Economic Freedom and Happiness: A Cross-Country Analysis

by

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Abstract

The economics of happiness is a rapidly emerging sector of economic research that centers on an individual's self-perceived notion as to the degree he is satisfied with his life. This study seeks to estimate how much of an impact, if any, the degree of economic freedom in a country has on its people's level of happiness. This study highlights economic freedom's indirect role in increasing happiness as freedom works to increase per capita GDP.

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I. Introduction

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable rights, that among these are life, liberty and the pursuit of happiness." . . . Thomas Jefferson, United States Declaration of Independence

The purpose of this thesis is to explore the some of the relations between liberty and happiness. While liberty and happiness are both difficult concepts to measure, this thesis will use some of the measures developed by others, and explore the relations between those measures. In particular, the economic freedom of the world index developed by Gwartney and Lawson will be used as a measure of one type of liberty, and several measures of subjective well-being, developed by various authors, will be used as measures of happiness.

Simply put, happiness is a general positive feeling, one of satisfaction. If someone is generally in a good mood and relatively content, then he is considered to be happy. On the other hand, if an individual feels bad or is in a foul mood and is generally dissatisfied with his situation or position in life, then he is considered to be unhappy. This sort of feeling is that of subjective well-being or satisfaction. The size and scope or amplitude and frequency of these feelings are dynamic and can change dramatically over

the long run, but in the short term, overall satisfaction and contentment with one's life tends to be fairly stable (Diener, et al 1985).

We need to keep in mind, however, that happiness is subjective, and to attempt to identify universal "goods" is difficult due to the fact that there are few factors that affect everyone the same way. Let us take, for example, a simple Google News search of the word "happiness." Such a search results in a lengthy number of headlines claiming to know the secret to happiness:

> "Forget material objects – happiness is fighting climate change with neighbors,"
>
> "Rescuing victims, source of happiness"
>
> "Happiness is knowing your strengths"
>
> "Pour Favor decants the truth on organic wines and produce...Happiness Uncorked!"
>
> "True happiness is a much-traveled day,"

And certainly my favorite, "Watch this short video on the key to happiness . . ." While humorous, the key point is that happiness is subjective: the source can be many different things to different people, and it can be different things to the same person at different times.

One approach to identifying and attempting to quantify happiness uses opinion surveys or self-reports from some target individuals. There are certainly some objective "goods" including positive physical health, adequate income (whatever adequate might be!), emotional stability, degree of personal safety, access to adequate nutrition, and positive social interaction, among other factors, which we can at least loosely identify as having an influence on how successful one has been at pursuing happiness. That is, an increase in some measured outcomes (for example health measures such as numbers of

women dying in childbirth) can be reasonably used to predict changes in happiness in a country. Additionally, one might expect that increases in the availability and consumption of measured "goods" generally increase one's total utility, even though the marginal utility of each may be quite different.

In both the popular press and the academic arena, people are becoming more and more concerned with happiness and the keys to becoming happy. In 2003, Nobel Laureate Daniel Kahneman won the Nobel Prize in Economics "for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty" [http://nobelprize.org/nobel_prizes/economics/laureates/2002/index.html]. Much of his research consisted of investigations on the topics of hedonic psychology, happiness, and subjective well-being. Academia is not alone in the recent surge in the popularity of the topic of pursuing happiness. In 2006, Will Smith starred in a film about one man's efforts to attain his own version of the "American Dream" entitled "The Pursuit of Happyness." Further, overall book sales are down, but during the past ten years self-help and improvement book sales have increased 240% from $581 million in sales in 1998 to over $2 billion today.[1] Such titles as *Seven Habits of Highly Effective People*; *The Purpose Driven Life*; *Rich Dad, Poor Dad*; and the ever-popular "YOU" series have recently spear-headed the effort to fill our seemingly insatiable self-help and personal improvement appetite. Interestingly enough, the highest selling book of all time and the one book that many consider to be the ultimate in self-help in the pursuit of true happiness, *The Holy Bible*, is not included in figures above. There does not appear to be

[1] http://www.csmonitor.com/2008/0207/p17s02-lign.html

an end in sight for the vast tsunami of happiness-providing resources. In fact, if this trend continues, then sales of self-help books will easily surpass all other genres combined.

As previously stated, happiness is inherently subjective and attempting to pinpoint or quantify this relatively intangible, abstract concept is difficult; however, one way to theoretically assign value to happiness is to consider happiness a type of utility, the relative satisfaction or benefit one receives from an increase in consumption of what one considers to be "good" such as some physical product or service. Therefore, if indeed one's goal in life is to continually increase or maximize happiness and decrease or minimize pain, suffering, strife, or general sadness, then through self-reporting of subjective well-being, this notion can be assigned value to express the degree to which an individual is happy. One can then make inferences as to what influences these values.

The Declaration of Independence is a key part of the foundation of the United States of American and may be among the most potent and consequential statements in American history. The words "Life" and "Liberty" are extremely powerful and penetrating. They speak on behalf of our basic human instincts and needs. If one is not guaranteed life and the freedom to make the basic decisions that will shape his future and is subjected to a life of subrogation and control, then he, at worst, is denied the right to exist at all and, at best, is reduced to a sub-human status, no greater than that of a beast of burden. If all men are truly created equal, then no one is entitled to take from or deny another his self-evident, inalienable rights.

The three inalienable rights constitute the crux of the establishment of our nation; however, it seems that much more weight and focus is assigned to the first two. What about "…the pursuit of Happiness"? Is it not enough to be entitled to life and liberty? Is

liberty alone not the pursuit of happiness? Indeed, the pursuit of happiness is predicated upon the existence of liberty; however, the notion of having the right to go confidently in the way of your dreams and to do that which makes you happy further refines and narrows what it means to have liberty and to be free. Not only does the statement outline what someone should be able to do, it also alludes to that which an individual can not deny another. Everyone, in their own way, knows what it means to be happy, and, theoretically, everyone understands that happiness can only be defined and valued by the individual; therefore, everyone is free to pursue their own happiness to the extent that it does not impede another's similar pursuit.

The United States Declaration of Independence is the guiding principle which we apply when interpreting the United States Constitution. The Constitution does not explicitly refer to " . . . the pursuit of Happiness": the Fifth Amendment to the Bill of Rights provides a similar statement: "No person shall . . . be deprived of life, liberty, or property" (Bill of Rights Congress of the United States: Article the seventh). Many who argued against the Bill of Rights took the position that they were not necessary and all rights specifically outlined in the Bill of Rights would in fact limit, not extend, those outlined in the Declaration:

> I go further, and affirm that bills of rights, in the sense and to the extent in which they are contended for, are not only unnecessary in the proposed Constitution, but would even be dangerous. They would contain various exceptions to powers not granted; and, on this very account, would afford a colorable pretext to claim more than were granted. For why declare that things shall not be done which there is no power to do? Why, for instance, should it

> be said that the liberty of the press shall not be restrained, when no power is given by which restrictions may be imposed?
>
> (http://www.constitution.org/fed/federa84.htm)

Whether or not one agrees with Thomas Jefferson, the Constitution and Bill of Rights are both predicated upon the "inalienable rights" assumption set forth in the Declaration.

There are a variety of means by which a rationally self-interested individual pursues happiness or utility. Individuals may participate in the voluntary exchange of goods or services. This concept is widely known by its Latin phrase, "Quid pro quo," which literally means "what for what?" and has been adapted to say something for something. Nothing that brings about utility or happiness is free, and people will not likely commit time or effort or freely give away tangibles for no compensation. To every benefit there is an associated cost. Adam Smith summed up a very important observation of human nature in this way:

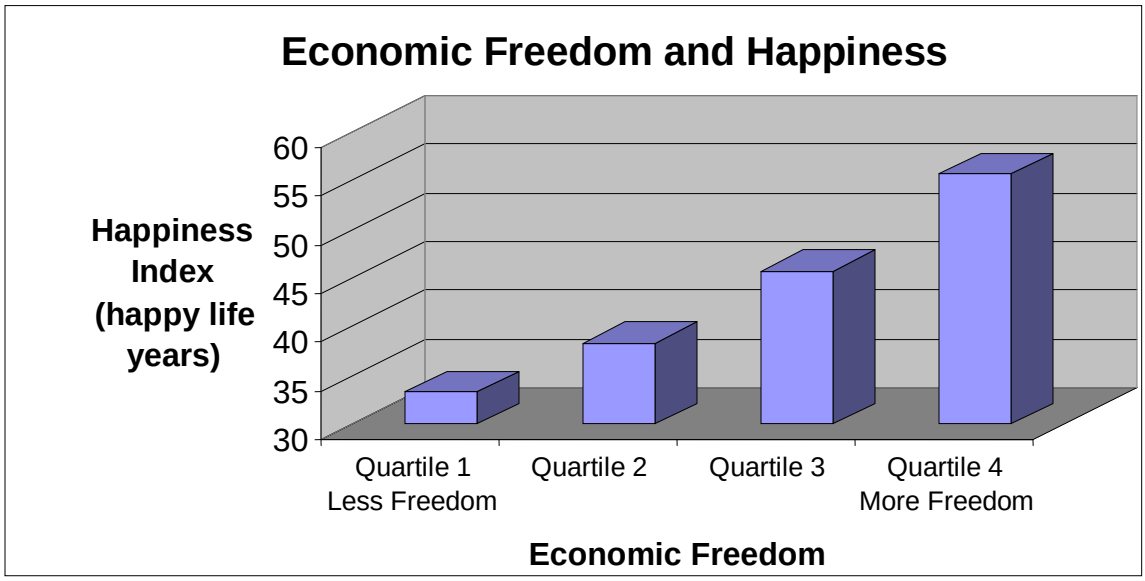
> It is not from the benevolence of the butcher the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages. (Smith, 1776)

Whether an individual is exchanging vows at a wedding, bargaining for a deal at an antique shop, praying for salvation, or simply convincing a child to clean his room, the common theme is that that person is entering into a mutually beneficial contract. "If you marry and be faithful to me, then I'll do the same." "If you throw in the hutch, then I'll give you ten dollars more." "If You save my soul from eternal damnation, then I'll commit my life to serving Your ideal." And finally, "if you clean your room, then I'll

take you to the park." All of these private contracts are voluntary; each participant in the contract is acting on behalf of his own rational self-interest; and both parties gain some sort of "universal good," happiness, or utility. These contracts and the liberty to enter into them freely are "…the pursuit of Happiness" realized.

As the allocation of scarce resources is economics, the liberty to choose how those resources are allocated is what is embodied in economic freedom. Other than certain isolated incidents, any restriction or hindrance of the practice of this free market (Laissez Faire) economic model is considered to be market intervention which restricts economic freedom. Market intervention varies greatly in size and scope and is often a product of government regulation. Some basic methods of government intervention consist of taxation, trade tariffs, anti-trust laws (Sherman Antitrust Act of 1890), and safety regulations (Federal Food and Drugs act of 1906). Other interventions consist of government supported education, healthcare and labor unions; price controls; and market subsidies. Still greater tactics have been used such as partial (socialism) and complete (communism) control over the primary means of production, virtually eliminating the freedom to choose how one can obtain their happiness. Happiness and economic freedom, at least to a certain extent, seem to share a connection, as shown in Figure 1. Based on the data summarized in Figure 1, this research study will explore the relative happiness of a country in terms of the degree of economic freedom its citizens enjoy.

