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# Breaking the Seventh Heaven: How Implementation of New Technologies Could Affect the Young Generation in the Happiest Countries

Rompiendo el séptimo cielo: Cómo la aplicación de las nuevas tecnologías puede afectar a la generación joven de los países más felices

## ABSTRACT

Although the presence of information technology in the developing nations has been growing steadily for several decades now there is still a significant gap between these and the developed countries and as some of the areas with lower tech-development have the highest degrees of happiness it is still an unknown how the implementation of new technologies, will affect the degree of happiness perceived in these regions. The present paper explores the insights of Economics of Happiness and its interrelation with technological advances in developing nations, considering that the implementation is most widespread among youngsters within and outside the educational scope. Finally, future lines of research into this matter are suggested.

## KEYWORDS

Technology, Development, Economics of Happiness, Young generation, Use of technology, Information society.

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## 1. Introduction

The international socioeconomic environment has evolved into an information society, nowadays everything is networked using all kind of information technologies and this may have an impact on general population happiness.

The concept of happiness has been defined using different criteria from basic measurements (income as main measurement of happiness) to more complex indexes that combine different elements (usually related to welfare) in addition the perception of the individuals must also be considered.

The Easterlin paradox is key concept in happiness economics, it implies that the relation between income and perceived happiness is a complex question. Given that economists have tried to relate happiness with income, and that information can be considered as different kind of wealth, it seems that a relationship between advanced information technology and happiness is something should be looked into.

## 2. General background - What is 'Being happy'?

The concept of happiness is a highly subjective and difficult term to define, especially since it can mean different things for different people. Delle Fave et al. (2010) carried out an analysis through different surveys of individuals in eastern and western populations in three continents (Africa, Europe and Oceania) and contrasted this information with previous studies in other regions. They concluded that to define happiness there are two perspectives to consider:

- Context: the individual's circumstances, including country, community and individual history.
- Psychological structure and characterization of happiness.

In this context, happiness can be understood as a sense of well-being and satisfaction with the situation that the person is immersed in and his or her development. Furthermore, in determining happiness, interactions with family, friends and significant others outside the family are crucial.

As very basic reasoning, the personal happiness can be related to an individual's income, as through earnings a person can acquire other things that contribute to their life improvement and well-being. For example through a higher income an individual can buy a house for his/her family and live in greater comfort (Easterlin 1999). However, if the income of a given society increases this would not enhance the happiness of that particular member of society.

## 3. Happiness and economics

First studies about happiness took the gross domestic product of a country as the main index to be used but soon the research appeared to be oversimplified and the need to incorporate new variables to measure happiness more accurately emerged.

Easterlin (1974) found out that people with higher incomes reported greater happiness than people with lower ones but increasing the overall income of a region did not produce any increase in reported happiness. Since World War II happiness responses in the USA have remained constant in spite of the fact that the level of income in all social strata has increased significantly. The same has been observed in other countries (France, UK, Germany and Japan) during different periods of time. (Easterlin, 1995; Blanchflower and Oswald, 2004). i.e. In Japan the average income was multiplied by five in the period 1958-1987 while happiness remained stationary.

People are not happier when they are richer, rather happiness is conceived in terms of health, wellbeing

and environment. Furthermore finding a unit to quantify these variables is difficult due the subjectivity of the concept of happiness. The New Economics Foundation (NEF) is an independent think-tank founded in 1986 in London (UK) with the clear intention of improving quality of life whose main concerns are economic, environment and social issues.

In 1990 the Human Development Index (HDI) was published by the United Nations Development Program, this index was composed of statistics regarding life expectancy, education and incomes. Twenty years later a new set of statistics regarding inequality was released and included in the afore mentioned index. In addition, a new index, the Inequality-adjusted Human Development index has been created. The purpose of both lists of countries ranked in the indexes is to help different countries create policies aimed at improving the overall level of wellbeing in their society.

