

Why Nordic countries are happy?

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ABSTRACT

The happiness index is a measure of national happiness. The happiness scores and rankings use data from the Gallup World Poll. They play a measure to a certain extent, and it contains seven factors. In addition, what is happiness related to? I am trying to create a story with a visual data to answer these questions.

Keywords

Happiness index, visual data

1.Introduction

There are more than 200 countries and regions in the world, and the happiness index of people of different countries is different. What is happiness related to? This article describes the process of building a data story. Start by building ideas and asking questions. Then look for the data through the questions asked. Under the right, effective visualization is the key to supporting the story. The text involves four kinds of visualizations and also answered some corresponding questions. Maps, tables, bar charts, bubble charts. They have different methods of use and advantages and disadvantages. These visualization methods make it easier for readers to understand data and stories.

2.Idea and datasets

2.1.Idea

It is not easy to get happiness, and even giving it a clear definition is difficult. There are more than 200 countries and regions in the world, and the happiness index of people of different countries is different. The United Nations has published a happiness report every year since 2012. This report will not only assess the personal well-being of people in different regions, but also rank the regions from the overall welfare of the country. These indicators include personal measures such as health, income, and integrity, as well as social factors such as employment, GDP per capita, longevity, and government integrity. Through news and reports, we can always hear the names of some happy countries, such as Norway, Finland, Canada, etc. Why are some countries happy and some countries are not happy? What are the factors that affect happiness?

2.2.Datasets

In order to solve the related problems raised, I collected some data. The happiness scores and rankings use data from the Gallup World Poll. The scores are based on answers to the main life evaluation question asked in the poll. This question, known as the Cantril ladder, asks respondents to Think of a ladder with the best possible life for them being a 10 and the worst possible life being a 0 and to rate their own current lives on that scale. The scores are from nationally representative samples for the years 2013-2016 and use the Gallup Weights to make the estimates representative.

The columns following the happiness score estimate the extent to which each of the six factors - economic production, social support, life expectancy, freedom, absence of corruption, and generosity – contribute to making life evaluations higher in each country Than they are in Dystopia, a hypothetical country that has values equal to the world's lowest national averages for each of the six factors.

In addition, I am trying to study the relationship between other factors and happiness, such as immigration, religion and geography. These data are available on the open source website. In the end, I got two data sets, the Global Happiness Report dataset, and the global religious distribution dataset, which includes the proportion of different religions in all countries. Data on immigration are obtained from relevant research reports. Data cleansing and selection will be based on the analysis below.

3.Global happiness index

Through the analysis of the global happiness report, we found that the happiness index of the Nordic countries is high, and Denmark, Iceland, Switzerland and Finland are also at the forefront of the list. And their scores on care, freedom, generosity, and health, income, and management are close, and the changes are small enough. The other top ten countries are the Netherlands, Canada, New Zealand, Australia and Sweden. The countries with the most developed economies are not ideally ranked. Germany ranks 17th, and the UK and France rank 19th and 32nd respectively. Japan and China are only ranked 51 and 79. The most unfortunate countries in the world are mostly in sub-Saharan Africa. Developed regions also have less happy countries. For example, the most unfortunate country in Europe is Ukraine (133), and the most unfortunate EU member state is Bulgaria (106). Greece's happiness index is also very low, and its ranking is 88.

