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Don't Worry Be Happy

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Module 9 Assignment: Final Research Proposal - Don't Worry Be Happy

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Abstract

Understanding the influences of happiness allows countries to focus resources on the best happiness contributors. This paper studies the effect of Gross Domestic Product (GDP) and social spending, in terms of education and healthcare, on a population's happiness. Data analysis through linear regression shows that as GDP increases, happiness increases; however this only seems to apply to countries that are developing. Once the GDP hits a threshold, around USD 10,000, it has little effect on the country's happiness. The paper builds upon past research on public happiness in relation to GDP and social expenditure and informing public policies.

Keywords: Happiness, GDP per capita, social spending, education, healthcare

JEL Classification: B55, H5, I3

Introduction

The purpose of the study conducted in this paper is to view if citizens are generally happier in countries with a higher Gross Domestic Product (GDP) or social spending. The paper will closely examine five countries, in particular, to conduct its analysis and ultimately reach the consensus on whether higher GDPs or social spending of a country leads to the greater happiness of the citizens. The five countries we chose for this study are Finland, Denmark, Greece, South Sudan, and Afghanistan. We selected these countries based on the Happiness Index ranking. To ensure an equal, unbiased, and well-rounded analysis, we chose two countries that were ranked high in the happiness index, and two countries ranked low in the index. The fifth country was the one ranked in the middle of the happiness index. This study is important as it sheds more light on the different types of variables that come into play when taking a look at citizens' happiness with regards to GDP and social spending of a country, as compared to other studies which do not go in-depth into the different types of social spending.

In particular, this study differs from other studies as it uses social spending as a key variable but also takes into account the sub-variables that would fall under this category such as the healthcare or education spending by the citizens. This paper will contribute to updating previous studies done on the topic of the happiness of citizens based on the GDP versus the social spending of a country. With this study, we will be able to view if indeed citizens are happier in a country with a higher GDP or social spending. Therefore, with the results obtained from this study, more countries can strive to achieve and work towards an environment in which their citizens are happier.

Literature Review

Does spending more on citizens have a positive effect on their overall happiness? A study conducted by O'Connor (2017) notes that a more generous welfare-state policy is associated with higher life satisfaction. The study conducted and analyzed the relationship between life satisfaction and welfare policies in the 18 most developed OECD countries, with control parameters like unemployment, level of social trust, GDP per capita, and the level of individualism. It seems to concur with other studies of the same nature that seem to come to the same conclusion. Paeck and Radcliff's (2008) analysis concluded that it "clearly and unequivocally confirms the hypothesis that the welfare state contributes to human wellbeing. The policies were measured using public social protection expenditure data from the International Labor Organization. Understanding how public policies can affect the general happiness of the population would lead to more effective budget allocation in countries. However, the role of government in the happiness of citizens is not agreed upon by most people. Ng and Ho (2006) state that public policy should be about enhancing happiness or the welfare of people, now and in the future.

However, a reduced role in government could lead to lower general happiness, as noted by Bjørnskov et al. (2012). They claim that centralizing government decision-making is likely to lead to more intrusive government and lower wellbeing. Duncan (2008) also notes that greater happiness does not correlate strongly with increased wealth, beyond modest levels and this has led to governments to shift priorities away from economic growth and towards social programs. This seems to suggest that happiness would not be a result of higher wages as a result of higher GDP. However, Aravacik (2018) raises the concerns that state interventions would damage

economic and social balances, helped a part of society to have welfare but caused workers who constituted the majority of society to impoverish (Basford, 2019).

The analysis of GDP could lead to some insight as to whether a country's GDP would be able to bring happiness to the population of the country. Frey and Stutzer (2002) claim that income provides happiness at low levels of development but once a threshold (around \$10,000) is reached, the average income level in a country has little effect on average subjective well-being. The study suggests the idea that GDP is a large factor in happiness in developing countries, in contrast to developed countries, where there is a plateau after a threshold is hit. Clark and Claudia. (2011), studied this relationship between developed and developing nations, and came to the conclusion that the relations between GDP per capita and happiness are concave, however, the growth does not converge to zero. These studies point to the fact that GDP does affect happiness, however, after a threshold, it has diminishing returns.

