

MONEY AND HAPPINESS: INVESTIGATING THE EFFECTS OF  
INCOME, WEALTH, AND SPENDING ON  
SUBJECTIVE WELL-BEING

by

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## **ABSTRACT**

The link between money and happiness has long been debated. A somewhat elusive and subjective idea, happiness is difficult to quantify, and thus it is challenging to determine the distinct ways in which happiness is impacted by various economic factors. However, there has been ample research providing insight into individual subjective well-being and the roles that income, wealth, and spending play in affecting it, such as Richard Easterlin's renowned paradox (Easterlin, 1974). The following thesis paper begins with a review of the prior research that has been done on several areas of financial well-being to outline the complex relationship that exists between money and happiness. Derived from such theoretical findings, the hypothesis I tested was that economic factors, such as GDP per capita, tendency to donate money, and economic freedom, are positively correlated with individual levels of subjective happiness across countries. Utilizing univariate and multivariate regressions with global happiness metrics and other economic measures, it was proven to be true that there is an identifiable positive relationship between some of such economic measures and happiness. I determine that the levels of income and wealth of a country, the degree of economic freedom, and the tendency to donate money are all associated with greater levels of happiness at an aggregate level, whereas the amount of consumption adjusted for GDP level is actually negatively correlated with the average happiness of a nation's people.

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## INTRODUCTION

Psychological motives drive most of the decisions that people make every day, including financial matters. Decisions such as which career path to follow, how to properly plan for the future, and how to spend one's money all come to affect one's happiness and subjective well-being. Princeton economists Frey and Stutzer (2002) stated: "Happiness is generally considered to be the ultimate goal in life; virtually everybody wants to be happy" (p. 402). It is important for individuals as well as financial services professionals and wealth advisors to understand the ways in which people are influenced by money and how to best utilize money to create the greatest amount of satisfaction.

Can money make you happy? The relationship among income, financial well-being, and the ways in which individuals spend money has been studied and debated as it relates to human happiness. The capitalistic, western culture in which we live tells us that more is always better with respect to money (Roszkowski & Grable, 2007). Wealth is associated with numerous favorable circumstances such as decreased levels of stress, better overall health, increased longevity, and better opportunities. Conversely, the idea that "money cannot buy happiness" has been maintained by others such as Adam Smith in his book *The Theory of Sentiments* (Smith, 1759). With so many starkly differing beliefs regarding the relationship between money and happiness, it becomes apparent that the answer is less intuitively clear. In fact, the answer to the question of whether money can buy happiness is not definitively yes or no. It is necessary to make a more in-depth examination of the factors of one's financial state such as income,

wealth, and the ways in which money is spent in order to determine and understand the intricate relationship that money has with people's overall happiness levels.

Research has been done on the ways in which money influences people's subjective assessments of their personal happiness. However, the definition of happiness has varied across studies, which has made it difficult to accurately understand the ways in which it is influenced by income, wealth, and spending habits. Some researchers claim that income and happiness are directly correlated up until a critical threshold, while others claim that there exists an overall logarithmic curve in the happiness produced by increases in income, expressing a diminishing marginal returns attribute to income and wealth. Additionally, while most of the research in this field has been focused on how income and wealth affect subjective well-being, the ways in which people spend their money are also important, often unnoticed, drivers of overall happiness.

This thesis paper focusing in the area of behavioral finance will review the prior research that has been done on different areas of financial well-being to outline the complex relationship that exists between money and happiness. It will then utilize global data on per capita income, GDP per capita, wealth statistics, national spending trends, and subjective happiness levels to test certain hypotheses as well as determine the degree to which money plays a role in individual well-being by geographic culture. The null hypothesis used will be that the economic factors considered do not significantly impact average levels of happiness across nations globally. The alternative or research hypothesis is that the factors considered do in fact have a significant impact on individual happiness levels.

## LITERATURE REVIEW

Money has been found to possess the ability to influence people's individual levels of happiness and contentment in various ways. Income, wealth, and spending are different sides to the same coin of financial well-being that each influence people's levels of satisfaction in a variety of different ways.

Money allows people to live longer, cushion themselves against financial worry and stresses, have more leisure time to spend with loved ones, and have more freedom to control their daily lives. Those with higher levels of wealth are often able to afford better nutrition and medical care, more free time, and more meaningful work (Dunn, Gilbert, and Wilson, 2012). Substantial research has been done into how one's financial state can affect one's overall happiness. It is frequently debated the extent to which objective economic circumstances affect subjective outcomes of well-being and happiness. Income, wealth, and the ways in which people spend their money can impact their well-being in various ways, and knowledge of these dynamics has the potential to enable people to maximize their satisfaction and overall happiness. Each of these aspects to one's financial well-being impact one's happiness differently and can be seen as windows into how money can influence people.

### **Defining Income, Wealth, Spending, and Happiness**

- **Happiness** – Happiness can be defined as both an objective self-assessment of one's personal situation and environmental conditions and a subjective feeling of well-being (Veenhoven, Linley, and Joseph, 2004). Prior studies have interchangeably used

“subjective well-being”, “satisfaction”, and “happiness” as equivalent concepts (Borrero, 2010). A somewhat elusive concept, happiness is defined differently across certain studies. Some define it more objectively, while others use a more subjective definition in which respondents rank their overall satisfaction in life or their current degree of happiness on a given day. For this empirical study, the definition from the World Happiness Report (2012) will be used, called the Cantril Ladder method (p. 11). As the World Happiness Report describes, the method involves the Gallup World Report surveying respondents from over 150 countries, who are asked to rank the quality of their daily lives on a ladder scale of zero to ten.

- **Income** – This research will define income as referring to one’s annual earnings in salary, wages, and any passive income streams. A common proxy for income is GDP per Capita.
- **Wealth** – Wealth refers to a measure of the accumulation of a household’s resources net of any debts. When evaluating wealth, common comparative metrics include net worth, gross domestic product (GDP), and GDP per capita.
- **Spending** – Spending is a measure of the ways and relative quantities in which consumers and households spend money. Household consumption per capita, household consumption as a percentage of GDP, and the World Giving Index are all possible measures of global spending habits.

## **INCOME AND WEALTH**

There exists evidence to support the idea that economic well-being does not correlate with happiness, such that increasing one’s wealth is associated with heightened perceptions of



one's happiness as opposed to actual sustainable happiness (Csikszentmihalyi, 1999). The evidence supporting these conclusions, however, has been frequently mixed and openly inconsistent. Several other studies have advocated that there exists no direct relationship between financial well-being and happiness, that marginal returns in happiness decline as people accumulate more possessions, and that beyond a threshold in financial well-being, happiness may actually decline (Van Boven, 2005; Csikszentmihalyi, 2000).

The most popular research based on consistent data, however, maintains that income and wealth are in fact correlated with happiness, however not linearly (Borrero et al, 2013). Research holds that there is a positive relationship between wealth and well-being, and the relationship is stronger in poorer countries given the need for basic human necessities. So, less developed countries have stronger correlations between money and happiness than more developed nations in which basic human needs are more easily met. An increase in income levels will tend to provide more happiness for poorer individuals, but increasing income will ultimately reach a point in which the satisfaction of basic human needs will drive new higher-order desires. Thus, much of the research points to a positive relationship between wealth and happiness that is not linear but rather logarithmic (Stevenson and Wolfers, 2008). Research suggests that beyond a certain point, incremental increases in happiness yielded from rises in wealth begin to diminish in scale.

### **The Easterlin Paradox**

University of California professor Richard Easterlin formulated a renowned theory referred to as the Easterlin Paradox, which suggests that wealthy people are typically happier

than poor people in a given country; however, wealthy countries are not any happier than poor countries and as countries become more wealthy, they do not become happier as a result (Easterlin, 1974). His research stated that although society has become more affluent over time, people have not become congruently happier. This inconsistency has been attributed to several societal factors such as adaptation, relative income as a basis for happiness, and aspiration levels (Roszkowski and Grable, 2007).

- **Adaptation** – The psychological process of adaptation (or habituation) refers to the idea that all people have a reference point orienting themselves regarding what is normal (Roszkowski and Grable, 2007). Factors that improve one's state above that point register as positive changes, and factors that degrade one's position below that point are seen as negative events. By nature, people are sensitive, at first, to changes. Over time, however, people have a tendency to adapt and become accustomed to changes as a new reference point. Here, people begin to ignore and take changes for granted, accepting them as the new status quo. In this way, individuals tend to have set points of everyday happiness that they revert back to eventually after experiencing temporary high and low spikes. Over time, people are constantly recalibrating their neutral points. Even lottery winners have been reported to revert back to their basis level of daily happiness after a brief point of euphoria (Brickman, Coates, and Janoff-Bulman, 1978). To reduce the impact of adaptation, research by Kahneman and Thaler (1991) advocates that compensation in the form of bonuses rather than salary can potentially produce higher levels of happiness due to the reduced likelihood of bonuses altering one's reference point (Kahneman and Thaler, 1991).

- **Relative Income as a Basis for Happiness** – Several studies have shown that the perceived adequacy of income matters as much or more than its objective adequacy (Kahneman and Thaler, 1991). This means that people’s satisfaction with regard to their financial well-being is based on relative income more so than absolute income. According to Easterlin’s (1974) hypothesis, if the income of each person in a country increased proportionately, people’s individual levels of happiness would not consequently improve because happiness typically moves with an individual’s rank in the overall income distribution. This propensity of people to compare oneself to others in deriving subjective contentment is universally prevalent every day. If you see that your neighbor is earning a salary of \$200,000 a year and driving a brand new Porsche 911, you might become less satisfied with your \$50,000 salary and Honda Civic.
- **Aspiration levels** – People have a tendency to continuously raise their aspiration levels (Kahneman and Thaler, 1991). After adapting to a salary increase, people commonly aspire to reach a higher salary goal. Once a person reaches the amount of income necessary to meet their basic human needs, the level of income needed to be happy is typically relative more so than absolute. It tends to increase relative to an individual’s previous income and a reference group’s income. So, regardless of how high an individual’s absolute income, they might be completely dissatisfied if they feel that they are performing below their peer group. Interestingly, in a study, researchers discovered that as the pay of one’s reference group increased, the satisfaction of workers declined (Clark and Oswald, 1996).

