

World Happiness Report Project

Analysing the impact of the corona
pandemic on 'happiness' rankings



Case Study 6

Project Overview



Context

Coming up on the 20.3.2024 is the international day of happiness. This seems like a good time to review the most recent World Happiness Report that has been published first in 2012 and on a yearly basis since 2015. This analysis will review how the covid-19 pandemic that changed many people's lives globally impacted on their happiness ratings.



Objective

Determine the current happiness rank by country and country rank by the 6 specific factors the WHR identified as contributing to happiness: GDP per capita, social support, healthy life expectancy, freedom, generosity, and corruption. Identify changes in ratings between the pandemic years (2020 - 2022) and the previous time period (2017 - 2019).



Assumptions

The corona pandemic has impacted on people's lives in regards to happiness ratings since it impacted on several of the explanatory key factors like e.g. 'social support', 'freedom to make life choices' and possibly 'perceptions of corruption' in the sense of a higher mistrust in the government (here the 'Querdenker' movement in Germany comes into mind e.g.)



Research Hypothesis

Happiness rankings have been negatively impacted during the pandemic compared to the years before - globally and in Germany specifically.



Constraints

The WHR data is limited and is missing observations for certain years and/or countries. Not all countries of the world participate in the polls, participate regularly or participate fully. Certain questions are not part of the polls in certain countries like e.g. "the perception of corruption" question in China.



Data & Tools

Primary Data Source [World Happiness Report](#) (partnership of Gallup, the Oxford Wellbeing Research Centre, the UN Sustainable Development Solutions Network, and the WHR's Editorial Board)

Sourced Datasets for this analysis:

[D1 Dataset](#) & [D2 Datasets](#)

Supporting Data: Lockdown

The analysis was conducted with Python & Tableau [WHR Project Brief & Data Overview](#) [Tableau Storyboard](#) [Python Repository in Github](#)

