Albania	4.88	0.80	2,845,955	27,400	103.87	11.9	39,653,392,851	4,849	29	65.2
Algeria	5.01	0.75	44,700,000	2,381,741	18.77	11.5	496,200,052,508	62,062	28	49.7
Argentina	5.98	0.85	45,808,747	2,736,690	16.74	11.7	1,035,949,340,413	125,030	41	52.7
Armenia	4.68	0.78	2,967,900	28,470	104.25	17.5	38,417,341,116	5,791	34	71.9
Australia	7.22	0.94	25,766,558	7,692,020	3.35	7.1	1,275,026,604,984	241,020	36	82.4
Austria	7.29	0.92	8,933,346	82,520	108.26	5.4	502,771,138,676	66,849	31	73.9
Azerbaijan	5.17	0.76	10,122,148	82,654	122.46	6.0	144,573,505,574	20,286	27	70.1
Bahrain	6.23	0.85	1,483,756	780	1,902.25	0.8	74,287,027,092	27,447	—	69.9
Bangladesh	4.83	0.63	170,352,272	130,170	1,308.69	4.2	733,561,248,619	70,594	32	56.5
Belarus	5.54	0.82	9,408,350	202,980	46.35	4.6	183,324,275,683	32,736	25	61.0
Belgium	6.86	0.93	11,554,449	30,280	381.59	5.1	597,058,697,423	82,051	28	70.1
Benin	5.22	0.55	12,506,347	112,760	110.91	2.0	37,158,284,361	1,188	48	59.6
Bolivia	5.75	0.72	11,797,257	1,083,300	10.89	3.5	100,586,269,210	9,057	44	42.7
Bosnia & Herz.	5.67	0.78	3,332,593	51,200	65.09	18.4	49,634,148,336	12,253	33	62.9
Botswana	3.48	0.74	2,410,338	566,730	4.25	18.7	40,687,546,271	3,301	53	67.6
Brazil	6.38	0.77	212,890,089	8,358,140	25.47	14.6	3,129,612,725,335	597,234	53	53.4
Bulgaria	5.10	0.82	6,951,482	108,560	64.03	5.7	158,775,695,748	33,134	37	70.4
Burkina Faso	4.77	0.45	21,510,181	273,600	78.62	6.4	43,094,804,969	1,760	35	56.5
Burundi	3.78	0.43	12,574,571	25,680	489.66	1.4	8,711,138,069	339	39	49.9
Cambodia	4.85	0.59	15,552,211	176,520	88.10	0.7	69,183,270,853	8,402	—	57.3
Cameroon	5.09	0.56	24,348,251	472,710	51.51	3.4	93,012,146,160	6,743	47	53.4
Canada	7.23	0.93	38,390,828	8,965,590	4.28	7.5	1,855,771,204,644	549,263	34	77.9
Centr. African Rep.	3.48	0.40	5,633,412	622,980	9.04	3.7	4,456,987,618	140	56	48.8
Chad	4.42	0.40	16,818,391	1,259,200	13.36	1.9	24,973,582,398	213	43	50.4
Chile	6.23	0.85	19,678,363	743,532	26.47	12.3	463,832,041,067	74,992	47	75.2
China	5.12	0.76	1,407,141,200	9,424,703	149.30	—	21,730,684,677,909	7,225,500	39	58.4
Colombia	6.16	0.77	51,049,498	1,109,500	46.01	14.7	743,037,024,276	70,203	50	68.1
Comoros	4.29	0.55	758,316	1,861	407.48	4.4	2,612,830,027	93	45	55.7
Costa Rica	7.12	0.81	5,163,038	51,060	101.12	22.0	99,354,588,664	10,065	48	64.2
Croatia	5.51	0.85	4,047,200	56,590	71.52	8.0	114,617,743,866	17,475	31	63.6
Cyprus	6.16	0.89	888,005	9,240	96.10	10.5	34,574,175,051	4,524	34	71.4
Czech Republic	6.91	—	10,707,839	77,200	138.70	2.9	429,335,963,330	63,920	26	73.8
Denmark	7.65	0.94	5,840,045	40,000	146.00	5.8	331,502,619,456	32,703	28	77.8
Dominican Republic	5.69	0.76	10,535,535	48,310	218.08	5.9	192,667,405,086	16,067	46	62.1
Ecuador	5.93	0.76	17,694,676	248,360	71.25	4.9	202,186,033,689	24,605	45	52.4
Egypt	4.15	0.71	101,641,382	—	—	5.7	1,145,113,927,246	150,579	32	55.7
El Salvador	6.35	0.67	6,825,935	20,720	329.44	4.2	56,623,752,911	6,212	38	61.0
Estonia	6.02	0.89	1,329,460	43,470	30.58	8.1	48,064,476,468	8,858	33	78.2
Ethiopia	4.19	0.49	117,876,000	1,129,300	104.38	2.1	235,176,795,335	8,986	35	51.7

Country	Happiness Score	Human Development Index (HDI)	Population	Area (km²)	Population Density (Pop./km²)	Unemployment Rate	GDP (2018 International)	Electricity Consumption (GWh/year)	Gini Index	Index of Economic Freedom
Finland	7.81	0.94	5,506,902	303,920	18.12	8.4	272,319,030,456	84,207	27	76.1
France	6.66	0.90	67,399,000	547,557	123.09	8.6	3,120,958,807,400	449,422	33	65.7
Gabon	4.83	0.70	2,233,272	257,670	8.67	20.1	31,982,589,532	2,230	38	58.1
Gambia	4.75	0.50	2,335,504	—	—	—	—	291	—	—
Georgia	4.67	0.81	3,716,858	69,490	53.49	20.4	54,383,410,980	12,179	38	77.2
Germany	7.08	0.95	83,190,556	349,380	238.11	4.5	4,514,794,305,293	524,268	32	72.5
Ghana	5.15	0.61	30,955,202	227,540	136.04	4.5	158,272,063,272	8,842	44	59.2
Greece	5.52	0.89	10,718,565	128,900	83.15	16.1	325,789,646,050	53,635	36	60.9
Guatemala	6.40	0.66	17,109,746	107,160	159.67	2.5	141,365,506,390	10,570	48	64.0
Guinea	4.95	0.48	12,907,395	245,720	52.53	4.3	31,748,138,613	1,983	34	56.5
Haiti	3.72	0.51	11,743,017	27,560	426.09	13.9	20,120,446,470	359	41	50.8
Honduras	5.95	0.63	9,450,711	111,890	84.46	5.2	55,666,121,201	6,696	51	59.8
Hong Kong	5.51	0.95	7,474,200	—	—	6.4	—	44,730	—	—
Hungary	6.00	0.85	9,731,000	91,260	106.63	4.4	308,700,187,469	41,621	30	67.2
Iceland	7.50	0.95	368,590	100,830	3.66	5.4	20,366,868,989	18,679	28	77.4
India	3.57	0.65	1,374,708,176	2,973,190	462.37	6.6	8,995,056,925,543	1,547,000	36	56.5
Indonesia	5.29	0.72	270,203,917	1,877,519	143.92	7.1	3,115,566,265,269	263,139	38	66.9
Iran	4.67	0.78	84,291,390	—	—	11.2	—	254,724	40	47.2
Iraq	4.79	0.67	41,190,700	434,128	94.88	12.8	419,373,526,692	43,971	30	—
Ireland	7.09	0.96	4,977,400	68,890	72.25	7.2	411,091,813,767	27,203	32	81.4
Israel	7.13	0.92	9,326,420	21,640	430.98	4.7	357,633,413,445	56,391	39	73.8
Italy	6.39	0.89	59,304,696	297,730	199.19	9.8	2,587,030,339,783	297,150	35	64.9
Ivory Coast	5.23	0.54	27,087,732	—	—	3.4	—	6,686	—	61.7
Jamaica	5.89	0.73	2,734,093	10,830	252.46	7.9	29,253,953,823	3,025	46	69.0
Japan	5.87	0.92	125,620,000	364,500	344.64	3.0	5,230,146,551,512	902,842	32	74.1
Jordan	4.63	0.73	10,904,244	88,780	122.82	14.6	100,420,802,562	17,384	34	64.6
Kazakhstan	6.06	0.83	18,891,304	2,699,700	7.00	5.0	477,876,448,362	91,668	28	71.1
Kenya	4.58	0.60	47,564,296	569,140	83.57	2.6	221,144,073,979	8,722	41	54.9
Kosovo	6.33	—	1,782,115	10,887	163.69	25.9	20,041,776,670	5,715	—	66.5
Kuwait	6.10	0.81	4,464,521	17,820	250.53	2.3	213,773,808,102	59,278	—	64.1
Kyrgyzstan	5.54	0.70	6,626,800	—	—	6.6	—	11,740	—	63.7
Laos	4.89	0.61	7,337,783	—	—	0.6	—	4,059	—	53.9
Latvia	5.95	0.87	1,891,300	62,090	30.46	8.0	59,057,492,337	6,877	34	72.3
Lebanon	4.77	0.74	6,769,000	10,230	661.68	6.3	109,448,612,924	17,708	32	51.4
Lesotho	3.65	0.53	2,007,201	30,360	66.11	22.8	5,931,020,494	902	54	53.5
Liberia	4.56	0.48	4,661,010	96,320	48.39	2.7	7,384,259,029	348	35	49.2
Libya	5.49	0.72	6,959,000	1,759,540	3.96	18.6	102,665,385,322	25,693	—	—
Lithuania	6.22	0.88	2,790,044	62,630	44.55	10.4	100,384,504,447	11,306	37	76.9
Luxembourg	7.24	0.92	626,108	2,430	257.66	6.5	71,000,340,500	5,817	34	76.0
Madagascar	4.17	0.53	26,923,353	581,800	46.28	1.8	43,363,602,948	2,117	43	57.7
Malawi	3.54	0.48	18,898,441	94,280	200.45	5.7	19,361,217,287	1,515	45	53.0
Malaysia	5.38	0.81	32,754,240	328,550	99.69	4.6	888,686,922,656	147,209	41	74.4
Maldives	5.20	0.74	383,135	300	1,277.12	6.4	9,769,994,105	565	—	55.2
Mali	4.73	0.43	20,856,000	1,220,190	17.09	7.3	44,584,090,696	3,040	33	55.6
Malta	6.77	0.90	514,564	320	1,608.01	3.9	21,108,159,041	2,456	29	70.2