The authors evaluated the results and concluded that economic growth does not correlate with greater happiness. Some possible explanations for this fact are offered such as that happiness scores have no meaning, that happiness means different things for different people, that happiness scores change over time, or that factors such as the environment, health and other variables not related to income play a crucial role. However, there is no strong evidence to support any of these explanations. There is empirical evidence that suggests that happiness adapts to changes in the income level and is based more on relative income than on absolute income.

#### 4. Happiness and social configurations

Additionally, the configuration of society has also been modified, from large families with several children to couples getting divorced, kids being raised by single parents or a grandparent, which also affects the degree of satisfaction that a person has with his or her life. In this sense, Erlstein (1999) had already anticipated that marital status and lifestyle influenced the feeling of happiness that a person had. Furthermore, children were found to be another important aspect within an individual's life that determines either joy or sadness.

Children can be a source of fulfillment and, in eastern and western societies alike, they are considered to provide meaning to a family. In spite of this, if the family does not have sufficient income, struggling to provide enough to satisfy children can be a heavy burden for some people. In this case, having kids and the life-long responsibility of taking care of them can be a source of unhappiness. Consequently, the number of children, also related to the level of income, can condition the degree of wellbeing and satisfaction that a given individual experiences.

In addition, it should be noted that the adoption of technology also varies among different generations. Youngsters are more likely to adapt easily and be willing to learn new technologies, as well as integrating them into their daily lives. This implies that the increasing rate at which technology develops also modifies the adoption of these new tool and how the everyday activities, such as education, work life, personal affair, etc. are shaped towards the implementation and integration of new technologies.

The World Values survey portrayed there was a decreasing marginal utility for income, which showed that earning more money increases happiness by a lower amount (Helliwell, 2001). This means that being wealthy does not directly imply being happy. Karl Marx said: 'A house may be large or small; as long as the surrounding houses are equally small it satisfies all social demands for a dwelling' (quoted in Lipset, 1960, pp. 63). In this sense, it has been proved that well-being and economic development of a country are connected, but happiness of a society relies on far more variables than economic factors.

Certainly economists have handled the outcomes with precaution. In addition there are other variables that must be taken in consideration: social welfare (that depends on politicians). The empirical evidences detect some patterns to be considered in the measurement of the welfare and happiness: social welfare. These patterns deserve to play a mere rol in the evaluation of the macroeconomic tradeoffs or the public policies applied.

Due to the abovementioned, some macroeconomics variables were introduced in the study of happiness (Tella, MacCulloch, Oswald, 2003). The evidence has demonstrated that unemployment is associated with a low feeling of well-being; also being influenced by males, widows, separated, singles, with children and low education. Furthermore, Oswald, 1977 confirms that economic progress contributes in a low percentage to extra happiness, implying that there are other variables of greater importance compared to economic parameters.

## 5. Complexity of evaluating happiness

Early studies have evaluated happiness from the economic perspective related to the utility and its correlation to social welfare (Slesnick, 1998). However, it was questioned whether this would truly portray happiness or wellbeing, because it is such a subjective matter (Thaler, 1992). Based on this, it was established that a multivariable approach was needed to accurately evaluate happiness and wellbeing, because a single element such as utility cannot explain it.

The measurement of happiness evolved into a more complex index with the alignment of sociological and psychological variables. In previous studies about happiness, macroeconomic variables such as inflation and unemployment were added into the model to create an increasingly complex index. However, recent research showed that inequality, and environmental degradation of the context in which people live are also variables that significantly affect the levels of happiness.

Together with the abovementioned variables, it is also important to consider in the index the degree of satisfaction in the work place to inequality, race, gender or marital status. In a recent study, the variable expectation has been introduced to the analysis of happiness (Ahn, Mochón and De Juan, 2007). Through the study of demographic and socio-economic variables and some variables related to expectations (life satisfaction), it was determined that the degree of what an individual expects from his/her life highly determines the happiness perceived.