3.1.Key Data

Table 1 Happiness index rank

State	Rank	Score
Norway	1	7.537
Denmark	2	7.522
Iceland	3	7.504
Switzerland	4	7.494
Finland	5	7.469
US	14	6.993
UK	19	6.714
Japan	51	5.920
China	79	5.273

3.2.Visualization

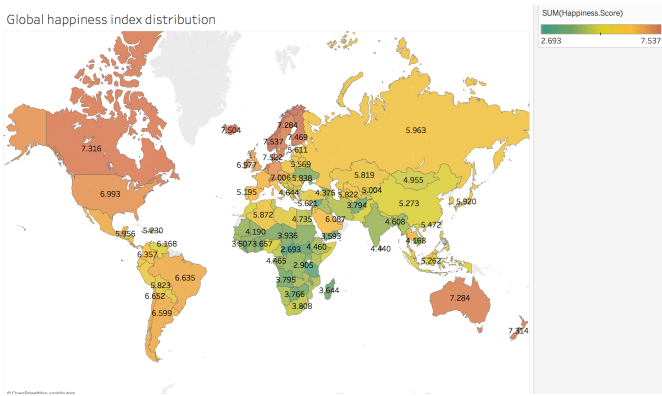


Figure1. Global happiness index

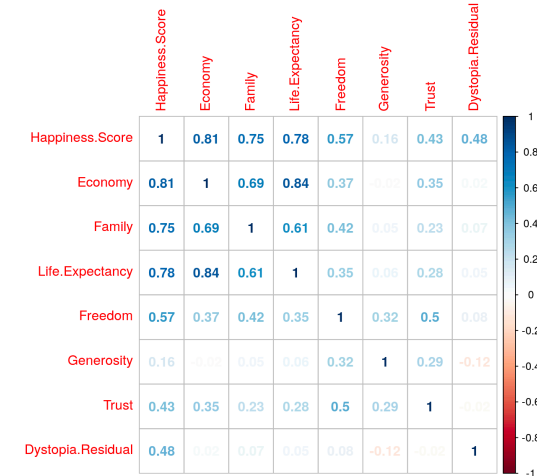
For the visualization of the global happiness index distribution, first of all, I hope that users can have a quick understanding of the data, while providing the reader with the highest level of active participation, allowing viewers to freely watch the story and interact with the story. Large areas of presentation make information easier to absorb. In my visualization, the application of dynamic maps makes the user more flexible in browsing. The progressiveness of different colors represents the level of scores, the cool tone corresponds to a low happiness index, and the warm tone represents a high happiness index. The different countries selected will show the specific score for each factor.

3.3.Limitation

The display of the map is dominated by images, and the visual representation of the data is less. In the static case, the reader cannot know the exact data. At this time, only interactive technology can be used to solve it. At the same time, for readers who are not familiar with geography, it takes more time to find the location of a certain country.

4.Economy and longevity and happiness

Through the World Happiness Report, I tried to analyze the correlation between various factors and happiness scores. After analysis, according to the above circumstances, the economy, life



expectancy and family play the most important role in promoting happiness. Trust and generosity have the least impact on happiness scores.

4.1.Key Data

We look at the economic level of the Nordic countries from the perspective of per capita GDP. According to statistics, the best economic development among the five Nordic countries is Norway. The per capita GDP of the employed population in the country has reached US\$125,000. In the past three years, it has been much higher than Switzerland, Denmark, Finland and Iceland. However, the ranking of happiness index corresponding to the same time period is different. The Finnish happiness index ranked fourth in the five countries with the highest per capita GDP, but its per capita GDP is only 70% of Norway. It can be seen that these countries are among the highest in the world in terms of per capita GDP. The economy is of course an important factor affecting happiness, but the happiness index is not completely positively correlated with per capita GDP. Similarly, these countries have the highest per capita life expectancy in the world, and life expectancy is an important factor affecting happiness.

4.2.Visualization

In this visualization, I hope that readers can quickly compare different kinds of data. In the same limited space, the happiness scores of different countries, per capita GDP and life expectancy should occur simultaneously. Because my data story focuses on the Nordic countries, tables are space-saving in relatively limited data. In the table, the user can find exactly what information is needed.