Country	Happiness Score	Human Development Index (HDI)	Population	Area (km²)	Population Density (Pop./km²)	Unemployment Rate	GDP (2018 International)	Electricity Consumption (GWh/year)	Gini Index	Index of Economic Freedom
Mauritania	4.38	0.55	4,271,197	1,030,700	4.14	9.6	22,727,329,593	882	33	56.1
Mauritius	6.10	0.80	1,266,030	2,030	623.66	6.7	28,763,164,544	2,800	39	77.0
Mexico	6.47	0.78	126,014,024	1,943,950	64.82	3.8	2,573,847,595,048	267,910	48	65.5
Moldova	5.61	0.75	2,640,438	32,885	80.29	4.2	34,272,120,582	5,957	26	62.5
Mongolia	5.46	0.74	3,368,283	1,557,255	2.16	5.9	38,666,235,256	6,933	32	62.4
Montenegro	5.55	0.83	621,873	13,450	46.24	19.3	13,213,905,651	2,998	32	63.4
Morocco	5.10	0.69	36,196,136	446,300	81.10	12.7	278,614,687,499	29,678	40	63.3
Mozambique	4.62	0.46	30,832,244	786,380	39.21	3.2	38,933,851,135	13,390	54	51.6
Myanmar	4.31	0.58	55,294,979	652,790	84.71	1.7	276,482,978,785	18,024	38	55.2
Namibia	4.57	0.65	2,550,226	823,290	3.10	20.6	24,889,786,061	4,184	59	62.6
Nepal	5.14	0.60	30,378,055	143,350	211.92	1.5	93,518,511,731	6,562	33	50.7
Netherlands	7.45	0.94	17,574,231	33,670	521.96	3.9	991,941,839,767	110,682	28	76.8
New Zealand	7.30	0.93	5,121,660	263,310	19.45	5.3	207,247,264,396	41,165	—	83.9
Nicaragua	6.14	0.66	6,527,691	120,340	54.24	7.4	37,689,138,858	3,738	46	56.3
Niger	4.91	0.39	24,112,753	1,266,700	19.04	0.5	27,486,070,288	1,586	34	57.3
Nigeria	4.72	0.54	211,401,000	910,770	232.11	33.3	1,033,575,849,451	29,011	43	58.7
North Macedonia	5.16	0.77	2,076,255	25,220	82.33	17.1	34,405,256,698	7,024	36	68.6
Norway	7.49	0.96	5,391,369	365,108	14.77	5.2	359,298,961,716	124,127	28	73.4
Pakistan	5.69	0.56	225,200,000	770,880	292.13	4.4	1,029,585,145,405	90,000	34	51.7
Palestine	4.55	0.71	5,227,193	—	—	25.3	—	—	—	—
Panama	6.31	0.82	4,278,500	74,177	57.68	3.8	132,748,727,286	9,258	50	66.2
Paraguay	5.69	0.73	7,353,038	397,300	18.51	5.7	91,494,315,027	13,097	49	62.6
Peru	5.80	0.78	33,035,304	1,280,000	25.81	16.4	418,547,458,561	47,409	43	67.7
Philippines	6.01	0.72	109,979,383	298,170	368.85	10.0	929,689,921,316	93,354	44	64.1
Poland	6.19	0.88	38,268,000	306,170	124.99	3.5	1,208,903,726,913	152,573	32	69.7
Portugal	5.91	0.86	10,295,909	91,606	112.39	7.5	353,153,783,394	48,035	36	67.5
Romania	6.12	0.83	19,317,984	230,080	83.96	5.3	568,867,842,525	55,008	36	69.5
Russia	5.55	0.82	146,238,185	—	—	6.3	4,223,363,714,785	965,156	38	61.5
Rwanda	3.31	0.54	12,955,768	24,670	525.16	16.0	26,299,700,706	764	44	68.3
Saudi Arabia	6.41	0.85	34,218,169	2,149,690	15.92	15.4	1,641,856,836,371	322,372	—	66.0
Senegal	4.98	0.51	17,223,497	192,530	89.46	6.7	53,793,913,550	3,842	40	58.0
Serbia	5.78	0.81	6,926,705	87,460	79.20	7.3	122,636,628,733	30,292	40	67.2
Sierra Leone	3.93	0.45	8,297,882	72,180	114.96	4.4	13,024,700,610	242	34	51.7
Singapore	6.38	0.94	5,685,807	709	8,019.47	3.6	564,157,622,013	47,583	—	89.7
Slovakia	6.28	0.86	5,459,781	—	—	7.0	—	26,237	—	66.3
Slovenia	6.36	0.92	2,111,461	20,136	104.86	4.9	80,361,841,190	14,023	25	68.3
South Africa	4.81	0.71	59,622,350	1,213,090	49.15	32.5	747,020,842,636	210,304	63	59.7
South Korea	5.87	0.92	51,824,142	—	—	4.2	—	—	—	74.0
South Sudan	2.82	0.43	13,249,924	631,928	20.97	12.3	—	529	—	—
Spain	6.40	0.90	47,351,567	499,604	94.78	16.2	1,894,494,241,788	241,563	36	69.9
Sri Lanka	4.33	0.78	21,919,000	61,864	354.31	5.4	285,354,274,779	13,438	40	55.7
Swaziland	4.31	—	—	—	—	—	—	1,682	—	—
Sweden	7.35	0.95	10,380,491	407,310	25.49	8.7	546,885,183,364	131,798	29	74.7
Switzerland	7.56	0.96	8,655,100	39,516	219.03	5.2	590,532,454,887	56,353	32	81.9
Taiwan	6.46	—	23,539,588	—	—	3.8	—	237,557	—	78.6