## Further Research

In recent years, more comprehensive data has become available, allowing others to further test Easterlin's (1974) thesis. Many more recent studies have indicated a strong positive relationship between income and well-being across countries over time (Stevenson and Wolfers, 2013). Much of this research has called for a modified version of Easterlin's original hypothesis, conceding that there is in fact a positive, linear link between income and subjective well-being but only up to the critical point of meeting one's basic needs. Some researchers have held that above some threshold of income, there are only small increases in subjective well-being (Diener and Seligman, 2004; Frey and Stutzer, 2002). Others have stated that increased economic prosperity beyond a threshold no longer brings any additional happiness (Clark, Frijters, and Shields, 2008; Di Tella and MacCulloch, 2008).

Kahneman and Deaton (2010) determined that the critical level of annual income in the United States is \$75,000, and above that level, people did not appear to experience any increased subjective well-being (Kahneman and Deaton, 2010). Notably, the metrics for well-being used in Kahneman and Deaton's contributions are considered measures of affect. Easterlin's study and many other subsequent studies have utilized "evaluative" measures of happiness that gauge a person's overall subjective feelings about their life, whereas the measures for happiness used in Kahneman and Deaton's study were more temporary in nature.

Research from the University of Michigan (2013) sought to develop a modified version of the Easterlin hypothesis by determining whether Kahneman and Deaton's conclusion would be true under the more appropriate, evaluative measures of subjective happiness used in Easterlin's and other previous studies (Stevenson and Wolfers, 2013). Examining Gallup World

Poll data of 155 countries spanning 95% of the world’s population, the study aimed to amend Easterlin’s hypothesis and examine others under the lens of Easterlin’s theory. The research found that there was no major well-being dataset that supports the commonly-made claim that there exists some critical income level beyond which increased income no longer impacts well-being. Rather, Stevenson and Wolfers discovered that there is a linear relationship between income and subjective well-being when evaluated in terms of a percentage change in income. There is a clear diminishing returns attribute related to the amount of extra well-being associated with each dollar of additional income. However, what the study found was that in terms of the percentage change in income, a 5% rise in income still yielded about a 5% increase in well-being to anyone at any income level across the globe. The University of Michigan research discovered similar trends across geographies, cultures, and economic climates. They also found that wealthier countries were indeed happier than poorer countries, and as countries became wealthier in terms of average income, they did in fact become happier on average.

TABLE 2—INCOME AND SATISFACTION IN THE UNITED STATES

Annual household income	Very happy (percent)	Fairly happy (percent)	Not too happy (percent)
<\$10k	35	44	21
\$10k–\$20k	42	42	15
\$20k–\$30k	43	52	5
\$30k–\$40k	55	41	4
\$40k–\$50k	46	46	9
\$50k–\$75k	55	40	5
\$75k–\$100k	60	36	4
\$100k–\$150k	60	40	0
\$150k–\$250k	70	30	0
\$250k–\$500k	83	17	0
>\$500k	100	0	0

Note: Author’s calculations, based on Gallup Poll conducted December 6–9, 2007.

\*Stevenson & Wolfers, 2013

## **SPENDING**

The limitations on the effects of income and wealth on personal happiness have driven a great deal of meaningful research into the effects of spending and the ways in which individuals use their money to produce happiness. Some research provides that though money has the potential to buy happiness, it is often unsuccessful simply because people do not spend it in the right ways (Dunn, Gilbert, and Wilson, 2011). The law of diminishing returns dictates that beyond a certain point of wealth and financial stability, incremental increases in one's financial state can impact happiness, but only to a marginally declining extent. Many researchers argue that this is due to people's frequent inability to spend in the most efficient, value-producing ways. People often squander the opportunity that money provides to acquire happiness because of a misjudgment regarding the things that will make them happiest. We tend to spend our money on things that we think will make us happy, make our lives easier, or increase our social presence (attempting to keep up with the Joneses), without realizing what truly gives us the most lasting satisfaction.

### **Experiential Spending**

One of the primary principles that prior research has found is that spending money on experiences tends to provide better-lasting happiness and fulfillment in comparison to spending money on possessions. An experiential purchase might be a vacation or an event, while possessions refer to purchases of tangible, material goods. In a large study of individuals in the United States, respondents were asked to recall a recent experiential purchase and a recent material purchase that they had made with the intent to increase their happiness (Dunn,

Gilbert, and Wilson, 2011). 57% of those surveyed responded that they received greater levels of happiness from their experiential purchase, while 34% of respondents reported a greater level of happiness from their material purchase. This marvel can be explained by the ability and tendency of people to adapt to possessions relatively quickly whereas memories often have the ability to bring continued enjoyment.

Additionally, people typically anticipate and remember experiences better than possessions. In a study of university students, researchers discovered that 83% of respondents had reported to have more frequently thought back on experiential purchases than material purchases (Van Boven and Gilovich, 2003). This can be explained by the idea that possessions bring people happiness when they are using them but do not have much of an effect when simply thinking about them. Experiences, however, bring happiness both in the moment and in the act of thinking forward or backward upon. One can derive happiness from planning a vacation to Cozumel months ahead of time or looking back on a Lady Gaga concert attended with friends a year prior. Experiences are more tightly connected to people's identities than possessions, which tends to make them more valuable investments in terms of personal well-being. Van Boven and Gilovich (2003) discovered that the overwhelming majority of respondents viewed experiential purchases that they had made as more self-defining than material purchases they had made. Lastly, experiences are often shared with others, which contributes to the happiness produced and the memorability of the purchase (Dunn, Gilbert, and Wilson, 2011). Hence, experiential spending, as opposed to spending on material possessions, has been linked with numerous benefits to subjective happiness levels.

## **Prosocial Spending**

Another principle that has been studied in relation to the effect of spending on happiness is spending money on others rather than oneself. Dunn and Norton (2013) studied the effects of prosocial spending on well-being by conducting an experiment on students of the University of British Columbia (Dunn and Norton, 2013). Students were given \$5-\$20 and then randomly assigned to either spend the money on themselves or on others by the end of the day. Students were sampled before and after the study regarding their subjective happiness to determine if there were any noticeable changes. Those assigned to spend on themselves bought things like makeup, coffee, and other everyday purchases. Those assigned to spend on others, however, did more interesting things with the money. One woman bought a stuffed animal for her niece and many others gave to homeless people or street performers. At the end of the day, the participants that were assigned to spend the money on others were measurably happier than they were before the experiment, whereas those that spent the money on themselves were typically no happier than before they received the money. In an interview with National Public Radio (2014), Norton talks about how spending on others not only makes people experience positive feelings about themselves but it also causes people to think about their money differently and spend it in more interesting ways (Raz, 2014).

The observed results were found to be universal cross-culturally. A similar study was conducted on both citizens of Canada and citizens of Uganda, in which participants were chosen at random to either reflect on a time in which they spent money on themselves or spent money on someone else (Aknin et al., 2010). Of those surveyed, people felt pointedly happier when reflecting on a time in which they had spent money on others, whereas there was no



measurable change in happiness levels when reflecting on a purchase for oneself. This observation was consistent across these drastically different cultures, although the ways in which the money was spent on others varied widely across cultures. In his NPR interview (2014), Norton states:

We've seen it in so many domains and across so many contexts... On average, spending on yourself doesn't do much, and spending on others does something for you just because it disrupts your business as usual. Buying the same things, every single day for the rest of your life. It makes you think differently about money, and it makes you think, maybe I could do something for somebody else. (Raz, 2014).

Additionally, Dunn and Norton's research has shown that in regard to deriving happiness, the specific ways in which one spends money on another is not nearly as important as the fact that one spends on another. It is not necessary to do grandiose things with one's money. Rather, one can spend on simple, trivial things for others to receive these benefits on satisfaction and personal happiness.

Spending money on others has been discovered to be associated with emotional rewards emitted in the brain, which have been detected by researchers at the neural level (Harbaugh, Mayr, & Burghart, 2007). In a study, researchers offered MRI patients the chance to donate to a local food bank. Participants who chose to donate money or were forced to donate received stimulation in the neural areas associated with receiving rewards.

The benefits of spending on others are clear, but they raise thought-provoking questions on the reasons for this occurrence. Studies have been done on why prosocial spending generates these consistent benefits on personal well-being. Research by Diener and Seligman

(2002) contends that spending money on others is extremely impactful on social relationships and social relationships are universally essential for human happiness (Diener and Seligman, 2002). The opportunity to spend money on other people can have the effect of strengthening human connections, a source from which much human happiness is derived. Spending money on others delivers an opportunity for positive self-presentation, which has been proven to improve mood and feelings of happiness (Dunn, Biesanz, Human, & Finn, 2007).

The benefits of prosocial spending are proven and universal across cultures. Still, however, many people underestimate the robust benefits of spending money on other people. Surveying students at the University of British Columbia, researchers discovered that a substantial majority of participants made the forecasting error of thinking that spending money on themselves would make them happier than spending money on others (Dunn and Norton, 2013). Though money has the ability to promote personal happiness, the ways that people tend to think about money often undermines prosocial spending impulses, effectively making individuals less likely to spend money helping others or donating.

### **Smaller, More Frequent Pleasures**

Another important principle of spending money is the idea of making many small purchases rather than few large ones. People are universally prone to adaptation. For many types of purchases, it is inevitable for humans to eventually return to a state of status quo in happiness after acquiring a new possession (Dunn, Gilbert, and Wilson, 2011). Some researchers argue that by increasing the frequency of purchases and making smaller purchases, money can be used more efficiently to bring happiness. For instance, rather than purchasing

expensive sports cars, extravagant homes, and luxurious vacations, one could enjoy smaller, more frequent pleasures such as cappuccinos, chair massages, and nights out on the town.

Additionally, happiness has been found to be more strongly correlated with the frequency of positive affective experiences than the intensity of those experiences (Diener, Sandvik, & Pavot, 1991). An explanation for why people have the ability to be more satisfied by smaller, more frequent purchases is that the likeliness of adapting to the smaller purchases is much lower than that of larger spends (Wilson and Gilbert, 2008). Events and material objects that are more difficult to explain or understand tend to slow the rate of adapting. Thus, the degree of novelty, surprise, uncertainty, and variability can all affect the speed at which a person adapts to a purchase. Smaller purchases tend to satisfy these variables more than larger purchases, and their propensity to be different every time enables them to forestall adaptation.