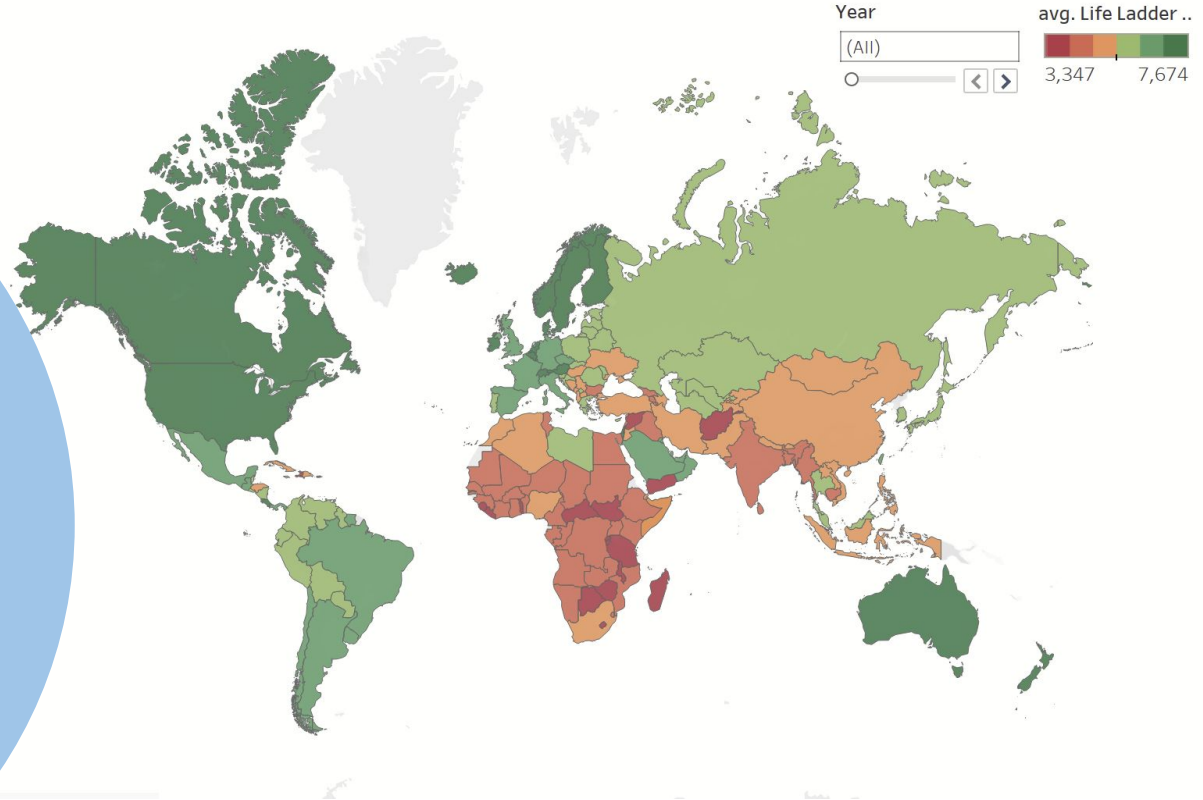
Average Happiness Ratings* 2005 - 2022

[Access interactive Tableau Storyboard](#)

Answer to the poll question:

"Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?"

**Ratings will also be referred to as life ladder scores or life evaluations in the course of the analysis*



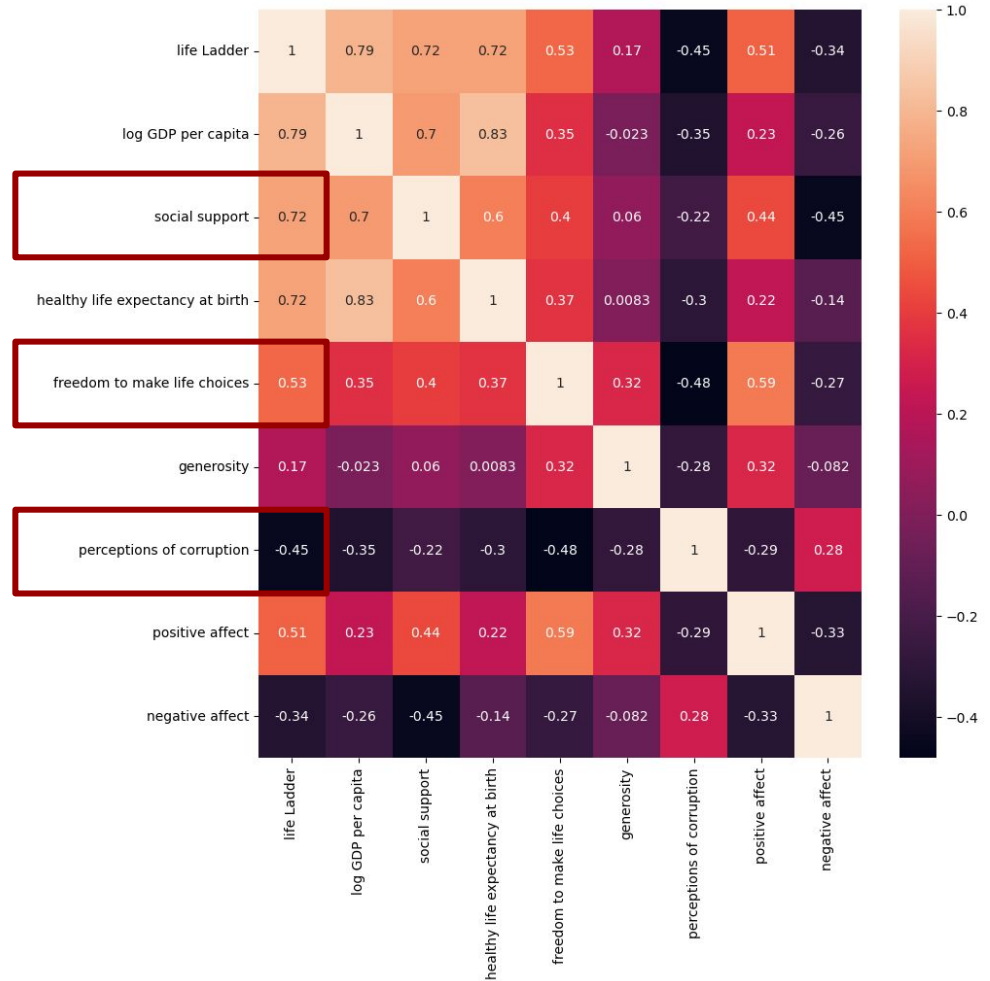
Exploratory Analysis

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What Impacts happiness?