Figure 1: Bar Graph



II. Literature Review

In this section, I review the work of some of the major researchers on the topics of economics and happiness. The following review will serve to illustrate and summarize the work in this area in a couple of ways. First, it will define and explain how subjective well-being has been measured, and thus provide some background on the measures used in the statistical analysis. In addition, it will show that there has been a research-based precedent set regarding economic freedom as a factor that may influence measures of national happiness, e.g. subjective well-being.

Daniel Kahneman

Nobel laureate psychologist Daniel Kahneman is one of the foremost researchers and authorities on what it means to be happy and the methods and merits of attempting to reliably measure or quantify an individual's level of happiness. He is the motivating force behind the emerging field of study called "Hedonic Psychology" that is based on the notion of happiness or what he calls experienced utility. Kahneman adheres to the generally accepted definition of happy and sad that suggests an individual is happy when faced with a circumstance or some stimulus that makes him feel good, and thus he is inclined to continue the experience. Conversely, sadness is a bad feeling that one wishes to avoid.

In examining happiness, Kahneman (1999) formulates a clear distinction between two types of happiness. Subjective happiness is an individual's self-reported disclosure of his state of happiness or satisfaction based on an event or series of events. This is accomplished by way of survey. Take, for example, an audience member at a dramatic play. Subjective happiness would be the audience member's response to the question "On a scale of one through ten, how well did you enjoy the play?" As Kahneman puts it, "Such a retrospective report can be thought of as representing the respondent's remembered utility. The evaluation of remembered utility requires the individual to remember a stream of experiences and to aggregate them in some way" (Kahneman 2006).

The second type of happiness is objective happiness. Similar to subjective happiness, the individual's level of happiness is self-reported. The key difference between the two is that objective happiness is the subject's instant utility over the happening, occurrence, or observed time period. Instead of the audience member being asked the happiness question after the play was over, the patron would be prompted at various points throughout the play to instantly evaluate his "experienced utility" in real-time. This "hedonic flow" of pleasure and pain is aggregated to reflect the patron's total utility over the entirety of the play, and this method is admittedly similar to Edgeworth's "hedonimeter" (Kahneman 2004), further he goes on to suggest his own way of measuring objective happiness called the "U-Index." Kahneman believes that when applied correctly these interpretations of happiness are more reliable and less susceptive to bias than subjective well-being measures.

Since subjective well being responses are so dependent upon the individual's remembered utility, it militates against an accurate record of the real experience. " . . . what Helen thinks about her happiness matters to her 'true' or objective well-being only to the extent that her thoughts affect the pleasantness or unpleasantness of particular moments in her life" (Kahneman 1999). This type of filter is a major source of bias when dealing with subjective well-being. The way individuals remember a situation is often different than their experience during the situation.

Kahneman refers to a number of different studies that point out other significant biases regarding subjective well-being measures. Such biases include how one's judgments of episodes overweight experiences that are either extreme or recent, current mood and memory of the immediate context, comparisons to other people and past experiences, personality, and temperament (Kahneman 1999, 2004, 2006).

Richard Layard

Richard Layard is a professor of economics at the London School of Economics and is also in the forefront of happiness research. Layard also adheres to the generally accepted definition of happiness as feeling good and enjoying life and unhappiness as feeling bad and wishing things were different (Layard 2003). However, since Layard is not a psychologist, he does not investigate the matter as deeply as Kahneman. As a result, he puts much greater stock in subjective well-being measurements of happiness, specifically happiness indexes such as the World Values Survey and the Satisfaction With Life Scale. Layard contends that happiness is like noise in that there are varying qualities such as the difference between a harp and bugle that have their own unique

characteristics; however, these noises can still be measured in a single dimension and compared in terms of decibels. Like hot and cold and physical pleasure and pain, they may feel different but can be compared along the same continuum (Layard 2006).

Layard is a firm believer in subjective well-being surveys and insists that not only are they a reliable measure of an individual's actual satisfaction or happiness, but they are also a more appropriate measure of a society's well-being than traditional political, economic, and standard of living measures (Layard 2006).

Hedonic Adaptation & Aspiration Level

When considering happiness as a variable deserving of maximization, two very important observations of human behavior merit discussion. Both Kahneman and Layard and many other researchers spend a considerable amount of time on the subjects of hedonic adaptation and aspiration theory. Hedonic adaptation takes into consideration man's ability to adjust and evolve to changing environments or states. The pleasure or pain derived from a new situation or abnormality declines in intensity and is eventually replaced by neutral feelings as the norm gradually changes to reflect the new routine and becomes repeated or constant (Frey & Stutzer 2002a, Frey & Stutzer 2002b, Kahneman 1999, 2004). Further interpretation includes the notion of an "adaptation-set point" that all individuals naturally revert back to after the stimulus. We are genetically predisposed to have a certain disposition or feel a certain way (Wilkinson 2007). This phenomenon is known as the "hedonic treadmill." An important aspect of hedonic adaptation that seems to be either mildly addressed[2] or simply overlooked is that of historical perspective.

[2] Layard (2006)

Akin to and often analyzed with hedonic adaptation is the aspiration level theory. This theory centers on the idea that as pleasure or experienced utility increases and exceeds previously held goals, new ambitions are instantly created to take their place. Frey & Stutzer (2002) contend that "Humans either cannot or are unwilling to make absolute judgments. Rather, they are constantly drawing comparisons from the past from their expectation of the future." This is a possible explanation of why ever increasing experienced utility does not have a positive effect on happiness.

Bruno Frey & Alois Stutzer 2002

The authors begin their study (Frey and Stutzer, 2002) by asking the question "why study happiness?" and in doing so they refer to the United States Declaration of Independence as defining the "pursuit of happiness" as an "unalienable right" that is as important as liberty and life itself, and from this reference they draw a beginning conclusion that "it follows that economics is – or should be – about individual happiness" (Frey & Stutzer 2002b)

Frey & Stutzer continue to answer the question by discussing four reasons that cover practical applications of the study of happiness and the theoretical contribution it can make to economic theory. The first two reasons for economists to study happiness are a push toward the practical application of economics. The first reason deals with establishing economic policy, pointing out that in the aggregate, "economic policy must deal with trade-offs" (Frey & Stutzer 2002b), citing trade-off examples like inflation, employment, etc. The next reason as to why happiness has economic relevance is institutional, such as the size of social capital, how it is used, and the quality of

governance (accountability, effectiveness, and stability) and how these factors affect individual happiness and well-being.

The last two reasons are more theoretical and academic in nature. The study of happiness, as the authors suggest, can contribute a great deal to our understanding of the formation of subjective well-being. It could shed new light on basic assumptions of economic theory of utility itself. This concept applies especially in areas that conventional economic theories find difficult to explain. As an example, "in several countries since WWII real income has drastically risen but self-reported subjective well-being of the population has not increased or has even fallen slightly"[3] (Frey & Stutzer 2002b). Lastly, the authors conclude that subjective well-being is a satisfactory empirical approximation of individual utility. This type of assumption has the potential of giving new light to the meaning and measurement of utility. It is an axiom that the differentiation and measurement of utility has been a weakness of economic theory throughout time. Frey and Stutzer discuss the relationship between happiness and utility in detail and how happiness is a satisfactory empirical approximation of individual utility.

Four main conclusions or implications are presented. All four support the opening thesis reviewed above as to why economists should study or research the concept of subjective well-being or happiness. The implications are: 1) What can economists learn; 2) Implications for economic policy; 3) Implications for economic theory; and 4) Open issues.

In the authors' first implication they point out that the most important insight the economist can gain from the study of happiness is that it provides new tests for theories

[3] Richard Easterlin 2001 p. 472 and others are cited as stating that the above is "well established finding" and measurement of utility.

and enlarges the scope of empirical measurement. Not only does this apply to the concept of utility, but it may also open the door to measuring other concepts for which standards have not been established. The general definition of utility is any stimuli whether they be economic goods or services, leisure, family time, worship, etc. that satisfy a human need, want, or desire and raise an individual's state. Given happiness is not identical to the traditional concept of utility; it is very closely related, or measuring it is an acceptable substitute for measuring utility. Until now, economists have been unable to or have avoided measuring utility explicitly. Even though subjective happiness covers a wider scope of human well-being than the general concept of utility, it can be and is an acceptable and useful approximation of utility. This tool may allow enhanced study and findings in human behavior. It may also enrich research in experimental economics in the laboratory as acknowledged by other researchers.[4] "These extensions represent a considerable step forward toward a social science able to provide useful information" (Frey & Stutzer 2002b). This extension would be profound.

The second implication deals with insights gained about utility and happiness and how the insights may be applied to economic policy. Microeconometric happiness functions could be used to supplement the standard cost-benefit analysis in evaluating the effects of government expenditures. The use of the happiness function could improve the benefit of welfare and antipoverty policy. Tax policy is another area that may be improved from this research. One of the most interesting findings of happiness research is that people tend to derive more satisfaction from their relative position of their income to others than from the absolute income level as such. Also, the happiness function may be looked at as a "social welfare function," but the authors admit that only a "benevolent

[4] Kahneman (1999)

dictator" could implement it. All other forms of government are not designed to maximize a defined "social welfare" concept. Frey & Stutzer (2002b) continue by pointing out that even the most well-functioning democracies don't have an incentive to do so, much less an authoritarian or dictatorial government.

Economic theory, the third implication, is a most intriguing area for happiness research. The authors discuss the effects of income, unemployment, inflation, and democracy. The most interesting contribution that happiness research has made to support or not support concepts of economic theory are as follows. The income effect; individuals with higher incomes are happier, but as income continues to increase, there is a diminishing marginal effect. This finding corresponds to the total product curve that is dominant in microeconomic theory. So far as employment is concerned, this research is in line with the idea that unemployment is involuntary for most people and, based on subjective well-being surveys, reduces happiness more than any other indicator. Also, "happiness research finds that inflation systematically and sizably lowers reported individual well-being" (Frey & Stutzer 2002b). The last and most revealing one is democracy and freedom. Decision making via freedom as we in the USA know it, contributes to happiness.

The fourth and last implication is what the authors refer to as "open" or unresolved issues. Frey & Stutzer (2002b) state that "the research on happiness undertaken thus far leaves many questions open." They point to open areas in behavior. These areas include consumption activities, work behavior, investment behavior, and political behavior. Also, further areas are noted. These areas include discrimination of women, quality of life indicators, and growth analysis. They stress that more emphasis

may be put on a broader set of institutions such as monetary policy, the extent of independence of the central bank, and corporatism in policy. In concluding, the authors cite the need for more advanced methods of measurement and research. Most studies employ multiple cross-sectional regressions. They noted the need to employ more panel data and develop or have improvements in the quality of happiness measurement and data.

In the body of this work, Frey & Stutzer cite many studies and observations that support the question as to why economists should study happiness, and the four main implications that can be drawn from the paper as a whole. They reiterate that this paper does not provide a general survey on happiness research. This observation can be founded in other studies, e.g., Kahneman et. al. 1999, Frey & Stutzer 2002a, and the groundbreaking work done by Easterlin 1974. The objective of this paper is "to show which insights may be important, if not necessary, for integrating into economics" (Frey & Stutzer 2002b) In accomplishing this task, the authors present thorough work describing and comparing the merits of objective and subjective utility. They acknowledge that standard economic theory is based on an objective position of observable choices, and that subjective data, normally done by surveys, are rejected as not being scientific primarily because it is not observed with objectivity. Also, Frey & Stutzer note that subjective survey data are prone to a great number of systematic and nonsystematic biases.