Additionally, spending on smaller pleasures has the benefit of being less vulnerable to the diminishing marginal utility that becomes prevalent with larger purchases (Dunn, Gilbert, and Wilson, 2011). For example, eating an eight-ounce cupcake does not bring twice the amount of pleasure as eating a four-ounce cupcake. By breaking up and segregating pleasurable experiences into a group of smaller experiences, it is possible to extend and maximize the utility provided per dollar spent (Kahneman, 1999). So, eating two four-ounce cupcakes on different occasions has the potential to provide more happiness than eating one large cupcake at one time. This segregation tactic is effective because it creates a temporal discontinuity between experiences, reducing the impacts of adaptation.

In an experiment, researchers tested these effects by asking people to sit in a massage chair (Nelson and Meyvis, 2008). Some participants received a 180 second massage while

others received an 80 second massage followed by a 20 second break and then another 80 second massage. Though the group that experienced two briefer massages actually spent less total time in the massage chair, those participants that received the shorter massages were more satisfied with their experience and happier as a result than those that received the longer one-time massage. Again, the participants made a forecasting error predicting that they would prefer one longer massage lasting the entire 180 second duration. An example of how quickly people can adapt, participants acclimated to the pleasure of the massage after a mere 80 seconds. This experiment is representative of many common purchases of goods, services, and experiences. Enjoying regular weekend getaways rather than annual ten-day luxury vacations is an example of a way to maximize satisfaction through enjoyment of frequent, small pleasures.

By experiencing more common, ephemeral pleasures, people can maximize the utility provided by the burst of enjoyment accompanying the first bite of a dessert or the first few minutes of a massage. Research by Quoidbach, Dunn, Petrides, and Mikolajczak (2010) describes how the joy provided by smaller, everyday pleasures helps to explain the modest correlation between money and happiness. In a study of adults, participants that possessed a tendency to savor the routine delights of everyday life were happier overall than participants that did not (Quoidbach et al, 2010). What they found was that the capacity to savor and enjoy life's simplistic pleasures was less prevalent among individuals with greater levels of wealth. The positive impact that wealth had on happiness was considerably offset by the negative impact that wealth had on one's capacity to savor. The research argues that since wealth grants individuals access to peak luxuries and experiences, it also undermines individuals' ability to savor smaller enjoyments. If a person grows accustomed to first class flights, luxury vacations,

and expensive automobiles, it makes intuitive sense that they will become less sensitive to the simple pleasures of daily life. In summary, small everyday pleasures are not only an important source of happiness, but they are also hindered by the somewhat counterproductive effects that unencumbered access to luxury goods and experiences can have.

## **METHODS AND RESULTS**

For my study, I decided to perform an empirical analysis on happiness trends by looking for statistical patterns in happiness datasets across geographies. There were two primary happiness datasets used: The World Database of Happiness (WDOH), which is an archive of annual surveyed subjective appreciation levels across 160 countries, and The World Happiness Report (WHR), an annual study published by the United Nations (UN) ranking 158 countries by their surveyed average levels of subjective happiness. I used these annual measures of happiness as the dependent variables, with the intent to determine financial drivers and influencers of happiness.

The World Database of Happiness collects its data by surveying individuals all over the world, asking them to rank their enjoyment of their life as a whole on a scale of 0 to 10. This data is aggregated and averaged by country over a period of time. The most recent dataset covers 2005 through 2014. The World Happiness Report, published by the UN's Sustainable Development Solutions Network, reports its national happiness scores slightly differently. It uses data based on answers to the primary life evaluation question in the Gallup World Poll. Referred to as the Cantril ladder, the question asks its respondents to imagine a hypothetical ladder. At the top of the ladder is a score of 10, representing the best possible life for them, and at the bottom of the ladder is a score of 0, representing the worst possible life for them. Respondents are asked to rank their current lives on that scale from 0 to 10. This data is taken each year and averaged by country.

Independent variables explored included household consumption, donation, Gross Domestic Product (GDP) per capita, income distribution, life expectancy, tax rates, tax revenue, and measures of economic freedom. These factors were all seen as relevant to a complete analysis of the economic variables that might affect an individual's perception of his or her well-being. Spending data were taken from reported NationMaster figures of household consumption per capita and household consumption as a percentage of GDP. As a proxy for prosocial spending, the Charities Aid Foundation reports a World Giving Index score by country which can be broken down further into a donating money index. The World Bank provides global data on GDP per capita, life expectancy, tax rate, tax revenue, and the GINI index. The GINI index is a measure of income distribution in a nation, and it is reported annually by nation. Lastly, the Heritage Foundation reports an annual Index of Economic Freedom, measuring countries around the world by the degree of economic freedom enjoyed by their citizens. Components of the Economic Freedom Index include property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom.

The most recent year that complete data was available is 2012, so for parallel comparison purposes, nearly all of the data used in this analysis is from the year 2012. The exception, however, is the dataset taken from the World Database of Happiness regarding satisfaction with life. This dataset presents an aggregate of the years 2005-2014. To mitigate this discrepancy, a second happiness dataset was used (The World Happiness Report) that isolates 2012 numbers.

## Univariate Regressions

Initially, it is necessary to observe the dataset from a high level to determine potential correlations among factors. For this, Figure 1 displays a correlation matrix representing the correlation coefficients between the datasets of each of the observed variables. As expected, there is a high correlation ( $\rho = 0.85$ ) between each of the two happiness datasets. The differences can likely be attributed to the difference in sample time frames and the difference in the measurements of subjective happiness.

Figure 1 – Happiness Correlation Matrix

	Satisfaction with life	World Happiness	Household Cons. Per Capita	Household Cons. to GDP	World Giving Index Score	Donating Money Score	GDP Per Capita	GINI Index	Life Expect.	Tax Rate	Tax Revenue	Economic Freedom	Property rights	Freedom from corruption	Fiscal freedom	Govt spending	Business freedom	Labor freedom	Monetary freedom	Trade freedom	Investment freedom	Financial freedom
Satisfaction with life	1.00	0.85	0.61	-0.39	0.48	0.59	0.60	-0.05	0.68	-0.13	0.16	0.51	0.56	0.63	-0.14	-0.26	0.49	0.18	0.23	0.46	0.36	0.45
World Happiness		1.00	0.73	-0.46	0.47	0.60	0.70	-0.12	0.72	-0.15	0.16	0.56	0.65	0.70	-0.18	-0.37	0.57	0.23	0.22	0.51	0.38	0.51
Household Cons. Per Capita			1.00	-0.39	0.49	0.68	0.96	-0.41	0.67	-0.14	0.32	0.67	0.84	0.88	-0.52	-0.48	0.65	0.26	0.36	0.57	0.58	0.63
Household Cons. to GDP				1.00	-0.17	-0.33	-0.47	0.19	-0.34	0.01	-0.23	-0.22	-0.34	-0.37	0.11	0.21	-0.25	-0.09	-0.06	-0.26	-0.07	-0.18
World Giving Index Score					1.00	0.82	0.46	0.04	0.20	-0.10	-0.08	0.33	0.40	0.44	-0.13	-0.04	0.29	0.14	0.08	0.15	0.17	0.26
Donating Money Score						1.00	0.64	-0.11	0.49	-0.21	0.09	0.55	0.60	0.63	-0.16	-0.16	0.42	0.23	0.28	0.38	0.39	0.48
GDP Per Capita							1.00	-0.38	0.61	-0.19	0.21	0.61	0.77	0.84	-0.31	-0.41	0.55	0.20	0.29	0.51	0.46	0.52
GINI Index								1.00	-0.32	0.15	-0.28	-0.30	-0.44	-0.43	0.25	0.59	-0.44	-0.19	-0.14	-0.42	-0.25	-0.23
Life Expectancy									1.00	-0.15	0.26	0.63	0.63	0.66	-0.04	-0.36	0.66	0.22	0.37	0.65	0.47	0.54
Tax Rate										1.00	0.09	-0.36	-0.24	-0.27	-0.26	0.08	-0.24	-0.32	-0.10	-0.25	-0.28	-0.31
Tax Revenue											1.00	0.23	0.29	0.27	-0.34	-0.39	0.32	-0.04	0.15	0.34	0.38	0.37
Economic Freedom												1.00	0.85	0.81	0.01	-0.13	0.78	0.56	0.62	0.69	0.83	0.85
Property rights													1.00	0.95	-0.34	-0.44	0.72	0.35	0.48	0.60	0.71	0.75
Freedom from corruption														1.00	-0.34	-0.45	0.70	0.35	0.42	0.60	0.65	0.68
Fiscal freedom															1.00	0.40	-0.10	0.17	-0.07	0.01	-0.20	-0.14
Government spending																1.00	-0.33	-0.01	-0.05	-0.40	-0.30	-0.31
Business freedom																	1.00	0.40	0.37	0.57	0.59	0.62
Labor freedom																		1.00	0.23	0.24	0.28	0.35
Monetary freedom																			1.00	0.49	0.54	0.52
Trade freedom																				1.00	0.63	0.65
Investment freedom																					1.00	0.84
Financial freedom																						1.00

### Satisfaction with Life Dataset

Looking first at the World Database of Happiness dataset associated with satisfaction with life, the factors with the highest correlations with happiness were observed to be life expectancy, household consumption per capita, GDP per capita, freedom from corruption, and inclination to donate money. Notably, household consumption as a percentage of GDP has a slight negative correlation coefficient with satisfaction with life ( $\rho = -0.39$ ). Looking then at the extremely strong positive correlation between household consumption per capita and GDP per



capita ( $\rho = 0.96$ ), it seems possible that household consumption per capita is highly correlated with satisfaction with life simply because consumption generally rises with increased GDP levels. As indicated by the negative correlation between satisfaction with life and household consumption to GDP, as GDP rises, consumption per capita too rises, but consumption declines as a percentage of GDP ( $\rho = -0.47$  between GDP per capita and household consumption to GDP). So, household consumption is likely not the driver of happiness, but is merely correlated with levels of GDP per capita, which may influence happiness. A negative correlation between household consumption to GDP and happiness may indicate that national overspending or emphasizing consumption more so than production may have a diminishing effect on individual happiness levels.