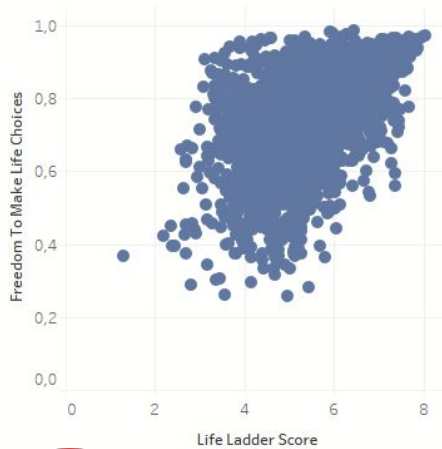
The WHR has identified 6 key factors which play strong roles in supporting life evaluations. Following the objective of this analysis I looked into relationships between all factors and decided to investigate three factors in more detail in line with my research hypothesis.

The correlation heat map shows that the three factors have a moderate to strong relationship with the life ladder ratings.

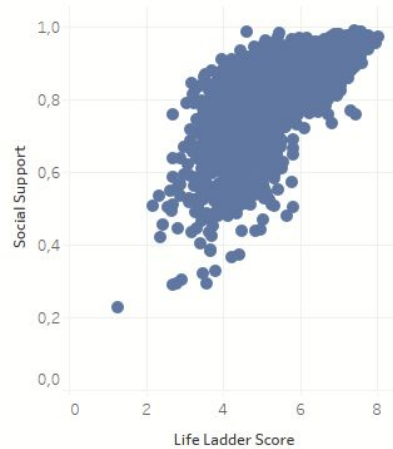


Focus on 3 Key Factors

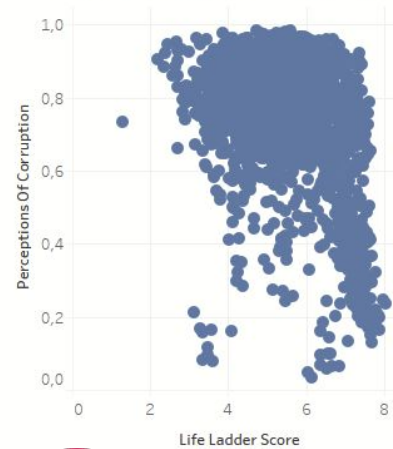
Freedom to make life choices vs. Life Ladder



Social Support vs. Life Ladder



Perceptions of corruption vs. Life Ladder



As a next step I looked at the distribution of the variables which show a general trend of higher life ladder scores with higher 'social support' / 'freedom to make life choices scores' and lower 'perceptions of corruption' scores (since these are negatively correlated.)

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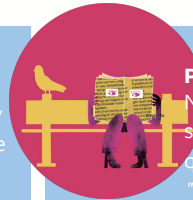
Freedom to make life choices

National average responses to the question:
"Are you satisfied or dissatisfied with your freedom to choose what you do with your life?"



Social Support

National average of the binary responses (either 0 or 1) to the question:
"If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"



Perceptions of corruption

National average of the survey responses to two questions:
"Is corruption widespread throughout the government or not?" and
"Is corruption widespread within businesses or not?"

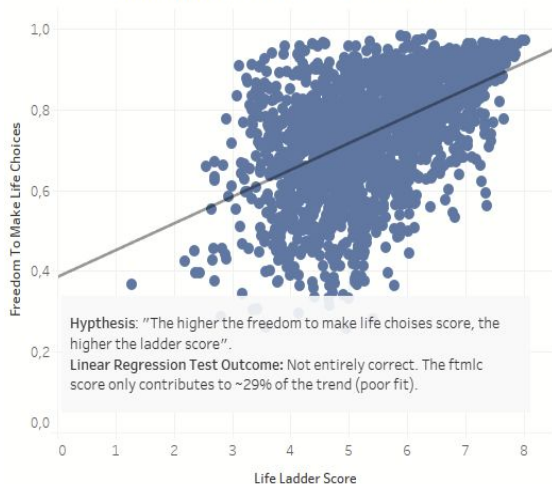
Linear Regression

[Access interactive Tableau Storyboard](#)