In addressing the subjective versus the objective data, Frey & Stutzer point out that the subjective approach offers and enhanced path to study the world because it is much broader in concept than objective decision utility. Also, the subjective approach

allows us to capture human well-being directly. Next they move to the fact that it can be measured. Even if the data is ordinal and not cardinal, the data can be treated ordinally in econometric analysis. They cite several scales that are used with ordinal data with satisfactory results. "Measures of subjective well-being can thus serve as proxies for "utility" (Frey & Stutzer 2002b) Plus, ordinal and cardinal utility scores generate almost identical results in microeconometric happiness functions and offers the results of a 2000[5] study using 1996 US $ equivalence income as the independent variable and average happiness as the dependent variable.

In addressing the bias issue Frey & Stutzer stated that many mistakes and other flaws in people's answers are random and therefore do not bias the estimation results. Also, measurement errors as well as misobservations, bias, and other flaws are captured in the error factor (ε) of existing econometric algorithms, and nonrandom sampling errors are not always uncorrelated and may never be noted.

Frey & Stutzer use the results of several studies in several countries to further illustrate the value of happiness research in economics. The studies also reinforce their thesis that subjective data are valuable in economic research which can enhance it even though open issues still remain. One of the most interesting studies had to do with the rise in per capita income in Japan since WWII. It was probably the most spectacular growth in income of all time (this study taken from the Pen World Tables and World Database of Happiness, also, applied to the USA, the UK, and Belgium). The results were that income rose from $2,750 per capita to over $15,000 per capita and the Life Satisfaction (happiness) Scale that ranged from one to four stayed relatively constant at 2.75.

[5] Frey & Stutzer (2000)

This unexpected result opens many doors for further research on factors that may have caused this occurrence. To name a few, observation period ceteris paribus, hedonic adaptation, and aspiration levels. The implication is that happiness is determined by the gap between aspiration and achievement. Also, happiness may be derived more from one's relative position in society than overall absolute increase in income. Also, it may give rise to legitimate the old cliché that money does not buy happiness.

Ruut Veenhoven 2000

Freedom can effect population primarily in two ways, both positively and negatively. This study approaches the concept or definition of freedom as the possibility to choose. Two main factors are involved in freedom. One is the existence of the opportunity to choose. The opportunity to choose depends on scarcity providing or one having alternatives. Options must exist, and people must not be restricted or oppressed. The second and most emphasized in this study is the capability to choose. This ability requires more than just opportunity. It requires awareness, courage, acknowledgement, and in this framework freedom determined in-part by education and information.

Veenhoven discusses measurements of freedom in all of the variables and terms discussed above while moving on to relate the measurement and factor to happiness. Living in good conditions, he states, is happiness in the objective sense. Subjective happiness is a state of mind that includes feelings as well as a steady appreciation of life. The degree to which one positively perceives their overall quality of life as a whole is how he defines happiness. Veenhoven is convinced that all of the above variants can measure happiness by self reporting or surveys. In quality of life surveys, happiness has

been a core variable. This fact has given rise to a growing body of data concerning happiness among nations (Veenhoven 2000).

The author offers seventeen schematics and tables to support his conclusions. He primarily contends that both freedom and happiness can be measured across nations and that empirical research can settle this matter of freedom and happiness that, over time, philosophers could not solve. The second major conclusion is that freedom does not destroy happiness, but it does not always contribute to it. Thirdly he states that there is a lot of uncertainty as to whether political freedom and private freedom add to happiness. Finally, "the data strongly suggest that economic freedom leads to happiness especially for those countries of poverty and low capability. Adam Smith rests quiet in his grave" (Veenhoven 2000).

Tomi Ovaska and Ryo Takashima 2006

Ovaska and Takashima begin by acknowledging the universal importance happiness and well-being is today and has been throughout history. They call upon the Declaration of Independence, the Soviet constitution, and the European Union constitution to drive that point home. They contend that the fault of modern societies is standard by which macroeconomic policy is set. Traditionally, governments have been primarily focused on GDP, economic growth, and income when considering public policy decisions. The authors argue that even though these factors cannot always be readily quantified in the market place, relationships, economic and political freedom, health, education, income distribution, and many others can also be just as significant if not more so in determining well-being or happiness than that of GDP or economic growth

only. Ovaska & Takashima finish their introduction by positing two questions. What factors do determine well-being? And, how significant are traditional economic factors in happiness and life satisfaction?

Ovaska & Takashima conduct a multi-national study in an attempt to explain life satisfaction (cognitive elements of life) and happiness (emotional aspects of life), independently, based on traditional economic factors (income, economic growth, unemployment, inflation, foreign trading, and institutional quality), life expectancy, populations aging, educational attainment, government size, religious preference, etc. The data for happiness and life satisfaction were collected from the World Database of Happiness, and data for the explanatory variables were collected from the World Bank, CIA World Factbook, Gwartney and Lawson's 2004 Economic Freedom of the World Index, and Freedom House's 2004 Freedom in the World index.

Ovaska & Takashima found that the inflation and unemployment coefficients has consistently negative signs but were not significant; further, their magnitude was such that they probably have little economic significance. The authors note that unemployment was not divided into its respective parts and perhaps inflation variability may be a better estimator. Interestingly, political freedom failed to significantly explain happiness or life satisfaction. Ovaska & Takashima explain this with the logical conclusion that most countries in the study already have a large degree of political freedom. Being that it is an already achieved goal, adaptation theory has likely set in and political freedom is either taken for granted (voter participation rates) or looked upon as a given. Along those lines and another interesting result to note is that of government size. This variable was consistently negative and was statistically significant at the 5% level

about half of the time. Also, the proxy for health, life expectancy, not only was statistically significant more often than not, but its elasticity was calculated at .69. Clearly the quality of health and health care of a nation is important in determining both happiness and life satisfaction.

The one variable that stood out the most is that economic freedom was shown to be of positive sign and statistically significant in almost all of the models. When compared to the GDP per capital measure, economic freedom is as much as four times as important. Ovaska & Takashima argue that people care a great deal about personal choice, freedom to compete, and the security of privately owned property. Even though economic freedom is a good foundation for economic growth and income, many people believe that heavy regulation can mitigate the volatility of free enterprise; however, the authors make an excellent argument for individual autonomy by stating that " . . . a higher level of economic freedom increases the chances of individuals to make their preferred choices with less interference by third parties and in particular by those who hold power, to be freer citizens more in charge of their own fate" (Ovaska & Takashima 2006).

Niclas Berggren and Henrik Jordahl 2006

Happiness research contends that for a society to be happy, it must enjoy a high degree of social capital.[6] A necessary condition for social capital to flourish is that of particularized and generalized trust. Berggren & Jordahl in the article Freedom to Trust: Freedom and Social Capital seek to explain the importance of economic freedom and show that it has a positive and significant effect on social capital. Previous studies have

[6] Layard (2005), Helliwell (2003)

explained social capital by way of culture and social interactions ie. volunteering, community associations, public gatherings, etc. Others, including this one, attempt to explain generalized trust in terms of institutional factors and policies ie. political freedom, GDP, economic growth, income, inflation, unemployment, etc.; however, this study differs from most in that specifically economic freedom is the focus.

Using Gwartney and Lawson's Economic Freedom of the World Index (EFI) and the generalized trust variable in the World Values Survey, Berggren & Jordahl run cross-country regressions of over 50 countries to explain trust in 1995 and 2000. The authors use the overall EFI which is an aggregate of the five elements of economic freedom: size of government; legal structure and security of private property rights; access to sound money; foreign trade regulations; and regulation of credit, labor, and business. Generalized trust is thought to be an indicator of social capital and is measured by the percentage of respondents in agreement with the following statement from the World Values Survey: "Most people can be trusted" as opposed to "you can't be too careful in dealing with people." Additionally they use per capita GDP, education, the Gini coefficient, religion, and an age variable as controls for the experiment. Further, the authors attempt to isolate the methodological problem of causality by using the legal origin of the countries, ie. Socialist, French, German, and Scandinavian, as an instrument variable and treating EFI and EFI_2 as endogenous.

Berggren & Jordahl claim that all of the elements of the EFI, both cumulatively and independently, turn out to be positively correlated with and statistically significant in explaining trust; however, the tables presented in the study indicate that legal structure and security of private property rights and overall economic freedom are the only

variables that consistently maintain significance. The other variables are only mildly influential and should be seen only as exploratory.

As for the case of causality, even though Socialist and German were significant at the 5% level when regressing EFI and German and Scandinavian are statistically significant at the 5% level when regressing EFI_2, Berggren & Jordahl are reluctant to make any bold predictions on the direction of causality between economic freedom and generalized trust. They do, however, make a good theoretical argument and determine that the causal flow from trust to economic freedom, particularly EFI_2, is weak. They explain that the legal system in a civilized society is designed to punish and provide a disincentive for actors to participate in non-cooperative behavior such as the breaking of contracts. If these systems and institutions are successful then they play an important role in the development of trust in that they will reinforce an atmosphere of generalized trust and serve as a substitute for reputation. Even though it may be easier to establish and maintain a well-functioning legal system in an environment where trust is already high, there is less need for one.

The results of this study were not unexpected. The conclusion that increased economic freedom, especially legal structure and security of private property rights, leads to an increase in trust among economic actors is important when making policy decisions because trust and social capital breed happiness and economic freedom not only could increase happiness directly, but it has also been shown to have a positive effect on other factors that increase happiness.

Paolo Verme 2009

Like many of the other authors, Verme opens his study by acknowledging the emerging importance of happiness research. There are a few factors such as good health, income, marriage, and religion that are commonly associated with happiness; however, even these reliable characteristics generally do not seem to apply under all conditions. This study differs from others in that it seeks to find a universal predictor that is always significant across countries and over time.

Verme begins his quest with the all European and World Values Surveys conducted between 1981 and 2004. The database is quite impressive with over eight hundred variables that can be used to help predict happiness. Using the outcomes of the question "all things considered, how satisfied are you with your life as a whole these days?" as the dependent variable, Verme runs eight hundred bivariate OLS regressions and ranks the variables' explanatory ability via the output's R-squared. The first six variables were highly correlated with and could serve as proxies for life satisfaction. The variable in the 7^{th} position on the list corresponded to the question " . . . how much freedom of choice [do] you feel you have over the way your life turns out?." This "freedom&control" variable had an R-squared of 0.165 as compared to 0.0873 and 0.0412 for subjective health and income rank, respectively.

Verme goes on to conduct a second exercise. Based on the results of the bivariate regressions, he nineteen other variables containing two hundred thousand observations to run a multivariate regression with year and country dummie variables, robust standard errors, and regional clusters. Ranking the variables with respect to their z-score,

"freedom&control" once again is at the top with a z-score of 37.6, a full twenty points higher than that of "age squared" and "married" at 17.4 and 16.4 respectively. The author readily admits that this very high score can become subject to criticism and raise the suspicion that "freedom&control" is actually a proxy for happiness. In response to this possibility, he makes "freedom&control" the dependent variable and happiness an independent variable and runs the regression again. In doing so, ten of the nineteen variables change sign and four of the remaining appropriately signed variables lose their significance. Verme concludes that "freedom&control" is not a proxy for happiness.