### ***Life Expectancy***

One of the factors most highly correlated with happiness by both measures was life expectancy, yielding correlation coefficients of  $\rho = 0.68$  (Satisfaction with life) and  $\rho = 0.72$  (World Happiness). This makes intuitive sense, as a country's average life expectancy gives an indication into its standard of living. If people have a high enough standard of living to be healthy and live longer lives, they will be happier. Conversely, without the resources necessary to meet one's basic human needs, an individual is unlikely to find personal fulfillment and sustainable happiness. There is a strong positive correlation between life expectancy and happiness by both measures. Low p-values and high t-statistics indicate a high level of statistical significance. Typically, a p-value under 0.05 indicates that the null hypothesis can be rejected due to an extremely small likelihood of the correlation determined being due to random error.

Figure 2 – Life Expectancy (World Database of Happiness)

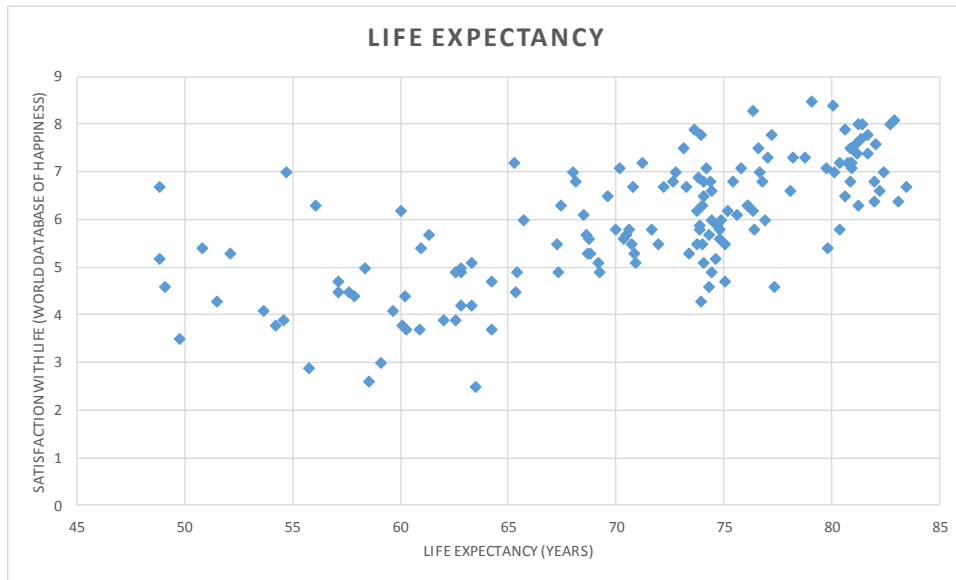
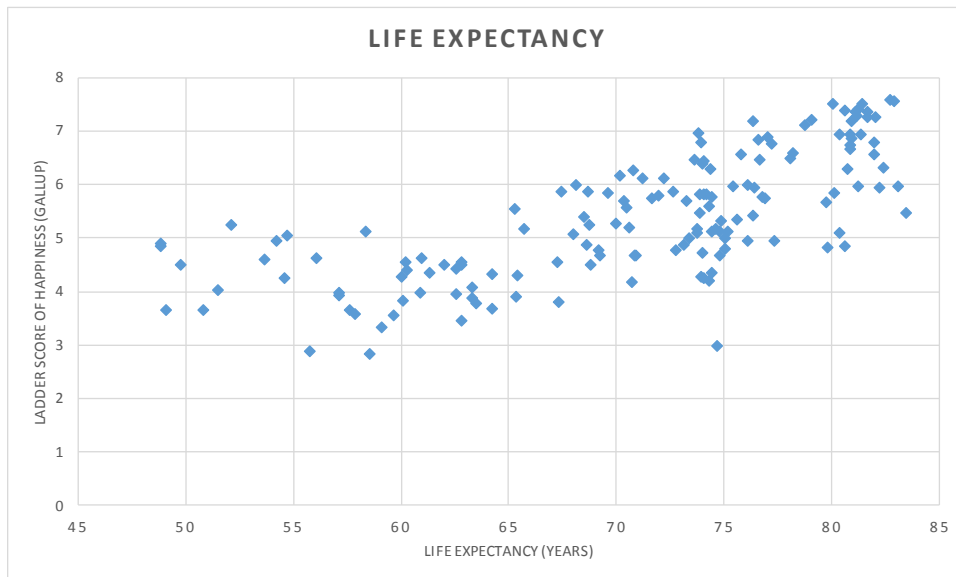


Figure 3 – Life Expectancy (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness (the assumed dependent variable):

World Database of Happiness

**Y (Happiness) = -1.1464 + 0.1001 \* Life Expectancy**

Correlation Coefficient ( $\rho$ ) = 0.685

Adjusted R-squared = 0.466

P-Value = 2.22E-22

World Happiness Report / Gallup

**Y (Happiness) = -1.1819 + 0.0928 \* Life Expectancy**

Correlation Coefficient ( $\rho$ ) = 0.717

Adjusted R-squared = 0.511

P-Value = 2.67E-25

### ***GDP Per Capita***

Additionally, GDP per capita was one of the more highly correlated factors observed with happiness. GDP per capita is a measure of total output for a country and is one of the primary indicators of a country's economy and standard of living. It can also partially serve as a proxy in the analysis for household wealth or annual income levels. In relation to happiness, it helps determine whether economic standard of living and income are positively correlated with subjective well-being. GDP per capita was discovered to be positively correlated with happiness by both the World Database of Happiness ( $\rho = 0.60$ ) and the Gallup reported datasets ( $\rho = 0.70$ ). This finding makes intuitive sense, in that with an increased standard of living, one would expect a country's citizens to be generally happier and report higher satisfaction levels than in a nation that enjoys a lower standard of living. Interestingly, as GDP per capita rises across countries, the rate of growth in happiness follows a logarithmic shaped curve, indicating asymptotic diminishing returns. The slope is steeper at the onset, but as GDP per capita continues to rise, the slope of the distribution levels off and each incremental increase in GDP per capita yields a smaller increase in incremental happiness.

Figure 4 – GDP per Capita (World Database of Happiness)

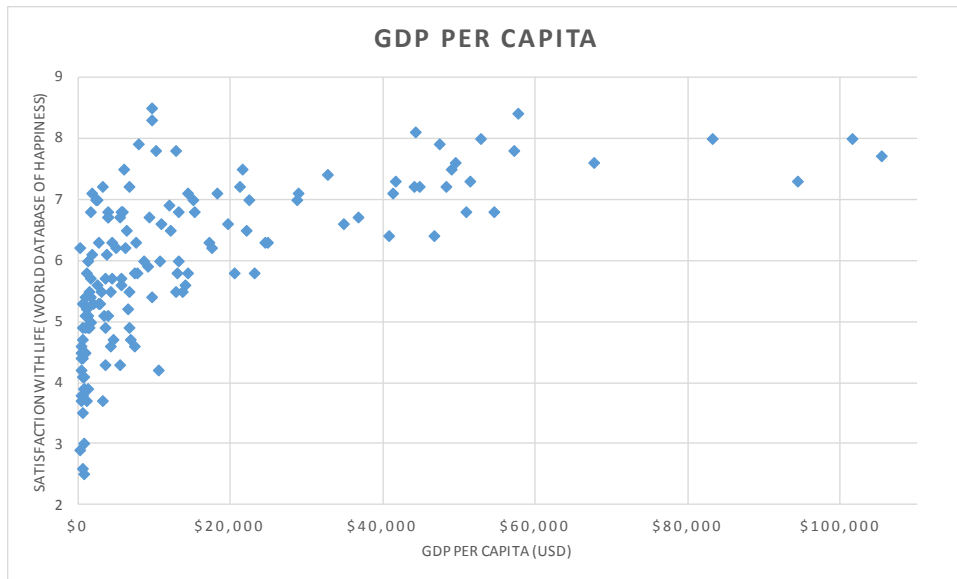
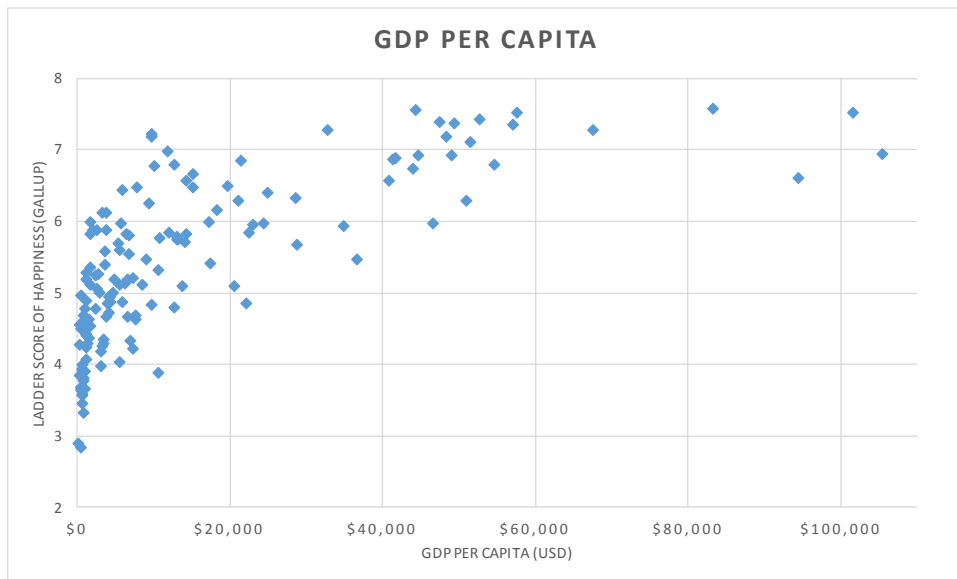


Figure 5 – GDP per Capita (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

**Y (Happiness) = 5.3660 + 0.000003761 \* GDP Per Capita**

Correlation Coefficient ( $\rho$ ) = 0.601

Adjusted R-squared = 0.356

P-Value = 5.62E-16

World Happiness Report / Gallup

**Y (Happiness) = 4.8304 + 0.000003814 \* GDP Per Capita**

Correlation Coefficient ( $\rho$ ) = 0.700

Adjusted R-squared = 0.486

P-Value = 3.06E-23

### ***Donating money score***

To understand the financial aspects of a person's life that relate to their happiness, it is also necessary to include in the analysis the ways in which people spend money. A measure of (or proxy for) prosocial spending is the tendency to donate money. The World Giving Index is published annually by the Charities Aid Foundation, and a component of the overall index is a score associated with a nation's citizen's inclination to donate money. The donating money score was positively correlated with happiness on both the World Database of Happiness ( $\rho = 0.59$ ) and the Gallup reported measures ( $\rho = 0.60$ ). In countries where their citizens donate more money, the citizens are more likely to report greater levels of happiness and satisfaction. This correlation does not necessarily imply causation, however. It may be that citizens donating more leads to greater levels of personal satisfaction, but it is also likely that wealthier nations are more able and thus willing to be more charitable. In this alternative scenario, it could simply be the wealth that is driving the happiness, and the charity could be a result of the wealth or even a result of the happiness. There is also a positive correlation ( $\rho = 0.64$ ) between GDP per capita and donating money. We are unable to determine causality in our analysis, but it is evident that there is a positive correlation between donating money and happiness.

