1. Motivation

- Governments across the world are adopting open government directives
- Data about multiple aspects of state affairs are continuously released
- In parallel, voting advice applications (VAAs) are set up:
  - VAA’s usually come in the form of a website, where politicians can answer a set of questions to express their opinion. Citizens then fill the same questionnaire and are recommended the candidates with the closest opinion.
  - Using such tools and datasets, we take an exploratory, data-driven approach to the study of the political landscape of Switzerland

2. Datasets

- We use three different, publicly available datasets:
  - Municipality votes
    - Outcome (percentage of “yes”) of all Swiss national votes between 1981 and 2011
    - This results in 585,305 outcomes (249 votes in 2,389 municipalities)
  - Smartvote pre-electoral opinions
    - Responses given by candidates and voters on the smartvote [1]. VAA before the parliamentary elections of 2011 (32 questions on various political topics)
    - 2,985 candidates (82.4% of all candidates) and 229,133 voters (9% of total turnout)
  - Votes in the parliament
    - Votes (yes/no) of the members of the National Council, from 2011 to 2013
    - This amounts to 2,494 votes for each of the 181 legislators, or 451,414 votes in total

3. Ideological Space

- What questions discriminate best the opinions of candidates?
  - The projection (SVD) of smartvote responses yields axes that are coherent with the expected left/right and liberal/conservative directions:

- Voters are more uniformly spread in the ideological space than candidates:

- Political polarization can be measured by the variance captured by the first singular vectors. Politicians are more polarized than voters:

- Parties overlap can be measured by computing the proportion of candidates closer to the median answer of other parties. The $(i,j)$-th element of the right plot shows the proportion of candidates of party $i$ closer to the median answer of party $j$:

4. Vote Analysis at the Municipality Level

- Analysis of votes at the municipality level for 245 national votes
- Dimensionality reduction (SVD) highlights linguistic/cultural contrasts:

5. More on VAA’s: Possible Abuses and Counteractions

- Some candidates can abuse voting advice applications such as smartvote to optimize their ranking in the voting recommendations
- For instance, a simple yet efficient strategy consists in targeting a region of the ideological space that is void of candidate. Such an “artificially crafted” candidate would appear in the top-50 recommendations of nearly half of the visitors of smartvote:

- However, one can also use the opinions expressed on VAAs by candidates in order to check the consistency of their votes in the parliament once they are elected
- From the opinions expressed on smartvote, it is possible to predict 80% of the votes at the parliament with an accuracy higher than 90%
- We can thus compute the opinion shift of a legislator by comparing her actual and expected votes. Members of the parliament are consistent: at most 3.75% of their votes are in opposition to their smartvote profile.

6. References