Another view to note is the shift in attention from the use of GDP as an economic welfare indicator, to another metric: GPI, or Genuine Progress Indicator. In a paper by Kubiszewski et al. (2013), it was observed that GDP growth may not be a suitable goal for national policies considering other metrics like GPI could provide a closer approximation of welfare. In fact, a study conducted by Van Den Bergh (2009) notes that in some cases, the trend of steadily increasing GDP was not followed by a similar trend of increasing happiness or welfare. Rather, social welfare was seen to either stagnate or reverse. This can point towards a future shift in policies that may then enhance the happiness of the people in a country without overly focusing on GDP and its growth.

Below we will discuss and analyze the five different countries based on their GDP and social spending. In which, we will cover these variables through the use of the figures and data provided from the Happiness index table and the Social Expenditure Database.

Finland

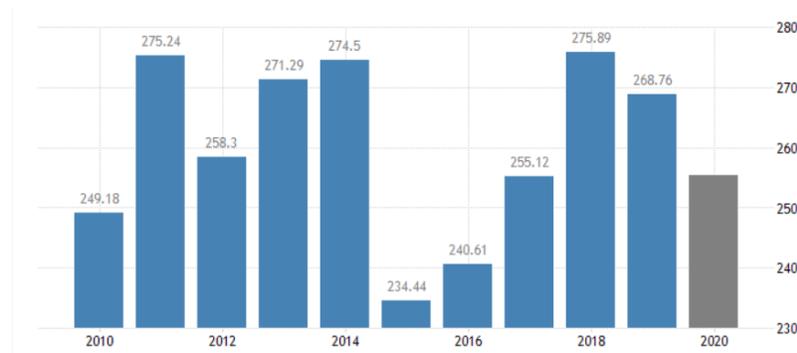


Figure 1. Finland GDP Growth 2010-2020

GDP - Finland's GDP as of the end of 2019 is at USD 268.76 Billion with its GDP per capita at USD 48,805.70 (Trading Economics, n.d.).

Social Spending (Education) - In 2016, Finland spent at least 6.897% of its GDP on education (The World Bank, n.d.).

Social Spending (Healthcare) - Finland spent 9.7% of its GDP on healthcare in 2014 (World Health Organization, 2020).

Happiness Index - According to the World Happiness Index, Finland was ranked first out of the 153 countries surveyed (Helliwell, Huang, Wang, & Norton, 2020).

Denmark



Figure 2. Denmark GDP Growth 2010-2020

GDP - Denmark's GDP as of the end of 2019 is USD 348.08 Billion with its GDP per capita at USD 65,147.40 (Trading Economics, n.d.).

Social Spending (Education) - Denmark's government expenditure on education is 7.635% of its GDP in 2014 (The World Bank, n.d.).

Social Spending (Healthcare) - Denmark spent 10.8% of its GDP on healthcare in 2014 (World Health Organization, 2020).

Happiness Index - According to the World Happiness Index, Denmark was ranked at the 2nd place out of the 153 countries surveyed (Helliwell, Huang, Wang, & Norton, 2020).