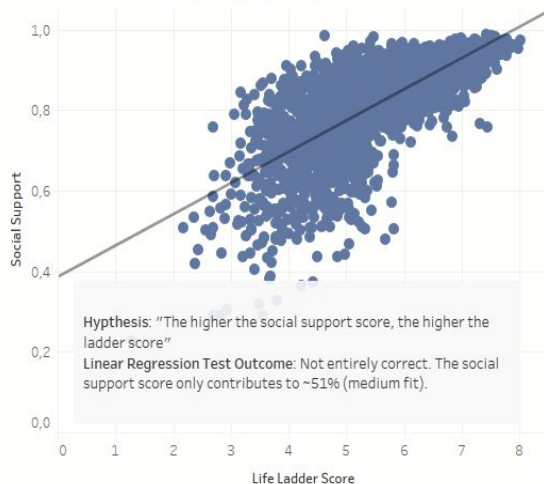
To understand how the 3 chosen key factors interact with the life ladder score I conducted a linear regression:

While there are visible trends, ***none of the factors behave strictly linear*** with multiple observations far beyond the regression line.

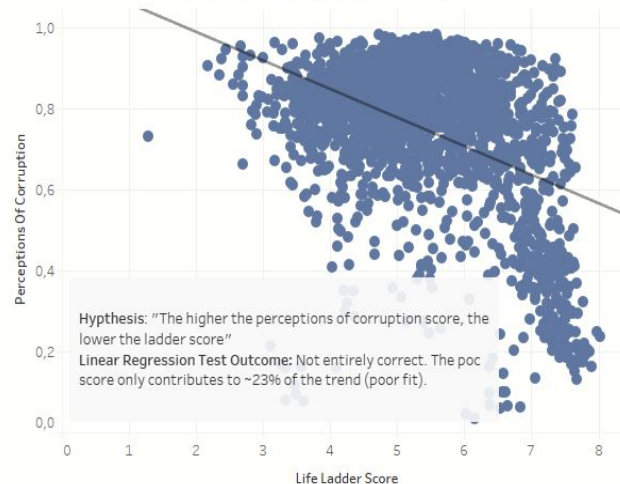
Freedom to make life choices vs. Life ladder



Social Support vs. Life Ladder



Perceptions of corruption vs. Life ladder

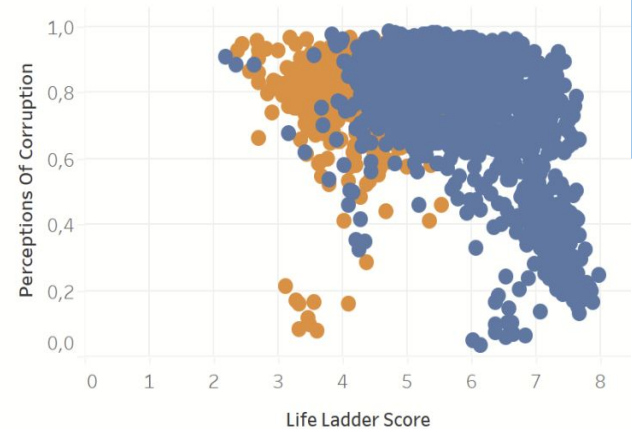
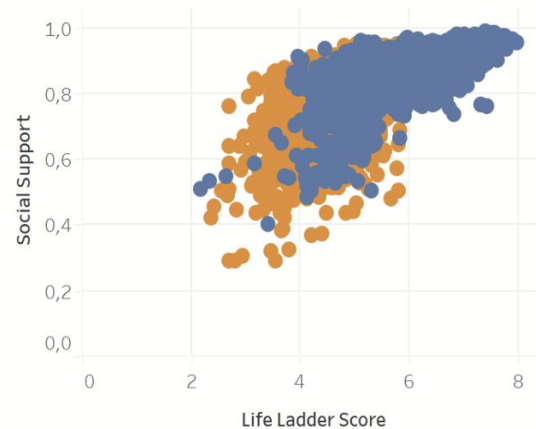
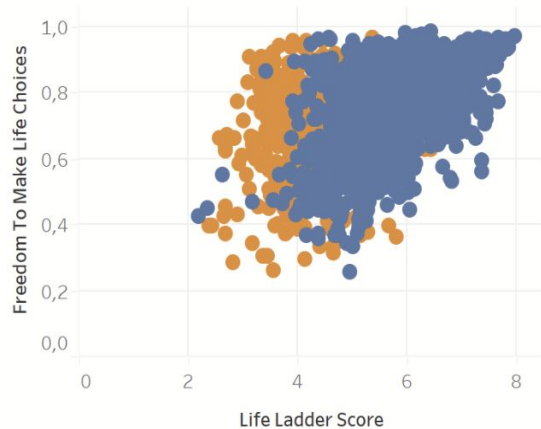