Complementary to the herein mentioned parameters, it has also been studied the effect that health has over happiness. In general terms, good health generates a positive perspective towards life and a feeling of satisfaction towards it (Borghesi and Vercelli, 2008). Furthermore, age can also influence the level of happiness that a person experiences. The "2U Bend Of Life Hypothesis" determines that when people begin their adulthood, their level of happiness tends to decrease due to pressures at work. However, when a person reaches mid-life crisis, their level of happiness usually rises again, hence the age of a person and the stage of their life also defines the perception that a person has towards his or her degree of wellbeing and life-satisfaction.

## 6. The paradox of choice

Notwithstanding the abovementioned, another factor that has been found to have a correlation with the level of happiness is the degree of development and consumerism of a country. Schwartz (2004) developed the "paradox of choice" which explains that the greater the variety of options people have to satisfy a need, the higher the expectations they will have for each. This in turn generates a greater disappointment, because there were high results hoped for the chosen variable. Consequently, there is a feeling of lack of wellbeing as there were other options available that could have fulfilled the need better.

However, through developed societies the premise is that an increase in the number of options and choices for each individual, it will make each of them happy as they will find exactly what they expect, making the whole society better off. Based on the studies of Schwartz (2004), this does not prove to be true. Through analyzing and empirically testing this premise, he found that people who have a small array of choices tend to be more satisfied with the selected option compared to individuals who have a vast variety of elements to choose from.

The Internet is one of the greatest examples of the paradox of choice. The tool that revolutionized the world during the late 80s and 90s, as it became more and more developed, it can provide information about everything and anything, with the touch of a button in a split second. However, this tool is constructed by everyone and anyone, with knowledge, opinions, and there is no greater body that judges the validity of such an opinion.

Consequently, electronic information and the array of choices (from 200 brands of cereal to 5,000 mutual funds) would technically make consumers highly informed although it can create a high complexity and lack of satisfaction for not selecting the very best option. The influence internet has in its users daily lives is in every aspect, ranging from medical conditions to a pair of shoes. Hence, people tend to rely heavily on the internet, which is a good fact as they can be informed about the widest array of topics yet large sets of options and doubtfulness of the validity of the information can lead to a lower sense of satisfaction and wellbeing.

## 7. Happiness and new technologies for youngsters

Technology is undoubtedly a driver in the growth of the companies among many other benefits. In addition the society has certainly taken advantage of the impact of the use of technology. If we focus this advance in the scope of Internet, the possibilities has been amplified as separated items can be interconnected to each other.

For corporations, adapting to new technologies became so important because it allows them to go beyond borders and gain more possibilities to do business around the world: new industries, new products and services and new markets. Along these lines it is essential to incorporate the use of these new technologies in education, as the students will be the future workforce and need to understand and know how to implement effectively each new tool.

The progress of society has affected economic and business models, varying the roles, relations and missions of the market. In the past, firm's objectives were traditionally to obtain profits, but today the concern has move in the long run. Nevertheless, businesses operating on a global level are more influenced in markets which they operate, from their home countries to other countries where they commercialize. In the last century, some studies revealed that the industry's production process was contributing to the endangerment of the environment, with the natural changes in climates, could significantly compromise the human race. This fact means an important alteration in the traditional relationship between business, social and environmental context.

Technology leads to a composite between physical and virtual elements integrating information. The objective is to have "things" which firmly participate in business information and social processes, interacting and communicating between each other and with the environment. Hence, the importance of integrating technology-use oriented lessons and syllabus is increasingly more important.

Based on the evolution of the understanding in the area of economics of happiness, we herein propose a study of the development and adoption of internet in the happiest and least happy countries to evaluate whether the higher adoption of technologies is correlated to an improved level of wellbeing and satisfaction. This is founded upon the premise of the paradox of choice and the commonly widespread assumptions in eastern and western developed societies that improving technology and adopting more and more automatized elements in our environment contributes to the happiness of individuals. To the best of our knowledge this topic has yet not been sufficiently studied.