Country	Happiness Score	Human Development Index (HDI)	Population	Area (km²)	Population Density (Pop./km²)	Unemployment Rate	GDP (2018 International)	Electricity Consumption (GWh/year)	Gini Index	Index of Economic Freedom
Tajikistan	5.56	0.67	9,313,800	138,790	67.11	11.0	30,133,335,841	16,085	34	55.2
Tanzania	3.48	0.53	59,441,988	885,800	67.11	2.0	144,926,714,433	5,813	38	61.3
Thailand	6.00	0.78	66,625,005	510,890	130.41	1.9	1,285,350,647,149	185,852	37	69.7
Togo	4.19	0.52	7,886,000	54,390	144.99	2.0	12,537,214,185	1,251	43	57.5
Trinidad and Tobago	6.19	0.80	1,366,725	5,130	266.42	2.8	37,377,267,876	8,246	40	59.0
Tunisia	4.39	0.74	11,708,370	155,360	75.36	16.2	127,422,847,480	15,838	33	56.6
Turkey	5.13	0.82	83,614,362	769,630	108.64	12.7	2,316,406,547,956	251,376	42	64.0
Turkmenistan	5.12	0.72	6,118,000	469,930	13.02	4.1	88,908,253,419	15,090	41	47.4
Uganda	4.43	0.54	42,885,900	200,520	213.87	1.9	92,802,563,985	3,534	43	58.6
Ukraine	4.56	0.78	41,554,836	579,400	71.72	9.9	533,831,317,444	128,806	25	56.2
United Arab Emir.	6.79	0.89	9,503,738	71,020	133.82	2.4	660,187,934,758	119,455	—	76.9
United Kingdom	7.17	0.93	66,796,807	241,930	276.10	7.5	3,120,717,081,030	300,520	33	78.4
United States	6.94	0.93	331,357,269	9,147,420	36.22	6.2	20,529,049,174,602	3,989,566	42	74.8
Uruguay	6.44	0.82	3,554,915	175,020	20.31	11.2	76,230,579,377	11,812	40	69.3
Uzbekistan	6.26	0.72	34,758,142	440,555	78.90	8.9	227,887,790,292	49,204	35	58.3
Venezuela	5.05	0.71	28,705,000	—	—	9.4	—	64,660	47	24.7
Vietnam	5.35	0.70	97,580,000	310,070	314.70	2.7	741,909,407,438	216,994	35	61.7
Yemen	3.53	0.47	30,491,000	—	—	12.8	—	2,653	37	—
Zambia	3.76	0.58	18,400,556	743,390	24.75	11.4	62,546,879,800	13,097	57	50.4
Zimbabwe	3.30	0.57	15,790,716	386,850	40.82	5.0	46,261,004,505	7,401	43	39.5

Table 1B

Country	Median Wealth per Adult (US dollars)	Gov't Revenues (millions USD)	Gov't Expenditures (millions USD)	Surplus or Deficit (millions USD)	Real GDP Growth Rate (%)	Average Temperature (°F)	Education Index	Natural Disaster Risk (%)	Environmental Vulnerability Index	CO ₂ Emissions per Capita (metric tons)
Afghanistan	640	1,992	6,636	-4,644	-5.0	54.68	0.40	0.10	289	0.30
Albania	14,731	3,486	3,765	-279	2.2	52.52	0.72	0.10	330	1.60
Algeria	3,267	41,474	58,397	-16,923	0.7	72.50	0.66	0.07	275	3.90
Argentina	3,164	126,414	170,113	-43,699	-2.2	58.64	0.81	0.04	287	4.70
Armenia	8,309	2,536	2,910	-374	4.5	44.87	0.73	0.06	247	2.00
Australia	181,361	459,546	593,856	-134,310	1.8	70.97	0.94	0.04	238	16.80
Austria	94,070	209,667	252,524	-42,857	1.6	43.43	0.82	0.03	369	8.20
Azerbaijan	5,150	9,852	10,400	-548	2.3	53.51	0.72	0.06	354	3.50
Bahrain	30,946	5,463	9,281	-3,818	1.8	80.87	0.72	0.02	326	21.80
Bangladesh	2,787	25,971	47,569	-21,598	3.8	77.00	0.46	0.19	340	0.60
Belarus	7,931	22,800	22,540	260	1.2	43.07	0.83	0.03	239	6.80
Belgium	117,093	251,395	308,553	-57,158	1.4	49.19	0.84	0.03	387	9.20
Benin	845	1,372	2,261	-889	2.0	81.59	0.41	0.11	278	0.70
Bolivia	3,843	15,010	17,350	-2,340	-7.9	70.79	0.66	0.05	250	2.00
Bosnia & Herz.	13,037	7,798	7,996	-198	-6.5	49.73	0.69	0.06	—	7.80
Botswana	4,550	5,609	6,072	-463	-9.6	70.70	0.66	0.05	181	3.20
Brazil	5,031	382,441	611,308	-228,867	1.1	76.91	0.68	0.04	373	2.40
Bulgaria	18,948	19,530	20,310	-780	-4.0	50.99	0.78	0.04	323	6.30
Burkina Faso	589	2,635	3,332	-697	-2.0	82.85	0.26	0.10	229	0.20
Burundi	250	608	749	-141	1.8	67.64	0.40	0.10	288	0.00
Cambodia	2,029	4,268	4,690	-422	-2.8	80.24	0.46	0.17	270	0.70
Cameroon	1,036	5,154	6,964	-1,810	-2.8	76.28	0.49	0.11	229	0.60
Canada	107,004	598,434	917,271	-318,837	1.6	22.37	0.89	0.03	251	16.10
Centr. African Rep.	244	231	271	-40	-1.0	76.82	0.34	0.07	193	0.10
Chad	435	1,178	1,522	-344	-0.7	79.79	0.28	0.11	217	0.00
Chile	19,231	50,660	72,024	-8,160	1.1	47.21	0.78	0.12	287	5.00
China	20,942	3,622,313	5,388,814	-1,766,501	1.9	44.51	0.63	0.06	360	8.00
Colombia	5,325	68,813	93,921	-25,108	-8.2	76.10	0.63	0.06	296	1.80
Comoros	1,679	149	183	-34	1.9	77.99	0.47	0.07	277	0.30
Costa Rica	11,793	8,262	11,340	-3,078	2.1	76.64	0.68	0.17	354	1.80
Croatia	29,183	25,790	26,920	-1,130	-9.0	51.62	0.80	0.04	343	4.70
Cyprus	28,803	7,677	7,875	-198	-6.4	65.21	0.79	0.03	314	6.30
Czech Republic	20,854	98,263	115,932	-17,669	-6.5	45.59	—	0.03	315	10.40
Denmark	58,784	180,287	193,831	-13,544	-4.5	45.50	0.92	0.03	345	5.80
Dominican Republic	—	11,180	12,770	-1,590	-6.0	76.19	0.62	0.11	324	2.30
Ecuador	6,399	32,300	37,700	-5,400	0.1	71.33	0.67	0.08	304	2.60
Egypt	4,900	69,331	96,432	-27,101	3.5	71.78	0.60	0.02	298	2.50
El Salvador	10,148	5,756	6,751	-995	-9.0	76.01	0.58	0.16	348	1.20
Estonia	24,915	9,772	9,890	-118	-5.2	41.18	0.88	0.02	280	18.60

