Theory and Evidence…..

Does a Luxury Goods Presence Affect a Nation's Happiness through the Lens of Income Inequality?

by

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Abstract

This thesis seeks to study the relationship between happiness and a luxury market presence through the lens of income inequality. The results of the analysis provide initial evidence of the relationship between happiness and the interaction of income inequality with luxury market presence. Qualitatively, this shows how satisfied individuals within a nation with higher levels of income inequality and a luxury market presence feel with their lives relative to individuals in nations with lower levels of income inequality or no luxury goods presence. Results of the study can be used to implement economic policy relating to levels of social welfare and tax redistribution to maximize happiness. Given the Chinese consumer's strong preference for status and image and the expectation of high growth within the Chinese luxury goods market, China is one of the most interesting case studies of this happiness to luxury goods market phenomenon. The study was conducted as a cross-sectional analysis of 82 nations in addition to a time series analysis from 1990-2011 specifically of consumer satisfaction against luxury presence effects within China.

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Executive Summary

Happiness, defined as overall life satisfaction and a subjective measure of general well being, is the most important motivator of individual decision-making that then generates economic activity within society. Thus, happiness is often used as a proxy for utility in an economic function to analyze the effects of certain actions and policies on society. The goal is to maximize happiness and thus maximize utility for society as a whole. Happiness is influenced by a variety of factors and this thesis seeks to address whether or not there is a relationship between the aggregate happiness of a nation and the presence of a luxury goods market within that nation. Luxury goods, by definition, are non-essential premium goods that cater to the affluent and become more popular as income levels rise. The theory is that the presence of luxury goods in an environment with higher income inequality will lead to greater overall unhappiness from the effects of relative income comparisons. Past research shows that relative rather than absolute

income levels have a greater effect on an individual's perception of life satisfaction and happiness. If the income levels of everyone within a nation grew at the same percentage, then the happiness level of each individual in the country will stay the same despite the higher level of income. Conversely, if wealth accumulated only in the top 10% of the nation's individuals, then the aggregate happiness of the country will likely decrease as the relative income levels of the majority of individuals has decreased relative to the average income level. In simpler terms, those who are unable to afford the luxuries seen in society feel less fortunate and thus, less contented with their status. Those who are wealthy still see neighbors carry premium products that may be of a higher quality that their own, creating greater pressures of competition for prestige and status.

The global luxury goods market is expected to expand over the next five years, with the majority of growth coming from countries in the Asia Pacific region and other emerging markets. China is the largest source of growth for the luxury goods market and thus one of the most interesting case studies of this happiness to luxury goods market phenomenon. The Chinese luxury goods market is expected to become the largest consumer of luxury goods by 2017 with a conservatively estimated $14.6 billion of annual consumption. Given the Chinese consumer's strong preference for status and image and the expectation of high growth within the Chinese luxury goods market, the effect of luxury goods on happiness within China is of particular interest.

In this thesis, I ran two multivariate regression analyses to determine the relationship between happiness and a luxury market presence through the lens of income inequality. The study was first conducted as a cross-sectional analysis of the happiness across 82 nations and then followed with a time series analysis from 1990-2011 specifically of consumer satisfaction

against luxury presence effects within China. The data used for the cross-sectional analysis was self-reported happiness survey data pulled from Veenhoven's World Database of Happiness in addition to Gini coefficients and GDP per head at PPP levels for each of the 82 nations. The presence of the luxury market was estimated using expenditures on jewelry, silverware, watches and clocks, and travel goods divided by the total consumer expenditures within each nation. I assigned a luxury market dummy variable of 0 to half of the data set that had less luxury market influence and a dummy variable of 1 to the half with more luxury market influence to simplify analysis of the data. The data used for the time series analysis was similar but China's consumer satisfaction index from 1990 to 2011 was used as a proxy for happiness due to lack of consistent reliable data for subjective well-being over this period of time that will yield significant results. Future research can corroborate the findings of this paper by addressing the current shortage of reliable data on the topic of happiness and subjective wellbeing and thus create a stronger argument in favor of the correlation between happiness, income inequality, and luxury goods consumption.

The cross-sectional analysis shows that the relationship between self-reported happiness and the interaction of income inequality with a luxury market presence is negative and every unit of increased interaction between the Gini coefficient and the luxury market factor is correlated with a decrease of 0.0045 in self-reported happiness. This relationship has a t-statistics of -1.02686, which means that there is a high probability that the results are not significantly far enough from the mean to interpret. However, since the results are in line with the prediction that there is a negative relationship between luxury market goods and self-reported happiness, further studies may be done to verify the results of this study by testing for the significance of this negative relationship. The time series analysis shows that there is a significant negative

relationship between consumer satisfaction and the interaction of the income inequality and luxury market factor variables. For every unit increase in the interaction term, there is a decrease of 0.0017 in the level of consumer satisfaction within China.

Our results seem to indicate that there is a negative relationship between happiness and the interaction of income inequality with a luxury market presence. This shows that in countries with higher levels of income inequality, the introduction and expansion of a luxury goods market can lead to lower levels of happiness for the country as a whole as the middle and lower class are able to see visual representations of the wealth of the upper class. This creates higher relative reference groups which can lead to discontentment for individuals who feel less fortunate with their position within society.

I. Introduction

Do the material goods in our lives really make us happier? As nations become wealthier, consumers have a tendency to gravitate towards premium products as discretionary income grows in proportion to total income. Once basic necessities have been met, individuals have a tendency to focus on products that act as symbols of status and success and as points of differentiation. There is a desire to match or exceed the spending levels of friends and neighbors to create the image of wealth and prosperity. As an example, China is the largest developing nation in the world and growing economic prosperity has led to changes in consumer spending habits. As discretionary income grows and luxury goods retailers expand into China, more and more consumers are choosing to purchase premium products that demonstrate their wealth and good taste. Despite rapid luxury growth, China's per capita GDP is only $3,000 and is ranked at 106th in the world. This seems counter-intuitive for a country that boasts leading consumption of luxury goods, highlighting the rift between the rich and poor social stratifications within the

country. An interesting question that this thesis seeks to address is whether this influx of status symbols creates an unhealthy dynamic in the country, where middle and lower class consumers become less satisfied with their lives relative to the wealthier classes.