## 8. Seven heaven

In July 2006, the Happy Planet Index (HPI) was presented as a complexion of human wellbeing and environmental impact. The innovation was the incorporation of the environment as a measurable variable. The index includes variables that are deemed of high importance for any individual, however they had not been

sufficiently taken into consideration up until now.

The variables incorporated into the happy planet index are as follows:

$$\text{Happy planet index} = \frac{\text{experienced wellbeing} \times \text{life expectancy}}{\text{ecological footprint}}$$

The HPI uses global data based in life expectancy experience wellbeing and ecological footprint, as shown in Figure 1. The index, shows which countries have a higher perception of their own wellbeing and sustainable life.



Figure1. Components of the HPI. Source: Own elaboration based on the HPI composition.

Additionally, it provides an adjustment for those countries where there are high inequalities. This is due to the fact that the literature concluded people who have comparative significantly less resources than other individuals living in their same countries could feel less satisfied because they see co-nationals with better lifestyles. The NEF worked in this index with the aim to identify countries that support wellbeing and contributes to the sustainability of the planet.

The latest data available for this index is from 2012, taking into consideration the information provided by international organizations and each of the country's own governments. Based on this, the HPI provides extensive information for 151 countries around the world, ranking nations which are considered of high, medium and low income according to the HDI and the United Nations' categorization of socio-economic development. Consequently, the HPI shows the degree of happiness exhibited by the individuals who live in that specific nation.

## 9. Breaking the seventh heaven

Based on the herein described evolution of knowledge regarding country's development and economics and the degree of experienced wellbeing and satisfaction of its individuals; together with the disclosed paradox of choice and influence of the internet in people's lives, the present paper states as a premise that high-ranked countries in terms of their happiness would not necessarily have a high degree of internet adoption.

In order to assess the validity of this proposition, data was gathered through the Telecommunication Development Sector database, in which they evaluated the rate of adoption of determined technologies. In their report, they detail the adoption of radio, TV, people who had at least one computer in their household, land phone, internet, mobile phones per individual and computers per individual.

For the purpose of the present study it was deemed interesting to select the variable that showed the rate of internet use in a specific country. This variable shows that countries exhibiting a 100% result for 'internet' have access to the World Wide Web in every single household in the nation. Similarly, those countries with a 0% result in this same variable represent that the families in this nation do not have access to internet.

Regarding data for the HPI it was selected the index resulting after the adjustment for inequalities in socio-economic development between the richest people of a nation and those with lowest level of income. This is due to the fact that previous literature has shown that the comparative nature of income-acquisition plays a key role in determining a person's happiness. Hence, in order to avoid this bias, the HPI adjusted index was considered. Table 1 shows the summarized information for each country in the HPI.