In order to determine whether "freedom&control" captures both freedom and control separately, Verme draws a distinction between the two, assigns proxy variables from the World Values Survey and Heritage Foundation for both, then runs a multivariate regression to show that indeed the variable "freedom&control" does adequately capture both the notion of perceived freedom and control over the choices freedom provides.

Verme describes three to four ways of looking at freedom of choice, all of which boil down to the claim that in one way or another, freedom to choose always increases happiness even though individual elasticities may be different and the idea of bounded rationality will inevitably cause individuals to self-restrict themselves.

Calling on the work of American psychologist J. B. Rotter, Verme makes a distinction between two types of people, the "internals," those who are independent-thinking, self-confident, and possess a strong will to achieve and the "externals," those who are more likely to be followers and dependent on others. "Internals" are more likely to attribute the outcome of their actions to that of internal factors such as their choices,

effort, ability, and know-how; whereas, "externals" believe that outcomes are mostly dictated by factors outside their control like destiny, fate, luck, or conspiracy. Logically, the "internals" would appreciate and take greater advantage of an increase in the freedom to choose. The author puts it this way, "Our hypothesis is that control acts as a *regulator* of the intrinsic value that people attribute to freedom of choice. The more control we think we have over choice the more freedom of choice we can handle and the more satisfaction we will derive from freedom of choice" (Verme 2009). Thus, freedom is irrelevant without control.

Using a proxy for freedom, the Heritage Foundation's Economic Freedom Index, and two control proxies for both "internals" and "externals," Verme regresses these variables on "freedom&control" and determines that both control and freedom are captured by the "freedom&control" variable. Notably, the coefficients were appropriately positive for the "internals" and negative for the "externals."

Verme concludes by returning to the previous two multivariate equations where happiness and "freedom&control" trade off as the dependent variable to make some institutional observations and policy recommendations. He notes the phenomenon that even though improvements in societal institutions ie. marriage, religion, education, trust, etc., and freedom of choice generally increase happiness, the determining factor is that of capacity to control. In lesser developed countries when marriage and religion are highly valued by its people's perceived "freedom&control" is lower. Policy pursuits for these nations should be centered on freedom but supplemented with improvements in the "external" institutions like marriage and religion in order to maintain happiness in the short run. As nations become wealthier, "freedom&control" and, interchangeably,

economic freedom contribute to other development of other “internal” institutions like tertiary education and personalized and generalized trust which begin to play a bigger role in perceived “freedom&control”.

The lesson to be taken from this study is that “freedom&control”, of which economic freedom is a key player, “ . . . is an always powerful predictor of life satisfaction worldwide . . .”, and even though “ . . . the explanatory power varies according to countries’ level of development” it is a necessary condition for control to exist (Verme 2009).

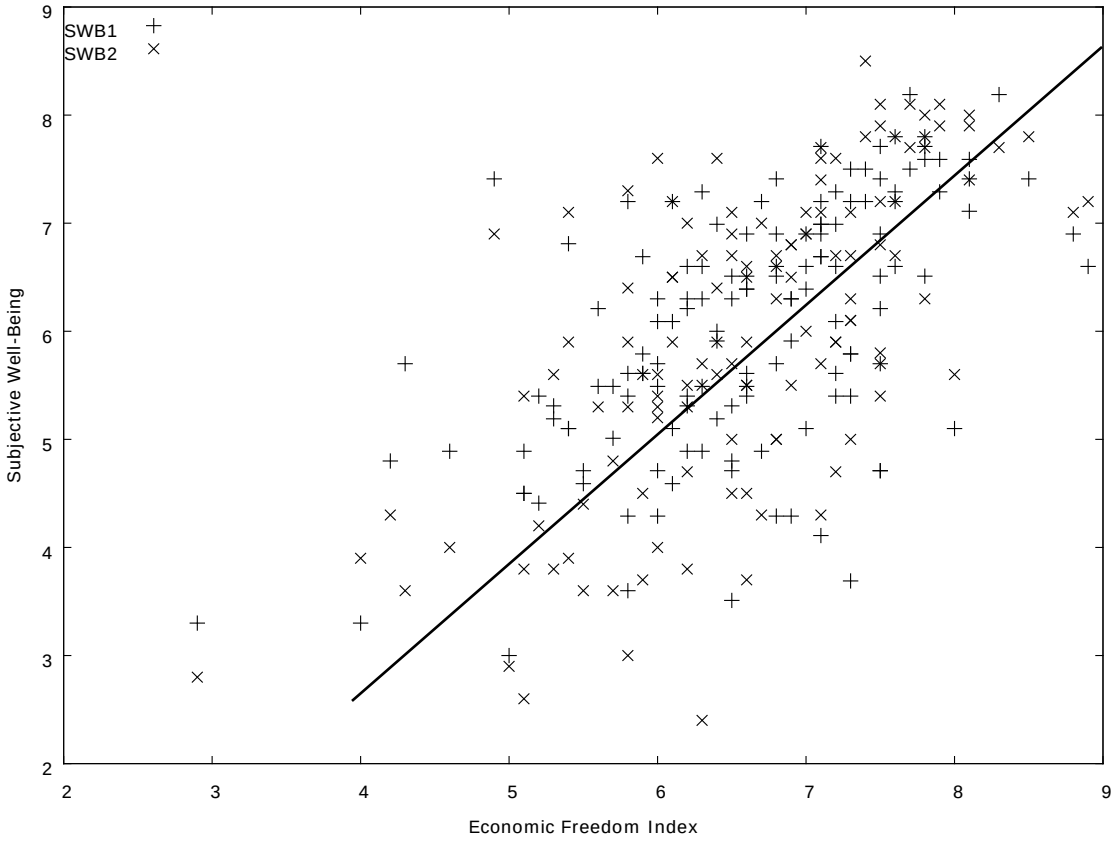
III. Theoretical Model

The objective of this study is to determine how much of an impact, if any, economic freedom has on a country's subjective well-being. Many researchers agree that national qualities such as reduced government spending; a strong legal structure and protection of private property rights; access to sound money; freedom to trade internationally; limited regulation of credit, labor, and business have a profound impact on increasing the level of subjective well-being in a country; however, there is a number of people and studies that disagree with at least some of these assumptions, if not all. This theoretical framework is primarily focused on the impact on subjective well-being and briefly touches on other quality of life measures, e.g., GDP per capita, life expectancy, unemployment rate, and inflation rate. Based on published research and economic theory, the assumption of this paper is that as economic freedom increases, individuals become increasingly independent, more able to take advantage of opportunities, and empowered by the confidence and feeling of control over their own future, and this will cause subjective well-being (e.g. happiness) to significantly increase. Figure (2) shows the positive linear relationship between subjective well-being and economic freedom that will serve as the basis for my research.

Even if this study finds that economic freedom negatively effects or has no effect on subjective well-being, economic and social public policy inferences can be made that can contribute to the body of research as a whole. Nations have previously relied on

relative personal autonomy to drive certain economic indicators in order to increase well-being. Some researchers believe that this way of measuring and evaluating well-being is inherently faulty and that certain human instincts and tendencies should be mediated through government mandated limitations or changes in lifestyle, personal choice, and education. Further, the general philosophical quest of maximizing subjective well-being as an end in and of itself can also be investigated and questioned.

Figure 2: Scatter Plot



Conceptual Model

As an individual increases his capacity to openly and freely choose the economic markets in which he participates, feelings of personal autonomy and a positive outlook on

the future also increases. This great sense of hope and empowerment is satisfying and increases one's level of subjective well-being. Additionally, the underlying level of trust that individuals have for one another increases. Ovaska & Takashima concluded "that people unmistakably care about the degree to which the society where they live provides them opportunities and the freedom to undertake new projects, and make choices based on one's personal preferences" (Ovaska & Takashima 2006).

The conceptual model I will use can be written as follows:

Equation 1: Conceptual Model

$$SWB = f(EF_j, GDP/Cap_j, GI_j, IR_j, UE_j, LE_j)$$

EF_j is a vector of economic freedom characteristics of the respective country; GDP/Cap_j represents the per capita gross domestic product; GI_j is income disparity within the country; IR_j is the inflation rate; UE_j represents the unemployment rate; and LE_j is the anticipated life expectancy at birth of a country's people. The vector EF_j includes the aggregated economic freedom index and each of its separate components. All of these variables have a theoretical and research based precedent that indicates that they should be included in this regression. The dependent variable, SWB, is the level of subjective well-being for a country.

A substantial body of research (for example, see Gwartney, Holcombe and Lawson, 2006) has shown that GDP per capita and economic freedom are highly correlated and share a close theoretical connection; therefore I suspect that my basic single equation OLS model may suffer from an endogeneity problem. To help address this issue, I also estimate an instrumental variable. GDP per capita is modeled as a function of institutions and resources, and an instrumental variable regression is

conducted. Specifically, GDP/Cap is estimated as a function of K, L and EF, and then the fitted GDP/Cap values are incorporated and regressed in the original model. The model for this process is written as follows:

Equation 2: IV Stage 1

Stage 1: $\log GDP/Cap = f(EF_j, K_j, L_j)$

Equation 3: IV Stage 2

Stage 2: $SWB = f(EF_j, \log GDP/Cap_j fitted, GI_j, IR_j, UE_j, LE_j)$

Where K_j is the amount of capital per worker in a country, and L_j is the labor force participation rate. The Exogenous Growth Model, including the Cobb-Douglas production function ($Y = AL^{\alpha}K^{\beta}$), among others provides the theoretical basis for explaining GDP through capital and labor and institutions.

While Veenhoven (2000) determined that economic freedom was never harmful to subjective well-being, he did, however, indicated that economic freedom was most effective in increasing the subjective well-being of lower income countries. The logic behind this notion is that most individuals in higher income countries already have a high degree of economic freedom and do not benefit as much as lower income countries from one additional unit of economic freedom. However, when examining a scatter plot of economic freedom and subjective well-being, the data does not appear to be increasing at a decreasing rate. The equation to be estimated is as follows:

Equation 4: Structural Equation

$$subjective\_well\_being_j = \beta_0 + \beta_1 economic\_freedom_j + \beta_2 GDP\_percapita_j + \beta_3 gini\_index_j + \beta_4 inflation\_rate_j + \beta_5 unemployment\_rate_j + \beta_6 life\_expectancy_j + \varepsilon_j$$

IV. Data

The following section provides a description of the data being used for this study along with relevant sources, units of measure, summary statistics, and expected sign of the coefficients. In investigating subjective well-being as a function of economic freedom, this study will add to the existing literature by employing new data to a previously used model.

Table 1: Summary Statistics

Summary Statistics
(missing values were omitted)

Variable	Mean	Median	Minimum	Maximum	Std. Dev.	C.V.
***subjective_ well_being*1**	6.011	6.150	3.000	8.190	1.154	0.192
***subjective_ well_being*2**	5.919	5.900	2.400	8.500	1.373	0.232
***subjective_ well_being*3**	41.380	41.800	11.600	66.700	14.502	0.350
economic_freedom	6.592	6.600	2.900	8.900	0.990	0.150
GDP_percapita	15.039	8.550	0.200	118.000	17.630	1.172
gini_index	40.704	39.400	23.000	70.700	10.359	0.254
inflation_rate	8.666	6.550	-3.500	41.000	6.925	0.799
unemployment_rate	13.178	7.600	0.000	90.000	15.733	1.194
life_expectancy	67.839	71.500	40.500	82.300	11.042	0.163
capital_per_worker	24.030	14.638	0.372	93.489	24.667	1.027
laborforce_ participation_rate	0.416	0.425	0.005	0.892	0.134	0.323

The variables to be explained in this econometric analysis draw on extensive national happiness surveys. This study considers three related but separate measures of

subjective well-being. The subjective well-being measure that was used for this study comes from the New Economics Foundation's (NEF) *Happy Planet Index*. In its first release, the data were gathered from Ruut Veenhoven's *World Database of Happiness* and are primarily based on the results from the *World Values Survey* (WVS); however, results from the *Latinobarometer* and *Afrobarometer* were also taken into consideration. The authors go further to use regression analysis to estimate the subjective well-being of dozens of other countries. They readily admit that the reliability and availability of data at the time was limited, but it is evident that the authors made a concerted effort to estimate the remaining values as accurately as possible.[7] The average reported life satisfaction score for this sample was 6.01, with a range of 3.0 (Burundi) – 8.19 (Denmark).

