

Project 2 Final Report

Description of Data

There are two main categories of data we used: data of defense expenditures of countries from 1988-2016 and data on international wars and their participating countries from 1988-2016.

Data Set 1: We got information on military expenditure from <https://www.sipri.org/databases/milex>, which is a website of Stockholm International Peace Research Institute. On their website, they had a full excel file of all the military expenditures of countries (categorized by continents) from 1988 to 2016. The variables are country, region, and all the years from 1990 to 2016. We processed the data by removing the “notes” column, removing special characters, and removing countries with negligible military spending.

Data Set 2: We got the information on each war and their description from Wikipedia. The variables include: War names, Start year, End Year, Winning countries, Losing countries, and a very brief historical background on each wars. We processed the data by adding spaces such as "South Korea" to "SouthKorea". We also shorted the descriptions so they formatted well, replaced diplomatic groups like NATO with the countries comprising the groups, and changed non-country political group names to the related country.

How We Integrated: We integrated the data by ensuring the name for the country in the dataset for military spending matched the name in the war data. We also matched the time period of the war with the military spending for those years.

Mapping Data to Visual Elements

Visual 1:

The first visual is a double donut chart with the outer ring displaying recent wars that occurred between 1990 to 2016 and the inner ring displaying countries who are direct or indirect participants of the wars. The length of the outer arc represents the duration of the war. Color is used on the inner arcs to represent the country's continent.

Since this visual uses a bubble chart at the center to display the income for respective countries we used a Sqrt scale to map spending to circle size. This offsets the area having a squared relationship to the radius. The colors of the bubbles represent the country's continent.

Visual 2:

The second visual is a line graph showing the growth of military spending over time. Both of the axes are linear, the x axis is time and the y axis is the total spending. Color corresponds to the country's continent. By removing the top spender (the US) from the visualization the user is able to clearly see the other countries, despite the US having a squared relationship to the other countries' spending. On the right, we have buttons to filter the graph by continents.

Visual 3:

The third visual is a bar graph of the 10 top countries with the highest military spendings between 1990 to 2016. The x-axis is a linear scale of time and the y-axis displays the top ten countries. Color corresponds to the country's continent. By stacking the top 9 countries (excluding US), the user is clearly see just how much US spends on the military compared to the rest of the world.

Our Discoveries

The main idea of our interactive project is to show how much US has invested on military spending, even in wars that were seemingly unrelated to the United States. In our first visual "donut" data, when you hover over a war, the bubble representing United States pops up as the biggest circle the majority of the time. It is also interesting to note how some wars have almost 15 total participants, even though there may be only two or three direct participants, going to show that sometimes most of the major world powers are all involved somehow in seemingly minor wars.

The second visual we have is title "Military Spending Over Time". It is a line graph with two variables: Domestic Military Spending, and Year. It shows the comparison of military spending color-categorized by continents and it shows that the United States' spending far outspends than rest of the world in their military spending. The user will need to remove United States from the dataset to clearly see how much other countries have spend on their military. The third visual we have is titled "Top Military Spenders" which compares the American military spending to the other countries of the top ten top military spenders in the world. When the top 9 countries (excluding US) are stacked together, the bar still does not extend past that of United States, showing that the U.S. spends an incredible amount on their military as opposed to the rest of the world. The two supplemental visuals serve for the common purpose of demonstrating that the United States' spending far exceeds than rest of the world in their military spending.