| HPI Adjusted | Ranking | Country        | INTERNET |
|--------------|---------|----------------|----------|
| 48%          | 1       | Costa Rica     | 47%      |
| 46%          | 2       | Vietnam        | 13%      |
| 42%          | 3       | Jamaica        | 19%      |
| 42%          | 4       | Belize         | N/A      |
| 42%          | 5       | Indonesia      | 6%       |
| 42%          | 6       | El Salvador    | 12%      |
| 41%          | 7       | Colombia       | 32%      |
| 41%          | 8       | Bangladesh     | 3%       |
| 40%          | 9       | Panama         | 31%      |
| 40%          | 10      | Cuba           | 1%       |
| 40%          | 11      | Israel         | 70%      |
| 39%          | 12      | Venezuela      | 29%      |
| 39%          | 13      | Nicaragua      | 7%       |
| 38%          | 14      | Thailand       | 18%      |
| 38%          | 15      | Guatemala      | N/A      |
| 37%          | 16      | Philippines    | 10%      |
| 37%          | 17      | Albania        | 14%      |
| 37%          | 18      | Argentina      | 48%      |
| 37%          | 19      | Chile          | 41%      |
| 36%          | 20      | Algeria        | 10%      |
| 36%          | 21      | Pakistan       | N/A      |
| 36%          | 22      | Norway         | 93%      |
| 36%          | 23      | Honduras       | 7%       |
| 35%          | 24      | New Zealand    | 79%      |
| 35%          | 25      | Mexico         | 26%      |
| 35%          | 26      | Jordan         | 35%      |
| 34%          | 27      | Laos           | 3%       |
| 34%          | 28      | Ecuador        | 23%      |
| 34%          | 29      | Peru           | 20%      |
| 34%          | 30      | Switzerland    | 81%      |
| 34%          | 31      | Brazil         | 38%      |
| 34%          | 32      | Palestine      | 30%      |
| 34%          | 33      | Kyrgyzstan     | 4%       |
| 34%          | 34      | India          | 3%       |
| 34%          | 35      | Sri Lanka      | 6%       |
| 33%          | 36      | Moldova        | 53%      |
| 33%          | 37      | Guyana         | N/A      |
| 33%          | 38      | Iraq           | 9%       |
| 32%          | 39      | United Kingdom | 83%      |
| 32%          | 40      | Morocco        | 39%      |
| 31%          | 41      | Tajikistan     | N/A      |
| 31%          | 42      | Austria        | 79%      |
| 31%          | 43      | Germany        | 85%      |
| 31%          | 44      | Tunisia        | 11%      |
| 31%          | 45      | Sweden         | 92%      |
| 31%          | 46      | Madagascar     | 1%       |
| 31%          | 47      | France         | 80%      |
| 30%          | 48      | Japan          | 86%      |
| 30%          | 49      | Turkey         | 47%      |
| 30%          | 50      | Nepal          | 3%       |

|     |     |                   |     |
|-----|-----|-------------------|-----|
| 30% | 50  | Nepal             | 3%  |
| 30% | 51  | Italy             | 63% |
| 29% | 52  | Saudi Arabia      | 54% |
| 29% | 53  | Cyprus            | 62% |
| 28% | 54  | American Repul    | 10% |
| 28% | 55  | Netherlands       | 94% |
| 28% | 56  | Uzbekistan        | N/A |
| 28% | 57  | Georgia           | 27% |
| 28% | 58  | Canada            | 81% |
| 28% | 59  | Finland           | 87% |
| 28% | 60  | Korea             | 97% |
| 28% | 61  | Paraguay          | 25% |
| 27% | 62  | Spain             | 68% |
| 27% | 63  | Myanmar           | N/A |
| 27% | 64  | Syria             | 35% |
| 27% | 65  | China             | 24% |
| 27% | 66  | Armenia           | 22% |
| 27% | 67  | Ireland           | 81% |
| 27% | 68  | Poland            | 70% |
| 26% | 70  | Malaysia          | 65% |
| 26% | 71  | Malta             | 77% |
| 26% | 72  | Haiti             | N/A |
| 26% | 73  | Bolivia           | 7%  |
| 25% | 74  | Singapore         | 85% |
| 25% | 75  | Slovakia          | 77% |
| 25% | 76  | Lebanon           | 62% |
| 25% | 77  | Israel and Hezreg | 23% |
| 25% | 78  | Croatia           | 66% |
| 25% | 79  | Malawi            | 6%  |
| 25% | 80  | Iceland           | 95% |
| 25% | 81  | Yemen             | 3%  |
| 24% | 82  | Serbia            | 40% |
| 24% | 83  | Czech Republic    | 71% |
| 24% | 84  | Romania           | 54% |
| 24% | 85  | Slovenia          | 74% |
| 24% | 86  | Namibia           | 10% |
| 24% | 87  | Cambodia          | 0%  |
| 24% | 88  | Libya             | N/A |
| 23% | 89  | Greece            | 54% |
| 23% | 90  | Belarus           | 48% |
| 23% | 91  | Zambia            | 2%  |
| 23% | 92  | Ukraine           | 36% |
| 23% | 93  | Denmark           | 92% |
| 23% | 94  | Uruguay           | 48% |
| 23% | 95  | Kenya             | 3%  |
| 23% | 96  | Belgium           | 78% |
| 23% | 97  | Zimbabwe          | 5%  |
| 23% | 98  | Ghana             | 11% |
| 22% | 99  | Iran              | 25% |
| 22% | 100 | Mozambique        | N/A |

