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Discussion of "Statistical modelling of citation exchange between statistics journals" by Cristiano Varin, Manuela Cattelan, and David Firth

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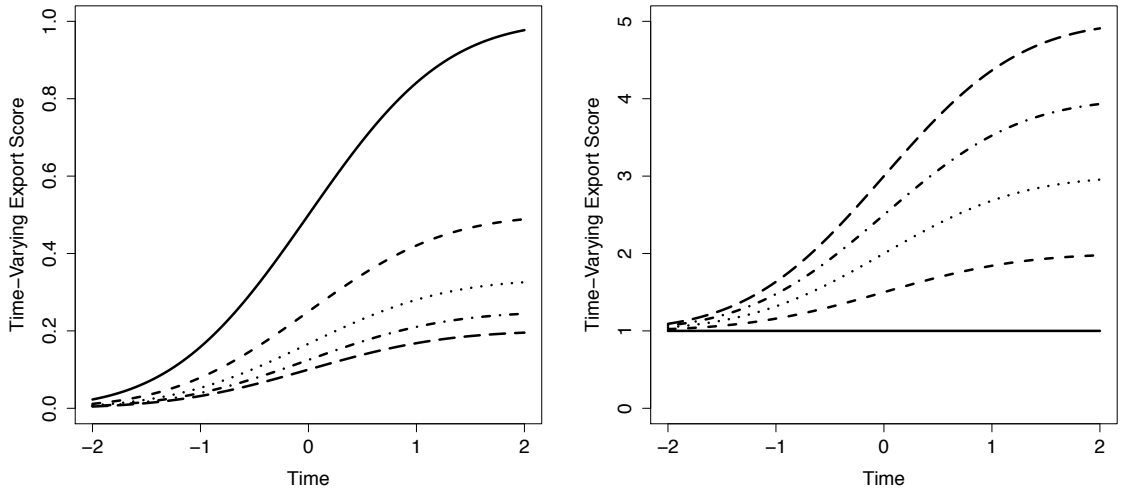
I would like to congratulate the authors for this magnificent article. Scientific reputation is perhaps the most valuable asset a scholar journal can hold. Reputation has a temporal aspect, but the current analysis—while extremely enlightening and thought-provoking—only provides a snapshot of the 'prestige' of statistics journals. The authors acknowledge this in §7.4.2, where they discuss the insights a dynamic Bradley–Terry model could offer. A dynamic analysis would pose new challenges, such as the reliability of real time estimates of export scores. Suppose we estimate $\{\mu_i^{2015}(t)\}_{i=1}^n$ using data until 2015, and that on 2016 we estimate $\{\mu_i^{2016}(t)\}_{i=1}^n$. Ideally, the estimate $\widehat{\mu}_i^{2016}(2015)$ should not differ too much from $\widehat{\mu}_i^{2015}(2015)$—otherwise the estimation method 'regrets' too much the estimate it produced earlier—but different estimation methods should possess different *revision* properties. Some revision is acceptable and desirable, but it seems difficult trusting on an inference method that revises substantially its estimates for previous years.

If one had a sufficiently long span of data, the question of extrapolating—out of the observation period—into the long-run could arise. But for this, it would be desirable that $\mu_i(t)$ and $\widehat{\mu}_i(t)$ had finite limits when $t \to \infty$, so that we could compute long-run export scores $\overline{\mu}_i := \lim_{t\to\infty} \mu_i(t)$, and $\overline{\pi}_{ij} := \exp(\overline{\mu}_i - \overline{\mu}_j)/\{1+\exp(\overline{\mu}_i - \overline{\mu}_j)\}$. Interpretation of these quantities would warrant some care, but could provide some insights? For instance if the true time-varying export scores are $\mu_i(t) = \underline{\mu}_i + (\overline{\mu}_i - \underline{\mu}_i)\Phi(t)$, with $\underline{\mu}_i \leqslant \overline{\mu}_i$, then $\overline{\mu}_i$ would represent the corresponding long-run export scores. See Fig. 1 for examples.

Related to §7.4.2 is also the possibility of defining predictor-dependent export scores, $\mu_i(\mathbf{x}_i)$, extending naturally the setup discussed in the paper. This could be done with the structured model $\text{logit}\{\pi_{i,j}(\mathbf{x}_i, \mathbf{x}_j)\} = \mu_i(\mathbf{x}_i) - \mu_j(\mathbf{x}_j)$. For example, one could be interested in such covariate-adjusted version of the export score so to assess how it could evolve over covariates such as society-sponsored journal (dummy), number of associate editors, *etc*; a related proposal is discussed in Firth (2009, §2).

The current comparison does not take into account econometrics journals. Although the argument of "retaining those [journals] which communicate more" is compelling, and well-justified by the authors, it raises the question: Do we want each 'community' to be ranked separately, or for subject-related topics to be ranked together? *Econometrica* is definitely special in this respect, because it is a prominent wide-scope journal in economics, and nowadays it certainly publishes more on game theory than on statistics and econometrics. But what about *Journal of Business and Economics Statistics* or, say, *International Journal of Forecasting*? I definitely think that these—and other theory and methods journals in psychometrics and machine learning—are still in the 'domain of attraction' of our profession.



(a) (b)

Figure 1: (a) $\mu_i(t) = 1/i\Phi(t)$, so that long-run export scores are $\overline{\mu}_i = 1/i$, for $i = 1, \ldots, 5$. (b) $\mu_i(t) = 1+(i-1)\Phi(t)$, so that long-run export scores are $\overline{\mu}_i = i$, for $i = 1, \ldots, 5$.

References

Firth, D. (2009), Bradley–Terry models in R. *J. Statist. Softwr.*, **12**, 1–12.