Table 2 Comparison of social data in Nordic countries

State	Happine ss Score	GDP per capita \$	life expecta ncy
Norway	7.537(1)	125,427.00	81.8(15)
Denmark	7.522(2)	95,468.00	80.6(27)
Iceland	7.504(3)	83,375.00	82.7(6)
Switzerla nd	7.494(4)	102,077.00	83.4(2)
Finland	7.469(5)	89,440.00	81.1(21)

4.3.Limitation

The table only shows a lot of data, but the data is only represented by values, and it is difficult for users to compare values that are very different. At the same time, monotonous data display will make readers feel boring.

5. Immigration and happiness

According to the UN survey, the number of immigrants in 2015 was 244 million, accounting for 3.3% of the global population, that is, 3 out of 100 people were foreign immigrants. Some experts have suggested that the relationship between the floating population and the receiving country is getting closer. The acceptance of immigrants in a country has a significant impact on the happiness of foreign settlers and former residents. The happiness of immigrants in a country and the happiness of the country. There is a positive correlation. In other words, the better the foreign population in a country, the higher the overall happiness index of the country. In the 2016-2017 Migrant Acceptance Index (MAI) published by the Gallup poll, attempts were made to find a relationship between acceptance and life satisfaction in 140 countries. Each respondent will be asked three questions: 1. Immigrants living in their country, 2. Immigrants become their neighbors, 3. Immigrants become their families. Respondents need to use scores to express their feelings: 9 points highest representative: good things; 5 points: bad or bad; 1 point means: bad things.

5.1. Key Data

In this survey, the three most accepted immigrants are Iceland, New Zealand and Rwanda. The World Migrants Acceptance Index has an average score of 5.29. 77 countries score higher than this average, while 61 countries score lower. Most people around the world (54%) say it is a good thing for immigrants to live in their country. Among the countries with the highest acceptability, it is also the country with the highest happiness. They include the Nordic countries, Iceland 1, Sweden 7, and New Zealand and Australia are among the happiest countries on the list. So the data verify that the happiness of a country's immigrants is positively correlated with the country's happiness performance.

Table 3 World immigration acceptance

State	Accepting Score	Rank
Iceland	8.26	1
New Zealand	8.25	2
Rwanda	8.16	3
Sierra Leone	8.05	4
Mali	8.03	5
World	5.29	
Slovakia	1.83	134
Serbia	1.80	135
Hungary	1.69	136
Montenegro	1.63	137
Macedonia	1.47	137

5.2. Visualization

For the visualization of immigration situations, I hope that readers will be able to get a quick score and a comparison with the world average. The bar chart is based on the length of the bar to represent the number of sizes, which is convenient for comparison. The X-axis and Y-axis values clearly indicate the type of data.

Most and Least-Accepting Countries for Migrants

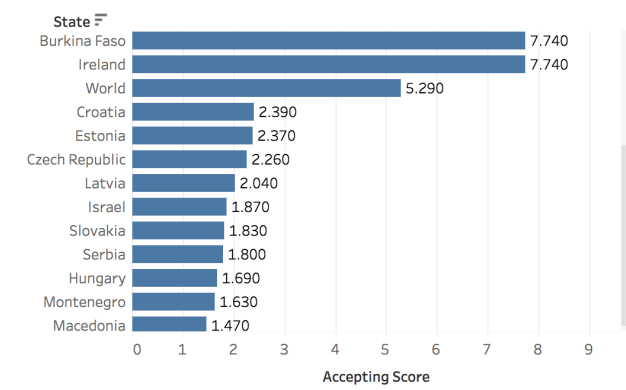


Figure3. Most and Least-Accepting Countries for Migrants

5.3. Limitation

When there are too many dimensions to compare, the histogram is not enough. Data distribution is critical to the interpretation of results, and histograms have some limitations in displaying data distribution.

6. Religion and happiness

Decades of sociology and psychology have found that religion and happiness are indeed inextricably linked. People who believe in religion will feel happier, healthier, longevity, less likely to commit suicide, and less likely to suffer from depression. In addition to more psychological and health problems, non-religious people are considered to be more immoral and less trusted. However, although the connection between religion and happiness is well-documented, it is interesting to note that according to Gallup's survey, the world's happiest countries – Denmark, Norway, Sweden and the Netherlands – are also the most secularized in the world. s country. In the Nordic region, known for its welfare system, happiness does not seem to require the power of religion.