Happiness, defined as overall life satisfaction and a subjective measure of general well being, is the most important motivator of individual decision-making that then generates economic activity. Thus, happiness is often used as a proxy for utility in an economic function to analyze the effects of certain actions and policies on society. The goal is to maximize happiness and thus maximize utility for society as a whole. Happiness is influenced by a variety of factors and this thesis seeks to address whether or not there is a relationship between the aggregate happiness of a nation and the presence of a luxury goods market within that nation. The theory is that the presence of luxury goods in an environment with high income inequality will lead to greater overall unhappiness from the effects of relative income comparisons. Happiness and income inequality has long been a topic of study within and across nations. Historical research on the topic will act as a basis for analyzing how adding a luxury market factor interacts with income inequality effects to influence happiness.

Why Happiness Research Matters

It is widely accepted that happiness is an important component of life and much of our actions as individuals are driven by the pursuit of happiness. This gives a powerful reason to study happiness in relation to economics and society. Having the basic necessities of life (food, water, shelter, etc) are a necessary foundation for happiness. However, beyond this basic level, life gets complicated. Just as having the income to support oneself is necessary for happiness, the quest for higher income can lead to stress, anxiety, and paradoxically reduce happiness. On a

national level, we can interpret a nation's aggregate happiness level by looking initially at a country's economic state. As economic growth in a country increases the standard of living for each of its citizens, happiness rises on an aggregate level, but only up to a certain GDP per capita level.[1] An overly zealous focus on economic development within a country can lead to negligence in areas of social and political development, which are equally important components for a nation's general well-being and its happiness.

Bruno Frey and Alois Stutzer outlined the importance of studying happiness and how to apply the knowledge gained to economic and public policy. For example, based upon how income inequality affects happiness, a government can adjust its tax policy by income bracket accordingly to further evenly distribute the income or allow for more income inequality based upon the expected effect on the aggregate satisfaction level of its citizens. Happiness data can also be used to determine the effective level of poverty rather than using absolute numbers that are meaningless without context. For those below the poverty line, what level of government welfare is the most appropriate for the overall happiness of the nation? Frey and Stutzer's research indicates that providing government handouts may not be the best solution from a happiness optimization standpoint. In fact, the bottom 10% of people tend to be happier when entered into work reform programs that help them secure employment rather than simply receiving financial support from the government. While happiness data is subjective and difficult to measure, finding the right set of indicators and quantifying individual's results can still provide the right guidance for future policy in areas such as social welfare and tax redistribution among others.

[1] The basis for this statement is from past research by Ball and Chernova indicating that $15,000 GDP per capita is the subjective level above which income no longer contributes to happiness. Not all researchers have found this relative relationship to exist. Some have indicated an absolute relationship between income and happiness, causing controversy on the topic.

The happiness of an individual is often used as a proxy for that individual's utility for economic purposes. Utility maximization is the central component of economic theory and is achieved through consideration of both absolute and relative factors that influence a person's sense of wellbeing. Economically speaking, the absolute income gain by itself only represents a portion of the utility function that is also affected by the change in the spending power of our peers. Relative income effects have an impact on an individual's level of happiness by setting a reference group by which individuals compare each other. By quantifying happiness, economists can use happiness research to show how factors such as income, unemployment, and inflation affect the wellbeing of the individuals in a nation and analyze the expected impact of new economic policies on the nation's welfare.

Nations around the world are catching on to the idea of measuring happiness and using those indicators as a way to craft policy. Jigme Singye Wangchuck, the Fourth King of Bhutan, coined the term "Gross National Happiness" (GNH) in the 1970s to encourage sustainable development and progress. The second nationwide GNH index was created in Bhutan in 2010 highlighting the single number representing 33 indicative factors within the nine domains of happiness: psychological wellbeing, health, education, time use, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards (GNH Index). Countries ranging from Britain to China among others are looking to create their own happiness indices to supplement economic indicators as a measure of a country's success.

Happiness and Income Inequality

Happiness research has been prevalent since as early as the 1970s, when Professor Richard Easterlin conducted a study on the United States that infamously noted the paradoxical

relationship between happiness and income inequality. Before Easterlin's research, people had expected that rising income led to rising life satisfaction and happiness and this convention generally held true below a certain income level. However, wealthier societies overall were not necessarily happier than slightly worse off societies due to the effects of income inequality. In general, those in the wealthiest 10% of a nation exhibited higher levels of happiness than the top 20% and the trend continued with the lowest reported levels of happiness among the bottom 10% of society. As individuals move up the economic ladder within a nation, they become less concerned about economic stability, which is a large drag on happiness for the lower classes, and they also become more able to pursue personal goals that augment their happiness. On a comparison across nations, Easterlin found that wealthier nations were not always higher on the happiness scale than poorer nations, which contradicted his findings within each nation. This can most likely be explained by income inequality and relative income effects. If wealth is accumulated in the top 10% of the nation with high levels of income inequality, then the majority of individuals have a high reference group that they cannot attain, leading to greater overall discontent and unhappiness within a nation. Additionally, newly gained wealth of a nation sometimes creates new societal problems such as a distrust of the government, insecurity, and lack of social security which may lower the country's happiness rating. Easterlin's research shows that there is a limit to economic growth's positive contributing factor to happiness and that after the economy reaches a sustainable level, other societal factors become more important in determining happiness. For example, powerful advertisement can create new luxury goods and wants in new undeveloped areas such as luxury clothing, luxury tobacco, caffeine, and processed sugary food products. These products create new cravings and addictions that are not original

natural human needs and the inability to obtain these new goods can cause more unhappiness than happiness in certain instances.

Karen Dynan and Enrichetta Ravina explored the relationship between happiness and income inequality in the United States, confirming that there is some form of significant correlation between the two factors. In their research, Dynan and Ravina used measures of self-reported happiness and household income from the General Social Survey conducted annually between the early 1970s and 1994, and conducted every other year since 1994. Based upon this data, they confirmed that an increase in an individual's income by 10 percent increase in income increases happiness by about 0.0025. While this increase is minor, the analysis adjusts for measurement error and other variables that may affect income such as education. This means that increasing income levels do contribute to happiness but have a relatively small effect in the overall arena of an individual's happiness.

