Identification of Ordinal IRT Model with Parliamentary Rollcall Data

Bob Kubinec

Identifying a spatial model requires an understanding of how each observed vote relates to the underlying latent scale. This is the problem with ordinal IRT data, which includes additional votes and may require additional identification assumptions.

Traditional voting spatial models like DW-NOMINATE operate in the American context in which it is easy to determine who is the most extreme legislator along the L-R scale. Once a legislator is assigned to each end of the scale, the model is identified for one dimension. However, in parliamentary systems, it is not easy to tell who is the most extreme legislator along the latent dimension. Generally speaking, the underlying dimension is defined by the parliamentary coalitions, and for the majority of votes, legislators vote with their coalition. Determining who is the most “pro-coalition” is difficult, unless perhaps one looks at a combination of absentee rates and percentage of pro-coalition votes.

A proposed way of identifying parliamentary data, in particular within the Tunisian case, is to use a moderate legislator as the reference legislator, and assign her an ideal point of 0. Then, identification takes place within bills. This has considerable advantages over using extreme legislators:

* The scale and placement of legislators is allowed to float freely. Pinning two extreme legislators can stretch the scale and have unintentional consequences on the ordering of legislators if the pinned legislators aren’t in fact the most extreme.
* Usually, analysis is focused on the ideal points of legislators rather than bills. Furthermore, in most contexts, there are far more bills than legislators. Thus pinning more bills does little to detract from the substantive conclusions of the analysis.

To achieve full identification, bills must be assigned ideal points relative to the reference legislator. This requires thinking about the coalitions in parliament and what the reference legislator’s votes mean. For the Tunisian context, we use Bouchra Ben Hamida as a reference legislator. Because she is moderate, we expect that most bills’ ideal points will either fall to the right or left of her on the latent scale, which we can think of being pro-government in one direction and pro-opposition in another.

To identify the model, I constructed a table showing what the expected ideal points for bills would be given Ben Hamida’s observed vote and assuming that she is a moderate legislator.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Majority Party Position (Nidaa Tounes) | |
|  |  | Yes | No |
| Ben Hamida’s Observed Vote | Yes | -0.25 (Ben Hamida agrees with the majority party, hence the bill is close to her ideal point but still a bit pro-gov) | 0.25 (Ben Hamida votes Y, so close to her ideal point, but this law would be more pro-opp than pro-gov because she voted against the majority party) |
| No | -1 (Ben Hamida voted No, so far away from her ideal point and in a negative (pro-gov) direction because the she voted against the majority party) | +1 (Ben Hamida voted with the majority party but also voted No, so the law must be very pro-opp, hence positive) |
| Abstain | -0.75 (If we assume that an Abstain is almost a No, then this law is similar to her voting No when the majority party votes yes, except that it is not as pro-government) | 0.75 (Again, the majority party voted against the law, so we know it is pro-opp, but since Bouchra is abstaining, it must not be as pro-opp for her) |
| Absent | -0.5 (Again, law is pro-gov since majority party voted yes, but since she was just absent instead of abstaining or voting No, we assume it a more moderate bill) | 0.5 (The law is pro-opp because majority party voting against, but not as bad as either Abstain or No vote from Ben Hamida) |