Greece

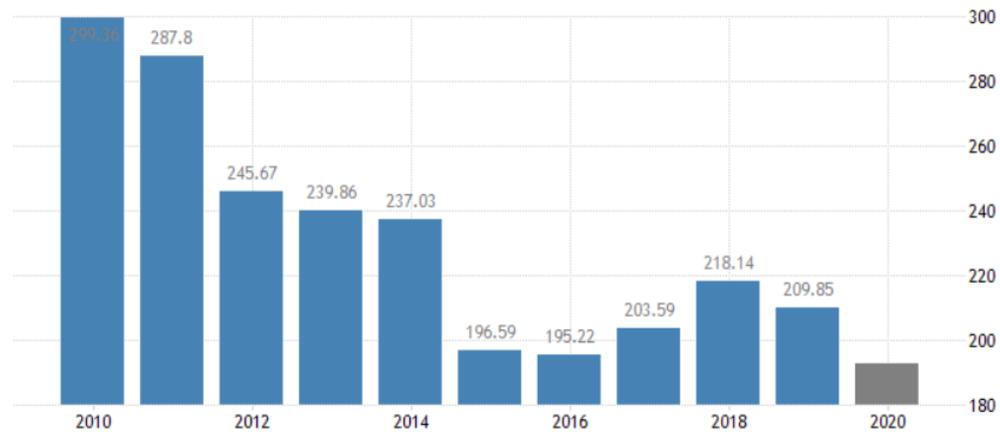


Figure 3. Greece GDP Growth 2010-2020

GDP - Greece's GDP as of the end of 2019 is at USD 209.85 Billion with its GDP per capita at USD 24,024.20 (Trading Economics, n.d.).

Social Spending (Education) - Greece's government expenditure on education is around 3.95% of its GDP in 2005 (Trading Economics, n.d.).

Social Spending (Healthcare) - In 2014, Greece's Healthcare Expenditure was 8.1% of its GDP (World Health Organization, 2020).

Happiness Index - As for Greece, according to the World Happiness Index, it was ranked at the 77th place out of the 153 countries surveyed (Helliwell, Huang, Wang, & Norton, 2020).

South Sudan

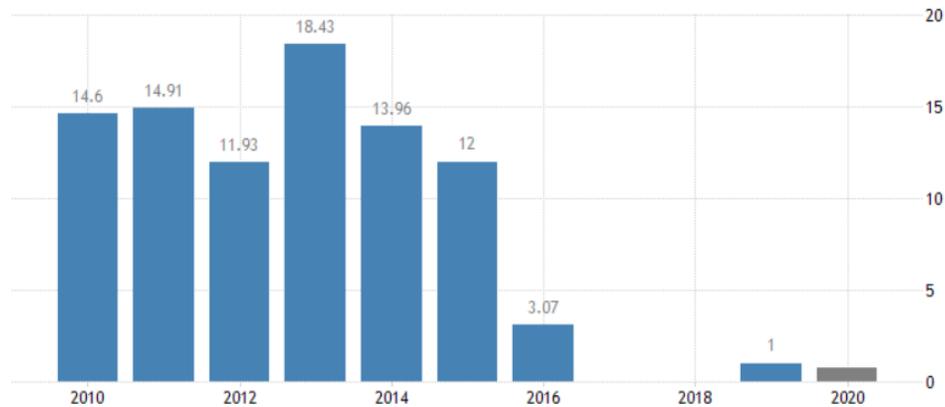


Figure 4. South Sudan GDP Growth 2010-2020

GDP - South Sudan's GDP as of the end of 2019 is at USD 1 Billion (Trading Economics, n.d.).

GDP per capita at USD 265.58 (Plecher, 2020).

Social Spending (Education) - South Sudan's government expenditure on education is 0.981% of its GDP in 2017 (The World Bank, n.d.).

Social Spending (Healthcare) - In 2014, South Sudan's Healthcare Expenditure was 2.70% of its (World Health Organization, 2020).

Happiness Index - As for South Sudan, according to the World Happiness Index, it was ranked at the 152nd place out of the 153 countries surveyed (Helliwell, Huang, Wang, & Norton, 2020).