Dynan and Ravina's research builds upon the 2005 study by Erzo Luttmer, which showed that our income level relative to our neighbors does have an effect on our happiness based upon interpersonal preferences. After establishing the absolute relationship, the researchers then explored the effect of relative income. The correlation on the added interaction term was slightly negative, indicating that the happiness of people in below-average earnings groups are less affected by how much their incomes differed from the average while the happiness of people in above-average earnings groups were significantly affected by their position relative to their group. This effect is strongest in the bracket of people with incomes just above average while the wealthiest bracket are less concerned with their relative position to their richer neighbors. At the very least, the results of their study indicates that the relationship between happiness and income

inequality is complicated and further research can help to clarify the precise effect of income inequality on happiness.

Maarten Berg and Ruut Veenhoven contributed significantly to the study of how happiness is affected by income inequality on a national level rather than using survey data to observe happiness on an individual level. Over time, Veenhoven's research has expanded to include 119 nations' aggregate data to show that the positive and negative effects of income inequality on happiness approximately balance each other out. This contradicts previous reports of a negative relationship between income inequality and happiness and part of the explanation is that Veenhoven's study is done on the national rather than regional level. We expect the negative effects of income inequality on happiness to be greater at the regional level because of the relative effects of social comparison. At the very least, Veenhoven's research shows that income inequality can lead to lower levels of happiness in some regions of the world. This is significant because this research seeks to prove that income inequality, viewed through the luxury market presence, does lead to lower levels of happiness in urban areas with status-conscious consumers.

Studies of the relationship between happiness and income inequality indicate that the positive and negative consequences of income inequality on levels of happiness in nations are approximately equal and result in a minimal effect on perceptions of happiness. Positive effects of income inequality include creating a sense of hope that hard work will lead to greater achievement. In societies such as Russia where people are less likely to envy their neighbors because everyone is in a poor situation, signs of wealth offer a sign of hope and inspire the population to work harder to try and attain a higher standard of living. Other positive effects are similar and include incentivizing individuals to work harder to achieve economic goals for their personal betterment and preventing laziness and lack of productivity. Negative effects of income

inequality include poor standards of living for the lower classes in society and greater unhappiness and discontent with one's own position in society relative to others. Interestingly enough, there were slightly positive and negative relationships between happiness and income inequality in different regions of the world, which may reflect, among other factors, the effect of cultural factors on happiness. For example, Western countries saw a negative relationship between income inequality and happiness while Eastern European, Latin American and Asian countries saw a slightly positive relationship between income inequality and happiness (Berg Veenhoven, 3.3 p.9). Possible explanations include the balance of effects theory, which states that the positive effects of income inequality balance out the negative effects. My thesis tests whether the effect of luxury market penetration may disrupt the balance if the perception of wealth leads to lower levels of happiness, leading to a correlation between luxury market penetration and social happiness.

Relative wealth concerns are amplified by the availability of luxury goods that signal status and value. As emerging market countries see a strong economic growth and increases in GDP per capita, happiness does not necessarily rise with economic wellbeing. In certain countries, we have actually seen a decrease in perceived happiness of individuals because as the mean economic wellbeing increased, the majority of the wealth accumulated in the hands of a small minority at the top. Thus, relative to the wealthy few and to the mean, the majority of the population falls below the mean and feel less satisfied as a result.

Analysis of the Luxury Goods Market

Luxury goods are defined as goods that are non-essential goods whose demand increases with an individual's level of income. The desire for luxury goods is founded upon a desire to

purchase higher-quality goods that will act as status symbols within society. Luxury goods are premium goods within most categories ranging from apparel to jewelry and watches, automobiles, and even home appliances. As one moves up the income ladder, certain luxury goods (for example a Mercedes Benz) will become inferior goods to a more premium product (such as a helicopter or private jet). The global luxury market was traditionally the most prominent in the following three regions: Europe, the Americas, and Japan. In recent years, the market has grown significantly, shown in Figure 2 of the Appendix, with the majority of post-crisis growth stemming from emerging market countries such as China, Brazil, India, and Russia. Based upon Figure 3 of the Appendix, the Asia-Pacific region is expected to be the biggest driver of growth in the global luxury market over the next five years. Overall, the sector is robust and expecting double-digit growth to continue through 2017. While developed markets will stay robust, the key focus of investors is on the growth of the luxury market in developing markets such as China.

Currently, China's luxury market represents one of the largest and growing segments of luxury consumers worldwide and will become the world's largest consumer in the next five years, reaching an annual consumption of $14.6 billion in 2017. China's hunger for luxury goods represents a growth opportunity for Western luxury companies who are eager to take advantage of and effectively market to this new segment of consumers. As the luxury market presence in China grows over time, will the conveyance of status lead to discontentment among those who are less fortunate? This thesis seeks to address the impact of luxury market penetration upon social happiness through the lens of income inequality.

China's luxury market is unique because of the trickle-down demand effect upon the middle class. There are two main segments of consumers. Approximately 30% of Chinese luxury

consumers belong to the wealthy class while the remaining 70% is composed of white-collar workers who are willing to save their income for big-ticket luxury purchases. The second segment is a curious phenomenon as middle class Chinese consumers value luxury retail in a way that is not common to other cultures. These status-hungry individuals willingly spend up to a year's worth of savings upon a single luxury item such as a Louis Vuitton or Chanel bag to gain prestige among their peers. China is the only country where middle class white collar workers are willing to spend extravagant amounts of money on a single luxury item such as a Louis Vuitton bag, sometimes shelling out an entire year's worth of salary on a single item. One explanation for this phenomenon is the theory of conspicuous consumption, where consumers are willing to take on household debt in order to match the consumption levels of their richer neighbors and to portray an image of equality of wealth and to match or surpass the achievements of their neighbors. Chinese consumers particularly love high-end luxury brand names because of a perceived notion of high quality and status. One of the problems for luxury market companies initially entering the Chinese market was the wide availability of counterfeited goods in China. However, this problem has slowly decreased in the past few years as Chinese consumers have also grown more knowledgeable about branded goods and seek the real product rather than a counterfeit item. More and more Chinese cities have populations that are becoming wealthy enough to afford luxury goods, giving luxury companies new geographic markets to expand into.