The second and third measures of subjective well being come from the updated *Happy Planet Index 2.0*. Recently released in July 2009, the data from this study are almost entirely derived from an average of a comprehensive multi-national survey performed by the Gallup Poll and the two most recent waves of the *World Values Survey*. The *Gallup World Poll* posed the same, commonly used question as in the *World Values Survey*: "All things considered, how satisfied are you with your life as a whole these days?" Responses were ranked on a scale of zero to ten. Zero was the least satisfied and ten was the most. The Gallup poll and WVS average produced 112 observations out of a total of 143 for the entire study. The remaining observations are unmatched countries from each study, respectively. The average score for this sample was 5.92, with a range of 2.4 (Tanzania) to 8.5 (Costa Rica). The rationale behind using two alternative measures of subjective well-being is based on consistency and reliability of the data.

[7] Happy Planet Index 1.0 p.48

Even though both of the surveys used the same life satisfaction question, two unaffiliated organizations with differing methodology conducted the surveys. The resulting samples are shown to be consistent and highly correlated at 0.758.

The third and final measure of subjective well-being is simply a combination of subjective well-being and life expectancy at birth. As shown in Equation (5), responses to the previous life satisfaction survey are divided by 10 and interpreted as a coefficient that adjusts life expectancy according to satisfaction. Each life satisfaction or ratio is multiplied by the country's life expectancy.

Equation 5: Happy Life Years

$$HLY = (SWB/10)*LIFE.EXP.$$

Referred to as Happy Life Years, this measure serves to ensure that both the subjective and objective elements of well-being are captured. It recognizes that a satisfying life is not ideal if it is very short, but also that a long life is not ideal if it is miserable. The average score for this sample was 41.4, with a range of 11.6 (Zimbabwe) to 66.7 (Costa Rica).

Subjective well-being, one, as a reliable measure of an individual's happiness or overall satisfaction with life and, two, as a credible indicator of the success or failure of certain public policies, is a topic that is exhaustingly researched and heavily debated. Critiques of the self report are many and often nuanced in their objections. This paper will address two major objections to subjective well-being surveys. First, it is questioned that subjective well-being reports are subject to systematic bias and do not actually represent true satisfaction. Second, such reports are not cardinal and cannot be interpersonally comparable.

One way satisfaction may be misrepresented is that individuals have preconceived notions as to how they should feel. As previously noted, individuals judge themselves in comparison to others. This may result in an over or under reporting of their true satisfaction, well-being, or utility. These unobserved characteristics, however, are captured in the error term and have not been shown to be non-random. Another potential misrepresentation of actual satisfaction is the evanescent nature of happiness. It has been shown that responses to life satisfaction surveys can depend on current mood, context, previous questions, and the wording of the question. This presents certain limitations to the data, but as Kahneman puts it, "The idiosyncratic effects of recent, irrelevant events are likely to average out in representative population samples." He goes on to indicate the even though shortcomings in real-time experience of retrospective evaluations are valid, they are still relevant for future decision-making inferences. (Kahneman, et. al. 2006) Researchers have also found a link between certain societal and cultural influences and self-reported satisfaction. Some studies have suggested that certain countries or cultures report a higher or lower level of satisfaction based on the norms and history of that society, e.g., Confucian-influenced Asian nations generally live and interact with others in a very modest fashion. As a result self reported levels of satisfaction are lower than people of other nations with similar standard of living. When using time series or panel data, just as long as this tendency to under report is consistent, it can be treated as another coefficient; however, when conducting a cross-sectional analysis, one must be aware of such research and potential bias.

Most modern economists use utility as an indicator of choice or preference. Ordinal utility does not assign value to utility on a measurable numeric scale, it only

states whether a good or service is preferred, indifferent, or inferior to another. This objective way of measuring utility only examines the relative position of a good on a preference map. It does not actually assign value and magnitude to utility. Empirically, this severely limits one's ability to investigate the determinants of utility and their significance.

A second criticism about subjective well-being reports is that happiness, satisfaction, and utility are not credible because they cannot be cardinally measured and are not necessarily interpersonally comparable. Neuro-science has recently been able to target and record brain activity as it responds to positive and negative stimuli. Through greater oxygen and blood flow, feelings of happiness and sadness can be detected and measured. When compared to reported feelings, there is good correlation between the two. Does this mean that happiness can definitively be cardinally measured? No, but it provides an acceptable reason not to completely disregard subjective well-being measures. And for the purposes of this study we will assume that subjective well-being measures are ordinally and cardinally consistent. That is, we assume that a reported well-being of 6 is indeed greater than that of a 5, and that the difference between 3 (Burundi) and 4 (Georgia) is equal to the difference between 7 (Spain) and 8 (Switzerland).

Interpersonal comparability of utility takes into account the standard by which all people measure their own utility. Suppose two individuals report the same subjective well-being at the same income level. How do we really know that they are both at the same level of satisfaction? Perhaps an eight for one is a seven for another. The internal standard for translating one's feelings into language are different, therefore the same level of satisfaction will be reported when the feelings are not really the same. To

insulate against this, with a correlation of 0.758, two subjective well-being measures are used. In addressing the overall issue of cardinality and interpersonal comparability, we as humans generally know what is good and what is bad. We can generally agree that a gunshot wound is worse than a paper cut, and that seeing your first-born for the first time is better than a rerun of your favorite television show. These examples are very ordinal in description, but I think one can at least try to attach some sort of cardinal measure these occurrences or at least their general well-being or life satisfaction. Further, while we may come from different cultures and our internal calculations may differ somewhat, we are all still human and share more similarities than differences.

The economic freedom data for this study comes from The Fraser Institute's Economic Freedom of the World (EFW) index. For over a decade, the EFW project has been devoted to measuring the degree of economic freedom for large numbers of countries. The EFW uses personal choice; market-coordinated, voluntary exchange; the freedom to enter and compete in markets; and protection of persons and their property from aggression by others as the core elements of economic freedom and guiding parameters for evaluating a country's degree of economic freedom. Each country is ranked on a scale of zero to ten. Ten being the highest degree of economic freedom and zero the lowest. It is important to note that even though the Fraser Institute has a vested interest in researching economic freedom, the methodology of the EFW index is guided by three principles that preserve the impartiality of its results: objectivity, data collected from independent sources, and transparency.

The control variables for this study were chosen based on theory and previous research. Table (2) presents all variables used in this study, a brief explanation of each,

and the expected relationship between each independent variable and the dependent variables.

Table 2: Data Explanation

Variable	**Explanation**	**Expected Sign**
*subjective_ well_being*1 Life Satisfaction	Self-reported level of happiness compiled and estimated by the New Economics Foundation from multiple sources including the World Values Survey (WVS). Scores range from 0 (low) to 10 (high).	Y1
*subjective_ well_being*2 Life Satisfaction	Self-reported level of happiness gathered by Gallup in 2006. All answers to the question: "All things considered, how satisfied are you with your life as a whole these days?"	Y2
*subjective_ well_being*3 Happy Life Years	A combination of a country's self-reported level of happiness and its citizen's current life expectancy at birth and is used here as a proxy for health. Since good health is often associated with happiness and subjective data regarding life satisfaction can often fall under some degree of scrutiny, the combination of the two accomplishes both the task of providing a little objectivity in the measurement and capturing some degree of long term satisfaction with life. Since life expectancy at birth is an explanatory variable, any regression that includes happy life years, denoted *subjective_well_being*3, as the dependent variable will accordingly exclude life expectancy.	Y3
economic_freedom Economic Freedom of the World Index	Using a scale from 1 – 10, the EFW index measures the degree of economic freedom in a society. This measure, causing individuals to gain a strong faith in the possibility of upward mobility, is an indication of the institutional quality of a nation which has often been linked to increased happiness or subjective well-being within its people.	Positive
GDP_percapita	This variable measures a nation's gross domestic product per capita. The variable is adjusted via purchasing power parity (PPP) for the relative cost of living and inflation rate. Previous research has indicated that as GDP increases, subjective well-being increases at a decreasing rate. A scatter plot of the two variables supports this claim of non-linearity; therefore, in order to transform the data into a linear relationship, this study will take the logarithm of GDP. When comparing PPP around the world, one can think of it in two ways. The "Big Mac Index" measures how much a McDonald's Big Mac costs in every country. A more accurate way of grasping PPP is to establish a common currency then make the comparison. If you purchase one U.S. dollar's worth of a basket of goods in the U.S. then purchased that same basket of goods in another country, ceterus paribus, how much more or less would you be able to buy? As an individual increases their ability to satisfy their basic needs and eventually wants, their self-perceived life satisfaction also increases.	Positive

Variable	**Explanation**	**Expected Sign**
gini_index	The gini index measures the degree of income inequality within a nation. It is measured on a scale of 0 – 100, lower scores indicating more equality and higher scores less equality. There certainly should be a negative relationship between the gini index and happiness. It is reasonable to suspect that the overall subjective well-being of a country will fall as fewer people gain a greater share of the wealth or income of a nation. As more people become discouraged with the unequal "distribution" of wealth, social capital decreases and takes happiness with it. It can also be affected by the type of inequality. If the lower group's income falls, then the negative effect of a loss in the ability to maintain a previously held lifestyle will certainly cause one to report a lower level of life satisfaction.	Negative
inflation_rate	Inflation is the general increase in prices of goods and services within an economy. It causes greater uncertainty in markets and reduces investment and saving. People tend to be happier when there is little concern about their safety and certainty. High degrees of volatility in prices can cause much disruption and individuals may incur high adjustment costs. Thus, decreasing one's happiness.	Negative
unemployment_rate	The unemployment rate measures the percentage of people in the labor force who are willing to work but cannot find a job. Many researchers have found that subjective well-being is heavily impacted when unemployment increases. Beyond the loss of income, there seems to be a demoralizing aspect of unemployment that affects those who are still working as well as those who cannot find a job.	Negative
life_expectancy	This proxy for good health measures an individual's estimated life expectancy at birth. Healthier people are happier people. Since this variable is built in to the dependent variable "Happy Life Years," it will be excluded from those models. As previously noted, any regression that contains *subjective_well_being*3 as the dependent variable, life expectancy will not be included as an explanatory variable.	Positive
IV Variables	**Explanation**	**Expected Sign**
capital_per_worker	k=(K/L) is an integral part of economic growth and output. This variable along with the next, will attempt to militate against any possible endogeneity of the "GDP" variable.	Positive (GDP)
laborforce_ participation_rate	Defined as the ratio of the number of people in a society who are willing and able to work and the total population of the society. It is possible for this variable to act independently from the unemployment rate. The labor force participation rate can increase due to a large number of college graduates entering the labor market; however, the unemployment rate can also increase, if those grads. cannot find work.	Positive (GDP)

V. Results

This section presents the results of the models described in previous sections, employs instrument variable techniques to account for potential endogeneity issues, and provides an interpretation and commentary on the strength of the models and methodology. Using the open-source statistical software package GRETL, all regressions were conducted in ordinary least squares (OLS) with robust standard errors unless otherwise noted. The t-stat for each variable appears within parentheses underneath the coefficient.