Afghanistan

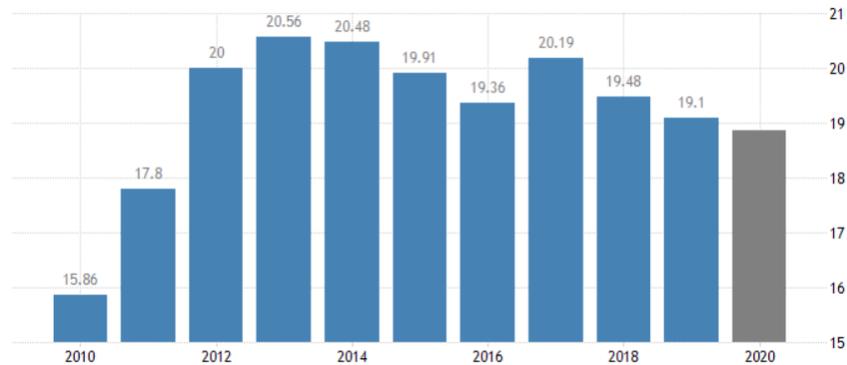


Figure 5. Afghanistan GDP Growth 2010-2020

GDP - Afghanistan's GDP as of the end of 2019 is USD 19.1 Billion with its GDP per capita at USD 571.5 (Trading Economics, n.d.).

Social Spending (Education) - Afghanistan's government expenditure on education is 4.059% of its GDP in 2017 (The World Bank, n.d.).

Social Spending (Healthcare) - In 2014, Afghanistan's Healthcare Expenditure was 8.2% of its GDP (World Health Organization, 2020).

Happiness Index - Lastly, according to the World Happiness Index, Afghanistan was ranked last out of all the 153 countries surveyed (Helliwell, Huang, Wang, & Norton, 2020).

Based on our findings as illustrated above, the five countries that have been analyzed, based on their GDP, social spendings such as education or healthcare spending, and happiness ranking, the following conclusions can be drawn. The countries with a higher happiness index,

generally spent a larger percentage of their GDP on social spending, as compared to the countries that place lower in the GDP seem to have an expenditure.

Finland and Denmark are placed in the top two in terms of happiness with their GDP being higher out of the five countries. We can see that countries that spend more on social spending based on the percentage of their GDP are ranked higher in the happiness index. However, we can see that in both the top and bottom two countries, the country with a higher ranking in the happiness index does not necessarily have higher GDP and/or higher spending of education or healthcare in terms of percentage of GDP. This can be seen with Denmark having higher GDP than Finland and contributing more of its GDP towards education and healthcare but is still lower in happiness ranking. The same case can be found for South Sudan and Afghanistan.

When looking at the expenditure of Greece, countries with a higher GDP seem to have happier citizens. Greece and Afghanistan both spent similar amounts in reference to the percentage of GDP, however, Greece is significantly higher than Afghanistan on the happiness index. Greece also has a higher GDP per capita as compared to Afghanistan. This seems to support Clark and Claudia's (2011) study that concluded that GDP plays a large part in happiness in developing countries. This seems to indicate that a higher GDP with a similar amount of social spending would lead to higher happiness.

Research Question

Are citizens generally happier in countries with a higher GDP or in countries with higher social spending?

Theoretical Framework

To answer the aforementioned question, looking at a country's GDP and how the government of the country makes use of the money afforded to them could give us an insight as to whether the country affects the happiness of the general population. Therefore, the key independent variable in this research will be GDP and social spending, in areas such as healthcare and education. This would give us a greater understanding of what affects the happiness of the general population. A happiness research also tells us that high unemployment and job insecurity cause lower levels of happiness (Frey and Stutzer, 2002). Therefore, unemployment may negatively affect the happiness index, and cause bias when we try to estimate the effects of social spending on happiness, if you exclude it from our analysis. Therefore, to account for the unemployment rate, it is added as a control. The data regarding unemployment rates is available from the Organisation for Economic Co-operation and Development (OECD., 2020).

The existing literature seems to support the idea that social spending increases the happiness of citizens. As seen with Finland and Denmark, these countries spend a higher percentage of their GDP on Social Spending, in terms of Healthcare and Education. Finland, Denmark, and Greece spent 16.597%, 18.435%, 12.05% of their GDP respectively while scoring relatively high on the happiness index and placed first, second, and seventy-seven respectively.