Moving forward, China will be one of the largest consumers of luxury goods due to its large population, growing economic prosperity, and desire for prestige and status symbols. Louis Vuitton is currently the most popular luxury brand in China, followed closely by Chanel and Gucci. Figure 6 in the Appendix shows the growth in retail outlets of the 18 top luxury brands in

China from the period of 2008 to 2011. Using just LVMH Moet Hennessy as a proxy for the expected growth areas in the luxury space, we can see that Asia, and particularly China within Asia, is a leading driver of growth. Loewe, Givenchy, and Tag Heur are three fashion and accessory brands that are gaining strong traction in China, with China as the leading growth factor for Loewe. Louis Vuitton, Guerlain, and Chaumet are looking to expand into new cities in China. De Beers, a premier diamond solitaire, successfully opened its first store in Beijing and Sephora has significantly expanded its market share in China. 32% of LVMH's fashion and leather goods revenues came from Asia (excl. Japan) while 18% came from the United States (LVMH 25). 26% of the watches and jewelry revenue were from Asia (excl. Japan) while only 13% came from the United States (LVMH 49). LVMH's retail footprint grew by approximately 19% between 2010 and 2011. They currently have a retail network of 621 stores in the United States and 621 stores in Asia excl. Japan, which has 360 stores by itself (LVMH 7). With a greater percentage of its revenue from Asia and the same retail footprint as the United States, we can clearly see growth opportunities in Asia. If a country the size of Japan can hold 360 stores, then there is huge potential for growth in retail outlets in China.

The luxury goods market in China is approximately $32 billion with an estimated growth of 25% per year over the next five years (CLSA 3). Studies show that the Chinese purchase luxury goods as a symbol of status partially because their houses are small relative to worldwide averages. Thus, it is more important for them to dress well and give off the impression that they are rich and famous when they are out with their friends. The most popular luxury items are currently watches and jewelry. China currently has high import taxes and duties on luxury goods so many Chinese consumers travel overseas to purchase luxury items to bring back to their country. If we find that greater luxury goods concentration and consumption actually leads to

lower levels of happiness, this is strong justification for China's heavy taxes and duties on luxury goods and an impetus for further policy to reduce overseas consumption of luxury goods by Chinese tourists.

The China Puzzle

Since the end of Mao Zedong's reign in 1978, China's new leaders have focused on developing China's economic system. This strategy has seen tremendous success in production and manufacturing output has quadrupled by 2000. However, China's serious focus on its economic development in the past few decades has led to discontent within the nation as the nation's environmental protection, social programs and political privileges lagged behind its economic progress. Figure 4 in the Appendix shows that China's happiness rating lags far behind its Western counterparts despite its outstanding record of economic progress. With the rapid economic growth, China has also seen a steady increase in income inequality as the wealth in the nation gathered in the hands of an elite upper class and was not evenly distributed amongst China's over 1.3 billion population. In recent years, China has stopped officially publishing its Gini coefficient, the most common measure of income inequality currently used. As the relative income of the majority of Chinese people became lower than the average income level, it created the "frustrated achiever" syndrome among much of China's burgeoning middle class. The relative deprivation theory seeks to explain why China's overall happiness has decreased from 1990 to 2000 during a period of rapid economic growth, which contradicts the findings of Easterlin and Ravina. Figure 5 in the Appendix offers a visual representation of the decreasing satisfaction of Chinese consumers from 1990 to 2011, showing that decreasing satisfaction trends extended beyond the period of Brockmann, Delhey, Welzel, and Yuan's study. The term

"China puzzle" was coined to represent this decreasing happiness trend that was caused by a redistribution of wealth to the top 10%. While the majority of hard-working Chinese citizens saw their absolute income grow over the past two decades, they also saw their relative position falling as average income levels were skewed upwards by a wealth accumulation within the top 10% of the population.

Prime minister Wen Jiabao is concerned about the sustainability of China's current rapid economic growth and about the level of contentment within the nation. Due to his concern, he has announced the launch of China;s "happiness index" initiative in spring 2011, encouraging each province develop indicators to measure the happiness of the people in its province and to gather survey data to analyze the province's happiness level. Each province leader's political success and impact will be measured based upon the happiness findings in addition to their economic policies and manufacturing output, an important change from past leadership. This shows that happiness is currently a hot topic in China and several provinces have recently announced their happiness index results including major cities Beijing, Guangzhou, and Shanghai.

In a recent study of urban and rural China, John Knight and Ramani Gunatilaka found that happiness levels based upon a 2002 household survey were higher in rural areas than in urban areas, showing that absolute income was not the only determinant of happiness. Urban and rural people in China tend to have different reasons to be unhappy. Aside from a concern about income, people in urban areas were worried about their jobs, possible lay-offs, and an uncertain future whereas the rural population was more concerned about their health and other personal manners. Possible explanations for the difference in happiness levels include income inequality

and the relative effects of the surrounding population. The authors suggest that urban life creates new insecurities and uncertainties that lead to the lower perceived level of happiness.

The presence of a burgeoning luxury goods market enhances the effects of relative comparisons of income and prestige. During the same period of time of China's economic growth and decreasing happiness, the luxury goods presence expanded rapidly in China and will continue to grow at double-digit rates into the future. In Markus Christen and Ruskin Morgan's research, they found that people in the United States were more likely to have higher levels of household debt when there are higher levels of income inequality and during periods immediately following a recession rather than during the recession. This shows that people's borrowing habits were not driven by economic necessity but by other motivators. This study created the theory of "Keeping up with the Joneses", where households are willing to take on debt and spend more in order to give the perception that they are just as well off as their neighbors. My theory is that this conspicuous consumption applies to the same extent, if not a greater extent, in China, where there is a culture heavily emphasizing status and prestige. Thus, in order to "keep up with the Wangs," the average Chinese consumer is willing to spend an exorbitant proportion of their income and savings on luxury goods in order to appear just as wealthy and prestigious as their neighbors. This luxury market factor may lead to a net lowering of happiness, particularly in urban areas where the luxury presence leads to reference groups that flaunt their wealth.

II. Hypothesis and Research Methodology

This research will explore whether the presence of the luxury goods market amplifies the effect of income inequality on the level of happiness within a country because of the relative income effects associated with the perception of inequality in wealth. I predict that a greater

luxury goods presence within a country highlights the effects of income inequality, which will lead to a decrease in self-reported happiness levels as individuals within the nation define their happiness based upon their position relative to their peers. This negative effect on happiness is a result of several factors including the concept of conspicuous consumption, a need to keep up with the consumption patterns of neighbors that leads to greater stress and discontentment with one's own status within society. China is a particular area of interest because of the cultural tendency of the Chinese to prefer luxury goods and the display of status.