	Median Wealth per Adult (US dollars)	Gov't Revenues (millions USD)	Gov't Expenditures (millions USD)	Surplus or Deficit (millions USD)	Real GDP Growth Rate (%)	Average Temperature (°F)	Education Index	Natural Disaster Risk (%)	Environmental Vulnerability Index	CO ₂ Emissions per Capita (metric tons)
Country										
Ethiopia	1,360	12,110	14,630	-2,520	1.9	71.96	0.32	0.07	260	0.20
Finland	55,532	142,215	160,544	-18,329	1.0	35.06	0.85	0.02	265	8.80
France	101,942	1,334,944	1,609,710	-274,766	1.3	51.26	0.84	0.03	361	5.00
Gabon	6,035	3,122	3,991	-869	-2.7	77.09	0.62	0.06	211	3.20
Gambia	693	187	370	-183	—	81.50	0.36	0.12	277	0.30
Georgia	5,226	4,260	4,852	-592	-5.0	42.44	0.79	0.06	261	2.80
Germany	35,313	1,729,224	2,038,247	-309,203	0.6	47.30	0.91	0.03	357	9.10
Ghana	1,706	9,236	12,380	-3,144	0.9	80.96	0.55	0.08	279	0.70
Greece	40,000	93,889	111,371	-17,482	1.9	59.72	0.83	0.07	353	6.50
Guatemala	—	8,335	9,600	-1,265	-2.0	74.21	0.51	0.20	338	1.20
Guinea	802	1,559	1,868	-309	1.4	78.26	0.33	0.08	254	0.20
Haiti	214	1,580	2,251	-671	-1.2	76.82	0.43	0.12	343	0.30
Honduras	—	4,376	5,086	-710	-6.6	74.30	0.52	0.11	273	1.10
Hong Kong	—	57,184	97,436	-40,252	-1.2	—	0.82	—	309	6.10
Hungary	17,666	65,689	78,103	-12,414	-6.1	49.55	0.83	0.05	363	5.40
Iceland	165,961	9,962	9,735	227	1.9	35.15	0.91	0.02	298	12.10
India	3,042	468,739	807,771	-339,032	-10.3	74.57	0.62	0.07	385	1.90
Indonesia	1,977	128,550	197,306	-68,756	-1.5	78.53	0.62	0.10	316	2.10
Iran	5,254	57,273	115,463	-58,190	-7.6	63.05	0.70	0.05	313	8.90
Iraq	7,331	54,756	85,972	-31,216	-12.1	70.52	0.50	0.04	344	4.80
Ireland	104,842	93,221	117,149	-23,928	-3.0	48.74	0.91	0.05	318	7.70
Israel	58,066	128,865	178,465	-49,600	-5.9	66.56	0.87	—	380	7.90
Italy	91,889	863,785	1,103,721	-239,936	0.3	56.21	0.81	0.04	386	5.80
Ivory Coast	—	—	—	—	1.8	79.43	—	—	—	0.60
Jamaica	6,798	4,207	4,150	57	1.0	76.91	0.68	0.12	381	2.70
Japan	110,408	1,666,454	2,362,676	-696,222	0.7	52.07	0.84	0.13	389	9.40
Jordan	10,947	9,157	11,810	-2,653	2.0	64.94	0.70	0.05	310	2.60
Kazakhstan	6,642	29,576	38,318	-8,742	-2.7	43.52	0.81	0.04	215	16.80
Kenya	3,553	15,370	20,180	-4,810	1.0	76.55	0.52	0.07	262	0.40
Kosovo	—	1,396	1,610	-214	-4.5	—	—	—	—	—
Kuwait	46,218	61,174	70,401	-9,227	0.7	77.63	0.61	0.03	323	23.90
Kyrgyzstan	2,412	2,050	2,304	-254	-12.0	34.79	0.72	0.08	234	1.70
Laos	2,002	3,144	4,098	-954	0.2	73.04	0.47	0.06	243	0.50
Latvia	13,348	10,130	10,430	-300	2.2	42.08	0.84	0.03	270	4.10
Lebanon	12,198	10,900	15,990	-5,090	-6.5	61.52	0.66	0.05	387	4.20
Lesotho	384	1,057	1,160	-103	1.2	53.33	0.50	0.07	280	0.30
Liberia	820	626	728	-102	-2.5	77.54	0.42	0.08	271	0.30
Libya	8,330	16,330	22,320	-5,990	-66.7	71.24	0.62	0.04	256	8.70
Lithuania	22,261	21,180	21,630	-450	-1.8	43.16	0.88	0.03	314	5.00
Luxembourg	139,789	27,600	27,380	220	2.3	47.57	0.78	0.02	327	16.90
Madagascar	626	1,292	1,725	-443	-3.2	72.77	0.49	0.11	279	0.20
Malawi	468	1,298	1,612	-314	0.6	71.42	0.45	0.08	249	0.10
Malaysia	8,940	68,113	90,082	-21,969	-6.0	77.72	0.70	0.06	312	8.00
Maldives	8,555	960	1,156	-196	-18.6	81.77	0.56	—	383	2.00

	Median Wealth per Adult (US dollars)	Gov't Revenues (millions USD)	Gov't Expenditures (millions USD)	Surplus or Deficit (millions USD)	Real GDP Growth Rate (%)	Average Temperature (°F)	Education Index	Natural Disaster Risk (%)	Environmental Vulnerability Index	CO ₂ Emissions per Capita (metric tons)
Country										
Mali	773	3,068	3,584	-516	-2.0	82.85	0.31	0.08	215	0.10
Malta	76,016	4,295	4,354	-59	-7.9	66.56	0.78	0.01	316	3.50
Mauritania	976	1,248	1,301	-53	-3.2	81.77	0.38	0.08	233	0.70
Mauritius	20,875	2,912	3,337	-425	-14.2	72.32	0.73	0.16	358	3.50
Mexico	9,944	254,256	314,598	-63,342	-0.1	69.80	0.66	0.06	306	3.80
Moldova	5,855	2,796	3,027	-231	-4.5	49.01	0.73	0.05	322	2.10
Mongolia	2,654	2,623	3,711	-1,088	-2.0	30.74	0.74	0.03	208	6.30
Montenegro	24,242	1,620	1,950	-330	-12.0	50.99	0.80	—	—	6.30
Morocco	4,010	26,630	30,710	-4,080	2.2	62.78	0.50	0.06	281	1.90
Mozambique	352	2,758	3,607	-849	2.2	74.84	0.37	0.09	225	0.30
Myanmar	1,556	—	—	—	2.0	55.49	—	0.09	270	0.60
Namibia	5,502	3,967	4,759	-792	-1.4	67.91	0.55	0.05	200	1.70
Nepal	1,510	6,993	8,833	-1,840	0.0	46.58	0.48	0.05	305	0.30
Netherlands	31,057	—	—	—	1.8	48.65	0.90	0.08	388	9.50
New Zealand	116,433	72,532	90,431	-17,899	2.2	50.99	0.92	0.05	292	7.70
Nicaragua	3,005	3,800	4,074	-274	-3.9	76.82	0.54	0.15	272	1.00
Niger	463	1,680	2,235	-555	0.5	80.87	0.21	0.11	208	0.10
Nigeria	1,249	13,970	22,150	-8,180	2.2	80.24	0.48	0.08	336	0.60
North Macedonia	—	3,314	3,655	-341	—	—	0.67	—	—	3.90
Norway	70,627	196,144	202,684	-6,540	1.2	34.70	0.92	0.02	273	9.40
Pakistan	1,766	42,951	65,718	-22,767	1.9	68.36	0.55	0.07	368	1.00
Palestine	—	2,750	4,077	-1,327	—	—	0.66	—	—	—
Panama	13,259	12,600	13,560	-960	-9.0	77.72	0.69	0.07	247	2.80
Paraguay	3,887	5,366	5,876	-510	0.2	74.39	0.61	0.03	260	1.10
Peru	4,989	35,869	54,286	-18,417	2.2	67.28	0.67	0.07	268	1.80
Philippines	2,663	63,252	92,876	-29,624	-8.3	78.53	0.64	0.27	402	1.40
Poland	22,600	236,464	297,249	-60,785	-3.6	46.13	0.85	0.03	354	8.80
Portugal	44,025	93,433	111,948	-18,515	2.2	59.27	0.76	0.03	335	5.10
Romania	19,582	72,093	95,944	-23,851	-4.8	47.84	0.77	0.06	335	4.10
Russia	3,683	468,651	546,027	-77,376	1.3	22.82	—	0.04	273	12.10
Rwanda	1,259	1,874	2,255	-381	2.0	64.13	0.43	0.07	298	0.10
Saudi Arabia	16,599	193,054	264,984	-71,930	0.3	76.37	0.77	0.01	274	18.60
Senegal	1,632	3,863	4,474	-611	-0.7	82.13	0.36	0.10	277	0.70
Serbia	10,737	16,250	16,930	-680	-2.5	50.99	0.76	0.07	—	6.30
Sierra Leone	278	684	963	-279	-3.1	78.89	0.37	0.10	283	0.20
Singapore	96,967	59,678	96,031	-36,353	0.7	79.61	0.81	0.02	428	9.70
Slovakia	40,432	43,113	51,118	-8,005	2.3	44.24	0.82	0.03	303	7.00
Slovenia	50,380	20,200	20,970	-770	-6.7	48.02	0.89	0.03	362	7.50
South Africa	6,476	76,434	116,118	-39,684	0.2	63.95	0.71	0.06	324	8.30
South Korea	72,198	—	—	—	2.0	52.70	0.87	0.05	373	13.60
South Sudan	—	437	2,259	-1,822	4.1	—	0.30	—	—	0.40
Spain	95,360	481,945	657,750	-175,805	2.0	55.94	0.82	0.03	352	6.00
Sri Lanka	8,283	12,640	16,660	-4,020	2.3	80.51	0.75	0.07	331	1.10
Swaziland	—	1,150	1,475	-325	—	70.52	—	0.08	243	—