The simple theoretical question is: "What affect, if any, does economic freedom have on subjective well-being among nations?" Regressions (1), (2), and (3) begin the process of answering that question with these simple results:

Table 3: Simple OLS

Single regression results: Happiness as a function of economic freedom

	(1) *subjective_well_being*1	(2) *subjective_well_being*2	(3) *subjective_well_being*3
const	1.5003***	-0.22642	-26.7727***
	(2.759744)	(-0.35509)	(-4.15558)
economic_freedom	0.6843***	0.9396***	10.4393***
	(8.390077)	(9.826349)	(10.80451)
n	136	125	125
R^2	0.344402	0.439781	0.486939

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level
***indicates significance at the 1 percent level

The t-statistics on *economic_freedom* in all three regressions provide for a promising beginning. These results, a theoretical and conceptual rationale, and the previously presented scatter plot, constitute the foundation for conducting this empirical analysis.

Since *GDP_percapita* and *economic_freedom* are so highly correlated at 0.6582, regressions (4) and (5) consider *economic_freedom* with all other control variables except for *GDP_percapita*, and regressions (6) and (7) consider GDP with all other controls minus *economic_freedom*. Regression (8) takes both into consideration. The regression model suffered severely, changing from an R^2 of around 0.69 to an R^2 of 0.28, when GDP was not included, making it suspect for an omitted variable bias. The potential for multicollinearity bias existed as well.

The primary variable of interest, *economic_freedom*, is positive and significant at at least the five percent level in regressions (4) and (5). Supporting theory, this model predicts that a country in which its EFW index is one point greater than another will likely enjoy greater subjective well-being rating of about five percentage points, ceteris paribus. Similarly, the people of that same country will likely enjoy an increase of about 5.9 happy life years. In regression (8), *economic_freedom* appeared to lose all significance due to the strength of *GDP_percapita* in explaining measured happiness.

The *GDP_percapita* variable was logged in order to account for the apparent nonlinear relationship with subjective well-being that showed diminishing marginal returns. In regressions (6) and (7), *GDP_percapita* was consistently positive and significant at the one percent level. It maintained its significance at the five percent level in regression (8) when *economic_freedom* was introduced. This model, along with all other research studies known by the author, supports the notion that at any point in time,

higher income countries enjoy a greater degree of subjective well-being among their people than do lower income countries.

The variable representing the Gini Index, *gini_index,* showed statistical significance in only one of the models. When regressed upon *subjective_well_being*3, its sign became negative. This would indicate that as income inequality increases, happy life years decreases. This is practically consistent, due to life expectancy being built into *subjective_well_being*3. Most countries with a high gini index are developing countries with limited access to medical care causing there to be a low life expectancy. This would result in a negative relationship. Although this variable is statistically significant, due to the small magnitude of its coefficients, there doesn't appear to be a significant economic effect. Although the idea of income inequality is disconcerting to some, it does not appear to have a great effect on subjective well-being.

The unemployment rate, *unemployment_rate,* had the appropriate sign and was statistically significant at generally acceptable levels in all of the models; however, *unemployment_rate* was small in magnitude and, consequently, has less practical economic significance. Even though no one looks very highly upon unemployment, subjective well-being is impacted only when an individual is actually unemployed. An improvement in methodology would likely consist of grouping countries by unemployment rate to see how extremely high and low unemployment rates may affect subjective well-being.

As previously pointed out, the model that considers all explanatory variables, model (8), appears to suffer from an endogeneity problem. There may exist some causal

relationship between *economic_freedom* and *GDP_percapita*. To address this issue an instrumental variable (IV) model was applied.

Table 4: Multiple OLS

	(4) *subjective_ well-being*1	(5) *subjective_ well-being*3	(6) *subjective_ well-being*2	(7) *subjective_ well-being*3	(8) *subjective_ well-being*2
const	2.65284***	18.0919*	4.71643***	30.0081***	4.33504***
	(2.7068)	(1.7991)	(11.6714)	(7.6263)	(5.2786)
economic_freedom	0.521649***	5.94124***			0.0443828
	(4.4205)	(4.9431)			(0.3686)
log*GDP_percapita*			0.686334***	8.1068***	0.689427***
			(9.3263)	(11.3134)	(6.6091)
gini_index	0.00239806	-0.240498**	0.00507255	-0.0428986	0.00653782
	(0.2604)	(-2.5579)	(0.6777)	(-0.5886)	(0.8115)
unemployment_rate	-0.0149242*	-0.313926***	-0.0183398***	-0.132543**	-0.0167974**
	(-1.9436)	(-3.9430)	(-2.9761)	(-2.2089)	(-2.4297)
n	108	105	112	112	105
R2	0.285124	0.505599	0.624082	0.695552	0.627

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level
***indicates significance at the 1 percent level

Suspecting *GDP_percapita* to be the endogenous variable, the first stage treated *GDP_percapita* as the regressand. Two of the original variables, *economic_freedom* and *unemployment_rate*, were included along with two new variables, *capital_per_worker* and *laborforce_participation_rate*, for more precision in estimating. The predicted or fitted values (yhat) for GDP from this first stage were then inserted back into the original equation.

The new variables along with the old fit the "Stage 1" model very well with an R^2 of 0.83. All variables were of the expected sign and statistically significant, less *laborforce_participation_rate*. In conducting the IV, *economic_freedom* did not gain any explanatory strength while per capita GDP was still the dominant factor in explaining happiness.

Regression (9) examines the impact of economic freedom on per capita GDP. The coefficient indicates that a one-unit change in the EFW rating translates to a 29.1 percent increase in per capita GDP. The average per capita GDP in this dataset is $14,108; therefore, an EFW rating of one point higher would cause average per capita GDP to increase over $4,000. This 29.1 percent is roughly the difference between the New Zealand at $27,000, and Hungary at $20,000 per capita. This sizeable impact on per capita GDP indicates that economic freedom may serve to improve subjective well-being in a more indirect way than previously considered.

The IV method not only gives us the opportunity to mediate against the potential bias brought about by including both *GDP_percapita* and *economic_freedom* on the right hand side of the equation, but also to calculate *economic_freedom*'s indirect effect as it works through *GDP_percapita* and its total impact on *subjective_well_being* subject to the limitations of this study. Indicated by *GDP_percapita*'s continued significance in "Stage 2," higher levels of per capita GDP as acted upon by EFW will promote individuals to a higher level of subjective well-being. Gwartney, et. al. (2006) use a recursive model to include the fitted values from one equation into another to calculate the indirect effect that institutional quality, as measured by EFW, has on long-term economic growth as it operates through investment. This impact is measured by multiplying the *economic_freedom* coefficient in the first stage regression by the *GDP_percapita* coefficient in the second stage regression. This indirect effect indicates that the indirect impact of economic freedom by way of per capita GDP is large, and models that fail to include this indirect affect will underestimate the happiness promoting qualities of economic freedom. Hence, the estimated indirect increase in

subjective_well_being as it relates to a one-unite higher EFW rating is 0.186. Adding *economic_freedom*'s coefficient from the second stage, direct impact, to the indirect effect of 0.186 yields a total effect from economic freedom on subjective well-being of 0.218. This correlates well and is roughly the difference between Thailand at 6.5 and Fiji at 6.7.

Table 5: Instrumental Variable Estimate

	(9) Stage 1: log*GDP_percapita*	(10) Stage 2: *subjective_well-being*1	(11) Stage 2: *subjective_well-being*2	(12) Stage 2: *subjective_well-being*3
const	-0.169129	3.53395***	4.4194***	27.2218***
	(-0.3277)	(3.4624)	(4.5988)	(2.8942)
economic_freedom	0.29082***	0.0324653	-0.0992909	-0.755075
	(4.0918)	(0.1889)	(-0.6155)	(-0.4783)
fitted log*GDP_percapita*		0.639254***	0.945457***	10.4368***
		(4.1500)	(6.5617)	(7.4007)
gini_index		0.0225682**	0.00988374	-0.0127315
		(2.2407)	(1.0428)	(-0.1372)
capital_per_worker	0.0295297***			
	(10.8930)			
labor_force_participation_rate	-0.394581			
	(-0.7476)			
unemployment_rate	-0.0227877***			
	(-5.5086)			
n	106	98	95	95
R2	0.828416	0.309627	0.514613	0.608601

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level
***indicates significance at the 1 percent level

Although *economic_freedom* is consistently positive and statistically significant in some models, GDP per capita appears to be the dominant factor in explaining happiness or subjective well-being across countries at any point in time. Interestingly, though, economic freedom is also an important factor in determining economic growth rates and

may, therefore, have an important indirect effect on subjective well-being by encouraging economic growth. So, while economic freedom may be a necessary condition for increased subjective well-being, it may not be sufficient in and of itself. Also, since subjective well-being research is fairly new and clearly difficult to quantify, modeling these effects with the available macroeconomic data is difficult. It is difficult to control for all of the factors that influence happiness in a society. Certain unobservable qualities of culture, attitudes, and preferences are difficult to adequately quantify and compare across countries, although it is also clear that progress is being made on this front.

VI. Conclusion

The pursuit of happiness is an endeavor with which everyone can identify. No good, service, goal, benchmark, or event is sought after as an end in and of itself. It is the utility or satisfaction one receives from consuming that good or experience that is the end. Previous research has focused on revealed tastes and preferences through decision utility, but the emerging field of subjective well-being or hedonic psychology attempts to directly quantify utility or in this case happiness. Daniel Kahneman and Richard Layard have made significant contributions to subjective well-being research and many others are continuing that effort.

There is a developing literature on the economic analyses of the determinants of subjective well-being. Most of this literature is focused on macroeconomic policy and what the best course of action a government should take to increase the subjective well-being of a nation. While the age-old battle of more government spending versus less or greater degree of central planning versus less rages on, this emerging method of measuring utility or subjective well-being only serves to add fuel to the fire. Most of the literature thus far has focused on income. Although nearly all cross-sectional analyses have shown that at any given point in time wealthier nations have a higher level of subjective well being than poorer countries do, over time, as countries become wealthy, their subjective well-being either experiences very marginal increases or just stays the same.

Only a handful of studies have been conducted regarding economic freedom as a predictor of subjective well-being, and all have found that economic freedom substantially increases subjective well-being or at least participates indirectly to its elevation. The foundations of economic freedom, decreased government spending, protection of private property rights, access to sound credit, ability to trade internationally, and limited regulation, give individuals the confidence to go boldly in the way of their dreams. To carry the belief that the barriers to achieving personal and professional goals are low is to be hopeful for the future and to know that there is real freedom in having a choice. The happiness gained from lack of oppression and increased freedom and control comes from a higher degree of economic freedom.