Figure 6 – Donating Money Score (World Database of Happiness)

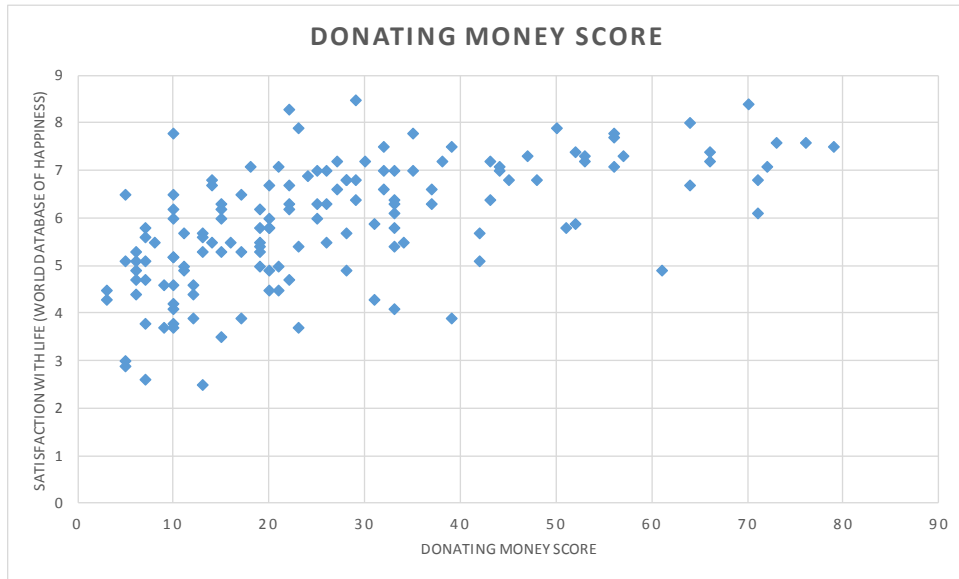
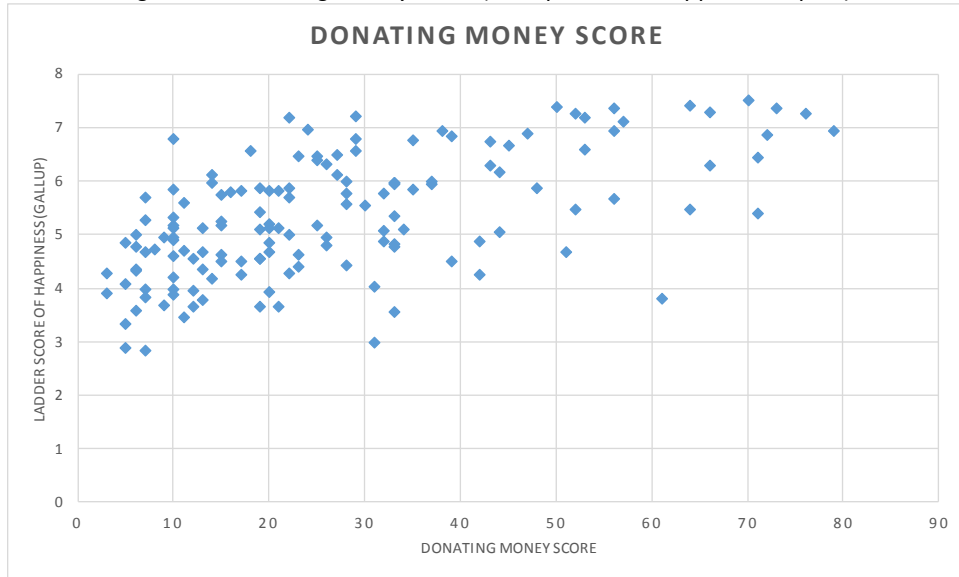


Figure 7 – Donating Money Score (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

$$Y (\text{Happiness}) = 4.7963 + 0.0408 * \text{Donating Money Score}$$

Correlation Coefficient ( $\rho$ ) = 0.591

Adjusted R-squared = 0.344

P-Value = 5.30E-15

World Happiness Report / Gallup

**Y (Happiness) = 4.3642 + 0.0362 \* Donating Money Score**

Correlation Coefficient ( $\rho$ ) = 0.596

Adjusted R-squared = 0.350

P-Value = 2.74E-15

### ***Factors of Economic Freedom***

The Heritage Foundation's Index of Economic Freedom analyzes and reports a variety of factors that make up a country's economic freedom. Freedom from corruption, property rights, and business freedom drove the overall index's positive correlation with both the World Database of Happiness measures of happiness ( $\rho = 0.51$ ) and the Gallup reported measures of happiness ( $\rho = 0.56$ ).

Freedom from corruption is a factor that influences a nation's economic freedom. Corruption in government and business practices introduces uncertainty and insecurity into relationships in an economy, thus eroding economic freedom. There is a positive correlation between freedom from corruption and happiness by both the World Database of Happiness ( $\rho = 0.60$ ) and the Gallup ( $\rho = 0.70$ ) measures. Intuitively, the citizens of nations with less economic corruption have reported feeling happier than those with more systemic corruption.

Figure 8 – Freedom from Corruption (World Database of Happiness)

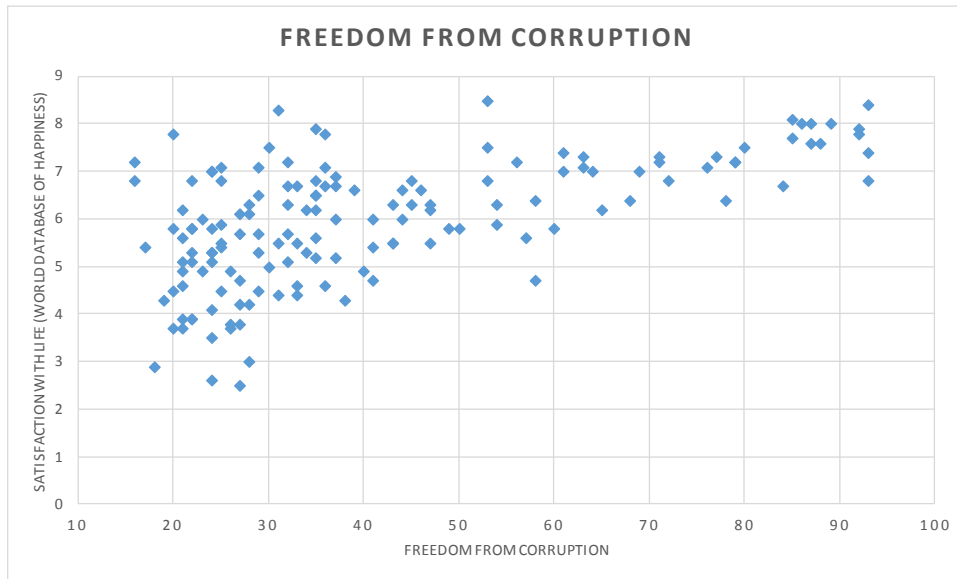
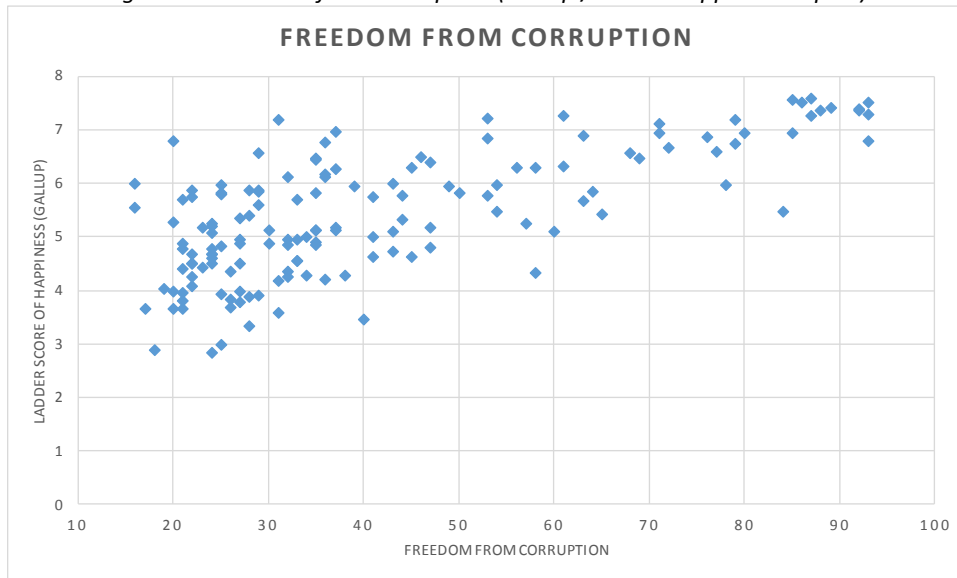


Figure 9 – Freedom from Corruption (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

$$Y (\text{Happiness}) = 4.4624 + 0.0363 * \text{Freedom from Corruption Score}$$

Correlation Coefficient ( $\rho$ ) = 0.598

Adjusted R-squared = 0.354

P-Value = 6.77E-52



World Happiness Report / Gallup

**Y (Happiness) = 3.8483 + 0.0379 \* Freedom from Corruption Score**

Correlation Coefficient ( $\rho$ ) = 0.703

Adjusted R-squared = 0.491

P-Value = 2.25E-23

Property rights are another driver of economic freedom as measured by the Heritage Foundation. This component assesses the ability of a country's citizens to accumulate private property and evaluates the degree to which its laws and government protect the rights to private property. There also exists a positive correlation between property rights scores and happiness by both the World Database of Happiness ( $\rho = 0.56$ ) and the Gallup ( $\rho = 0.65$ ) measures.