	Median Wealth per Adult (US dollars)	Gov't Revenues (millions USD)	Gov't Expenditures (millions USD)	Surplus or Deficit (millions USD)	Real GDP Growth Rate (%)	Average Temperature (°F)	Education Index	Natural Disaster Risk (%)	Environmental Vulnerability Index	CO ₂ Emissions per Capita (metric tons)
Country										
Sweden	41,582	251,009	282,223	-31,214	1.2	35.78	0.86	0.02	311	4.50
Switzerland	227,891	234,445	264,232	-29,787	0.9	41.90	0.89	0.02	348	4.80
Taiwan	70,191	94,207	123,779	-29,572	0.0	—	—	—	324	12.00
Tajikistan	1,589	2,214	2,316	-102	1.0	35.60	0.66	0.07	271	0.70
Tanzania	1,282	7,872	9,271	-1,399	1.9	72.23	0.44	0.08	257	0.20
Thailand	3,526	107,054	133,588	-26,534	-7.1	79.34	0.64	0.06	308	4.10
Togo	469	1,469	1,700	-231	0.0	80.87	0.49	0.10	293	0.40
Trinidad and Tobago	14,888	6,916	7,838	-922	0.0	78.35	0.72	0.08	381	26.20
Tunisia	5,395	9,397	11,610	-2,213	1.0	66.56	0.64	0.05	306	2.80
Turkey	6,568	188,258	239,421	-51,163	0.9	51.98	0.67	0.05	353	5.10
Turkmenistan	6,974	4,436	4,703	-267	1.8	59.18	0.63	0.06	249	14.40
Uganda	612	4,019	5,268	-1,249	-0.3	73.04	0.47	0.07	283	0.10
Ukraine	1,223	55,612	66,722	-11,110	-7.2	46.94	0.80	0.03	317	4.50
United Arab Emirates	35,315	92,063	127,095	-35,032	1.3	80.60	0.69	0.02	293	22.40
United Kingdom	97,452	966,407	1,400,776	-434,369	1.4	47.21	0.90	0.04	373	5.60
United States	65,904	5,923,829	9,818,534	-3,894,705	-4.3	47.39	0.90	0.04	300	16.10
Uruguay	11,084	17,690	19,900	-2,210	0.2	63.59	0.72	0.04	259	2.00
Uzbekistan	—	20,110	19,920	190	0.7	53.69	0.74	0.09	286	3.10
Venezuela	—	5,521	10,382	-4,861	-35.0	77.63	0.71	0.06	291	3.70
Vietnam	3,679	57,837	78,348	-20,511	2.8	76.01	—	0.13	357	2.80
Yemen	1,467	3,467	5,232	-1,765	2.1	74.93	0.35	0.06	289	0.40
Zambia	784	4,895	7,050	-2,155	1.5	70.52	0.58	0.07	210	0.30
Zimbabwe	1,843	3,600	4,800	-1,200	-8.3	69.80	0.54	0.10	200	0.80

Table 1C

Country	Net Exports per capita (USD)	Life Expectancy at Birth (years)	Mortality Rate Under 5 per 1,000 Live Births	Overall Mean BMI (kg/m ²)	Democracy Index	Incarceration Rate per 100,000	Homicides per 100,000	Ethnic Fractionalization	Linguistic Fractionalization
Afghanistan	14	63.2	60.3	21.6	2.85	87	6.66	0.77	0.61
Albania	424	78.0	9.7	26.1	6.08	164	2.29	0.22	0.04
Algeria	1,537	77.1	23.3	26.2	3.77	153	1.36	0.34	0.44
Argentina	1,754	76.6	9.3	27.7	6.95	230	5.32	0.26	0.06
Armenia	551	76.0	11.8	26.7	5.35	74	1.69	0.13	0.13
Australia	10,446	83.0	3.6	27.2	8.96	160	0.89	0.09	0.33
Austria	18,897	81.6	3.5	25.4	8.16	95	0.97	0.11	0.15
Azerbaijan	3,186	71.4	20.4	27.4	2.68	208	2.20	0.20	0.21
Bahrain	—	75.8	6.9	28.2	2.49	234	0.52	0.50	0.43
Bangladesh	195	74.3	30.8	21.0	5.99	52	2.37	0.05	0.09
Belarus	3,989	74.8	3.2	26.6	2.59	343	2.39	0.32	0.47
Belgium	10,870	81.4	3.4	25.5	7.51	95	1.70	0.56	0.54
Benin	104	63.4	90.3	23.4	5.09	70	1.10	0.79	0.79
Bolivia	1,123	72.1	26.0	25.9	5.08	164	6.30	0.74	0.22
Bosnia & Herz.	942	76.8	5.9	26.1	4.84	—	1.17	0.63	0.68
Botswana	3,535	62.2	41.6	24.7	7.62	208	15.04	0.41	0.41
Brazil	1,180	75.9	11.0	25.9	6.92	357	27.38	0.54	0.05
Bulgaria	4,061	75.1	6.7	26.0	6.71	109	1.30	0.40	0.30
Burkina Faso	149	62.7	87.5	22.1	3.73	37	1.30	0.74	0.72
Burundi	12	63.8	56.5	20.9	2.14	96	6.02	0.30	0.30
Cambodia	189	70.1	26.6	21.9	3.10	220	1.84	0.21	0.21
Cameroon	251	62.4	74.8	24.4	2.77	124	1.40	0.86	0.89
Canada	13,286	82.2	4.9	27.2	9.24	104	1.76	0.71	0.58
Centr. African Rep.	28	53.1	110.1	22.4	1.32	16	19.76	0.83	0.83
Chad	267	59.6	113.8	22.3	1.55	59	9.04	0.86	0.86
Chile	4,232	80.7	7.0	27.8	8.28	209	4.40	0.19	0.19
China	1,704	77.4	7.9	23.9	2.27	121	0.53	0.15	0.13
Colombia	1,133	79.3	13.8	25.9	7.04	193	25.34	0.60	0.02
Comoros	—	67.4	62.9	24.1	3.09	27	7.70	0.00	0.01
Costa Rica	2,432	80.8	8.6	26.9	8.16	374	11.26	0.24	0.05
Croatia	3,332	78.6	4.8	25.5	6.50	84	0.58	0.37	0.08
Cyprus	—	83.1	2.3	27.0	7.56	—	1.26	0.09	0.40
Czech Republic	16,660	—	3.2	26.9	7.67	180	0.60	0.32	0.32
Denmark	17,323	81.3	3.8	25.3	9.15	68	1.01	0.08	0.10
Dominican Republic	1,003	72.8	28.0	26.7	6.32	243	10.05	0.43	0.04
Ecuador	1,679	78.4	14.0	27.0	6.13	224	5.80	0.66	0.13
Egypt	300	71.8	20.3	29.2	2.93	116	2.51	0.18	0.02
El Salvador	784	75.0	13.3	27.4	5.90	572	52.02	0.20	0.00
Estonia	12,060	78.9	2.4	25.5	7.84	176	2.12	0.51	0.49
Finland	14,181	81.6	2.4	25.9	9.20	53	1.63	0.13	0.14
France	—	82.5	4.5	25.3	7.99	90	1.20	0.10	0.12