Cluster Analysis

[Access interactive Tableau Storyboard](#)

Clustering Analysis is another approach that uses mathematical calculations to summarise how all points could be summarised into categories most sensibly. Based on these categories the data was split and compared to uncover additional insights. The Analysis identified two clusters which are represented in orange and blue.

The blue cluster illustrates the trends more clearly: Especially in extreme values (>6 ladder scores) there are a high amount of observations with high scores for 'freedom to make life choices' and 'social support', respectively low scores of 'perceptions of corruption' - as the hypotheses suggest. However, **the orange cluster shows clearly that there are multiple observations that do not fit the hypotheses.**



Life Evaluation Ranks* '20 vs. '23

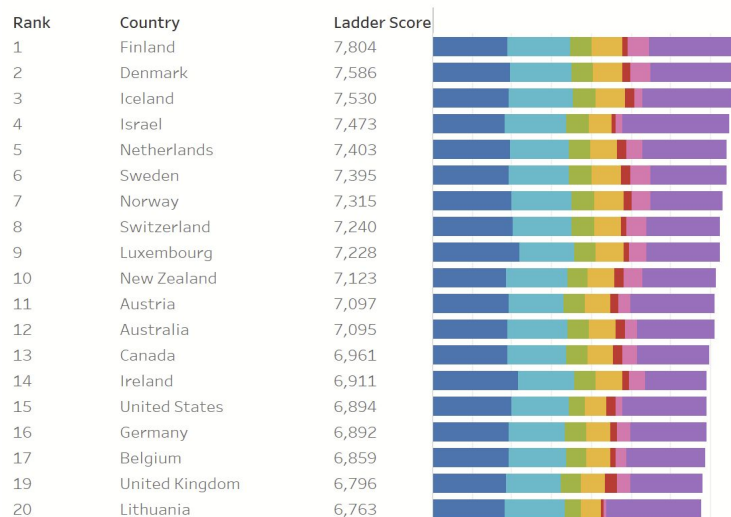
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Most of the top 15 countries show a decrease in rating with the exception of Iceland, Israel and Sweden who rank higher in the 2023 report.