Figure 10 – Property Rights (World Database of Happiness)

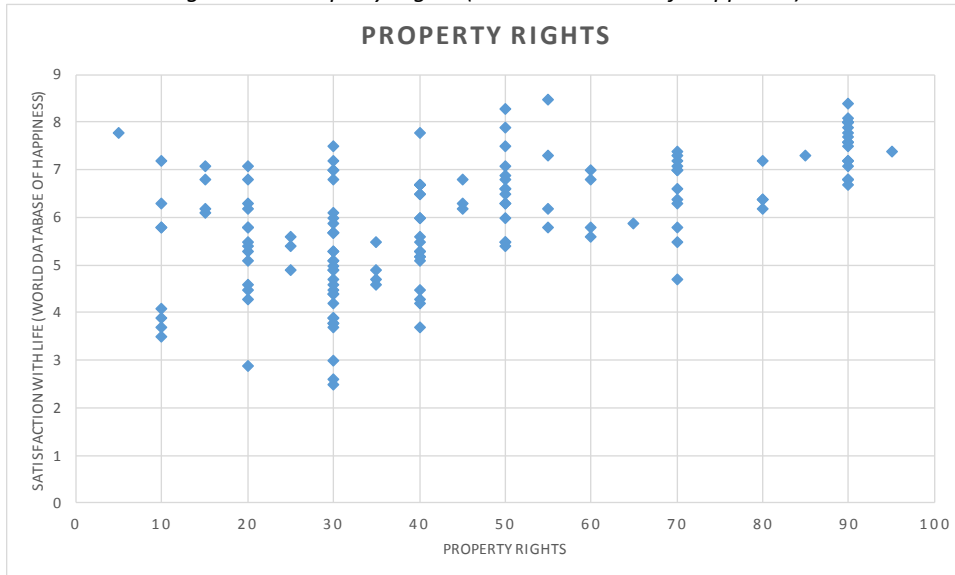
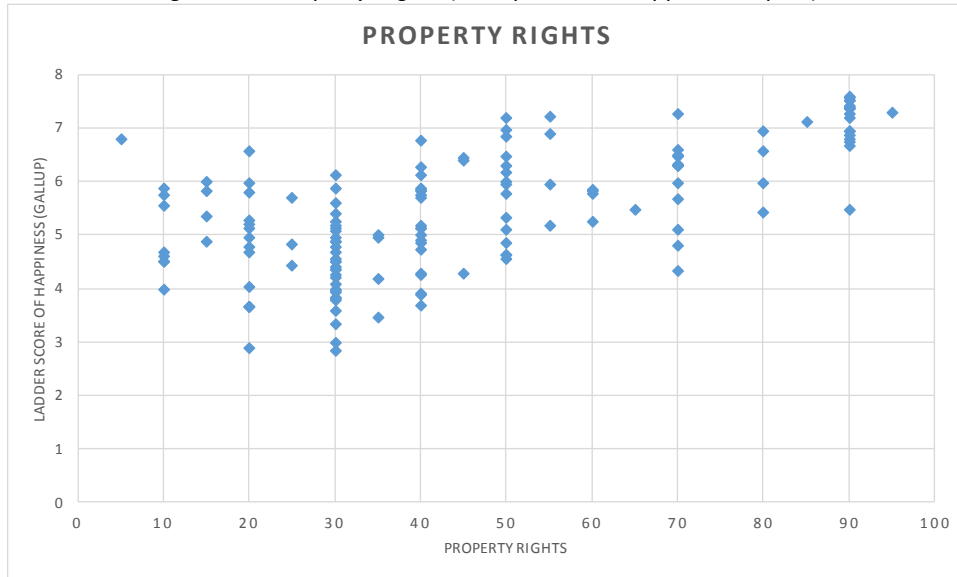


Figure 11 – Property Rights (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

**Y (Happiness) = 4.6205 + 0.0300 \* Property Rights Score**

Correlation Coefficient ( $\rho$ ) = 0.559

Adjusted R-squared = 0.307

P-Value = 1.60E-13

World Happiness Report / Gallup

**Y (Happiness) = 4.0319 + 0.0309 \* Property Rights Score**

Correlation Coefficient ( $\rho$ ) = 0.648

Adjusted R-squared = 0.416

P-Value = 5.57E-19

A country's economic freedom is also composed of its degree of business freedom, an indicator of the efficiency with which a government regulates business. The World Database of Happiness ( $\rho = 0.49$ ) and the Gallup ( $\rho = 0.57$ ) datasets each suggest a positive, yet perhaps somewhat weak correlation between business freedom and happiness.

Figure 12 – Business Freedom (World Database of Happiness)

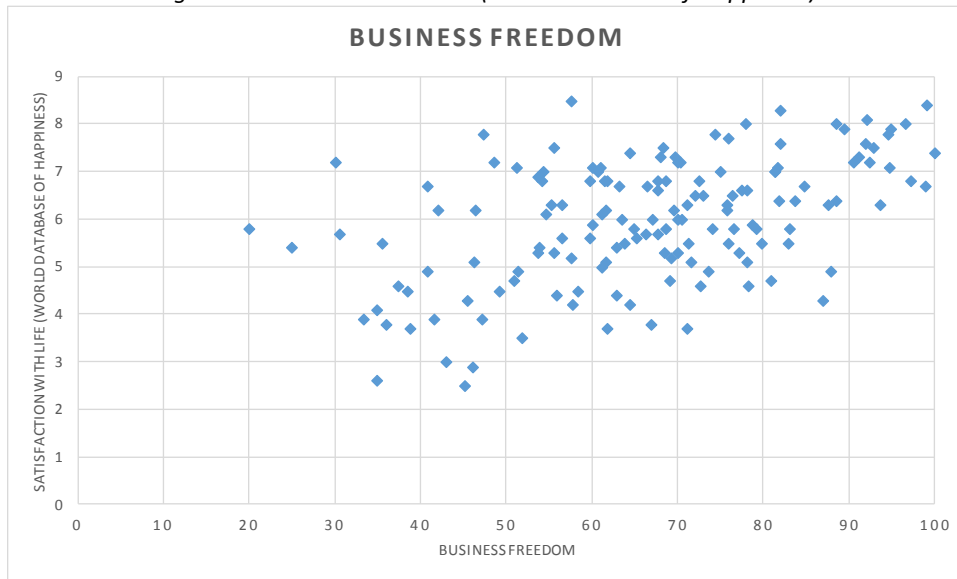
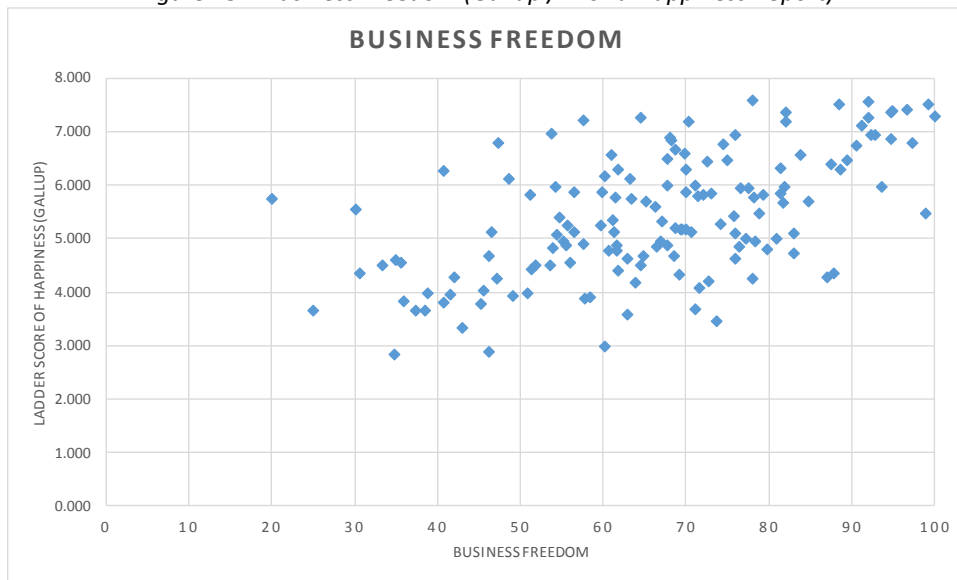


Figure 13 – Business Freedom (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

**Y (Happiness) = 3.5259 + 0.0369 \* Business Freedom Score**

Correlation Coefficient ( $\rho$ ) = 0.491

Adjusted R-squared = 0.236

P-Value = 2.34E-10

World Happiness Report / Gallup

**Y (Happiness) = 2.9171 + 0.0378 \* Business Freedom Score**

Correlation Coefficient ( $\rho$ ) = 0.567

Adjusted R-squared = 0.317

P-Value = 6.00E-14

### ***Household Consumption to GDP***

While some economic factors are positively correlated with happiness, others have notably had inverse relationships to surveyed measures of subjective well-being. The World Bank reports annual data regarding household final consumption expenditure as a percentage of GDP. This measure gives the value of all goods and services purchased by households in a year (excluding durable goods) as a percentage of the goods and services produced within a country's borders in a year. Markedly, this figure has shown to be inversely correlated with individual happiness. As consumption expenditure rises as a percentage of GDP, happiness actually diminishes in several cases. This could imply that overspending is associated with a reduction in happiness levels. As noted previously, household consumption per capita is positively correlated with happiness. However, it is likely that this positive correlation simply suggests that happiness and increased spending are unrelated products of a higher standard of living. When using household consumption to GDP, it seems a logical interpretation that increased levels of spending, taken alone, is actually associated with lower levels of satisfaction.