|     |     |                          |     |
|-----|-----|--------------------------|-----|
| 22% | 101 | Azerbaijan               | 47% |
| 22% | 102 | Hong Kong                | 78% |
| 22% | 103 | Ethiopia                 | N/A |
| 22% | 104 | United States of America | 72% |
| 22% | 105 | Portugal                 | 61% |
| 22% | 106 | Hungary                  | 69% |
| 22% | 107 | Egypt                    | 32% |
| 22% | 108 | Turkmenistan             | 4%  |
| 21% | 109 | Mauritius                | 39% |
| 21% | 110 | Rwanda                   | 0%  |
| 21% | 111 | Cote d'Ivoire            | 1%  |
| 20% | 112 | Afghanistan              | N/A |
| 20% | 113 | Estonia                  | 75% |
| 20% | 114 | Russia                   | 46% |
| 20% | 115 | Comoros                  | 2%  |
| 20% | 116 | Sudan                    | 29% |
| 20% | 117 | Kazakhstan               | 49% |
| 20% | 118 | Latvia                   | 69% |
| 20% | 119 | Lithuania                | 62% |
| 19% | 120 | Djibouti                 | 2%  |
| 19% | 121 | Saudi Arab Emirates      | 72% |
| 19% | 122 | Liberia                  | N/A |
| 18% | 123 | Bulgaria                 | 51% |
| 18% | 124 | Congo                    | 1%  |
| 18% | 125 | Cameroon                 | 2%  |
| 17% | 126 | Senegal                  | 5%  |
| 17% | 127 | Angola                   | 6%  |
| 17% | 128 | Luxembourg               | 93% |
| 17% | 129 | Nigeria                  | 6%  |
| 16% | 130 | Yemen and Tobago         | 21% |
| 16% | 131 | Burundi                  | 0%  |
| 16% | 132 | Uganda                   | N/A |
| 16% | 133 | Burkina Faso             | 2%  |
| 16% | 134 | Kuwait                   | 58% |
| 16% | 135 | Mauritania               | 1%  |
| 16% | 136 | Central African Rep.     | 1%  |
| 15% | 137 | South Africa             | 23% |
| 15% | 138 | Tanzania                 | 0%  |
| 15% | 139 | Benin                    | 1%  |
| 14% | 140 | Sierra Leone             | N/A |
| 14% | 141 | Guinea                   | 1%  |
| 13% | 142 | Bahrain                  | 79% |
| 13% | 143 | Macedonia                | 46% |
| 13% | 144 | Qatar                    | 88% |
| 13% | 145 | Togo                     | 1%  |
| 13% | 146 | Mongolia                 | 14% |
| 12% | 147 | Central African Rep.     | N/A |
| 12% | 148 | Niger                    | 0%  |
| 11% | 149 | Mali                     | 2%  |
| 11% | 150 | Botswana                 | 2%  |
| 10% | 151 | Chad                     | 0%  |

Table 1. HPI vs. Internet use. Source: Own elaboration based on the HPI (2012) and ITU World Telecommunication/ICT Indicators Database (2013).

## 10. Discussion and conclusions

The results from the analysis show that the countries exhibiting a high HPI do not have an adoption of internet greater than 50% of the population. However, comparing the top 10 happiest countries with the top 10 least-happy, it was shown that there is no correlation between being happy and adoption of internet, as shown in Figure 2, which are neither positive nor negative.