6.1. Key Data

After statistics, the religious rate in the Nordic countries is low. For example, Finland and Sweden, their non-religious people are 13.5% and 20% respectively. The religious rate in Libya and Central Africa in Africa is almost 100%. These data do confirm the conclusion that the more secularized countries are happier.

Table 4 National religious rate

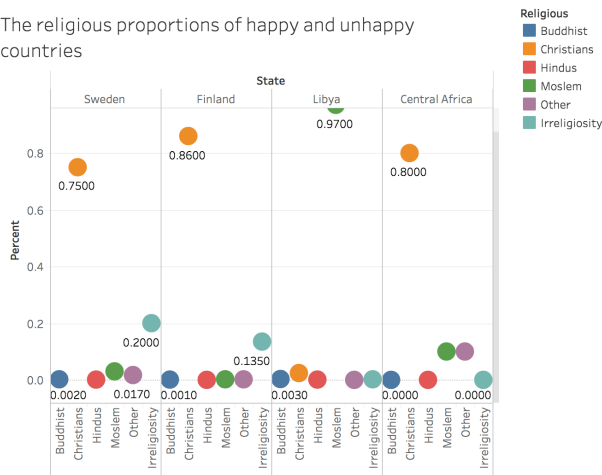
State	chris tians	Mosl em	budd hist	hindu s	other	irreli giosit y
Finla nd	86%	0.2%	0.1%	0.01%	0.19%	13.5%
Swed en	75%	3%	0.2%	0.1%	1.7%	20%
Libya	2.4%	97%	0.3%	0.1%	0	0.2%
Centr al Afric a	80%	10%	0	0	10%	0

6.2. Visualization

Figure4. The religious proportions of happy and unhappy countries

I hope that readers can quickly understand the proportion of religions in various countries. The same religion is represented by the same color. In the coordinate axis, the position of the bubble easily shows the level of the distribution, and it is easy to compare the bubbles of the same color. Bubbles in the axes are much cleaner than the histograms, making it easy to find distribution.

The religious proportions of happy and unhappy countries



6.3. Limitation

The information displayed by the bubble is limited, the bubble must be represented by the data display to reflect the value, and the auxiliary line must be used in the coordinate axis. In this visualization, the size of the value is not reflected by the size of the bubble.

7. Geography and happiness

From the global happiness index distribution, a law closely related to geography is shown: the farther away from the equator, the easier it is for people to feel happy. For example, in the “most unhappy” 10 countries, in addition to the war-torn Afghanistan and Syria, the other eight are sub-Saharan African countries. In

the happy country, in addition to the Nordic countries, Canada, Australia and New Zealand, the same latitude is also high. John Helliwell, a scholar at the Canadian Institute of Advanced Studies, said that in cold weather people must rely on each other, and during this period there is also a strong social bond, which is social cohesion. Social cohesion is critical to a society's happiness index. Therefore, high latitude makes people have stronger cohesiveness, which indirectly affects people's happiness.

8. Conclusion

With more than 200 countries and regions around the world, the happiness index is a measure of national happiness. The happiness scores and rankings use data from the Gallup World Poll. They play a measure to a certain extent, and it contains seven factors. In addition, what is happiness related to? I am trying to create a story with a visual data to answer these questions. The text involves four kinds of visualizations and also answered some corresponding questions. Maps, tables, bar charts, bubble charts. They have different methods of use and advantages and disadvantages. These visualization methods make it easier for readers to understand data and stories. After analysis, the relationship between economy and life and happiness is relatively large. In addition, immigration, religion and geography are also related to happiness.

9. REFERENCES

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