In order to conduct my analysis, I will first take a cross-sectional look across 82 nations and then use a times series specifically for China to determine the relationship between happiness, income inequality and the presence of a luxury goods market. For the cross-sectional analysis, I will be using a multivariate regression to determine the relationship between happiness, income inequality, and the presence of a luxury goods market. The equation that I will use is the function: $Happiness = \alpha + \beta 1\ (ii) + \beta 2\ (ii)\ (LMF) + \beta 3\ (GDP\ per\ capita)$. GDP per capita will act as a control for the average wealth of each of the nations studied.

In the follow up time series analysis within China, I will use a similar method but a different data set that includes consumer satisfaction as a proxy for happiness and measures the change in satisfaction over a period of time rather than assuming that time is a constant. The function is: $Consumer\ Satisfaction = \alpha + \beta 1\ (ii) + \beta 2\ (LMF) + \beta 3(GDP\ per\ capita) + \beta 4\ (ii)\ (LMF) + \beta 5\ (year)$.

III. Data

I will use the happiness, income inequality, GDP per capita, and luxury consumption data for 82 nations to study the relationship between happiness and the luxury market presence. The following provides a detailed explanation for how the data was compiled and regressed.

Definition of Variables

Dependent Variable: Happiness. In the following analysis, happiness is defined as the level of life satisfaction in a country. The data comes from Veenhoven's past studies on the relationship between happiness and income inequality available on the World Database of Happiness. Veenhoven conducted a series of surveys to gather self-reported happiness data based upon questions such as: "Taking all together, how satisfied or dissatisfied are you with your life-as-a-whole these days?" The information gathered in the survey was based on a scale of 1-6, which was then converted to a scale from 0-10, with 0 indicating unhappiness and 10 indicating the highest level of happiness. Veenhoven's database has the average happiness data from 2000 to 2010 for 119 nations and this data was used as the y variable for my regression analysis. The scarcity of data on happiness levels in nations was a limiting factor in my study. If there was more happiness data on a year over year basis for these nations, I could have looked at the relationship between the variables at one point in time and seen the changes over time in a time series rather than using an average of the happiness over a ten year period, where there are many economic changes that could have effected happiness and confounded my results.

Using consumer satisfaction data in China from 1990 to 2011, I was able to adjust my methodology to test for the effects of luxury market presence specifically within China over a period of time. Due to the lack of happiness data available for China on both a macro and provincial level, consumer satisfaction acts as the best proxy for how happiness in China has changed as a result of increasing luxury presence.[2]

[2] Veenhoven's World Database of Happiness does have happiness survey data for China for the years 1997, 2002, 2004, 2005, 2006, and 2007 but six data points did not yield significant results.

Independent Variable: Income Inequality. The Gini coefficient is one of the most accepted measures of income inequality across nations and is therefore an accurate representation of a nation's exposure to income inequality. In the cross-sectional analysis, I averaged the Gini index numbers of the nations in our sample from 2000 to 2010 to make the number consistent with the happiness data from Veenhoven's work. In the time series analysis of China, I used the Gini coefficient for China from 1990 to 2011.

Independent Variable: Luxury Market Factor. Luxury goods are products that are designed for the affluent and by definition expensive, non-essential goods. As a proxy for the luxury goods market, I used consumer expenditures on jewelry, silverware, watches and clocks, and travel goods to represent luxury goods consumption in a nation. I then took the luxury goods consumption data and found what percentage of total consumer expenditures it is. For the cross-sectional analysis, the expenditures data was collected for each of the nations from 2000 to 2010 and then averaged so that the data can be standardized in the same form as the dependent variable. All values were converted into US dollars based on a year-over-year exchange rate conversion so that I can compare effectively across countries. To simplify the interpretation of the luxury market factor, I created a dummy luxury market variable. I assumed that the first 41 nations (the countries in the lower half of the luxury consumption percentage) had a luxury market presence that was still too nascent to have a significant impact on happiness through the income inequality lens. I assigned this subset a luxury dummy value of 0. I then assigned the second set of 41 nations with the higher percentage of luxury consumption of total consumer expenditures with a luxury dummy value of 1. To create the interaction term, I then took the luxury market dummy factors and multiplied them by the Gini index in the country to find the

effect of luxury market goods through the level of income inequality in the nation. The interaction term represents the final luxury market factor variable used in my study. This data was available for 82 nations, which determined the final sample size of my analysis.

For the time series analysis of China, I simply used the consumer expenditures on jewelry, silverware, watches and clocks, and travel goods from 1990 to 2011 as a proxy for the luxury market presence. I then created an interaction term by multiplying the luxury goods expenditures by the Gini coefficient in the corresponding year.

Control: GDP per capita. There are several other factors that impact happiness beyond income inequality and the presence of a luxury goods market. In order to control for some of these factors, I controlled for the wealth of each nation by looking at the GDP per capita at Purchase Power Parity (PPP) levels. As before, I took the GDP per head at PPP levels from 2000 to 2010 and averaged the numbers together to get an average GDP per capita number to compare across the 82 nations. I used the GDP per head at PPP levels for China from 1990 to 2011 for the time series analysis. There are various other possible controls that can be added but I did not want to dilute the results of my regression by adding too many non-essential variables. Future studies can look into the effect of other country, political, social, environmental or cultural factors to see which factors have a significant causational or correlational effect on happiness. Some examples include corruption levels in a country, availability of rights and freedoms including freedom of speech, level of taxation, and environmental ratings or pollution level.

IV. Empirical Results

Cross-Sectional Analysis

After running a cross-sectional regression on 82 nations, I found that there is a strong relationship between self-reported happiness and GDP per capita, between self-reported happiness and the Gini index of a nation, and a weaker relationship between self-reported happiness and the interaction of the Gini index and the luxury market factor.