Figure 14 – Household Consumption to GDP (World Database of Happiness)

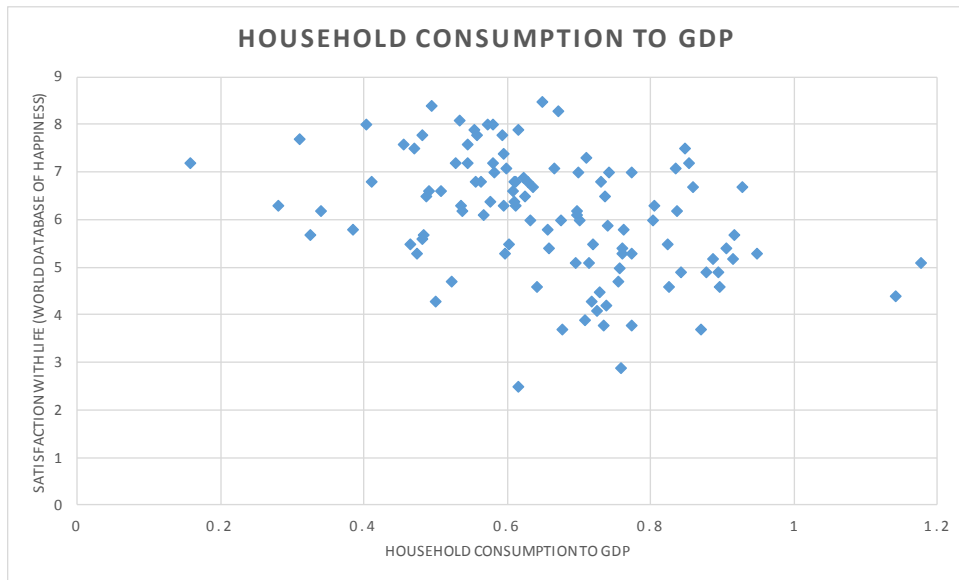
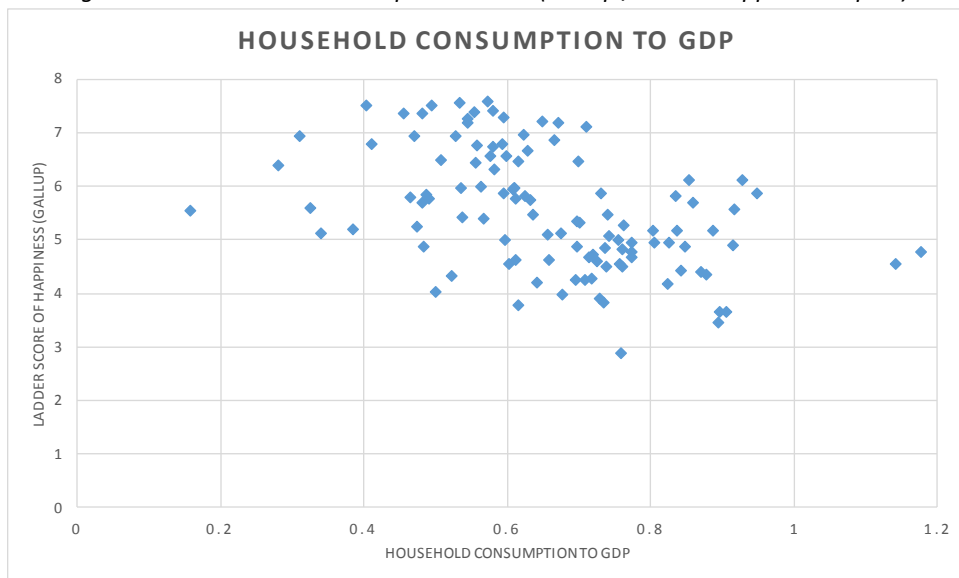


Figure 15 – Household Consumption to GDP (Gallup / World Happiness Report)



Linear univariate regression of these factors yields the following equations for happiness:

World Database of Happiness

$$Y (\text{Happiness}) = 8.0416 - 2.9551 * \text{Household Consumption to GDP}$$

Correlation Coefficient ( $\rho$ ) = 0.393

Adjusted R-squared = 0.147

P-Value = 1.84E-05

World Happiness Report / Gallup

**Y (Happiness) = 7.5683 – 3.0543 \* Household Consumption to GDP**

Correlation Coefficient ( $\rho$ ) = 0.464

Adjusted R-squared = 0.208

P-Value = 2.57E-07

Figure 16 – Univariate Regression Output Summary with World Database of Happiness dataset

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<b>Intercept</b>	-1.146	5.366	4.796	4.462	4.620	3.526	8.042	5.453
t-stat	-1.848	50.854	31.243	23.699	24.502	9.495	17.964	44.831
p-value	0.067	3.41E-95	9.20E-66	6.77E-52	1.37E-53	6.01E-17	1.69E-34	6.08E-73
<b>Life Expectancy</b>	0.100							
t-stat	11.514							
p-value	2.22E-22							
<b>GDP Per Capita</b>		3.76E-05						
t-stat		9.109						
p-value		5.62E-16						
<b>Donating Money Score</b>			0.041					
t-stat			8.753					
p-value			5.30E-15					
<b>Freedom from Corruption</b>				4.462				
t-stat				23.699				
p-value				6.77E-52				
<b>Property Rights</b>					0.030			
t-stat					8.140			
p-value					1.60E-13			
<b>Business Freedom</b>						0.037		
t-stat						6.812		
p-value						2.34E-10		
<b>Household Consumption to GDP</b>							-2.955	
t-stat							-4.479	
p-value							1.84E-05	
<b>Household Consumption per Capita</b>								7.53E-05
t-stat								8.217
p-value								4.28E-13
<b>Significance F</b>	2.22E-22	5.62E-16	5.30E-15	9.80E-16	1.60E-13	2.34E-10	1.84E-05	4.28E-13
<b>Multiple R</b>	0.685	0.601	0.591	0.598	0.559	0.491	0.393	0.615
<b>Adjusted R-squared</b>	0.466	0.356	0.344	0.354	0.307	0.236	0.147	0.373

Figure 17 – Univariate Regression Output Summary with Gallup World Report dataset

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<b>Intercept</b>	-1.182	4.830	4.364	3.848	4.032	2.917	7.568	4.891
t-stat	-2.249	58.878	32.488	25.938	26.220	9.354	20.061	52.582
p-value	<b>0.026</b>	<b>4.13E-104</b>	<b>6.84E-68</b>	<b>1.58E-56</b>	<b>4.30E-57</b>	<b>1.38E-16</b>	<b>1.51E-38</b>	<b>2.76E-80</b>
<b>Life Expectancy</b>	0.093							
t-stat	12.605							
p-value	<b>2.67E-25</b>							
<b>GDP Per Capita</b>		3.81E-05						
t-stat		11.881						
p-value		<b>3.06E-23</b>						
<b>Donating Money Score</b>			0.036					
t-stat			8.867					
p-value			<b>2.74E-15</b>					
<b>Freedom from Corruption</b>				0.038				
t-stat				11.947				
p-value				<b>2.25E-23</b>				
<b>Property Rights</b>					0.031			
t-stat					10.278			
p-value					<b>5.57E-19</b>			
<b>Business Freedom</b>						0.038		
t-stat						8.311		
p-value						<b>6.00E-14</b>		
<b>Household Consumption to GDP</b>							-3.054	
t-stat							-5.493	
p-value							<b>2.57E-07</b>	
<b>Household Consumption per Capita</b>								7.81E-05
t-stat								11.140
p-value								<b>8.41E-20</b>
<b>Significance F</b>	2.67E-25	3.06E-23	2.74E-15	2.25E-23	5.57E-19	6.00E-14	2.57E-07	8.41E-20
<b>Multiple R</b>	0.717	0.700	0.596	0.703	0.648	0.567	0.464	0.727
<b>Adjusted R-squared</b>	0.511	0.486	0.350	0.491	0.416	0.317	0.208	0.524



## **Multivariate Regressions**

Utilizing multivariate regression, some of the most highly correlated factors associated with happiness were analyzed to better inform the relationship between several of the observed factors and subjective happiness levels. Multivariable regression makes it possible to determine, with some degree of confidence, which explanatory variables may be stronger influencers on the dependent variable (happiness) than others. Using each of the two happiness datasets, several variables were tested. However, with many of such variables being correlated with each other, the issue of multicollinearity arises. This is the statistical idea that with multiple independent variables being correlated with each other, it becomes difficult for a mathematical regression to determine which variables are more determinedly explanatory and which are merely a consequence of other explanatory variables. Several multivariate regressions were run with different combinations of variables to attempt to use less correlated independent variables and remove the multicollinearity. As represented in the relatively high p-values in Figure 18 and Figure 19, not all of the multicollinearity could be accounted for. There are more advanced econometric techniques that can better remove these effects, however this moves outside the scope of this level of research. Though these methods could not explain 100% of the relationship between these economic factors and subjective well-being, it was still clearly evident that there were strong links and correlations to reject the null hypothesis stating that such factors do not significantly affect happiness levels across countries.

