

## Ecormier-Nocca and Sauger – Appendix

### Box 2 – Barberá 2015: using followers to position elites and ordinary citizens

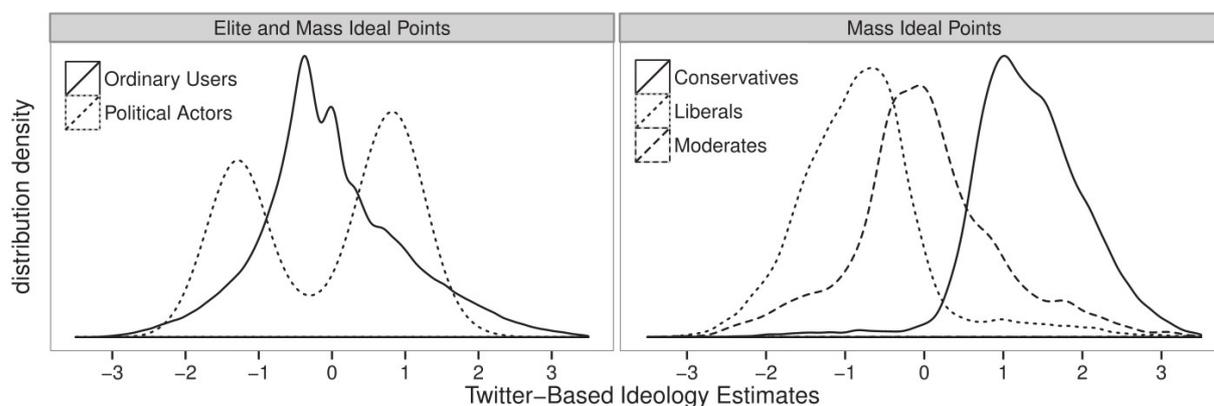
In a 2015 article, Pablo Barberá estimates the ideal points of political actors (mainly legislators and political parties) and ordinary citizens using Twitter data in the United States and five European countries (Italy, Germany, the Netherlands, Spain and the United Kingdom). Building on previous spatial voting models, the author develops a Bayesian spatial model explaining the following decisions of Twitter users. Following a politician whose ideological positions are different is costly, first because the content of the messages can create cognitive dissonance, and second because the user's attention is a scarce resource. Moreover, previous works regarding the homophilic nature of social media and selective exposure suggest that Twitter users are more likely to follow like-minded political actors. The model is thus based on the assumption that Twitter users will follow political actors who share close ideological positions. The probability that a user  $i$  follows a political account  $j$  is modelled as:

$$p(y_{ij} = 1 \mid \alpha_j, \beta_i, \gamma, \theta_i, \phi_j) = \text{logit}^{-1} \left( \alpha_j + \beta_i - \gamma \|\theta_i - \phi_j\|^2 \right)$$

where  $y_{ij} = 1$  if user  $i$  decides to follow user  $j$  and  $y_{ij} = 0$  otherwise,  $\theta_i$  and  $\phi_j$  are real values giving the ideal points of user  $i$  and user  $j$  and  $\gamma$  is a normalizing constant.  $\alpha_i$  and  $\beta_i$  are two additional parameters to control respectively for user  $j$  popularity and for user  $i$  level of political interest. For each country included in the analysis, the author selects  $m$  political accounts with clearly defined ideological positions and with a significant number of followers, including legislators, political parties, journalists and news outlets. The set of  $n$  ordinary users are defined as the followers for at least three of the  $m$  political accounts, with a sufficient visibility and level of activity on Twitter.

The estimated ideal points for ordinary users are consistent with alternative sources. At the aggregate level, when comparing the distribution of political actors and ordinary users in the United States, results are similar to previous works on elite and mass polarization. Furthermore, ordinary users who self-identify in their Twitter profile as conservatives, moderates or liberals are coherently positioned using their following network (Figure 1).

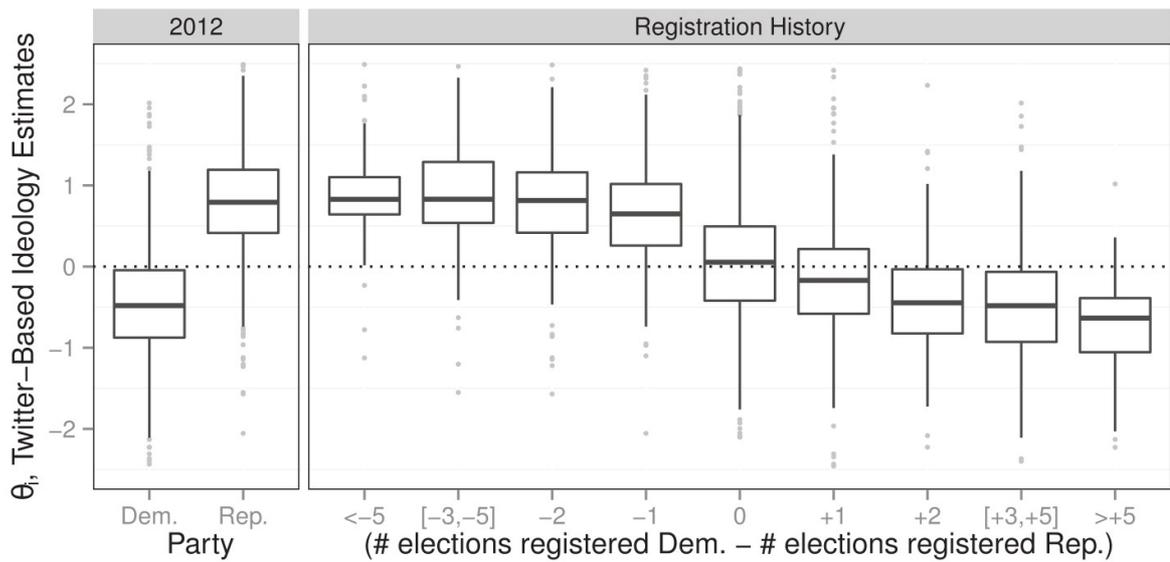
Figure 1 Validation of ordinary users' ideal points



Source: Barberá 2015, p. 85, Figure 4.

At the individual level, Pablo Barberá matches users from Ohio with the voter registration file. Registered Republicans users have a significantly higher (i.e. more conservative) mean ideal point than registered Democrats (see Figure 2, left panel). Moreover, when taking into account registration history since 2000 (which could be defined as a measure of the intensity of partisanship), the more consistent the user's registration across elections, the more polarized his ideal point (Figure 2, right panel).

Figure 2 Ordinary users' ideal points and party registration



Source: Barberá 2015, p. 86, Figure 5.