Table 1

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4.115503	0.48309	8.5191	9.26E-13
GDP per head	4.7288E-05	6.780E-06	6.9737	8.84E-10
Gini Coefficient	0.040798	0.01110	3.6756	0.000434
Gini and LMF	-0.004497	0.00438	-1.0269	0.307659

As shown in Table 1 above, every unit of change in GDP per head is correlated with a marginal increase of 0.0000473 in self-reported happiness at a t-statistic of 6.97 and every unit of change in the Gini index is correlated with an increase by 0.0408 in self-reported happiness at a t-statistic of 3.675. Both of these results are significant showing that there is a positive relationship between GDP per head and self-reported happiness and between income inequality measured through the Gini coefficient and self-reported happiness. This makes sense because higher levels of wealth in the nation (measured through GDP per head) should correlate positively with happiness, though have a marginal effect. Additionally, the positive relationship between income inequality and happiness is also small, but most likely represents the positive effects of added productivity within a nation due to competitive forces created by income

inequality. Both income inequality and the wealth control are statistically significant with p-values below 0.01. The relationship between self-reported happiness and the interaction of income inequality with a luxury market presence is negative and every unit of increased interaction between the Gini coefficient and the luxury market factor is correlated with a decrease of 0.0045 in self-reported happiness. This relationship has a t-statistics of -1.02686, which means that there is a high probability that the results are not significantly far enough from the mean to interpret. However, since the results are in line with the prediction that there is a negative relationship between luxury market goods and self-reported happiness, further studies may be done to verify the results of this study by testing for the significance of this negative relationship.

Table 2

Regression Statistics	
Multiple R	0.633075
R Square	0.400784
Adjusted R Square	0.377737
Standard Error	0.746019
Observations	82

Looking at the R-squared values, the results of this regression have an R-squared value of 0.4008, which indicates that approximately 40% of the variance in self-reported happiness can be explained by the variables of income inequality, GDP per capita, and the interaction of income inequality with luxury market presence. These results are reasonable given the undisputed fact

that happiness is a complex observation that is affected by a variety of individual, cultural, social, political, and other factors.

Limitations. The lack of abundant, reliable sources for data on happiness and luxury market penetration led to limitations in my study that could have impacted my results. Thus, the study was expanded to a macro level to gather cross-sectional data from several nations as a point of comparison. Even at a cross-national level, the lack of happiness data at one point in time led me to use an average of happiness data from 2000 to 2010 instead of using happiness data for one year. To stay consistent with the happiness data, I used averages from 2000 to 2010 for my independent variables of income inequality, luxury market presence, and GDP per capita as well.

Time Series Analysis

In the time series analysis of consumer satisfaction within China, there is a significant relationship between satisfaction and each of the tested independent variables at a 0.1 p-value. The direction of each of the relationships was more surprising.

Table 3

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	7669.995	3931.2144	1.9510	0.0688
Gini Index	3.128	1.4940	2.0939	0.0526
LMF	0.079	0.0417	1.8872	0.0774
GDP per head	0.009	0.0072	1.2558	0.2272
Gini and LMF	-0.0017	0.00089	-1.9143	0.0736
Year	-3.861	2.0057	-1.9249	0.0722

There is a significant negative relationship between consumer satisfaction and the interaction of the income inequality and luxury market factor variables. For every one unit increase in the interaction term, there is a decrease of 0.0017 in the level of consumer satisfaction within China. This is in line with my hypothesis that the interaction of income inequality and a luxury market presence will lower happiness. The size of the effect is also reasonable given that this luxury market presence should have a relatively small effect on happiness when compared to other economic factors such as income and personal factors such as health.

Interestingly enough, there was a positive relationship between the independent variables of income inequality and the luxury market factor. For every unit increase in income inequality measured by the Gini index, there is a 3.128 increase in consumer satisfaction and for every unit increase in the luxury market, there is a smaller 0.079 increase in consumer satisfaction. The luxury increase can be partially explained by increasing product quality control and a transition away from counterfeit products to actual branded goods that has led to greater consumer satisfaction. The income inequality's effect on happiness is more difficult to explain. While a modest increase can be expected from the results of increased productivity levels, the high number of the coefficient is more difficult to justify and requires further research to fully comprehend. Another explanation could be that because luxury market goods are primarily purchased by the wealthy and perhaps the wealthy make up a larger portion of studies done on consumer satisfaction. Thus, as the economy grew and wealth accumulated at the top, consumer satisfaction increased with income inequality because it is capturing the satisfaction of the wealthiest more so than the least wealthy in the country.

Also surprisingly, each year that passed in time during the period of 1990 to 2011, consumer satisfaction in China actually decreased by 3.861. This could be because of higher consumer expectations for products that created a gap between what is expected and what is currently available in China. While the country is developing rapidly, there are still many structural issues within China's economic system that have not been addressed.

Table 4

Regression Statistics	
Multiple R	0.8049
R Square	0.6478
Adjusted R Square	0.5378
Standard Error	3.8625
Observations	22

The R-squared variable indicates that approximately 65% of the variance in the consumer satisfaction variable can be explained by the independent variables of income inequality, luxury market factor, the interaction of the two variables, the control GDP per head, and the year of comparison. Since I used consumer satisfaction to proxy for overall subjective wellbeing, it makes sense that a higher portion of the variance is explained by the variances tested than in the cross-sectional analysis.