	Net Exports per capita (USD)	Life Expectancy at Birth (years)	Mortality Rate Under 5 per 1,000 Live Births	Overall Mean BMI (kg/m²)	Democracy Index	Incarceration Rate per 100,000	Homicides per 100,000	Ethnic Fractionalization	Linguistic Fractionalization
Gabon	4,661	66.5	42.5	25.5	3.54	241	8.04	0.77	0.78
Gambia	92	65.5	—	24.0	4.49	31	9.13	0.79	0.81
Georgia	702	73.3	9.6	27.2	5.31	246	2.22	0.49	0.47
Germany	18,316	81.7	3.8	26.3	8.67	69	0.95	0.17	0.16
Ghana	489	66.3	46.2	24.2	6.50	43	2.10	0.67	0.67
Greece	3,374	81.1	3.8	27.3	7.39	108	0.94	0.16	0.03
Guatemala	655	72.0	24.5	26.5	4.97	139	22.50	0.51	0.46
Guinea	101	61.0	98.8	22.7	3.08	28	8.82	0.74	0.77
Haiti	79	64.1	62.8	24.1	4.22	97	6.68	0.10	0.00
Honduras	919	71.9	16.8	26.4	5.36	237	38.93	0.19	0.06
Hong Kong	66,808	—	—	—	5.57	—	0.65	0.06	0.21
Hungary	10,107	76.4	3.7	26.3	6.56	169	2.50	0.15	0.03
Iceland	15,627	82.3	2.0	25.9	9.37	33	0.89	0.08	0.08
India	256	70.8	34.3	21.9	6.61	35	3.08	0.42	0.81
Indonesia	693	71.3	23.9	22.9	6.30	92	0.40	0.74	0.77
Iran	1,211	77.3	13.9	26.2	2.20	228	2.47	0.67	0.75
Iraq	2,582	72.4	25.9	28.0	3.62	126	9.85	0.37	0.37
Ireland	26,168	81.8	3.3	27.5	9.05	—	0.87	0.12	0.03
Israel	7,469	82.6	3.7	26.3	7.84	234	1.36	0.34	0.55
Italy	8,466	83.0	3.1	26.0	7.74	89	0.57	0.11	0.11
Ivory Coast	—	—	—	—	4.11	—	—	0.82	0.78
Jamaica	652	76.0	13.9	27.4	7.13	138	43.85	0.41	0.11
Japan	5,050	84.3	2.5	22.6	8.13	38	0.26	0.01	0.02
Jordan	830	77.9	15.6	28.9	3.62	198	1.40	0.59	0.04
Kazakhstan	4,937	74.0	10.5	27.4	3.14	157	5.00	0.62	0.66
Kenya	139	66.1	43.2	23.0	5.05	81	4.93	0.86	0.89
Kosovo	—	—	—	—	—	—	2.40	—	—
Kuwait	26,269	81.0	7.9	30.0	3.80	117	1.80	0.66	0.34
Kyrgyzstan	312	74.2	18.3	26.2	4.21	161	2.19	0.68	0.59
Laos	357	68.5	45.5	22.6	1.77	130	7.01	0.51	0.64
Latvia	6,787	75.4	3.6	25.8	7.24	175	4.36	0.59	0.58
Lebanon	981	76.4	7.2	27.8	4.16	205	2.49	0.13	0.13
Lesotho	497	50.7	86.4	24.9	6.30	92	41.25	0.26	0.25
Liberia	201	64.1	84.6	24.0	5.32	54	3.23	0.91	0.90
Libya	2,763	75.8	11.5	28.4	1.95	139	2.50	0.79	0.08
Lithuania	10,953	76.0	3.7	26.6	7.13	216	4.57	0.32	0.32
Luxembourg	—	82.4	2.8	26.5	8.68	83	0.30	0.53	0.64
Madagascar	29	65.3	50.6	21.1	5.70	102	7.69	0.88	0.02
Malawi	85	65.6	41.6	22.8	5.74	71	1.73	0.67	0.60
Malaysia	7,493	74.7	8.6	25.3	7.19	212	2.11	0.59	0.60
Maldives	—	79.6	7.6	25.1	—	499	0.75	—	—
Mali	142	62.8	94.0	22.8	3.93	33	10.90	0.69	0.84
Malta	—	81.9	7.0	27.2	7.68	161	1.59	0.04	0.09
Mauritania	734	68.4	72.9	24.8	3.92	53	9.94	0.62	0.33
Mauritius	2,208	74.1	16.0	25.6	8.14	199	2.92	0.46	0.45

	Net Exports per capita (USD)	Life Expectancy at Birth (years)	Mortality Rate Under 5 per 1,000 Live Births	Overall Mean BMI (kg/m²)	Democracy Index	Incarceration Rate per 100,000	Homicides per 100,000	Ethnic Fractionalization	Linguistic Fractionalization
Mexico	3,258	76.0	14.2	28.1	6.07	166	29.07	0.54	0.15
Moldova	650	73.3	14.4	26.7	5.78	—	4.10	0.55	0.55
Mongolia	1,399	68.1	15.6	26.0	6.48	110	6.18	0.37	0.37
Montenegro	—	75.9	2.3	26.0	5.77	172	2.23	—	—
Morocco	587	73.0	21.4	25.6	5.04	237	1.42	0.48	0.47
Mozambique	148	58.1	74.2	22.3	3.51	63	3.40	0.69	0.81
Myanmar	50	69.1	44.7	22.6	3.04	—	2.27	—	—
Namibia	2,204	64.6	42.4	24.3	6.52	295	17.14	0.63	0.70
Nepal	37	70.9	30.8	22.2	5.22	86	2.16	0.66	0.72
Netherlands	27,160	81.8	4.0	25.4	8.96	63	0.59	0.11	0.51
New Zealand	8,618	82.0	4.7	27.9	9.25	188	0.70	0.40	0.17
Nicaragua	690	75.0	16.6	26.9	3.60	332	7.37	0.48	0.05
Niger	74	63.3	80.4	21.7	3.29	47	4.44	0.65	0.65
Nigeria	497	62.6	117.2	23.4	4.10	31	9.85	0.85	0.83
North Macedonia	—	74.8	6.1	—	5.89	105	1.20	—	—
Norway	19,788	83.3	2.4	26.0	9.81	49	0.47	0.06	0.07
Pakistan	130	65.6	67.2	23.8	4.31	38	3.88	0.71	0.72
Palestine	146	—	—	—	3.83	—	0.49	—	—
Panama	4,737	79.3	14.9	27.1	7.18	416	9.39	0.55	0.39
Paraguay	2,131	75.8	19.4	25.8	6.18	241	7.14	0.17	0.60
Peru	1,157	79.9	13.2	26.3	6.53	290	7.70	0.66	0.34
Philippines	519	70.4	27.3	23.2	6.56	200	6.46	0.24	0.84
Poland	5,688	78.3	4.4	26.4	6.85	179	0.73	0.12	0.05
Portugal	6,390	81.6	3.7	26.2	7.90	111	0.79	0.05	0.02
Romania	3,178	75.6	7.0	25.3	6.40	113	1.28	0.31	0.17
Russia	1,799	—	5.8	26.5	3.31	—	8.21	0.25	0.25
Rwanda	47	69.1	34.3	22.0	3.10	511	2.52	0.32	0.00
Saudi Arabia	10,633	74.3	6.6	28.5	2.08	197	1.30	0.18	0.09
Senegal	187	68.6	45.3	23.0	5.67	68	7.38	0.69	0.71
Serbia	2,108	75.9	5.3	25.8	6.22	158	1.23	0.57	0.00
Sierra Leone	237	60.8	109.2	22.8	4.86	60	1.71	0.82	0.76
Singapore	63,775	83.2	2.5	23.7	6.03	195	0.16	0.39	0.38
Slovakia	15,957	78.2	5.8	26.5	6.97	194	1.37	0.25	0.26
Slovenia	14,721	81.3	2.1	26.9	7.54	53	0.48	0.22	0.22
South Africa	1,781	65.3	34.5	27.3	7.05	259	36.40	0.75	0.87
South Korea	11,104	83.3	—	23.9	8.01	—	0.60	0.04	0.00
South Sudan	—	62.8	96.2	25.2	—	50	13.90	—	—
Spain	6,829	83.2	3.1	26.7	8.12	122	0.62	0.42	0.41
Sri Lanka	567	76.9	7.1	23.0	6.14	135	2.42	0.42	0.46
Swaziland	1,415	—	—	26.5	—	—	—	0.06	0.17
Sweden	18,688	82.4	2.6	25.8	9.26	68	1.08	0.06	0.20
Switzerland	36,321	83.4	4.0	25.3	8.83	80	0.59	0.53	0.54
Taiwan	13,260	—	—	—	8.94	258	0.82	0.27	0.50
Tajikistan	99	69.5	33.8	25.4	1.94	121	1.61	0.51	0.55
Tanzania	107	67.3	50.3	23.1	5.10	59	6.95	0.74	0.90