On the other hand, it is noteworthy that Sudan, which spends just over 0.981% of its GDP on education and 2.7% on healthcare, placed higher on the Happiness Index than the last-placed Afghanistan, which spent just over 4% of its GDP on education and 8.2% on healthcare - this is despite the fact that Sudan's GDP is a mere USD 1 billion compared to Afghanistan's USD 19.1

billion. This seems to show that there are still outliers with regards to the correlation between social spending and happiness ranking despite the initial conclusion made from the other countries with higher ranks. Through these findings, we are able to come to the consensus that there is not much of a significant difference in terms of the happiness of citizens based on whether the GDP or social spending of a country is higher.

Hypotheses

In this research paper, the hypothesis is written into two forms, the null hypothesis, and the alternative hypothesis. Based on our research topic, our first Null hypothesis, Ho1, is: there is no significant relationship between high GDP/social spending and citizen happiness". Our second Null Hypothesis, Ho2 is: there is no difference between high Social spending and citizen happiness. The alternative hypothesis, Ha, is: there is a significant difference between high GDP/social spending and citizen happiness.

Research Methodology

Study Design

The paper closely looks into the data that has been collected from the World Happiness Index and GDP of the five counties. In which, the gathered data will be analyzed based on the results that are obtained from the Correlation Coefficient and Linear Regression Analysis method. The methods that have been selected will allow us to determine the strength of how strong or weak the relationship is between multiple variables as well as understanding the relationship between the dependent and independent variables. Each method of analysis used will be covered in great detail throughout the paper below.

Population and Sample

The population that is used in the study will encompass the entire world. The study's sample will focus on five countries in particular. These countries are Finland and Denmark, the two highest ranking countries in terms of happiness; Greece, a middle-ranked country in terms of happiness; and South Sudan and Afghanistan, the two countries with the lowest happiness ranks. This is to ensure there are countries from both end of the spectrum to be included into the research,

Variables and Measures

The study will use social spending as a key variable but also takes into account the sub-variables that would fall under this category such as the healthcare or education spendings by the citizens in a country. The paper will contribute to updating previous studies done on the topic of the happiness of citizens based on the GDP versus the social spending of a country. With this study, we will be able to view if indeed citizens are happier in a country with a higher GDP or social spending. Therefore, with the results obtained from this study, more countries can strive to achieve and work towards an environment in which their citizens are happier. Each of the data on the variables that have been obtained and used in our analysis are in specific units of measurement. As depicted in Figure 1 below, the GDP per capita unit of measurement is in billion USD. Happiness was measured using the positional ranking each country attained on the World Happiness Index, with a higher number indicating a higher happiness level. To facilitate ease of calculations and interpretation of results, the position of each country was deducted from 154 to yield the inverse ranking where a lower number indicates a higher happiness level - for example, the highest ranked country, Finland, had its rank of 153 deducted from 154 to yield 1. The value of 154 was chosen to prevent calculations using zero, i.e. Finland's rank of 153 being

deducted from 153 yields 0, which would cause an error in the linear regression equation. Lastly, as for the unit of measurement for social spending in terms of healthcare and education it is measured in percentage based on each individual country's GDP.

Variable	Description
GDP/Capita	GDP per capita (in billion USD)
HAPPINESS	Ranking / Position
SOCIAL SPENDING (Healthcare)	Percentage of the country's GDP
SOCIAL SPENDING (Education)	Percentage of the country's GDP

Table 1. Variables Unit Measurement Description

Data Collection Methods

The study makes use of the following data: Happiness Rankings, GDP (per capita), social spending in terms of healthcare and education for each of the five countries. This data has already been compiled multiple times, and as such this study will use current data from the different databases. As depicted in Figure 2 below, this is the descriptive statistics that has been formulated based on the data collected for each of our variables. In which, the Happiness Ranking that will be used for the study will be taken from the World Happiness Report that is produced yearly. Helliwell, Layard, Sachs, and De Neve (2020) notes that the annual happiness rankings always interests people and as such understanding how the government governs the country could lead to insight into ensuring happiness in citizens. While the GDP per capita data and graphs are taken from the Trading Economics website, which in turn bases the information only on official sources, i.e. the countries themselves. On the other hand, the values and figures obtained for the social spending in terms of healthcare and education were taken from the World Health Organization (WHO) and the World Bank website respectively.

