

Running head: Data Analytics Assignment 1

Data Visualization: Military Expenditures Around the World

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Data Visualization: Military Expenditures Around the World

Military expenditures can act as signals of world events and a nation's priorities. Because countries' budgets vary widely in size, expressing expenditures as a percentage of gross domestic product (GDP) is an easy way to compare numbers.

World map of war

A line chart of 100 time series looks like a colorful plate of spaghetti. Encoding the data as segments of a gradient and coloring a map of the world makes visualizing the data easier. For instance, below is data from 1992 compared to 2012 across the world.



Figure 1. Military expenditures as percentage of gross domestic product for 100 countries, 1992 and 2012. (World Bank, 2014b)

After the breakup of the Soviet Union, military expenditures there came into line with the United States (4.77% versus 4.6%). Fallout is visible in Croatia (7.6%), however, when Yugoslavia collapsed into vengeful republics. Particularly visible is Saudi Arabia (11.3%), which has lots of oil money to spend and lots of allies to prop up. The year 2012 shows Saudi Arabia is still an outlier but not as much (9.6%).



Figure 2. Military expenditures as percentage of gross domestic product for the same 100 countries, 2002 and 2012. (World Bank, 2014b)

The year 2002 shows more militarization in Africa. This is probably a sign of the many civil wars that tore apart African countries during this period. Numbers have decreased in 2012, pointing to a few interpretations to be investigated: the countries have become more peaceful, their GDP has increased, or they have run out of money altogether.

To see the whole picture, albeit still without detail, a matrix chart quickly reveals outliers and trends.

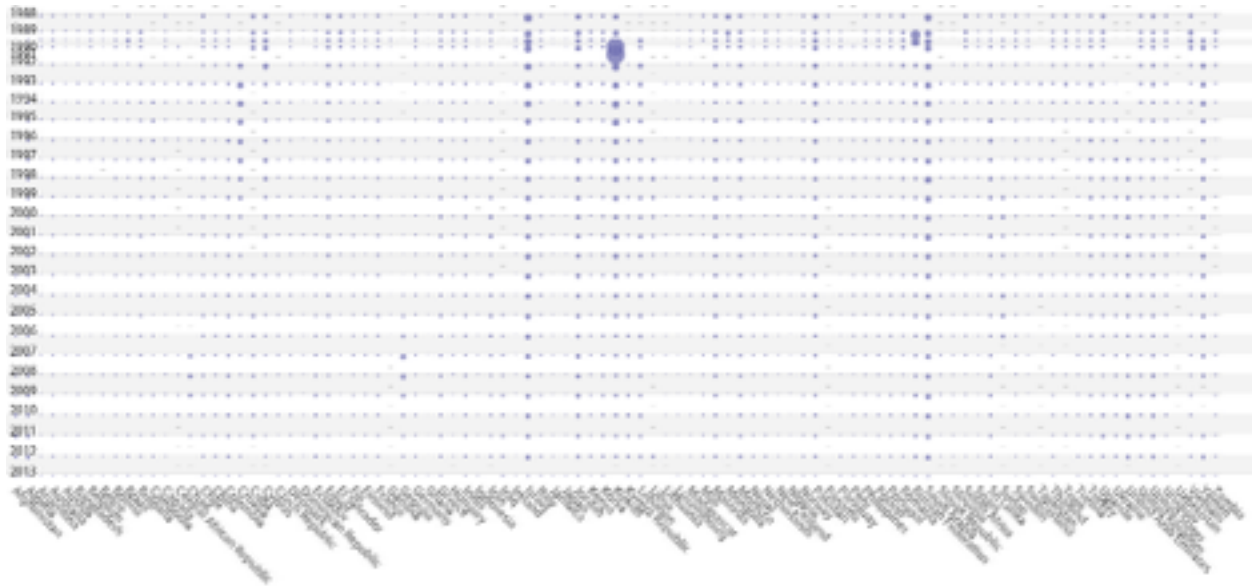


Figure 3. Military expenditures as percentage of gross domestic product for 100 countries, 1988 to 2012. (World Bank, 2014b)

This chart covers 1988 to 2013 and we can see the outsize effect on poor little Kuwait when it was invaded by Iraq. That huge circle represents over 90% of its GDP on military expenditures. Croatia's spike in expenditures from 1992 to 1997 and Georgia's in 2007–2008 are visible signs of their respective independence movements. The steady lines throughout are Israel and Saudi Arabia, proxies for many nations attempting to influence events in the Middle East.