Country	Net Exports per capita (USD)	Life Expectancy at Birth (years)	Mortality Rate Under 5 per 1,000 Live Births	Overall Mean BMI (kg/m²)	Democracy Index	Incarceration Rate per 100,000	Homicides per 100,000	Ethnic Fractionalization	Linguistic Fractionalization
Thailand	3,556	77.7	9.0	24.1	6.04	488	2.58	0.63	0.63
Togo	138	64.3	66.9	23.2	2.80	67	9.00	0.71	0.90
Trinidad and Tobago	12,700	76.1	17.5	28.7	7.16	292	30.88	0.65	0.13
Tunisia	1,512	77.0	16.9	26.8	6.59	194	3.05	0.04	0.01
Turkey	2,243	78.6	10.0	27.8	4.48	335	2.59	0.32	0.22
Turkmenistan	4,584	69.7	42.0	26.4	1.72	552	4.22	0.39	0.40
Uganda	91	66.7	45.8	22.0	4.94	124	10.42	0.93	0.92
Ukraine	1,227	73.0	8.4	26.0	5.81	148	6.20	0.47	0.47
United Arab Emir.	34,497	76.1	7.5	29.0	2.70	104	0.50	0.63	0.49
United Kingdom	7,378	81.4	4.3	27.3	8.54	—	1.20	0.12	0.05
United States	4,900	78.5	6.5	28.5	7.92	639	4.96	0.49	0.56
Uruguay	3,161	77.1	7.1	26.8	8.61	337	12.06	0.25	0.08
Uzbekistan	429	73.0	17.4	26.1	2.12	68	1.10	0.41	0.41
Venezuela	2,681	73.9	24.2	27.2	2.76	178	36.69	0.50	0.07
Vietnam	1,603	—	19.9	21.6	2.94	128	1.52	0.24	0.24
Yemen	258	66.6	58.4	25.8	1.95	53	6.66	0.00	0.01
Zambia	536	62.5	61.7	22.6	4.86	123	5.30	0.78	0.87
Zimbabwe	197	60.7	54.6	23.4	3.16	127	6.67	0.39	0.45

Country	Religious Fractionalization	Social Progress Index	Healthcare Efficiency Index	Marriages per 1,000	Divorces per 1,000	Marriage/Divorce Ratio	Gender Equality Index	Religiosity (%)
Afghanistan	0.27	42.29	0.33	—	—	—	0.44	0.97
Albania	0.47	75.41	0.77	8.1	1.7	4.76	0.77	0.50
Algeria	0.01	69.92	0.70	10.1	1.6	6.31	0.63	0.95
Argentina	0.22	80.66	0.72	—	—	—	0.75	0.65
Armenia	0.46	76.46	0.63	6.0	1.0	6.00	0.67	0.79
Australia	0.82	91.29	0.88	4.6	2.0	2.30	0.73	0.32
Austria	0.41	89.50	0.96	5.3	1.8	2.94	0.78	0.55
Azerbaijan	0.49	64.11	0.63	9.7	1.5	6.47	0.69	0.39
Bahrain	0.55	66.60	0.82	—	—	—	0.63	0.94
Bangladesh	0.21	55.23	0.68	—	—	—	0.72	1.00
Belarus	0.61	77.00	0.72	9.2	4.1	2.24	0.76	0.34
Belgium	0.21	89.46	0.92	3.9	2.1	1.86	0.79	0.33
Benin	0.55	55.56	0.65	—	—	—	0.65	0.93
Bolivia	0.21	69.23	0.57	—	—	—	0.72	0.89
Bosnia & Herz.	0.69	72.74	0.66	4.8	0.6	8.00	0.71	0.77
Botswana	0.60	69.36	0.34	—	—	—	0.72	0.77
Brazil	0.61	73.91	0.57	6.6	1.4	4.71	0.70	0.87
Bulgaria	0.60	79.86	0.64	4.1	1.5	2.73	0.75	0.34
Burkina Faso	0.58	49.87	0.54	—	—	—	0.65	0.88
Burundi	0.52	41.20	0.49	—	—	—	0.77	0.98
Cambodia	0.10	56.27	0.32	—	—	—	0.69	0.96
Cameroon	0.73	51.29	0.36	—	—	—	0.69	0.96
Canada	0.70	91.40	0.88	4.4	2.1	2.10	0.77	0.42
Centr. African Rep.	0.79	31.62	—	—	—	—	—	0.94
Chad	0.64	31.29	0.30	—	—	—	0.59	0.95
Chile	0.38	83.34	0.87	3.3	0.7	4.71	0.72	0.70
China	0.66	66.12	0.49	7.2	3.2	2.25	0.68	—
Colombia	0.15	74.00	0.91	2.3	0.7	3.29	0.73	0.83
Comoros	0.01	—	0.59	—	—	—	—	0.97
Costa Rica	0.24	83.01	0.85	5.3	2.5	2.12	0.79	0.79
Croatia	0.44	81.92	0.81	4.9	1.5	3.27	0.73	0.70
Cyprus	0.40	86.64	0.91	6.8	2.2	3.09	0.71	0.75
Czech Republic	0.66	86.69	0.81	5.1	2.3	2.22	0.71	0.21
Denmark	0.23	92.11	0.86	5.6	2.6	2.15	0.77	0.19
Dominican Republic	0.31	71.05	0.79	4.4	1.8	2.44	0.70	0.87
Ecuador	0.14	75.45	0.62	5.6	1.1	5.09	0.74	0.82
Egypt	0.20	59.98	0.75	11.0	1.9	5.79	0.64	0.97
El Salvador	0.36	67.25	—	3.5	0.8	4.38	0.74	—
Estonia	0.50	87.26	0.71	5.0	2.4	2.08	0.73	0.16
Ethiopia	0.62	48.59	0.28	—	—	—	0.69	1.00
Finland	0.25	91.89	0.88	4.3	2.4	1.79	0.86	0.28

