Appendix 1: Non-Respondents and Missing Data

Missing data in network studies can come in many forms. We can have ties or attribute data reported incorrectly. Additionally, when using survey data, we frequently deal both with non-respondents as well as nodes named as alters who were never included in the sample of respondents. Frequently these nodes are excluded from the analysis (Robins et al. 2012). In this study we decided to take a very different approach. Here, we include the organizations mentioned, thus organizations that have some incoming ties, but are unable to have outgoing ties either because they did not respond to the survey or were never surveyed. Thus, we are able to keep the full structure of the network as described to us by the respondents. However, this adds a lot of missing data; all of the outgoing ties from non-respondents are missing, although their incoming ties (from respondents), are not. To preserve this structure, we condition the ERG model on this characteristic. We treat the missing ties as 'structural zeros' that we condition on in the modeling procedure. This means that all later statistical tests condition on these ties not being included in the model. We have thus constrained our simulation to replicate the missing data such that it does not influence our statistics. To do so means that we must separate incoming from outgoing ties, as non-respondents have missing data on the outgoing but not on the incoming ties. For this reason we treat the ties as directed.

References:

Robins, G., Lewis, J. M., and P. Wang. 2012. Statistical network analysis for analyzing policy networks. *Policy Studies Journal 40*(3): 375-401.