Descriptive Statistics				
COUNTRIES / VARIABLES	HAPPINESS	GDP/Capita	SOCIAL SPENDING - HEALTHCARE	SOCIAL SPENDING - EDUCATION
FINLAND	153	48,805.70	9.7	6.87
DENMARK	152	65,147.40	10.8	7.635
GREECE	77	24,024.20	8.1	3.95
SOUTH SUDAN	2	265.58	2.7	0.981
AFGHANISTAN	1	571.5	8.2	4.059

Table 2. Formulated Descriptive Statistics

Data Analysis and Preliminary Findings

The quantitative method that we will be using to address our research question as stated above would be the Correlation Coefficient and Linear Regression Analysis method.

Correlation Coefficient

The correlation coefficient shows how strong the relationships between multiple variables are. A correlation coefficient ranges from -1 to 1, where negative values would indicate inverse relationships. The larger the absolute value is, the stronger the relationships are. Figure 3 below shows the result generated for the correlation coefficient based on the descriptive statistics formulated as depicted in Figure 2 above. With that said, based on the results generated we are able to see that there is a negative correlation that can be seen between each variable and happiness. This means if any one variable's unit of measurement goes up by one unit it will result in the decrease or drop of a country's happiness ranking by one. This might be due to the fact that each country examined in this study has a varying population size, in which, countries such as Afghanistan and South Sudan have a population of roughly 38.0 million and 11.1 million citizens in 2019 respectively (Worldometer, 2019). While countries such as Finland and Denmark have populations of 5.5 million and 5.8 million citizens in 2019 respectively (Worldometer, 2019). Carter and Clark (2010) mentions how current security concerns have played a large part in the political instability over the Afghan territory; countries such as Afghanistan have a high political instability within the region. Therefore, with this we are able to see that depending on the size of the country such as Afghanistan, it could affect the correlation coefficient negatively as with a country that has a high political instability it would pose as a potential factor that results in more citizens being genuinely unhappy and with its population size being bigger than the other countries it would account more a big portion of the results. Thus, resulting in a negative correlation coefficient.

Correlation Coefficient				
	<i>HAPPINESS</i>	<i>GDP/Capita</i>	<i>SOCIAL SPENDING - HEALTHCARE</i>	<i>SOCIAL SPENDING - EDUCATION</i>
HAPPINESS	1			
GDP/Capita	0.976221	1		
SOCIAL SPENDING - HEALTHCARE	0.766871	0.777491	1	
SOCIAL SPENDING - EDUCATION	0.889911	0.905281	0.950671	1

Table 3. Generated Correlation Coefficient

Linear Regression Analysis

The graphs depicted below represent our observations on the relationship between the X and Y-axis. In which, the X-axis represents our independent variables which are GDP, Healthcare, and Education while the Y-axis represents our dependent variable which is the happiness of citizens. This will help to show the relationship between the dependent and independent variables, specifically the dependent happiness ranking and the independent GDP and social spending in terms of healthcare and education) variables. With that said, the difference between the observation and the trendline will show us the error term or residual. Each of the graphs will be further elaborated individually below. To find the regression, we use the following equation:

$$y = \alpha + \beta_1 \text{GDP}_1 + \beta_2 \text{Healthcare}_2 + \beta_3 \text{Education}_3 + \varepsilon$$

y = Happiness (dependent variable)

β = Coefficient (measures the size of the impact of the independent variable)