Percentages and whole numbers in the United States

A simple chart of military expenditures as a percentage of GDP shows a general trend towards peacefulness (or bargains on military equipment).

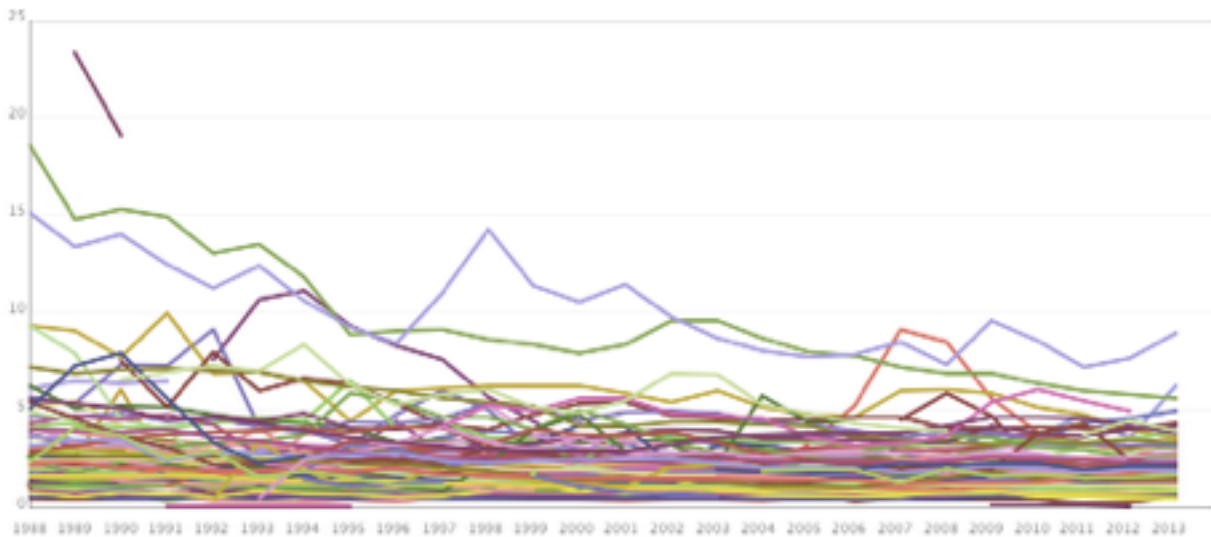


Figure 4. Military expenditures as percentage of GDP for data set ex Kuwait. (World Bank, 2014b)

Aside from a few spikes, trend lines here show constancy or a decrease over time.

(Kuwait has been removed from the set because it is an extreme outlier.)

Isolated, the United States shows an uneven decline.