Figure 1

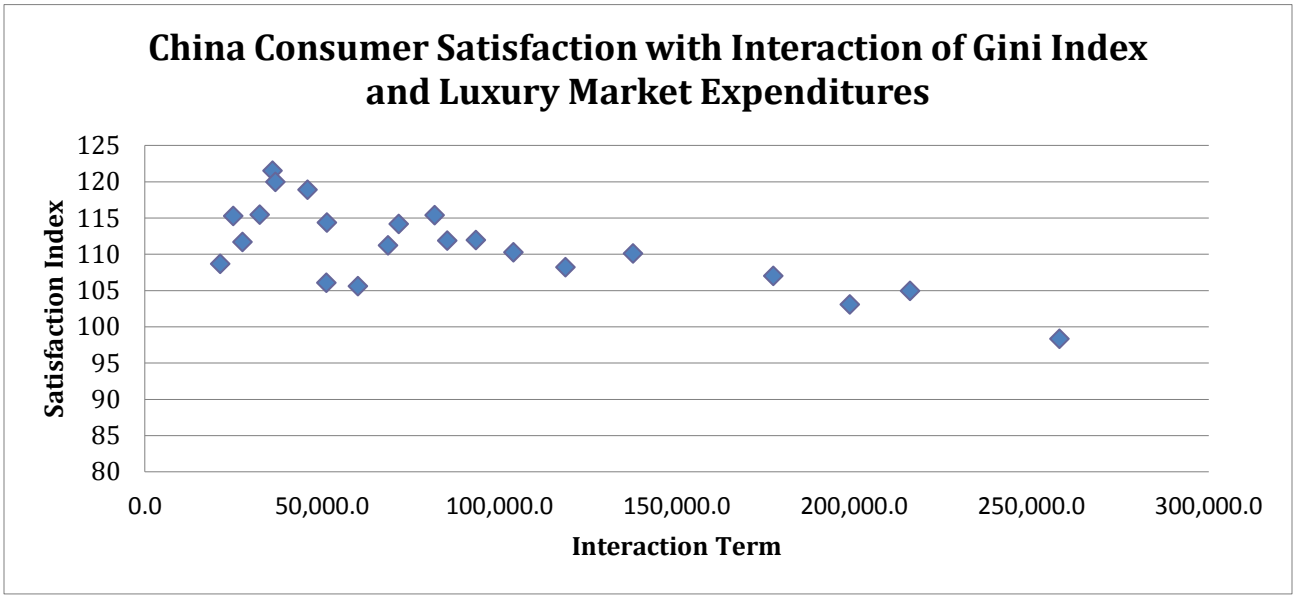


Figure 1 above is a graphical representation of the interaction term to show the small, but nonetheless existent, relationship between satisfaction and a luxury market presence through the lens of income inequality.

Limitations. The study would have been interesting at a provincial level within China but the happiness index initiative began only recently in China and there is a lack of data on the topic, making it difficult to reach that level of granularity. Ideally, once the data becomes available, it would be interesting to see the results on a provincial or city level within China. To conduct the full experiment, I would need to gather survey data from each province or city within China, control for the proximity of respondents to luxury retail outlets, and use the responses to see if there are any correlations between happiness and the presence of luxury goods and if there are other significant factors affecting differences in happiness based upon each respondents' location. Given the lack of provincial data at a specific point in time, my next attempt involved looking at China singularly on a macro level over the last twenty years. I again

ran into the difficulty of gathering data. I tried running a regression on the self-reported happiness data in China from 1997 to 2007, but because of the limited amount of data on happiness, was unable to find significance in my results. Consumer satisfaction acts as a suitable substitute until more data becomes available with time.

Areas for Future Research.

Some interesting areas for future research include testing the universality of the results found and interpreted in the China time series study. We can see if the relationship found here between consumer satisfaction and luxury market penetration applies to countries in China's region, to countries globally, or if it is a unique relationship only relevant in China because of the characteristics of the typical Chinese consumer that are not applicable to other nations. We can also see if the consumer satisfaction results correlate with results from overall happiness data once there is more data available in that area.

As the digital age continues and the Internet becomes a more important media for information about luxury products and an online venue for shopping, will Chinese consumer behavior change and converge to the mean? Information about the value of luxury goods will be more easily accessible and Chinese consumers can shift through this information to compare the prices of goods offered on different websites and through different venues and countries. The question is whether this added knowledge will make Chinese consumers happier or less happy than they are currently with the luxury market presence.

Chinese luxury purchases are being driven by a wider range of factors than in the past, when the purchases were purely made for status. As Chinese consumers become more savvy and less interested in status symbols, will this change the relationship between their aggregate

happiness and luxury goods presence? Will the luxury goods by the same types of goods as they are currently or will we see an opportunity for smaller luxury brands, possibly Chinese-based, to emerge and capture market share from the top 10?

V. Key Takeaways and Conclusion

Our results indicate that there is a negative relationship between happiness and the interaction of income inequality with a luxury market presence. This shows that in countries with higher levels of income inequality, the introduction and expansion of a luxury goods market can lead to lower levels of happiness for the country as a whole as the middle and lower class are able to see visual representations of the wealth of the upper class. This creates higher relative reference groups which can lead to discontentment for individuals who feel less fortunate with their position within society. Given the Chinese desire for prestige and status, the effect of luxury market penetration on happiness in China may be more pronounced than in a country with less emphasis on prestige factors. Future research should study whether the effects of a luxury market presence are stronger in China than in other nations and if so, what is the best approach to policy regarding the expansion of luxury goods consumption. I additionally found some surprising data about the relationship between consumer satisfaction and time and between consumer satisfaction and income inequality over time. Consumer satisfaction in China has decreased dramatically with the passage of time but increased with the increase in income inequality. These effects are most likely unique to China due to the fact that consumer satisfaction may capture more of the opinions of the wealthiest portion of the population, skewing the direction of the regression. Future research on this particular effect is needed to corroborate the results.

Overall, the relationship between happiness and a luxury market presence indicate that governments should have some sort of policy limiting access to luxury goods in areas with high

income inequality to prevent discontentment with one's relative position in society. In countries with lower levels of income inequality, there will be less negative consequences related to a luxury market presence. Looking specifically at China, possible policy implications are to find some sort of redistributive policy through taxes on luxury or on the wealthy to reduce income inequality will help to lower the effect of luxury market presence on unhappiness. Such policies may be difficult to implement due to loopholes in tax policies that the rich are often able to exploit but setting policy in the right direction will help set the tone as the luxury market continues to expand further into China.

