

Nvolve Tableau Data Visualization 3

Najmah's Dashboard:

<https://public.tableau.com/app/profile/najmah.abdur.rahman/viz/EcologicalFootprintWorldMap/Dashboard1?publish=yes>

Heya's Dashboard:

https://public.tableau.com/views/EcologicalFootprintWorldMap_16794209137300/Dashboard1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Key Data Question: How does ecological footprint vary across different countries in the world?

Definitions:

Ecological footprint: It is a method developed by the Global Footprint Network to measure human demand on natural resources. In other words, the quantity of nature it takes to support people and their economies.

Ecological Deficit: Countries use more natural resources (Ecological Footprint) than their ecosystems can generate (biocapacity). They are running an "ecological deficit".

Ecological Reserve: When a country's biocapacity exceeds its population's ecological footprint, it has an ecological reserve.

Questions we explored:

What is the relationship between income and life expectancy?

What is the correlation between income and ecological deficit and reserve?

What is the relationship between population (millions) and ecological deficit and reserve?

Data Used: Footprint Data Foundation

York University Ecological Footprint Initiative & Global Footprint Network. National Footprint and Biocapacity Accounts, 2022 edition. Produced for the Footprint Data Foundation and distributed by Global Footprint Network. Available online at: <https://data.footprintnetwork.org>.

Hypothesis 1: We predict that as life expectancy increases, income will increase.

Looking across all countries, we compared data between countries and their life expectancy relative to their income. The data shows that the higher the income in a country, the higher the life expectancy.

Hypothesis 2: We predict that as the country's income increases, its ecological deficit or reserve will increase.

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Looking across all countries, we compared data between countries's average income per person relative to ecological deficit and reserve. The data shows no correlation or relationship between average income and ecological deficit or reserve.

Hypothesis 3: We predict that as the population (millions) increases, the ecological deficit will increase and the ecological reserve will decrease.

By looking at the data from 2018 for countries with high and low population (millions), we compared data between countries with high and low population (millions) and their ecological deficit/ reserve. The data displays no correlation or relationship between high/low population and ecological deficit or reserve.

Exploring our Dashboard:

➤ **Introduction:**

Last semester, I enrolled in a coding course where my professor assigned us various datasets to organize through coding. When I was introduced to this Nvolve project, I remembered an intriguing dataset from the class that piqued my interest and would be perfect for this project. My partner and I used data from the Ecological Footprint Initiative & Global Footprint Network for our dashboard.

After reviewing the data, we decided to create a dashboard showcasing life expectancy, average income per person, and ecological deficit or reserve for countries around the world. Due to the vast amount of data, with each country having its own dataset, we chose a geographical map as the best way to visualize it. The map provided a more organized and comprehensive display, allowing viewers to hover over each country for information they were interested in. To supplement the symbols map, we added three additional dashboards to further illustrate the specific data we were addressing in our hypothesis.

➤ **Heat Map and Dot Graph Dashboards:**

Examining the dashboard closely, we can see a heat map that organizes countries by their deficit or reserve value. Countries with a deficit had negative values, displayed in varying shades of red. Darker shades of red represented larger negative values, while green represented countries with reserves and positive values. Additionally, hovering over each country displayed a data box listing the country's name, life expectancy, average income per person, and deficit or reserve value. To the right of the world map, we added a dot graph showing a comparison between life expectancy and average income. The dot graph is color-coordinated to pair with the heat map and its respective countries. Analyzing the graph, we can see a trend where an increase in life expectancy correlates with an increase in average income, confirming our hypothesis.

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➤ **Income vs Ecological Deficit/Reserve Dashboard:**

Analyzing the graph on the relationship between income and ecological deficit or reserve, the graph shows an interesting outcome where there was no correlation between income value and ecological deficit or reserve. Comparing the ecological deficit data visualization for high-income countries, Switzerland, with an income of \$79,173 per capita GDP, had an ecological deficit of (-3.40), while the United States, with an income of \$54,724 per capita GDP, had an ecological deficit of (-4.70). Despite its high income per capita, Switzerland had a lower deficit than the United States. Furthermore, the Netherlands had the highest ecological deficit in 2018, with an income of \$55,369, when compared to Switzerland and other countries.