Figure 18 – Multivariate Regression Output Summary with World Database of Happiness dataset

	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
<b>Intercept</b>	1.048	5.551	5.463	6.035	5.883	5.303	1.143	1.057
t-stat	1.082	8.037	6.850	11.912	12.473	6.881	1.125	1.144
p-value	0.282	2.37E-12	6.55E-10	7.92E-21	4.27E-22	5.44E-10	0.264	0.255
<b>Life Expectancy</b>	0.070						0.068	0.069
t-stat	5.402						5.124	6.087
p-value	<b>4.62E-07</b>						<b>1.48E-06</b>	<b>2.13E-08</b>
<b>GDP Per Capita</b>	5.35E-06	-1.46E-05	-1.53E-05	-1.58E-05				
t-stat	0.552	-0.739	-0.801	-0.829				
p-value	<b>0.582</b>	<b>0.462</b>	<b>0.425</b>	<b>0.409</b>				
<b>Donating Money Score</b>	0.022	0.022	0.020	0.022	0.022	0.020	0.021	0.021
t-stat	3.537	3.215	2.927	3.211	3.189	2.902	3.408	4.150
p-value	<b>0.0006</b>	<b>0.002</b>	<b>0.004</b>	<b>0.002</b>	<b>0.002</b>	<b>0.005</b>	<b>0.001</b>	<b>6.98E-05</b>
<b>Economic Freedom</b>			0.011			0.012		
t-stat			0.928			0.953		
p-value			<b>0.356</b>			<b>0.343</b>		
<b>Freedom from Corruption</b>	-0.005	0.004						
t-stat	-0.634	0.246						
p-value	<b>0.528</b>	<b>0.806</b>						
<b>Property Rights</b>		-0.007						
t-stat		-0.561						
p-value		<b>0.576</b>						
<b>Business Freedom</b>		0.009						
t-stat		1.131						
p-value		<b>0.261</b>						
<b>Household Consumption to GDP</b>	-0.706	-1.289	-1.354	-1.312	-1.075	-1.125	-0.767	-0.779
t-stat	-1.240	-1.910	-2.017	-1.960	-1.780	-1.855	-1.413	-1.450
p-value	<b>0.218</b>	<b>0.059</b>	<b>0.046</b>	<b>0.053</b>	<b>0.078</b>	<b>0.067</b>	<b>0.161</b>	<b>0.150</b>
<b>Household Consumption per Capita</b>		6.34E-05	6.16E-05	6.95E-05	4.02E-05	3.32E-05	2.99E-06	
t-stat		1.524	1.584	1.831	2.894	2.102	0.208	
p-value		<b>0.131</b>	<b>0.116</b>	<b>0.070</b>	<b>0.005</b>	<b>0.038</b>	<b>0.836</b>	
<b>Significance F</b>	2.25E-15	1.05E-09	9.10E-11	2.98E-11	7.66E-12	2.67E-11	4.65E-16	6.90E-17
<b>Multiple R</b>	0.737	0.658	0.655	0.651	0.648	0.652	0.736	0.736
<b>Adjusted R-squared</b>	0.520	0.391	0.400	0.401	0.403	0.402	0.523	0.528

Figure 19 – Multivariate Regression Output Summary with Gallup World Report dataset

	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
<b>Intercept</b>	2.003	4.979	5.293	5.649	5.585	5.226	2.309	1.533
t-stat	2.684	9.678	8.788	14.787	15.741	9.003	2.959	2.099
p-value	0.009	7.33E-16	5.14E-14	8.29E-27	8.07E-29	1.64E-14	0.004	0.038
<b>Life Expectancy</b>	0.049						0.047	0.059
t-stat	4.891						4.613	6.613
p-value	<b>3.93E-06</b>						<b>1.19E-05</b>	<b>1.88E-09</b>
<b>GDP Per Capita</b>	1.09E-05	-5.32E-06	-6.32E-06	-6.64E-06				
t-stat	1.455	-0.360	-0.439	-0.462				
p-value	<b>0.149</b>	<b>0.719</b>	<b>0.662</b>	<b>0.645</b>				
<b>Donating Money Score</b>	0.013	0.014	0.013	0.014	0.014	0.013	0.013	0.019
t-stat	2.805	2.633	2.409	2.647	2.643	2.403	2.754	4.626
p-value	<b>0.006</b>	<b>0.010</b>	<b>0.018</b>	<b>0.009</b>	<b>0.010</b>	<b>0.018</b>	<b>0.007</b>	<b>1.12E-05</b>
<b>Economic Freedom</b>			0.007			0.007		
t-stat			0.767			0.783		
p-value			<b>0.445</b>			<b>0.436</b>		
<b>Freedom from Corruption</b>	0.002	0.005						
t-stat	0.282	0.398						
p-value	<b>0.779</b>	<b>0.692</b>						
<b>Property Rights</b>		-0.005						
t-stat		-0.494						
p-value		<b>0.623</b>						
<b>Business Freedom</b>		0.011						
t-stat		1.795						
p-value		<b>0.076</b>						
<b>Household Consumption to GDP</b>	-0.901	-1.351	-1.402	-1.376	-1.276	-1.307	-1.064	-1.170
t-stat	-2.051	-2.686	-2.766	-2.726	-2.809	-2.861	-2.552	-2.756
p-value	<b>0.043</b>	<b>0.009</b>	<b>0.007</b>	<b>0.008</b>	<b>0.006</b>	<b>0.005</b>	<b>0.012</b>	<b>0.007</b>
<b>Household Consumption per Capita</b>		4.99E-05	6.01E-05	6.50E-05	5.27E-05	4.84E-05	2.70E-05	
t-stat		1.609	2.047	2.273	5.043	4.069	2.443	
p-value		<b>0.111</b>	<b>0.043</b>	<b>0.025</b>	<b>2.05E-06</b>	<b>9.50E-05</b>	<b>0.016</b>	
<b>Significance F</b>	5.74E-20	2.02E-15	3.64E-16	8.06E-17	1.26E-17	6.63E-17	6.62E-21	1.46E-20
<b>Multiple R</b>	0.796	0.758	0.749	0.747	0.746	0.748	0.797	0.783
<b>Adjusted R-squared</b>	0.615	0.544	0.538	0.540	0.544	0.542	0.621	0.602

## DISCUSSION

The intended focus of this study was to observe and explore the relationship between personal happiness and money, specifically income, wealth, and spending. Through empirical analysis of global economic data by country, it was possible to construct a picture of how several economic factors were correlated with levels of personal satisfaction. Factors analyzed included household consumption expenditure, tendency to be charitable or donate money, gross domestic product per capita, income distribution, life expectancy, taxes, and several measures of economic freedom. Variables such as GDP per capita, life expectancy, and economic freedom lend an image of a nation's standard of living and the income and wealth of a country's citizens. Household consumption figures and giving index data are an indication of the spending habits of people around the world.

As expected, the data suggests that nations with higher standards of living and greater economic resources have happier citizens on average. Using GDP per capita as a proxy for income, the data would suggest that higher levels of income are in fact correlated with greater levels of satisfaction. However, as pictured in Figure 4 and Figure 5, there exists a diminishing marginal returns characteristic of increases in GDP per capita. The slope levels off and the relationship acts more logarithmic rather than linear. A nation with very limited resources and extremely low levels of income will typically have citizens that are relatively unsatisfied. As GDP per capita rises, and people are better able to meet their basic needs, happiness levels rise steeply. However, as levels of GDP per capita continue to rise, the marginal returns on happiness levels diminishes and the utility of each additional unit is reduced.

Analysis of personal spending also yielded thought-provoking results. Donating money was positively correlated with happiness levels globally. This correlation could suggest that increased levels of happiness are a result of donating money. Conversely, this relationship could also suggest that donating money and increased levels of happiness are unrelated outcomes of higher standards of living. Prior experiments detailed in the literature support the notion that prosocial spending is associated with greater levels of personal satisfaction with lasting benefits to well-being (Dunn and Norton, 2013). The data seems to support this conclusion. Additionally, household consumption expenditure figures give a glimpse into the relation between spending and happiness. Household consumption per capita was positively correlated with happiness. However, household consumption to GDP was negatively correlated with happiness. Although happiness levels generally rise with household consumption per capita, happiness levels decline as household consumption as a percentage of GDP rises. This finding could suggest that increased levels of spending absent of an increase in GDP and standard of living actually causes a reduction in subjective assessments of one's happiness. This would advocate that not only does spending money not bring individuals happiness, but it actually has the ability to detract from individuals' average levels of happiness.

The research was limited to publically available data, and income and spending data are difficult to find in a global scope. As a result, we used certain economic indicators as proxies for some of the factors we wanted to focus on. In the future, research adding a time series dimension to the data would enable identification of trends over time within countries. For this study, data was taken from 2012 across countries. Using annual time series data would enable future researchers to locate changes in happiness levels over time due to changing economic

indicators. Additionally, future research could investigate the happiness trends that occur to individuals that gain inordinate wealth in relation to their peers and whether there is a threshold past which there is a negative relationship between increased wealth and happiness. Lastly, future research could look into the multivariate regressions of the observed factors and remove the multicollinearity and determine which economic factors are more or less important than others in affecting happiness levels.

### **IMPLICATIONS**

The implications of this study are vast and applicable to nearly anybody. Happiness is the overall goal of most people in life, and we base many of our goals, priorities, and decisions upon what we think will best attain this goal both in the short and long-term. Choices people make every day, such as how to spend their money, and in the long-term, such as which career path to pursue, where to live, or which reference groups to associate with all have the potential to influence one's happiness. Insight into the economic circumstances that affect our subjective assessments of our everyday lives can help people discover what may or may not influence their satisfaction levels in the future. Happiness, in itself, is a vague and rather elusive ideal. Often people do not fully understand what makes them feel happy and what will make them feel happy in the future. Thus, they often pursue the feeling of joy and personal fulfillment and satisfaction by making choices that may not ultimately lead to sustaining attainment of that happiness. Mindfulness about what may or may not enable one to experience more happiness

can empower individuals to make more intentional and thoughtful decisions that will positively affect their lives in the future.

## **CONCLUSION**

Money has the capability of influencing and even controlling our lives. It affects our choices, our experiences, our perceptions, and even our values. From this study, we have ascertained a clearer picture of how the aspects of money influence our subjective levels of satisfaction with our lives. Part of the Easterlin Hypothesis theorizes that wealthier countries as a whole are not happier than those with fewer resources. This study has concluded that this statement is null, stating that countries that enjoy higher levels of GDP per capita are in fact happier on average than more impoverished nations. The relationship between GDP per capita and happiness, however, follows a logarithmic shaped curve, indicating a diminishing marginal happiness element to domestic production. Additionally, much of the previous quantitative research has ignored the impacts of spending on well-being. From our study, we can also conclude that increased levels of spending as a percentage of gross domestic product is correlated with reduced levels of happiness. The implication may be that overspending comes with its own source of problems and stresses. Spending on others, however, can be associated with positive benefits to subjective well-being, as emphasized by the money donation dataset.

Individuals should understand that money has the potential to maximize our levels of happiness, but only when understood and used correctly. Income and wealth can positively

affect our well-being and enrich our lives, but at a certain point the incremental benefits of more begin to plateau. Spending on the right things can also enrich our lives, but overspending and spending on the wrong things can have negative effects to our well-being. Nevertheless, spending on others can potentially enrich both our lives and the lives of others.



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