The statistical conclusions reached in this study are mixed. Even though economic freedom did consistently exhibit the expected sign, not only did it become statistically insignificant in the presence of GDP but also when a IV was conducted to reduce *GDP_percapita*'s affect on the model, *economic_freedom* still failed to deliver. This, however, does not discredit economic freedom's ability to explain subjective well-being. Economic freedom seems to better explain subjective well-being in an indirect fashion. *economic_freedom* was a strong predictor of *GDP_percapita* with strong statistical significance and practical magnitude.

It would serve the body of research well to have better, more accurate subjective well-being data. Also, adaptation and aspiration level theory are two big hurdles that are blocking the way for subjective well-being research. Just because individuals do not report a higher level of happiness doesn't necessarily mean that they are no better off than they previously were. Perhaps a better blend of subjective well-being and standard

of living data would yield a more reliable indicator of how public policy should be directed. Also, I think people should realize that happiness is not something that can be provided or given. When a policy is passed that makes most people happier, you will inevitably reduce or prevent the happiness of some. The best course of action is to allow individuals to choose for themselves what road to travel and allow them to take from life what they make of it, while imposing minimal costs on other individuals.

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Appendix A

This section will supplement this study with information that may be of interest in further research and report the results of the following two topics of interest. By dividing the world into three parts, high, low, and middle incomes, and OECD and non-OECD countries, this supplement acknowledges previous literature and reports the relationship between economic freedom and subjective well-being at different income levels. Also, despite certain limitations, based on Berggren and Jordahl (2006), this supplement also takes into account the separate affect that the five areas of economic freedom may have on subjective well-being. In the interest of brevity, the structural equation will consist of the aforementioned income levels and three different measures of subjective well-being. The structural equations are as follows:

Equation 6: Structural Equation: $economic\_freedom_{1-5}$

$$subjective\_well\_being_j = \beta_0 + \beta_2 economic\_freedom1_j + \beta_3 economic\_freedom2_j + \beta_4 economic\_freedom3_j + \beta_5 economic\_freedom4_j + \beta_6 economic\_freedom5_j + \beta_7 GDP\_percapita_j + \beta_8 gini\_index_j + \beta_9 inflation\_rate_j + \beta_{10} unemployment\_rate_j + \beta_{11} life\_expectancy_j + \varepsilon_j$$

The EFW index evaluates and aggregates five areas that it believes to be integral in measuring economic freedom. These areas are: size of government: expenditures,

taxes, and enterprises; legal structure and security of property rights; access to sound money; freedom to trade internationally; and regulation of credit, labor and business. This study will investigate the effect that each individually, each collectively, and all aggregately have on subjective well-being.

The approach of disaggregating the data and analyzing each area individually is an interesting way to see if any one area has a greater effect on subjective well-being than another. Although this method has been used by numerous researchers, it is important to point out some potential conflicts and sources of bias. Within the framework of economic growth, Lawson (2006) is somewhat critical of this method. Lawson compares the individual areas of economic freedom to ingredients in a cherry pie. All of the ingredients work together to create the final product. Since many of the ingredients have an impact on the others, e.g., the flour and shortening combine to make the crust, simply leaving out one or considering only one would not be adequate in making a whole pie. A perfect example of the different areas working together is that of government spending and taxation and the enforcement of private contracts. To achieve a better legal structure and increase the associated score, a tax increase, which will decrease the government spending score, may be necessary. The result may be an overall increase in economic growth or, for this study, subjective well-being. To examine these two elements separately would not reflect their interaction. Essentially, the sum of the parts is not greater than the whole. Lawson goes further to briefly address two potential sources of bias from the disaggregated approach. Lawson argues that since many of the components of the EFW index are highly correlated, separating the EFW index into its respective areas and running a regression will result in a multicollinearity bias that will cause the

respective coefficients to be useless. Additionally, eliminating any of the areas to reduce the issue of multicollinearity will cause an omitted variable bias. (Lawson, 2006)

These concerns are valid and their consequences will be taken into consideration in this study. Within the "cherry pie" scenario, the ingredients added up to explain economic growth or GDP. In this study happiness or subjective well-being is the target and is less formulaic than that of growth. It is more uncertain as to the cause of happiness within a society than that of GDP. Also, I do not anticipate there to be a multicollinearity or omitted variable bias issue in this study due to the apparent lack of correlation between areas. Table ? shows that among all of the different EFW areas, *economic_freedom*3 and *economic_freedom*4 are the most highly correlated with a value of 0.676, and other areas are mildly correlated at best.

Table 6: Correlation Matrix *economic_freedom*$_{1-5}$

*economic_ freedom*1	*economic_ freedom*2	*economic_ freedom*3	*economic_ freedom*4	*economic_ freedom*5	
1	-0.029	0.21	0.175	0.146	*economic_freedom*1
	1	0.542	0.52	0.585	*economic_freedom*2
		1	0.676	0.44	*economic_freedom*3
			1	0.359	*economic_freedom*4
				1	*economic_freedom*5

While using the disaggregated approach may be cause for some problems, there is enough reasonable doubt to proceed cautiously with this methodology. Helliwell (2003) captures the spirit of using the disaggregated approach in this way:

> Beyond the inherent interest of mapping the correlates of satisfaction, there are also policy-related reasons for paying attention to subjective well-being. One is that many public policies have effects on well-being that flow through productivity and incomes as well as through other channels. Conventional economic analysis can recognize the existence of

these other channels, but if the effects are generally positive via one channel but negative through another channel, the net effects of the policy cannot be evaluated unless there is some method for comparing the sizes of the offsetting effects. If there are ways of tracking the offsetting influences through to subjective well-being, then measures of their relative size may be used to support inferences about the net effects of events or policies under review. (Helliwell 2003)

Table 7: Summary Statistics: *economic_freedom*$_{1-5}$

Summary Statistics, using the observations 1 – 225
(missing values were skipped)

Variable	Mean	Median	Minimum	Maximum	Std. Dev.	C.V.
***economic_freedom*1**	6.205	6.445	2.480	9.130	1.450	0.234
***economic_freedom*2**	5.528	5.655	1.510	9.250	2.025	0.366
***economic_freedom*3**	8.028	8.510	0.000	9.720	1.493	0.186
***economic_freedom*4**	6.712	6.865	1.930	9.500	1.170	0.174
***economic_freedom*5**	6.423	6.450	1.540	8.900	1.213	0.189

Table 8: Data Explanation: *economic_freedom*$_{1-5}$

Variable	Explanation	Expected Sign
EFW Area 1 (Size of Government)	General government spending as a percentage of total consumption, transfers and subsidies as a percentage of GDP, government enterprises and investment, and top marginal income and payroll tax rates. This variable could go either way. On one hand, as government spending, taxation, and investment increase, a reduction in market-driven decision making causes happiness to decrease due to loss of personal autonomy. On the contrary, if the transfers and investments serve to improve the quality of certain institutions, e.g., a strong legal system, income insurance, public primary and secondary education, etc., then happiness is likely to increase. The results of this variable will only tell us if a nation is satisfied with an increase in government spending or not.	No Clear Hypothesis
EFW Area 2 (Legal Structure)	Combining judicial independence, impartial courts, protection of private property rights, military interference in the rule of law and political process, integrity of the legal system, legal enforcement of contracts, and regulatory restrictions on the sale or real property, this variable is considered important to happiness in that it contributes to confidence in private contracts, generalized trust, and assigning value to property. All of these factors contribute to the degree of happiness through increased social capital in a society.	Positive

Variable	Explanation	Expected Sign
EFW Area 3 (Access to Sound Money)	Money growth, standard deviation of inflation, inflation rate, freedom to own foreign currency bank accounts. Stability in prices and markets can be comforting. Lower volatility in the market can enable an individual to make better long term plans.	Positive
EFW Area 4 (International Trade)	Taxes on international trade, regulatory barriers (embargoes, compliance costs), size of trade sector, international capital market controls. This variable may interact somewhat with the "Regulation" variable making it difficult to forecast its results. If employment laws and regulations on business are very strict in country A and somewhat lax in country B, then country B can produce and sell the same product for less. As in the agricultural and manufacturing sectors in the US, other countries are able to provide the same product at lower costs due to the absence of certain regulation. Lack of an even playing field can cause people to be less satisfied with their situation.	No Clear Hypothesis
EFW Area 5 (Regulation)	Credit market, labor market, and business regulations. Access to better, more reliable credit will likely increase happiness. Labor market regulations can have a mixed effect on happiness. Unemployment has been shown to have a highly negative effect on happiness; therefore, certain labor market regulations will contribute to decreasing the "Regulation" index value while increasing happiness. On the contrary, heavy regulation on businesses may cause owners to cut back on labor costs causing an increase in the unemployment rate. I suspect that the happiness derived from this variable would be more of a reflection of the society's current social and political climate. It really depends on what type of person is being analyzed.	No Clear Hypothesis

Table 9: OLS: *economic_freedom*$_{1–5}$

OLS estimates
Dependent variable: *subjective_well_being*

	(13) *subjective_ well_being*1	(14) *subjective_ well_being*1	(15) *subjective_ well_being*2	(16) *subjective_ well_being*2	(17) *subjective_ well_being*3	(18) *subjective_ well_being*3
const	1.125	0.3874	-0.9000	-0.2625	34.64**	38.26**
	(0.7701)	(0.3046)	(-0.8307)	(-0.2729)	(3.136)	(6.802)
*economic_freedom*1	-0.03472		-0.007261		1.265*	1.308**
	(-0.5047)		(-0.1423)		(1.895)	(2.023)
*economic_freedom*2	0.1921**	0.1466*	0.05718		-0.4751	
	(2.336)	(1.955)	(0.9371)		(-0.5880)	
*economic_freedom*3	-0.004481		0.07845		1.258	
	(-0.04767)		(1.125)		(1.346)	
*economic_freedom*4	-0.05297		-0.003824		0.6094	
	(-0.3992)		(-0.03885)		(0.4624)	
*economic_freedom*5	-0.1368		-0.2109**	-0.1577*	-1.324	
	(-1.086)		(-2.257)	(-1.958)	(-1.054)	
GDP_percapita	0.01998*	0.01920*	0.02315**	0.02877**	0.4820**	0.4663**
	(1.965)	(1.924)	(3.068)	(4.647)	(5.068)	(6.361)
gini_index	0.03850**	0.03537**	0.02816**	0.02612**	-0.09992	-0.1066
	(3.483)	(3.586)	(3.433)	(3.597)	(-0.9665)	(-1.054)
inflation_rate	0.004319	0.001464	0.01113	0.006461	-0.05133	-0.06749
	(0.2867)	(0.1001)	(0.9960)	(0.6114)	(-0.3434)	(-0.4700)
unemployment_rate	0.008016	0.007154	-0.008736	-0.009829	-0.3867**	-0.3775**
	(0.7440)	(0.6816)	(-1.093)	(-1.287)	(-3.945)	(-3.974)
life_expectancy	0.04882**	0.04395**	0.08677**	0.08627**		
	(3.505)	(3.346)	(8.397)	(8.891)		
n	98	98	98	98	98	98
Adj. R^2	0.3790	0.3897	0.7233	0.7276	0.5816	0.5838