Moreover, when looking at the 2018 ecological reserve for high-income and low-income countries, we noticed that Sweden had an ecological reserve of 2.70 despite having the highest income per capita compared to other countries. However, Canada, Brazil, and Australia had the highest ecological reserves of 6.70, 6.00, and 4.40, respectively. It is also surprising that the Central African Republic was the second-highest, with an ecological reserve of 6.30, despite its lowest income of \$379 compared to all other countries on the 2018 list. Investigating the 2018 ecological footprint data, we concluded that there was no direct correlation between income and ecological deficit or reserve.

➤ **Population (millions) vs Ecological Deficit/Reserve Dashboard:**

Exploring the data graph thoroughly on the relationship between population (millions) and ecological deficit/ reserve, the graph showcases unexpected results where there was no correlation between high/low population and ecological deficit or reserve. For instance, looking closely at the data for high populations such as China (1,459 millions), had an ecological deficit of (-3), whereas the United States, with a population of (327 millions), had an ecological deficit of (-5). What is shocking also is that Qatar with a very low population (3 millions), had the highest ecological deficit of (-13) when compared with the rest of the countries. Furthermore, for a low population like Canada (37 millions), had an ecological reserve of (7), while Finland with (6 millions), had an ecological reserve of (6).

➤ **Conclusion:**

In conclusion, our dashboard using the ecological footprint data provided by the Ecological Footprint Initiative & Global Footprint Network enabled us to visualize and analyze the relationship between life expectancy, average income per person, and ecological deficit or reserve for countries across the world. Through our analysis, we confirmed the correlation between an increase in life expectancy and an increase in average income. However, we also discovered that income does not necessarily correlate with ecological deficit or reserve, as some high-income countries had a lower ecological deficit than some low-income countries.

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➤ What we learned from this project:

Going through this project has been a valuable learning experience. We both were able to see firsthand the power of data visualization in presenting complex information in a clear and concise manner. By using a symbols map, heat map, and a dot graph, we were able to convey information on life expectancy, average income per person, and ecological deficit or reserve for countries worldwide. In addition, our findings regarding the lack of direct correlation between income and ecological deficit or reserve emphasize the importance of considering multiple factors when analyzing data. This is a valuable lesson that we can apply in future projects or in our personal life, as it highlights the need to take a holistic approach when examining complex issues.

By completing this project, we have gained valuable skills in data analysis, visualization, and interpretation. These skills will be useful in future endeavors, whether it be in academic or professional settings. We also have learned the importance of collaborating with others, as this project likely required input and contributions from multiple team members.

Overall, our experience going through this project was likely challenging but also rewarding. By applying what we have learned and building upon our skills, we will be better equipped to tackle similar projects in the future.

Linkedin Posts:

I'm excited to share that I recently completed an engaging technical project for @Nvolve, where I had the opportunity to create a data visualization dashboard using Tableau! Together with my partner @Heya, we utilized data from the Ecological Footprint Initiative and Global Footprint Network to explore the relationship between life expectancy, average income per person, and ecological deficit or reserve for countries worldwide.

Through this project, I gained valuable skills in data visualization and analysis, as well as a deeper understanding of how data can reveal trends, patterns, and insights that are useful for learning about complex topics. I'm grateful for the opportunity to work on such a meaningful project and collaborate with talented individuals at @Nvolve. I huge thank you to our coach @Prithvi, who guided us through the project and provided insightful feedback. I also want to recognize @Hermi, Nvolve's technical coach, who provided us with this exciting project opportunity.

Check out my Tableau dashboard here:

#Nvolve #WomenInSTEM #Tableau #DataVisualization #Engineering #TechnicalProject

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I'm thrilled to announce that I successfully completed a highly engaging technical project with @Nvolve where my partner @Najmah and I created an exceptional data visualization dashboard using Tableau. This project was specifically designed to analyze data from the Ecological Footprint Initiative and Global Footprint Network to explore the correlations between life expectancy, average income per person, and ecological deficit or reserve for countries across the world.

Through this project, I was able to significantly improve my skills in data visualization and analysis while also developing a better understanding of how data can reveal trends, patterns, and insights that are crucial for learning about complex issues. I would like to express my gratitude to our coach @Prithvi, who provided us with valuable feedback throughout the project. I would also like to extend my appreciation to @Hermi, Nvolve's technical coach, for creating this highly engaging project for us to work on.

Check out my Tableau dashboard here:

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