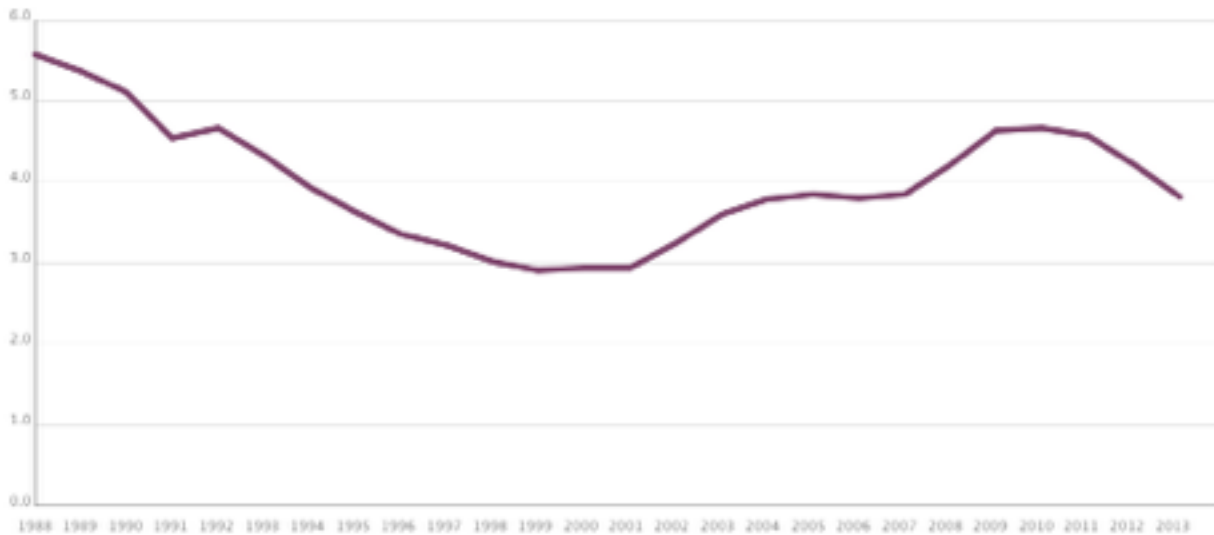


Figure 5. Military expenditures as percentage of GDP for United States. (World Bank, 2014b)

Seeing a decline in military expenditures gives one pause. Are we really spending less on warfare? Percentages can be misleading without knowing the trend of the whole.

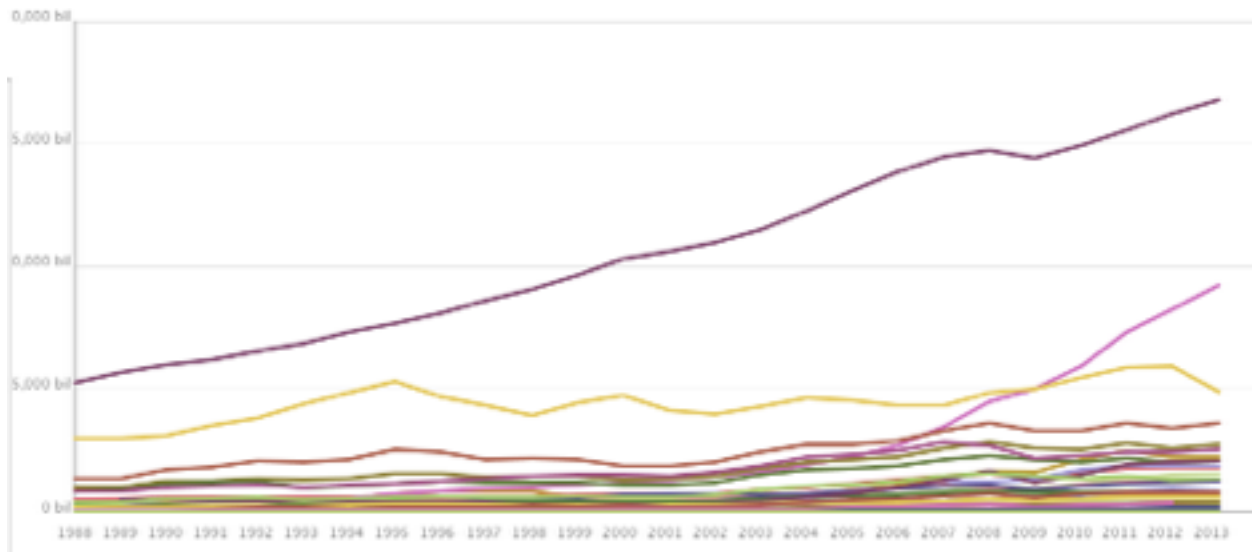


Figure 6. Gross domestic product in U.S. dollars from 1988 to 2013. (World Bank, 2014a)

Most of the countries' GDP is relatively steady. However, two countries have steep increases: the United States (top line) over the entire period and China from 2007 to 2013.

Comparing United States GDP and military expenditures directly in U.S. dollars shows a steady and gentle increase in military expenditures over the period.