Country	Religious Fractionalization	Social Progress Index	Healthcare Efficiency Index	Marriages per 1,000	Divorces per 1,000	Marriage/ Divorce Ratio	Gender Equality Index	Religiosity (%)
France	0.40	88.78	0.99	3.7	1.9	1.95	0.78	0.30
Gabon	0.67	63.93	0.51	—	—	—	—	—
Gambia	0.10	—	0.48	—	—	—	—	—
Georgia	0.65	74.85	0.62	6.9	1.3	5.31	0.73	0.81
Germany	0.66	90.56	0.90	4.9	1.9	2.58	0.80	0.40
Ghana	0.80	64.86	0.52	—	—	—	0.67	0.95
Greece	0.15	85.78	0.93	4.7	1.8	2.61	0.69	0.71
Guatemala	0.38	61.67	0.71	3.8	1.2	3.17	0.66	0.88
Guinea	0.26	43.41	0.39	—	—	—	0.66	0.97
Haiti	0.47	48.79	0.52	—	—	—	—	0.85
Honduras	0.24	62.41	0.54	—	—	—	0.72	—
Hong Kong	0.42	—	—	—	—	—	—	0.24
Hungary	0.52	81.02	0.74	5.2	1.7	3.06	0.69	0.39
Iceland	0.19	91.09	0.93	4.9	1.8	2.72	0.89	—
India	0.33	56.80	0.62	—	—	—	0.63	0.90
Indonesia	0.23	69.49	0.66	—	—	—	0.69	0.99
Iran	0.12	67.49	0.66	11.2	1.6	7.00	0.58	0.73
Iraq	0.48	63.52	0.64	—	—	—	0.54	0.84
Ireland	0.16	90.35	0.92	4.6	0.7	6.57	0.80	0.54
Israel	0.35	83.62	0.88	6.5	1.8	3.61	0.72	0.51
Italy	0.30	87.36	0.99	3.2	1.5	2.13	0.72	0.72
Ivory Coast	0.76	—	—	—	—	—	—	—
Jamaica	0.62	74.75	0.78	7.5	1.5	5.00	0.74	0.70
Japan	0.54	90.14	0.96	4.8	1.7	2.82	0.66	0.24
Jordan	0.07	71.50	0.70	10.2	2.6	3.92	0.68	0.96
Kazakhstan	0.59	72.66	0.75	8.6	2.3	3.74	0.71	0.53
Kenya	0.78	57.10	0.51	—	—	—	0.69	0.94
Kosovo	—	—	—	—	—	—	—	—
Kuwait	0.67	77.47	0.81	5.2	2.2	2.36	0.62	0.91
Kyrgyzstan	0.45	68.65	0.46	9.7	1.6	6.06	—	0.72
Laos	0.55	51.80	—	—	—	—	0.75	0.97
Latvia	0.56	83.19	0.63	6.8	3.1	2.19	0.78	0.39
Lebanon	0.79	69.37	0.66	9.5	1.6	5.94	0.64	0.87
Lesotho	0.72	53.80	0.27	—	—	—	0.70	—
Liberia	0.49	51.37	0.20	—	—	—	0.69	0.94
Libya	0.06	—	0.68	10.8	2.5	4.32	—	—
Lithuania	0.41	83.97	0.72	7.0	3.1	2.26	0.80	0.42
Luxembourg	0.09	89.56	0.93	3.1	2.0	1.55	0.73	0.39
Madagascar	0.52	48.46	0.40	—	—	—	0.73	0.93
Malawi	0.82	54.07	0.25	—	—	—	0.67	0.99
Malaysia	0.67	76.96	0.80	6.4	1.6	4.00	0.68	0.96
Maldives	—	70.81	0.48	—	—	—	0.64	—
Mali	0.18	48.29	0.36	—	—	—	0.59	0.95
Malta	0.12	84.89	0.98	5.8	0.7	8.29	0.70	0.86
Mauritania	0.01	48.95	0.38	—	—	—	0.61	0.98

Country	Religious Fractionalization	Social Progress Index	Healthcare Efficiency Index	Marriages per 1,000	Divorces per 1,000	Marriage/ Divorce Ratio	Gender Equality Index	Religiosity (%)
Mexico	0.18	73.52	0.76	5.2	0.9	5.78	0.76	0.73
Moldova	0.56	72.58	0.64	7.3	3.1	2.35	0.77	0.72
Mongolia	0.08	71.07	0.48	3.4	1.1	3.09	0.72	—
Montenegro	—	74.42	—	5.3	1.4	3.79	0.73	0.71
Morocco	0.00	66.90	0.88	—	—	—	0.61	0.97
Mozambique	0.68	49.00	0.26	—	—	—	0.76	0.86
Myanmar	—	55.99	—	—	—	—	0.68	0.97
Namibia	0.66	67.14	0.34	—	—	—	0.81	0.92
Nepal	0.14	57.60	0.46	—	—	—	0.68	0.93
Netherlands	0.72	91.06	0.93	3.7	1.8	2.06	0.76	0.33
New Zealand	0.81	91.64	0.83	4.8	2.0	2.40	0.84	0.33
Nicaragua	0.43	64.02	0.73	4.5	0.8	5.63	0.80	0.70
Niger	0.20	42.21	0.34	—	—	—	0.63	1.00
Nigeria	0.74	51.31	0.18	—	—	—	0.63	0.96
North Macedonia	—	—	—	—	—	—	0.72	0.76
Norway	0.20	92.73	0.96	4.3	1.9	2.26	0.85	0.22
Pakistan	0.38	49.25	0.58	—	—	—	0.56	0.92
Palestine	—	—	—	—	—	—	—	—
Panama	0.33	76.55	0.66	3.7	1.0	3.70	0.74	0.88
Paraguay	0.21	72.48	0.76	—	—	—	0.70	0.92
Peru	0.20	74.22	0.55	—	—	—	0.72	0.84
Philippines	0.31	66.62	0.76	—	—	—	0.78	0.96
Poland	0.17	84.32	0.79	5.1	1.7	3.00	0.71	0.75
Portugal	0.14	87.79	0.95	3.4	2.0	1.70	0.78	0.72
Romania	0.24	78.35	0.65	7.4	1.6	4.63	0.70	0.84
Russia	0.44	72.56	0.54	9.2	4.8	1.92	0.71	0.34
Rwanda	0.51	54.13	0.33	—	—	—	0.81	0.95
Saudi Arabia	0.13	65.06	0.89	5.2	1.1	4.73	0.60	0.93
Senegal	0.15	60.04	0.76	—	—	—	0.68	0.96
Serbia	0.00	75.54	—	5.2	1.4	3.71	0.78	0.54
Sierra Leone	0.54	51.74	—	—	—	—	0.66	—
Singapore	0.66	85.46	0.97	6.8	1.9	3.58	0.73	0.70
Slovakia	0.57	83.15	0.75	5.7	1.8	3.17	0.71	0.47
Slovenia	0.29	87.71	0.84	3.5	1.1	3.18	0.74	0.47
South Africa	0.86	70.26	0.32	3.5	0.6	5.83	0.78	0.85
South Korea	0.49	89.06	0.76	4.7	2.2	2.14	—	0.43
South Sudan	—	31.06	—	—	—	—	—	—
Spain	0.45	88.71	0.97	3.5	2.0	1.75	0.79	0.49
Sri Lanka	0.49	73.20	0.72	—	—	—	0.67	0.99
Swaziland	0.44	52.92	0.31	—	—	—	—	—
Sweden	0.23	91.62	0.91	5.0	2.5	2.00	0.82	0.17
Switzerland	0.61	91.42	0.92	4.8	2.0	2.40	0.80	0.41
Taiwan	0.68	—	—	5.7	2.3	2.48	—	0.45
Tajikistan	0.34	56.99	0.43	13.5	1.4	9.64	0.65	0.85
Tanzania	0.63	56.20	0.42	—	—	—	0.71	0.89

Country	Religious Fractionalization	Social Progress Index	Healthcare Efficiency Index	Marriages per 1,000	Divorces per 1,000	Marriage/ Divorce Ratio	Gender Equality Index	Religiosity (%)
Thailand	0.10	70.72	0.81	5.5	1.4	3.93	0.71	0.97
Togo	0.66	53.05	0.45	—	—	—	0.68	0.80
Trinidad and Tobago	0.79	—	0.74	6.3	2.2	2.86	0.75	0.92
Tunisia	0.01	75.02	0.79	—	—	—	0.65	0.93
Turkey	0.00	68.27	0.73	6.8	1.7	4.00	0.64	0.82
Turkmenistan	0.23	58.35	0.44	—	—	—	—	0.80
Uganda	0.63	52.98	0.46	—	—	—	0.72	0.93
Ukraine	0.62	73.38	0.71	6.7	2.8	2.39	0.71	0.46
United Arab Emir.	0.33	70.60	0.89	2.8	0.7	4.00	0.72	0.91
United Kingdom	0.69	88.54	0.93	—	—	—	0.78	0.27
United States	0.82	85.71	0.84	6.5	2.9	2.24	0.76	0.69
Uruguay	0.35	82.99	0.75	—	—	—	0.70	0.41
Uzbekistan	0.21	64.98	0.60	7.8	1.1	7.09	—	0.59
Venezuela	0.14	—	0.78	3.3	1.2	2.75	0.70	0.79
Vietnam	0.51	68.85	0.39	5.7	0.4	14.25	0.70	0.30
Yemen	0.00	—	0.59	—	—	—	0.49	0.99
Zambia	0.74	55.34	0.27	—	—	—	0.73	0.95
Zimbabwe	0.74	52.26	0.43	—	—	—	0.73	0.88