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level

Table 10: OLS: Low Income Countries

OLS estimates
Dependent variable: *subjective_well_being*

	(19)	(20)	(21)	(22)	(23)	(24)
	*subjective_well_being*1 LOW	*subjective_well_being*1 LOW	*subjective_well_being*2 LOW	*subjective_well_being*2 LOW	*subjective_well_being*3 LOW	*subjective_well_being*3 LOW
const	-1.770	-1.149	-1.972	-1.445	32.50	25.32
	(-0.5623)	(-0.3477)	(-1.022)	(-0.7228)	(1.216)	(1.134)
economic_freedom	0.5557*	0.5089	0.2266	0.1868	2.774	0.7753
	(1.949)	(1.717)	(1.296)	(1.042)	(0.9500)	(0.3090)
unemployment_rate	-0.004904	-0.002802	-0.01472**	-0.01294**	0.06669	0.04898
	(-0.5364)	(-0.2882)	(-2.628)	(-2.200)	(0.6699)	(0.5905)
inflation_rate	0.002070	0.001586	0.005074	0.004664	-0.2406**	-0.1224
	(0.2146)	(0.1619)	(0.8582)	(0.7869)	(-2.763)	(-1.501)
gini_index	0.04756	0.04403	0.03462*	0.03162	-0.3518	-0.2423
	(1.503)	(1.357)	(1.785)	(1.612)	(-1.219)	(-0.9996)
life_expectancy	0.03486	0.02432	0.07413**	0.06518**		
	(1.570)	(0.9028)	(5.445)	(4.000)		
GDP_percapita		0.1821		0.1546		5.700**
		(0.7126)		(0.9997)		(3.152)
n	25	25	25	25	25	25
Adj. R^2	0.3033	0.2848	0.7903	0.7903	0.4359	0.6101

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level

Table 11: OLS: Middle Income Countries

OLS estimates
Dependent variable: *subjective_well_being*

	(25)	(26)	(27)	(28)	(29)	(30)
	*subjective_ well_being*1 MID	*subjective_ well_being*1 MID	*subjective_ well_being*2 MID	*subjective_ well_being*2 MID	*subjective_ well_being*3 MID	*subjective_ well_being*3 MID
const	-4.769*	-5.025**	-4.303*	-4.439*	47.79**	43.41**
	(-1.962)	(-2.073)	(-1.964)	(-2.003)	(2.536)	(2.233)
economic_freedom	0.06571	0.06517	0.02136	0.02108	-0.1187	-0.1172
	(0.3252)	(0.3247)	(0.1173)	(0.1149)	(-0.04778)	(-0.04709)
unemployment_rate	-0.02288	-0.01889	-0.02364	-0.02153	-0.1410	-0.1033
	(-1.299)	(-1.061)	(-1.489)	(-1.323)	(-0.6512)	(-0.4683)
inflation_rate	0.02295	0.02043	0.01506	0.01373	-0.1151	-0.1355
	(1.114)	(0.9933)	(0.8113)	(0.7302)	(-0.4617)	(-0.5408)
gini_index	0.08503**	0.08531**	0.05146**	0.05160**	-0.001698	0.007329
	(5.796)	(5.852)	(3.890)	(3.872)	(-0.01040)	(0.04475)
life_expectancy	0.08837**	0.08609**	0.1145**	0.1133**		
	(4.106)	(4.011)	(5.901)	(5.775)		
GDP_percapita		0.04370		0.02313		0.4195
		(1.209)		(0.7001)		(0.9392)
n	41	41	41	41	41	41
Adj. R^2	0.4512	0.4583	0.4562	0.4481	-0.0927	-0.0963

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level

Table 12: OLS: High Income Countries

OLS estimates
Dependent variable: *subjective_well_being*

	(31)	(32)	(33)	(34)	(35)	(36)
	*subjective_well_being*1 HIGH	*subjective_well_being*1 HIGH	*subjective_well_being*2 HIGH	*subjective_well_being*2 HIGH	*subjective_well_being*3 HIGH	*subjective_well_being*3 HIGH
const	-12.82**	-11.40**	-10.93**	-7.927**	58.34**	51.90**
	(-3.698)	(-3.135)	(-3.321)	(-2.538)	(3.405)	(3.576)
economic_freedom	0.9114**	0.8486**	0.4946**	0.3613**	2.530	0.9609
	(5.059)	(4.554)	(2.891)	(2.257)	(1.110)	(0.4902)
unemployment_rate	0.04280	0.04979	0.01871	0.03356	-0.8751*	-0.3699
	(1.130)	(1.309)	(0.5202)	(1.027)	(-2.030)	(-0.9596)
inflation_rate	-0.05857*	-0.05783*	0.004112	0.005688	-1.124**	-0.7793**
	(-1.751)	(-1.741)	(0.1295)	(0.1994)	(-3.258)	(-2.566)
gini_index	-0.07964**	-0.07605**	-0.05199**	-0.04437**	-0.3428*	-0.2478
	(-5.736)	(-5.390)	(-3.943)	(-3.661)	(-1.936)	(-1.642)
life_expectancy	0.1951**	0.1768**	0.2028**	0.1639**		
	(5.389)	(4.530)	(5.897)	(4.890)		
GDP_percapita		0.009674		0.02053**		0.3104**
		(1.207)		(2.983)		(3.875)
n	39	39	39	39	39	39
Adj. R^2	0.7656	0.7688	0.6652	0.7298	0.3357	0.5296

t-statistics in parentheses
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level

Appendix B

Table 13: Data

COUNTRY	*subjective_ well_being 1*	*subjective_ well_being 2*	*subjective_ well_being 3*	*economic_ freedom*
AE	4.59	7.20	56.20	6.10
AM	3.69	5.00	36.10	7.30
AO	4.80	4.30	17.80	4.20
AR	6.81	7.10	53.40	5.40
AT	7.80	7.80	61.90	7.60
AU	7.29	7.90	63.70	7.90
AZ	4.89	5.30	35.40	6.20
BA	5.10	5.90	44.00	6.10
BB	7.29			6.30
BD	5.70	5.30	33.10	6.00
BE	7.29	7.60	60.00	7.20
BF	4.71	3.60	18.70	5.50
BG	4.29	5.50	39.80	6.90
BH	7.20			7.10
BI	3.00	2.90	14.30	5.00
BJ	5.40	3.00	16.70	5.80
BO	5.49	6.50	42.10	6.60
BR	6.30	7.60	54.30	6.00
BS	7.71			7.10
BW	5.40	4.70	22.60	7.20
BZ	6.90	6.60	50.20	6.60
CA	7.59	8.00	64.00	8.10
CD	3.30	3.90	18.00	4.00
CF	4.89	4.00	17.60	4.60
CG	5.70	3.60	19.70	4.30
CH	8.19	7.70	62.60	8.30

CL	6.51	6.30	49.20	7.80
CM	5.10	3.90	19.60	5.40
CN	6.30	6.70	48.60	6.30
CO	7.20	7.30	53.00	5.80
CR	7.50	8.50	66.70	7.40
CY	6.90	7.20	56.60	7.50
CZ	6.39	6.90	52.00	7.00
DE	7.20	7.20	56.80	7.60
DK	8.19	8.10	62.90	7.70
DO	6.99	7.60	54.20	6.40
DZ	5.19	5.60	40.10	5.30
EC	5.61	6.40	48.00	5.80
EE	5.10	5.60	40.10	8.00
EG	4.80	6.70	47.20	6.50
ES	6.99	7.60	61.20	7.10
ET	4.71	4.00	20.60	6.00
FI	7.71	8.00	63.30	7.80
FJ	6.69			5.90
FR	6.60	7.10	56.60	7.00
GA	6.21			5.60
GB	7.11	7.40	58.60	8.10
GE	4.11	4.30	30.10	7.10
GH	6.21	4.70	28.00	6.20
GR	6.30	6.80	54.00	6.90
GT	6.99	7.40	51.80	7.10
GW	5.40			5.20
GY	7.20	6.50	42.60	6.10
HK	6.60	7.20	58.60	8.90
HN	7.20	7.00	48.70	6.70
HR	5.91	6.40	48.30	6.40
HT	5.49	5.20	30.80	6.00
HU	5.70	5.70	41.80	7.50
ID	6.60	5.70	39.50	6.30
IE	7.59	8.10	63.80	7.90
IL	6.69	7.10	56.80	7.10
IN	5.40	5.50	35.10	6.60
IR	6.00	5.60	39.50	6.40
IS	7.80	7.80	63.90	7.80
IT	6.90	6.90	55.70	7.00

JM	6.99	6.70	48.50	7.20
JO	5.10	6.00	43.10	7.00
JP	6.21	6.80	55.60	7.50
KE	5.61	3.70	19.10	6.60
KG	6.60	5.00	32.70	6.80
KR	5.79	6.30	49.10	7.30
KW	7.20	6.70	51.60	7.30
KZ	5.79	6.10	40.40	7.30
LK	6.09	5.40	38.60	6.00
LS	4.29			6.80
LT	4.71	5.80	41.80	7.50
LU	7.59	7.70	60.10	7.80
LV	4.71	5.40	39.10	7.50
MA	5.61	5.60	39.70	5.90
MD	3.51	5.70	38.70	6.50
MG	5.79	3.70	21.80	5.90
MK	4.89	5.50	40.50	6.30
ML	5.31	3.80	20.00	5.30
MN	6.69	5.70	37.30	7.10
MR	5.31	5.00	31.30	6.50
MT	7.50	7.10	56.00	7.30
MU	6.51			7.50
MW	4.59	4.40	20.60	5.50
MX	6.90	7.70	58.30	7.10
MY	7.41	6.60	48.60	6.80
MZ	5.40	3.80	16.40	6.20
NA	6.51	4.50	23.20	6.60
NE	4.50	3.80	21.00	5.10
NG	5.49	4.80	22.20	5.70
NI	6.30	7.10	51.00	6.50
NL	7.50	7.70	61.10	7.70
NO	7.41	8.10	64.60	7.50
NP	5.49	5.30	33.30	5.60
NZ	7.41	7.80	62.30	8.50
OM	7.29			7.60
PA	7.20	7.80	58.50	7.40
PE	5.61	5.90	41.70	7.20
PG	6.30			6.20
PH	6.39	5.50	38.90	6.60

PK	4.29	5.60	36.20	6.00
PL	5.91	6.50	48.70	6.90
PT	6.09	5.90	45.50	7.20
PY	6.51	6.90	49.00	6.50
RO	5.19	5.90	42.60	6.40
RU	4.29	5.90	38.10	5.80
RW	4.41	4.20	19.10	5.20
SE	7.71	7.90	63.20	7.50
SG	6.90	7.10	56.50	8.80
SI	6.60	7.00	54.20	6.20
SK	5.40	6.10	45.10	7.30
SL	5.01	3.60	14.80	5.70
SN	5.61	4.50	27.90	5.90
SV	6.60	6.70	47.60	7.60
SY	5.10	5.90	43.40	5.40
TD	4.50	5.40	27.00	5.10
TG	4.89	2.60	15.20	5.10
TH	6.51	6.30	43.50	6.80
TN	6.39	5.90	43.30	6.60
TR	5.31	5.50	39.40	6.20
TT	6.90	6.70	46.30	6.80
TW	6.60			7.20
TZ	5.49	2.40	12.50	6.30
UA	3.60	5.30	35.90	5.80
UG	4.71	4.50	22.30	6.50
US	7.41	7.90	61.20	8.10
UY	6.30	6.80	51.20	6.90
VE	7.41	6.90	50.40	4.90
VN	6.09	6.50	47.80	6.10
ZA	5.70	5.00	25.20	6.80
ZM	4.89	4.30	17.50	6.70
ZW	3.30	2.80	11.60	2.90