Greenhouse Gas Emission Comparisons with ANOVA

This report contains an inferential analysis regarding the Greenhouse Gas Emissions from 10 countries from 1990 to 2015. The main analysis aims to find the significant difference of Greenhouse Gas Emissions across the countries, using ANOVA to find differences in means of emmisions. The data used is pulled from the Greenhouse Gas Inventory Data of the United Nations Framework Convention on Climate Change.

The 25 years of data shows emissions for each of the 9 nations has remained fairly stagment, with a majority of nations having very similar emission numbers. This can be seen in Figure 1 in the Appendix. What we aim to find out is to determine whether there is a significant differencce between the means of greenhouse emissions for each nation. This will be done by doing a one-way ANOVA test on the means, by comparing the multiple nation's emission values.

Our hypothesis are as follows:

H_0: There is no difference between the amount of Greenhouse Gas Emissions between the 10 nations from 1990 to 2015.
H_A: There is a difference between the amount of Greenhouse Gas Emissions between the 10 nations from 1990 to 2015.

#the statistical summaries, and/or the figures in a little report.

#presents the findings/results, and

- our p-value is 2.0413E-280, which is really small, as our p-value is smaller than the alpha(0.05), we reject the null hypothesis.

#interprets the findings/results in context of the question. - The boxplot shows that the distribution of the Green House emission of the 9 nations are significantly different than each other.
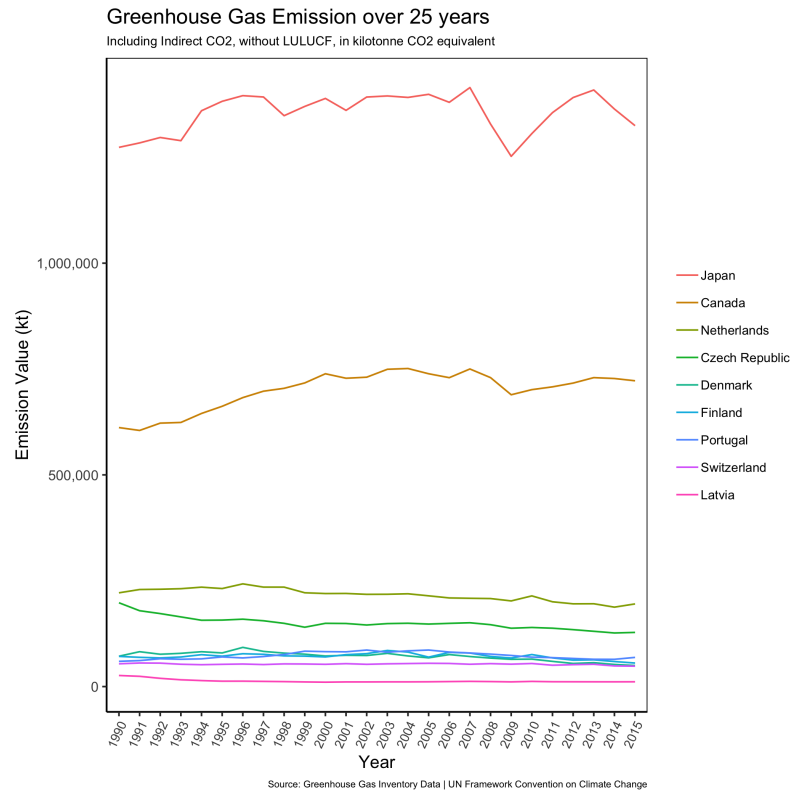
#Some critique of the analysis is also expected (limitations, assumptions, etc) and #a statement of future directions (what would you do next if you had more time to work on this).