ε = Error

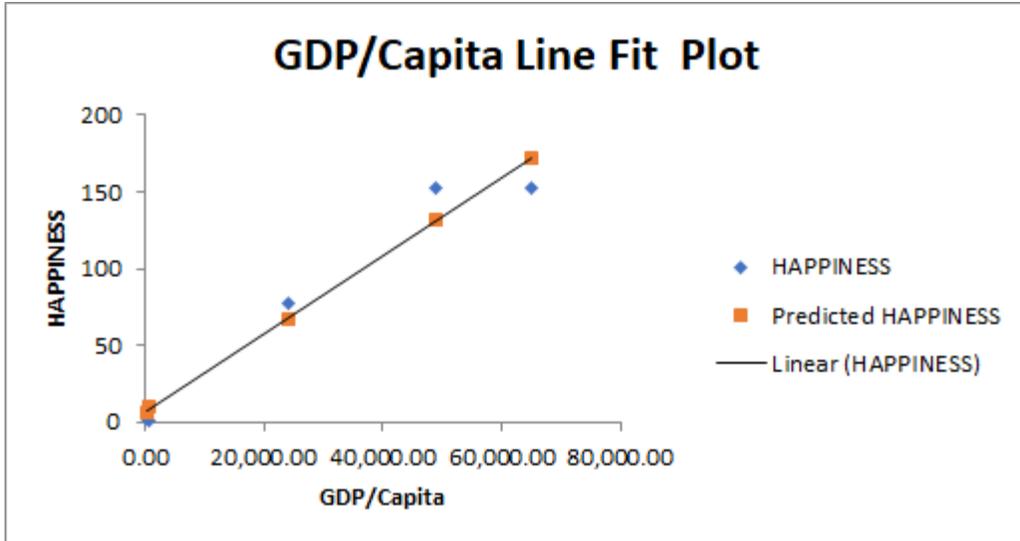


Figure 1. GDP/Capita Line Fit Plot

Based on Figure 4, we can see that out of the five countries, based on their GDP, only two countries have a lower happiness ranking while the other three have a higher happiness ranking when compared to the predicted happiness ranking. This would mean that the three countries might have an inverse correlation coefficient between the GDP and Happiness.

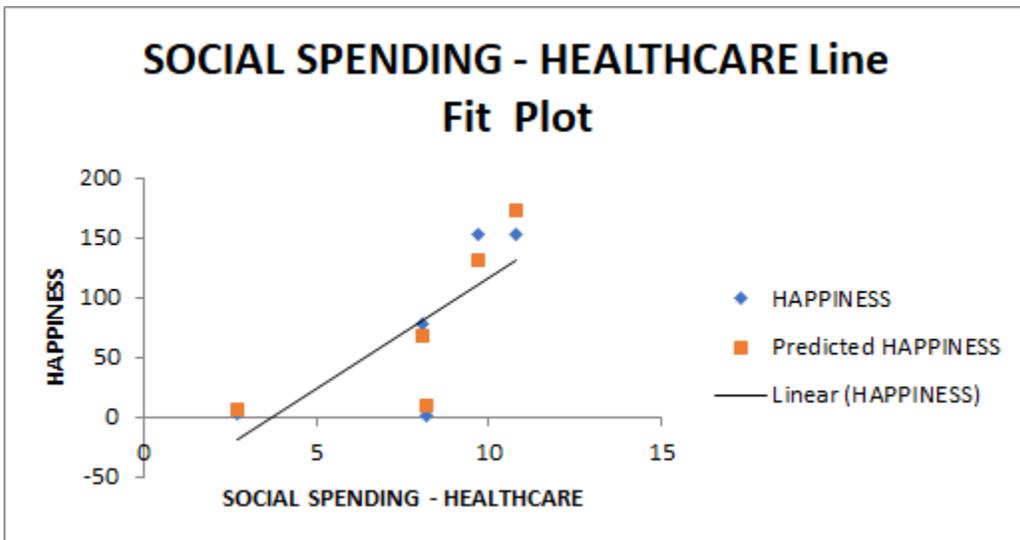


Figure 2. Social Spending - Healthcare Line Fit Plot

Based on Figure 5, out of the five countries, based on their Healthcare spending, only two countries have a lower happiness ranking while the other three have a higher happiness ranking when compared to the predicted happiness ranking. This would mean that the three countries might have an inverse correlation coefficient between Healthcare spending and Happiness.