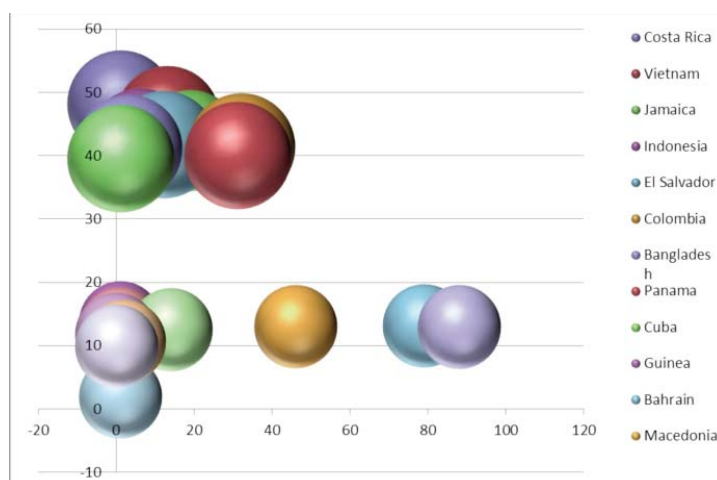


Figure 2. HPI/Internet adoption of top 10 happiest countries vs. top 10 least-happy countries. Source: Own elaboration.

It should be noted that the countries that have been placed among the top rank in terms of their degree of happiness, as well as the 10 countries situated at the bottom of the HPI, have a demographic constitution in which the number of youngsters (ages 0-14 and 15-29) superseeds significantly the number of adults or elderly. Hence, the degree of population which would be more likely to adopt new technologies and integrate them into their lives is roughly the same in the case of the happiest and least happy countries.

Based on the above fact, the differences evidenced in the adoption of internet relies on the economic wealth of each country, not on the type of population. However, up to date, the figures do not provide concluding evidence that can link the degree of happiness experienced with the implementation of technology.

Additionally, when analyzing the countries from the OECD which are considered to be the 'happiest' according to a study (OECD, 2013) carried out by this organization amongst the highest socio-economic developed countries in the world, it turns out that they all have a high degree of internet adoption among the population. However, the degree of happiness exhibited varies greatly, as shown in Figure 3.

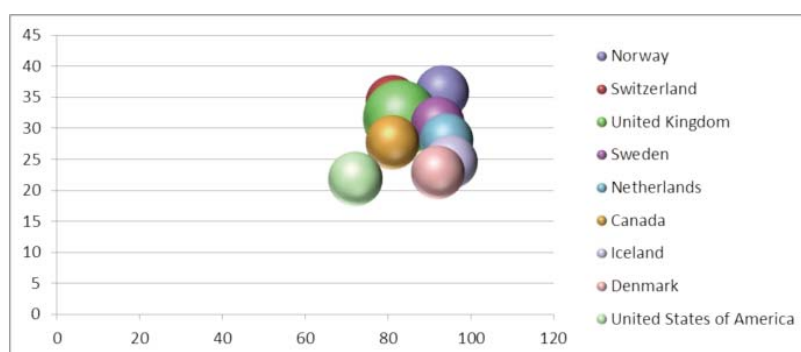


Figure 3. HPI vs. Internet of 'happiest' OECD countries. Source: Own elaboration.

In summary the absence of proof is not proof of absence; the no correlation between use of technology and happiness does not mean there is not one. The penetration of technologies in underdeveloped countries is fairly recent. In addition, considering the population distribution in the areas herein studied, it would be interesting to assess, once implementation of internet-related technologies is more widespread, how the introduction in the education sector affects, on the one hand the perception of happiness in younger generations and on the other hand the overall use of internet.

It is expected that, considering the easiness in adaptability of youngsters, when a country with young population increases its degree of technology-related implementations, their degree of happiness should be positively affected, since they have been involved with these tools since their first memories. However, in those areas where population tends to be of an adult composition, considering their innate aversion to change, the results should demonstrate that a higher implementation of technology (in any area) does not result in a higher HPI for that nation. Finally, it should be interesting to research how further this introduction of this technology will affect both welfare indexes and happiness perception.

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