- We removed EU data as we are unable to define countries and their emission value in the EU category
- If we know the compositions of the EU countries included in this data source, we would be able to split the EU emission into countries and include EU countries into our analysis
- In future analysis we should try our best to keep all the origina data in our analysis. We could do some sort of transformation to make sense of all data.
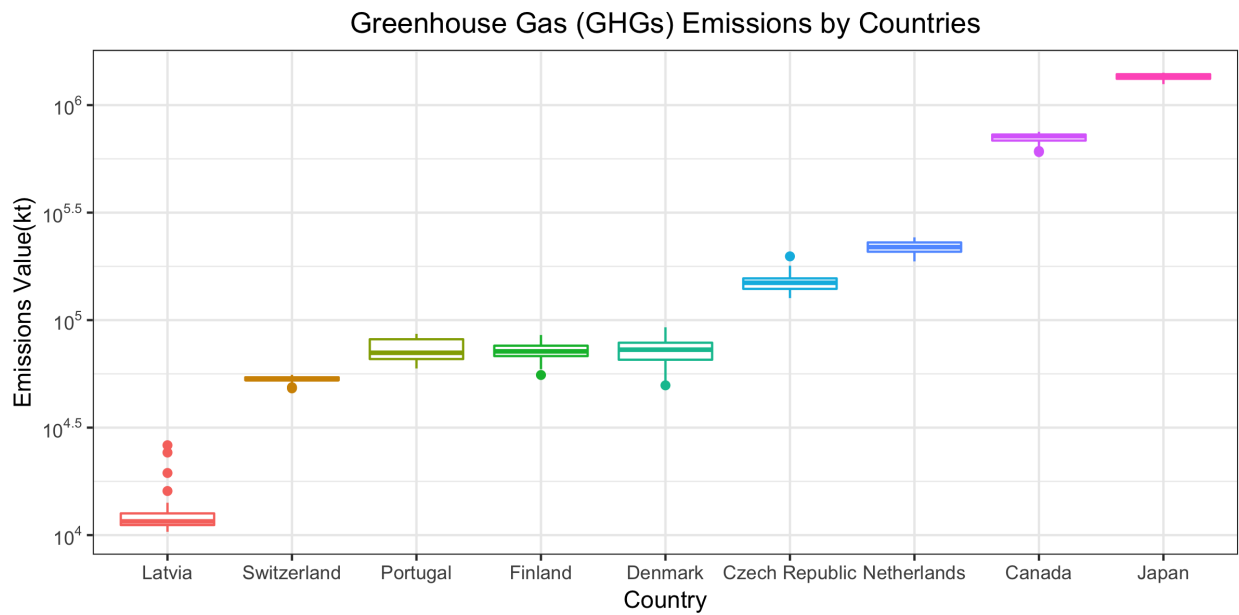
#The report is expected to be 1-2 written pages (excluding figures, tables and references). You are #expected to have a reference section and cite 2-3 external sources (data source can be one of #these citations).
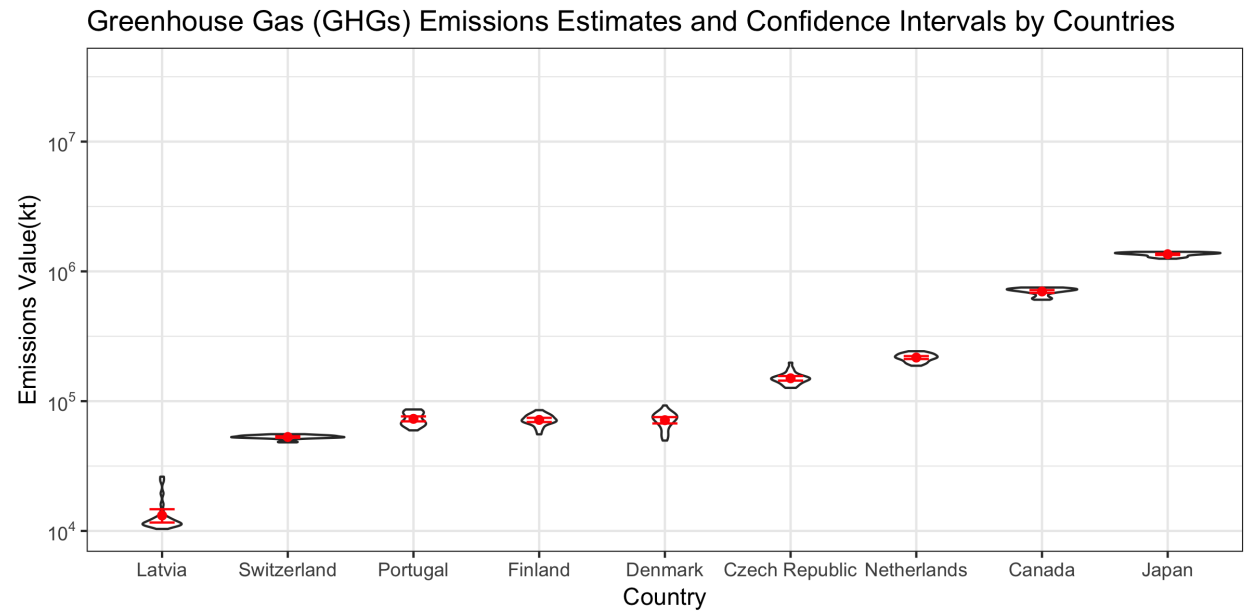
Appendix

Figure 1:

Figure 2:

Figure 3:

Greenhouse Gas (GHGs) Emissions Estimates and Confidence Intervals by Countries

References

"Greenhouse Gas (GHGs) Emissions, including Indirect CO2, without LULUCF, in kilotonne CO2 equivalent" Greenhouse Gas Inventory Data, United Nations Framework Convention on Climate Change, website: http://data.un.org/Data.aspx?d=GHG&f=seriesID%3aGH2