Subject: Political Analysis - Decision on Manuscript ID PA-2018-043
From: Analysis Political - To: minhassh@msu.edu - Date: May 28, 2018 at 10:05 AM

28-May-2018

Dear Prof. Minhas,

Manuscript ID PA-2018-043 entitled "Inferential Approaches for Network Analysis: AMEN for Latent Factor Models" which you submitted to Political Analysis, has been reviewed and I have read it myself. The comments of the reviewers are included at the bottom of this letter.

The reviewers have recommended publication, but also suggest some revisions to your manuscript. Therefore, I invite you to respond to all of the reviewers' comments and revise your manuscript. There are not very many critical points, but I believe that they are important. In particular reviewer 1's concern about the application needs to be addressed. Please itemize your responses to both reviewers in order to make our editorial response more timely.

To revise your manuscript, log into https://urldefense.proofpoint.com/v2/url?u=https-3A__mc.manuscriptcentral.com_pa&d=DwIFaQ&c=nE__W8dFE-shTxStwXtp0A&r=-DqL-vqQBWL9e8H_v2DgjA&m=qimHAD70pRYngKpKdIvm3jW7RMjiUCWAJPKiQg2xQtM&s=O_Bhxu0UX9pu86LMG0 and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You have 30 days to make the requested revisions and submit. The due date is 27-Jun-2018.

You may also click on the link below to start the revision process (or continue the process if you have already started your revision) for your manuscript. If you use the link below you will not be required to login to ScholarOne Manuscripts.

*** PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. ***

https://urldefense.proofpoint.com/v2/url?u=https-3A__mc.manuscriptcentral.com_pa-3FURL-5FMASK-3D121e4acbb9064c49856b536eaf522309&d=DwIFaQ&c=nE__W8dFE-shTxStwXtp0A&r=-DqL-vqQBWL9e8H_v2DgjA&m=qimHAD70pRYngKpKdIvm3jW7RMjiUCWAJPKiQg2xQtM&s=Tc7CIFiIV7sqRZGuFY9F
NzFM3RM&e=

IMPORTANT: Your original files are available to you when you upload your revised manuscript. However, please delete any redundant files before completing the submission.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. If you use Microsoft Word, highlight the changes to your manuscript within the document by using the track changes mode or by using bold or colored text. Or you can provide a detailed revision memorandum that lists the specific changes you have made to your manuscript. For LaTeX generation of PDF files, please do the latter.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Centre.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

Because we are trying to facilitate timely publication of manuscripts submitted to the Political Analysis, your revised manuscript should be uploaded as soon as possible. If it is not possible for you to submit your revision in a reasonable amount of time, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to Political Analysis. I look forward to receiving your revision soon.

Sincerely,

Jeff Gill
Editor-in-Chief, Political Analysis
jgill@american.edu

Reviewers' Comments to Author:

Reviewer: 1

Comments to the Author
In this paper, the authors introduce a new method to analyze relational dynamics that are widespread in political science, but which remain largely untapped given difficulties of implementation, interpretation, and computation when conducting network analysis. The `additive and multiplicative effects' model provides a much-needed framework to address these challenges. The authors' description of the framework is by and large effective and persuasive, and they offer clear justifications and rationale for why we need this new approach. Notwithstanding some minor revisions to the paper, I highly recommend publication in Political Analysis.

My primary concern with the paper is not in the method, which is elegantly and compellingly constructed, but rather with the empirical application. Specifically, more justification is needed for the particular empirical application used here. While the use of the same study employed by Cranmer et al (2017) provides nice continuity for readers interested in inferential approaches to statistical network analysis, the dataset suffers from two notable issues with regard to a fair comparison between ERGM, LSM, and the proposed AME approach.

The first is that each node's latent position is likely to be correlated with the model terms of interest – a point raised by Cranmer et al. as well (pp. 248-9). In this case, key government players have lower Euclidean distances because they tend to be positioned in the center of the latent space. If this were not the case, would we see such a large divergence between the LSM and AME results? For example, would the AME perform much "better" than the LSM if the network data exhibited a less hierarchial/more egalitarian structure?

The second is that the data exhibit high reciprocity such that the directed network is effectively a symmetric undirected network. How would the results differ for a more evenly-balanced directed network (i.e. one where the probability of a reciprocal tie is 50%)?

Neither of my concerns requires any major changes or alterations to the empirical analysis, but rather warrants some discussion or response. To address both issues, the authors could either describe in detail the merits and demerits of this empirical application for comparing AME to existing frameworks, or could draw up a simple simulation to show the sensitivity of the model comparison results to the factors identified above. Something along the lines of constructing a simulated network with known determinants of tie formation based on nodal characteristics could be helpful here (and could certainly be relegated to the appendix to stay within the word limits).

Two minor comments:

It would be helpful for the reader to compare AME to non-network models as well, so the authors could include a column in Table 3 for results from a logit model (or the like).

Typo on page 13, first sentence should read: $y = B'x - |u_i - u_j|$ instead of $y = B'x + |u_i - u_j|$

Reviewer: 2

Comments to the Author
Thank you for submitting this paper and the opportunity to read your work.

I liked your explicit modelling of unobserved heterogeneity at the level of triangles in the network. I think this can be useful to applied researchers approaching the problem of modelling interdependence in their network data, starting with theory.

I also appreciate your contribution of the model to R for other researchers to use. That is great for political science and other fields as well.

I do wonder about three things: would it be appropriate to incorporate time dependence in your model given the empirical setup, talking about inference and using non-experimental data as you do for example on country diads may be confusing to those who may expect a treatment effects estimator, and it could be useful to compare your model to the current work going on in modelling network interdependence in statistics, engineering and epidemiology, That may make your model more relevant to the broader field.

I also recommend including the estimation of the basic logit model as that is still the starting point for many approaching this field.

Thanks.