2020 Report (Pre-pandemic): Life Evaluation (2017 - 2019) explained by key factors



2023 Report (Pandemic): Life Evaluation (2020 - 2021) explained by key factors



Factors/Variables

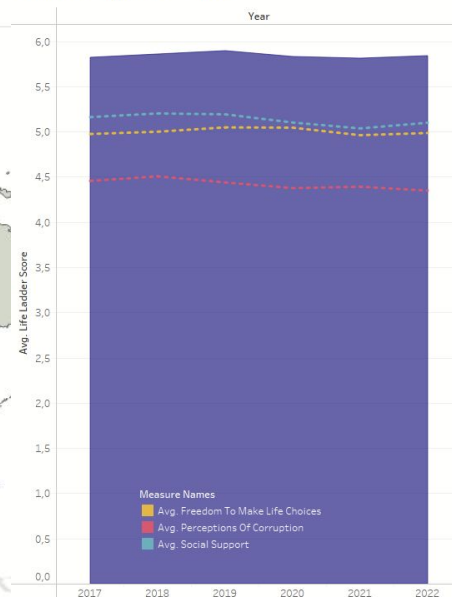
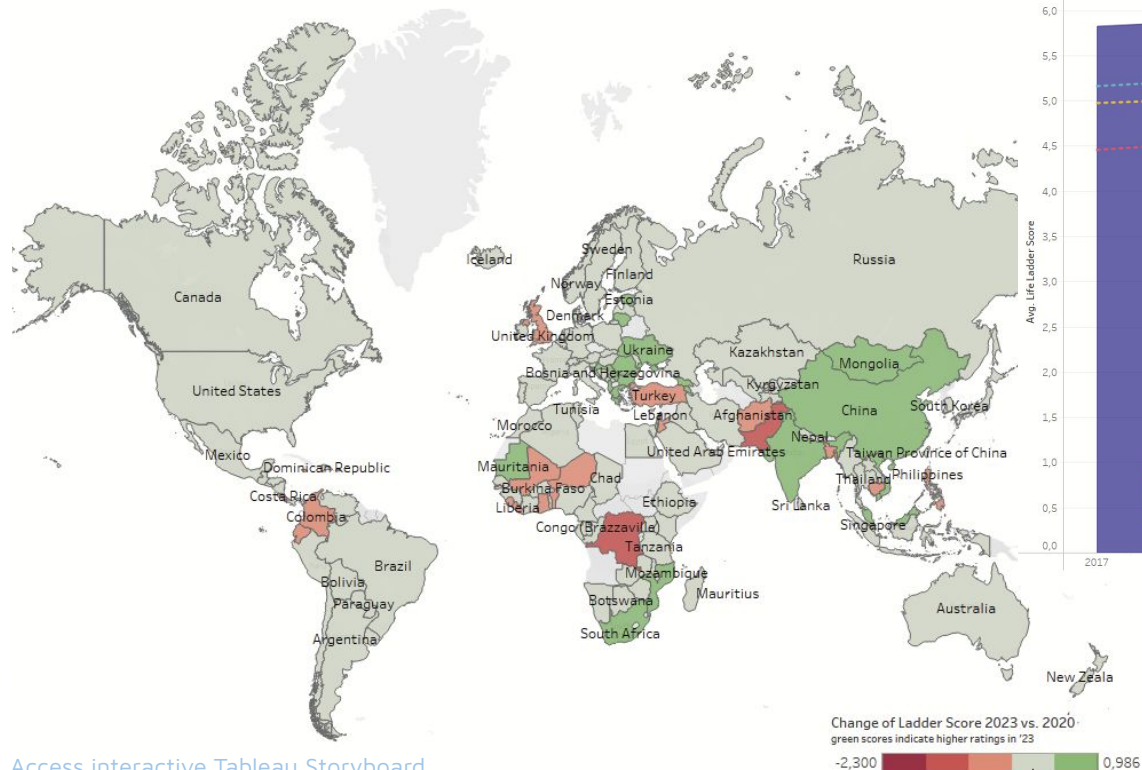


**In order to have comparability between the pre-pandemic ratings and pandemic ratings, countries have been limited to those who participated in polls during all years (2017 -2020). Missing ranks belong to countries that have been excluded for the sake of this analysis.*

Changes in Life Ladder Scores 2017 - 2019

Change in avg. Happiness scores 2020 - 2022 vs. 2017 - 2019

Trend line Happiness Scores



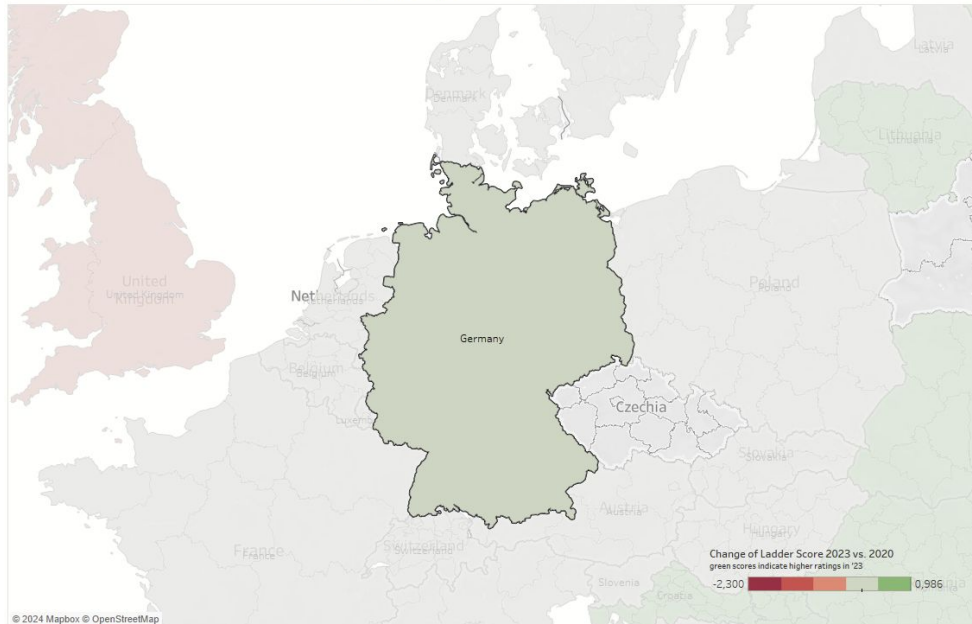
There is a slight overall decrease in ladder scores as can be seen in the trend line on the right. The world map shows that most countries only had little movement in ladder scores, including e.g. North America & most of Europe. A few regions like East Asia even increased happiness scores during the pandemic, despite many countries being in full lockdown.

