Petitions and the EU Referendum

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1 Summary

This dashboard displays votes on every published petition during 2015-2017 Conservative government, by constituency, aggregated to the month (July 2015 to April 2017), and the June 2017 EU Referendum vote outcomes by constituency (estimates.)

The dashboard gives a large amount of control for reader investigation, for example, filtering or viewing data by regions, filtering or viewing petition data by months, a comparison chart of petition activity month to month vs the national average, plotting as proportional or geographical, and viewing different plot statistics, votes/capita/month, the difference of that measure from the mean and the EU Referendum results, a reader can also highlight their constituency, and of course a combination of all the above can be performed.

The main observation to be drawn, is the relationship between the petition activity in a constituency and the outcome of the EU referendum vote, the trend being that perhaps the more politically active a constituency[1] the more likely they are to have voted remain (this is even more clear when viewing region by region using the region filter.)

1.1 Links

1st Major Version
2nd Major Version
Github Repository

2 Design

1st Version.

- In the first version I wanted the user to be able to explore how politically active constituencies were, with the overall signatures / capita / month statistics and also percent difference from mean being displayed side by side, on on their own. The map format colored by statistic was the obvious choice for how to display this information.
- With selection constituencies could be added to the line plot at the bottom of the dashboard for in depth comparison month to month. This information was also available in the tooltip lineplots, but only for comparison to the national average.

[1] On this one measure. It is also important to note that Scotland and Northern Ireland have separate political institutions which may explain the lower interaction with the UK petitions website.

- I also wanted the user to be able to filter by months and region, again for the exploration potential of the dashboard.
- The proportional plot came as suggestion from feedback as it was pointed out that comparing the smaller yet more populous London constituencies was difficult when viewing the full map. In this first version the source of the hexmap data didn't include Northern Ireland.

2nd Version.

- Moving from the first version the biggest difference is the inclusion of EU Referendum Data and a narrative around it. From the title to the sub-captions and scatterplots at the bottom the dashboard was reworked to guide this insight and story in the data. This change came about as result of feedback that there was not much of a guided story in the data, and that the exploration based first version was too wide open.
- The scatter plots are designed to guide the story from the data, elements such as the trend lines and the regional breakdown coloured by EU vote contributing to this.
- I also included more guidance on how to use the dashboard and filters, and moved the monthly comparisons to the national average out of the tooltip such that the user can look into the tooltips on these graphs easier.
- Behind the scenes the data structure was reworked and the gather python script was improved, and the calculated columns were made to be more insightful.
- I also added the ability to filter by constituency such that a user can quickly find their region, should they wish. The proportional map type was also improved, and now includes Northern Ireland.
- Unused legends are now 'sheet-popped' out of the dashboard so as not to detract from the visualization, to the same region the region selector was cleaned up.
- Both the region and month selectors now show relevant statistics and the region selector changes to match the plot statistic of the map.
- Finally source attributions were added to the bottom of the dashboard.

3 Feedback

Feedback received included:

- Lack of overall story, or direction for the plot (amended with the EU referendum data)
- Inability to compare small constituencies on a national scale (amended with proportional map)
- Unused legends make the dashboard untidy
- Source for data

4 Resources

Data was gathered from five different sources, any necessary programatic gathering or cleaning was performed in python (gather.py)

4.1 Petition Data

Petition Data is gathered from petition.parliament.uk. Gathering was performed on the list of archived published petitions from 2015-2017 (10905 petitions), which is available as a csv file at: petition.parliament.uk

This data was then aggregated to the month in python.

There is an API to perform this gathering however it is substantially slower, it appears to have the same rate limit and requires 2 requests per petition (one to find a linked data api code by lookup of petition code, and then gather signatures by petition) as opposed to 1.

4.2 Population Data

2016 mid year population estimates by parliamentary constituency are available at: House of Commons Library Statistics Public Tableau

4.3 Map Data

The shape files for parliamentary constituencies is available at: data.gov.uk

This is stored as a folder constituencies_super_generalised_shapefile.

The data for plotting a hex map of constituencies is available at: odileeds.org

4.4 EU Referendum Data

Estimates for votes by constituency is available at: House of Commons Library

4.5 Data Output

All this is aggregated and exported to uk_petitions_master.csv, by gather.py. Find the schema below

Table 1: Schema

Header	Description
date	Year and month to which signatures were aggregated
ons_code	Office for National Statistics Constituency code
signature_count	Aggregated count of signatures
constituency	Name of Constituency
mp	Name of Member of Parliament
region	Name of geographic region
population	Constituency population estimate
stay_figure	% Stay vote in EU Referendum
hex_x & hex_y	Coordinates for hex map
region_x & region_y	Coordinates for region selector

4.6 Join Structure in Tableau

uk_petitions_master.csv is joined to the shapefile on ons_code.

4.7 Calculated Columns in Tableau

These columns make use of aggregation features of tableau and as such couldn't be produced beforehand.

Table 2: Calculated Columns

Column (S/C/M +)	**Formula**
Monthly	AVG([signature_count]) / AVG([population])
Overall	WINDOW_AVG([Monthly])
National Monthly	{FIXED [date]: AVG([signature_count]) / AVG([population])}
National Overall	{FIXED :AVG({FIXED [date]: AVG([signature_count]) / AVG([population])})}
Regional Monthly	{EXCLUDE [Constituency]: AVG([signature_count]) / AVG([population])}
Diff from National Monthly	[Monthly] - AVG([National Monthly])
Diff from National Overall	[Overall] - AVG([National Overall])
Diff from Regional Monthly	[Monthly] - AVG(Regional Monthly])
% Diff from National Monthly	100 * [Difference from National Monthly] / AVG([National Monthly])
% Diff from National Overall	100 * [Difference from National Overall] / AVG([National Overall])
% Diff from Regional Monthly	100 * [Difference from Regional Monthly] / AVG([Regional Monthly])