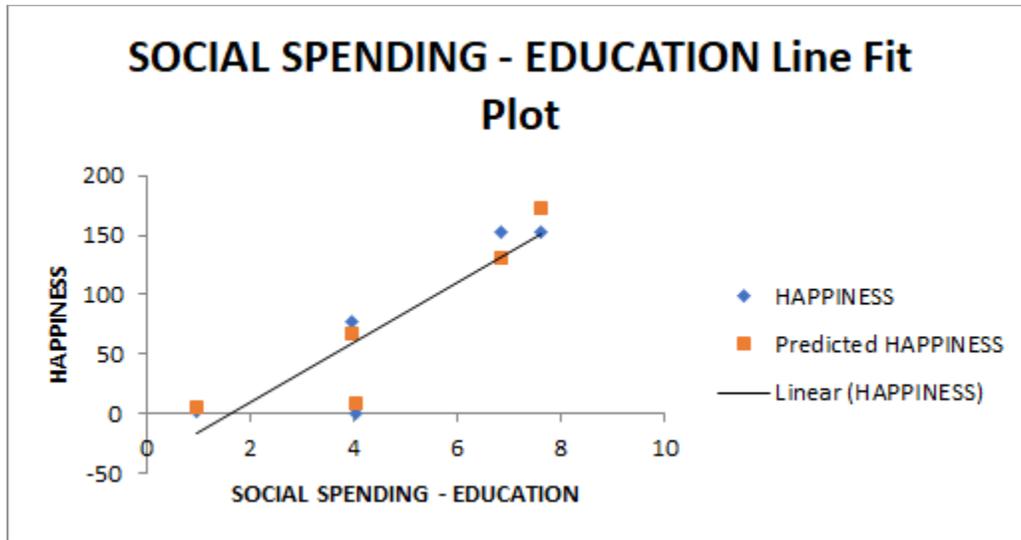


Figure 3. Social Spending - Education Line Fit Plot

With regard to Figure 6, out of the five countries, based on the education spending, it can be seen that there are two countries that have lower happiness ranking while the other three countries have a higher happiness ranking when compared to the predicted happiness ranking. This would mean that the three countries might have an inverse correlation coefficient between Education spending and Happiness.

Conclusion

Understanding the relationship between the happiness of the population, social spending, and the GDP can lead to greater benefits for the economy of the country. Despite the results of the preliminary findings, there exist several limitations that hamper the study. The primary

limitation would be the short period of time given to conduct the research and analysis of data. Thus, the research team is prevented from expanding the scope of the study and including other potentially influential variables in the computations. With more time, the number of countries included in the study could be increased to give a more accurate result; more values over a longer time period could be included in calculations. A secondary limitation data unavailability for certain years. This resulted in the GDP per capita values being taken for one year and the education and healthcare spending from other years. The accuracy and generalisability of the study could be affected as a result, which more recent and extensive data could alleviate. Lastly, the team is limited by the relative inexperience of the research team, which is composed of undergraduate students only, especially when compared to postgraduate researchers.

However, the results of the study can still be taken as a stepping stone for further research that can influence countries to implement public policies that raise their respective populations' happiness levels. If further research shows a strong relationship between social spending and happiness in the populace, it would be worthwhile for the governments in question to increase social spending to improve happiness. In which they can revise current policies to target happiness in the country could in turn improve productivity and therefore, GDP in the long run. However, a negative correlation between social spending and happiness could point towards lower social spending in the countries. Conversely, if GDP shows a strong correlation with happiness, then policies that are implemented will be geared towards improving and strengthening the country's economy.

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