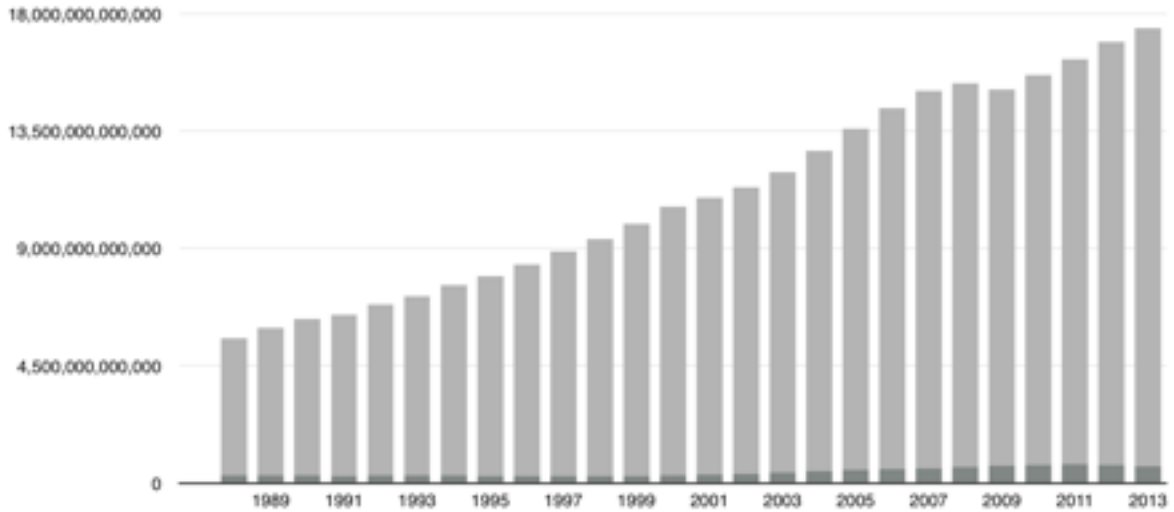


Figure 7. Gross domestic product and military expenditures in U.S. dollars for the United States. (SIPRI, 2014; World Bank, 2014a)

Interestingly, no obvious correlation with the 2007 recession exists.

Allies

By removing the nations who actively or subtly oppose the United States or are unable to gather resources to aid the United States, a list of 31 countries forms a rough list of allies. Saudi Arabia and Israel are extreme outliers and are not considered here. Three inferences arise.

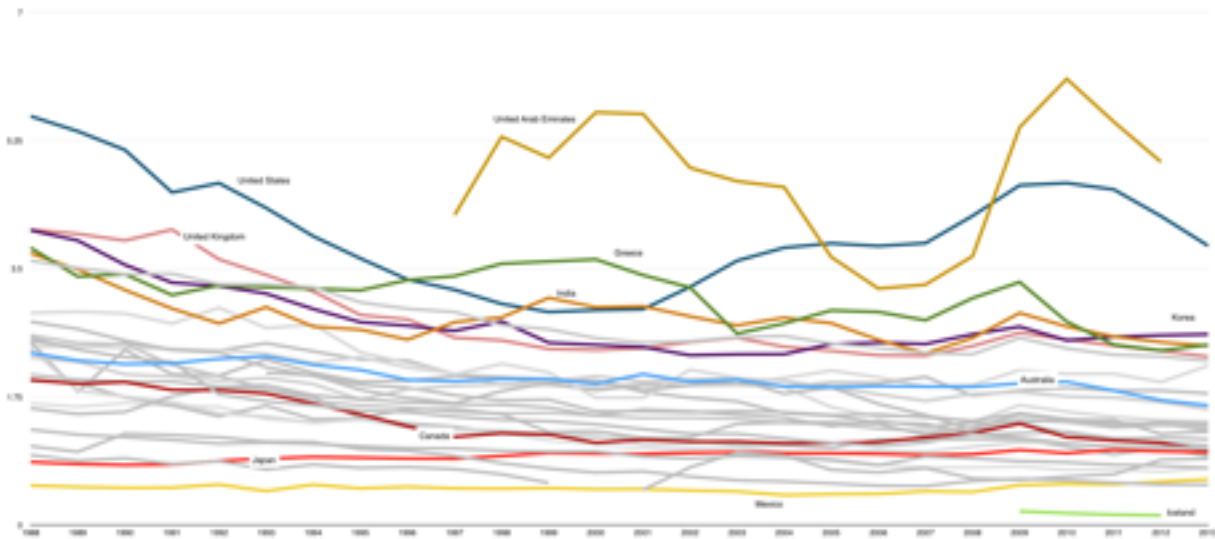


Figure 8. Military expenditures as percentage of GDP for the United States and thirty of her allies. (World Bank, 2014b)

Japan and Mexico are steady throughout. Canada is the only country that displays some correlation with the United States throughout the period. Other nations seem to be responding alone, instead of in concert, to world events.

References

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