Zoom in on Germany

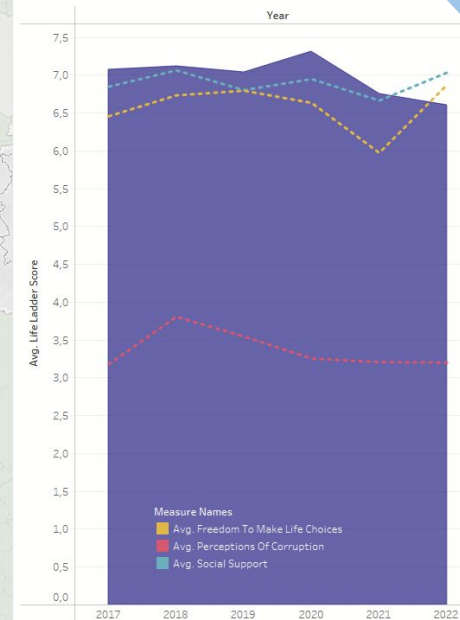
[Access interactive Tableau Storyboard](#)

There was a notable decrease of ladder scores in 2021 and 2022 (after a peak in 2020 which marked the start of the pandemic). Avg. scores on social support and freedom to make life choices did decrease in 2021 (the heart of the pandemic), but recovered in 2022.

Change in avg. Happiness scores 2020 - 2022 vs. 2017 - 2019



Trend line Happiness Scores



WHR Summary & Recommendations



Understanding and measuring happiness is a fascinating project and easier said than done. Looking at the World Happiness Report, it becomes clear that there are multiple factors that help explaining higher/lower happiness ratings, but there is not necessarily a linear relation and even a global phenomenon like the pandemic which had a lot of negative consequences (most prominently the deaths of many people) didn't necessarily decrease participants' ladder scores. I think it cannot be underestimated that especially in moments of crisis, people tend to come together and focus on what is important to them which might also come with a different level of appreciation of what is there versus what is missing that can impact self-assessments.

In terms of the 3 key factors that have been in focus for part of this analysis, the factor 'perceptions of corruption' was the least straightforward to understand. It is very curious that high perceptions of corruption oftentimes correlate with high ladder scores which seems very counter intuitive. To understand better how corruption impacts on people's lives and in what fashion might shed more light on the poll answers that were given which could help improve this analysis.

I believe 'happiness' as a field of research will and should further grow in the coming years and the more we understand it, the more it can become actionable. As the World Happiness Report states: "It (The World Happiness Report) reflects a worldwide demand for more attention to happiness and well-being as criteria for government policy".

My Project Reflections



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This was a very exciting project since I designed it myself - from sourcing the data, through creating a project brief and hypotheses, to conducting the different analyses and coming to conclusions. The outcome was very surprising to me since I had strong beliefs in my research hypothesis, having experienced what impact the pandemic had on the people around me, the industry I worked in at the time and of course myself.

As always, it turned out to be extremely crucial to understand the data before starting any analysis since the terminology of the WHR was easy to misinterpret, especially in regards to the 6 key factors.

I especially enjoyed diving deeper into machine learning topics in this project which I will continue to learn more about going forward.

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