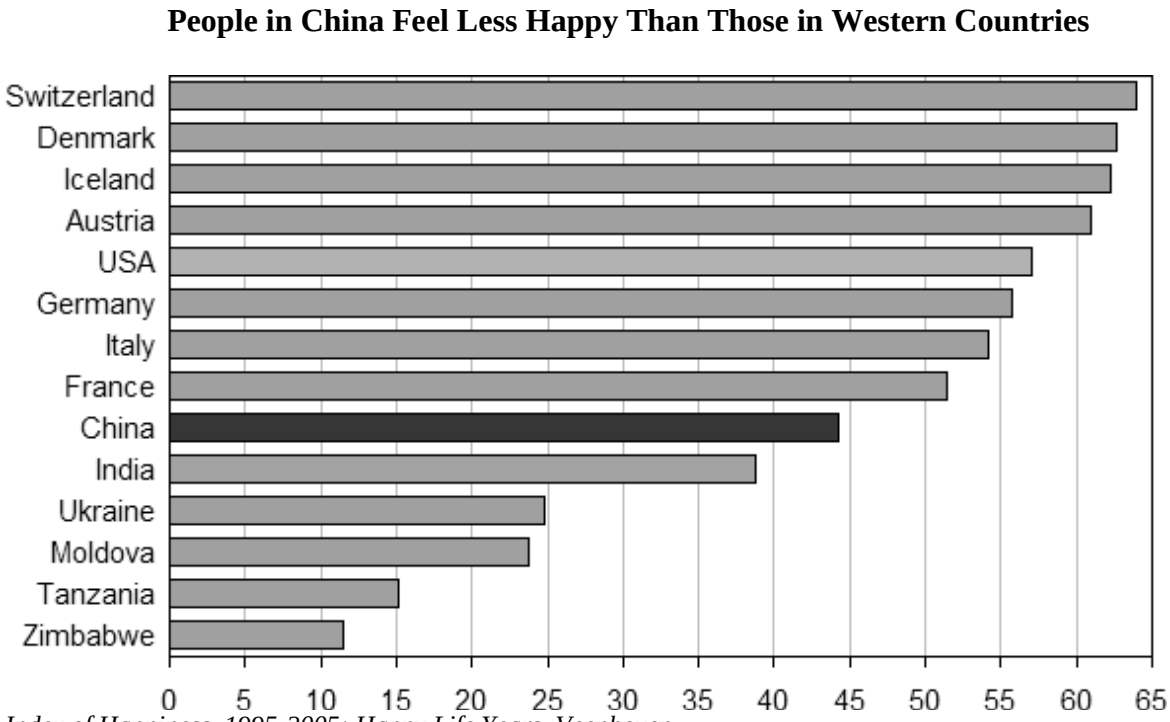
Appendix

Figure 2

S&P's Global Luxury Market Index Jan 2007-April 2012

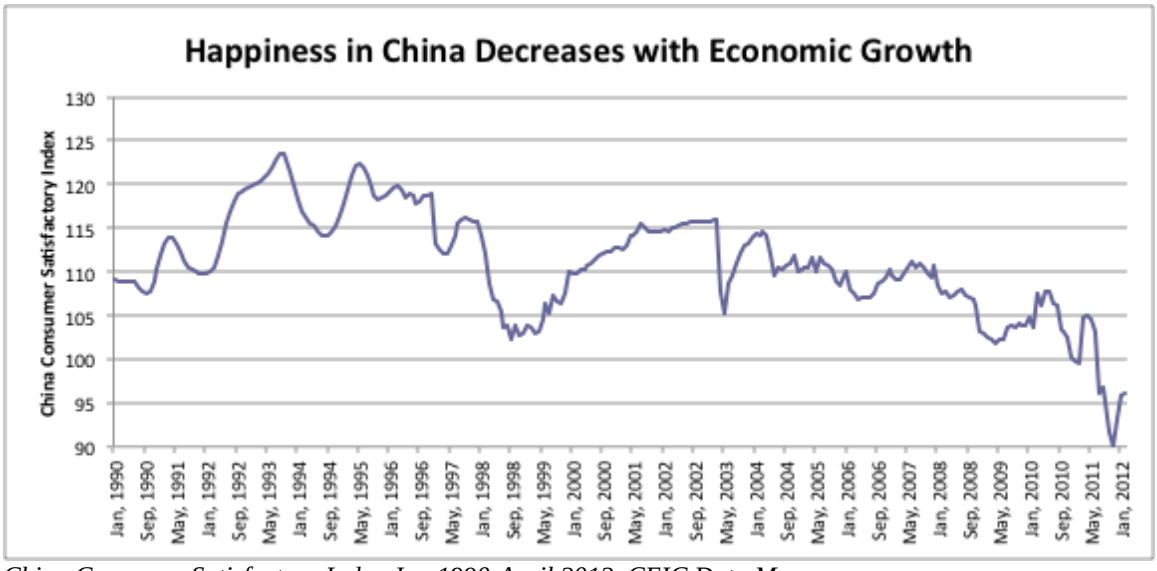
Figure 3

Figure 4



Index of Happiness, 1995-2005: Happy Life Years, Veenhoven

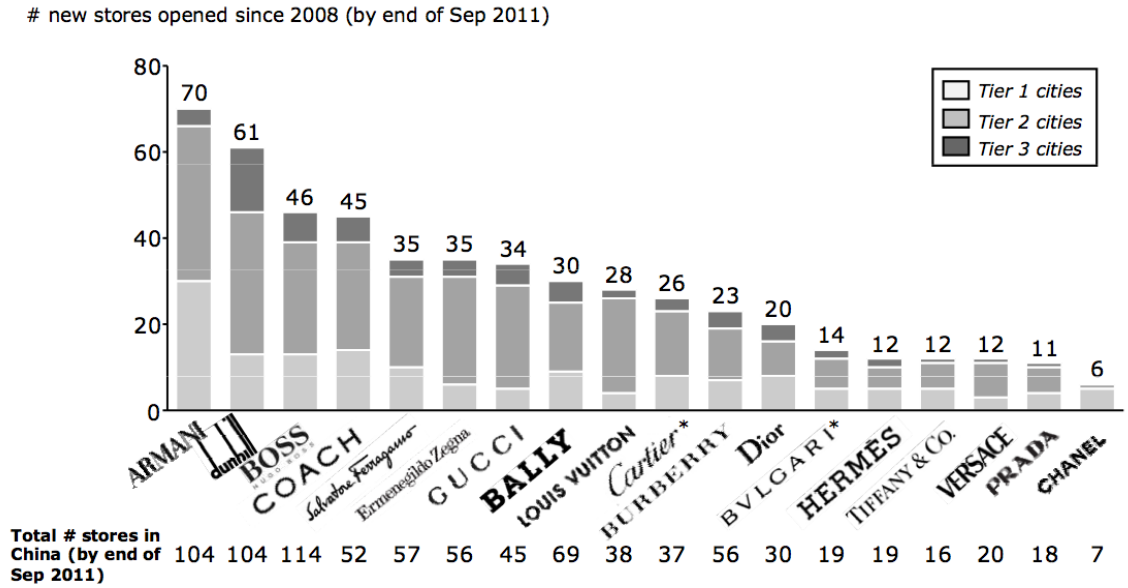
Figure 5



China Consumer Satisfactory Index Jan 1990-April 2012, CEIC Data Manager

Figure 6

Number of New Luxury Stores in China between 2008 and 2011



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