Metrics Research Group 4/21/2020

Danny’s Presentation Notes

Overall thoughts

* Jaime
  + Benefit if integrate better state space framework with synthetic control in section 3
  + What is added value of this state space rep in this context? Maybe confidence interval? Inference what is added to current literature and is clear?
* Antoine
  + Hard to follow. Lots of buzz words. First sentence – what is being mixed together.
  + Build a common thread. What’s been done, what are you adding, and why are you adding it. It’s unclear right now.
  + Abstract mentions out of sample predictions?
  + Are you testing if something is valid or now?
  + Not fully sure, but doing inference with shrinkage is very difficult
* Ryan
  + Confused – want to use time varying coeffs, but current methods don’t allow you to?
  + Took a while to figure out what you were doing and why
    - Make the “why” clearer
  + Paragraph on why past methods are restrictive and what you’re adding
  + Including an empirical example that’s not possible with current methods, but using this method makes it possible would make it much more clear to follow
* Dick
  + Would be beneficial to put in stuff that leads people in more carefully for now, add more context.
  + Dynamic vs static – didn’t understand what was going on there
  + There are lots of variables, but by using shrinkage, could help limit the number of variables to simplify the model. Would help the reader understand this if you add more details/context
  + How much of this is about shrinkage? How much of this is about synthetic control? Which is more important/relevant component in your paper?
* Gonzalo
  + Add more detail. Especially in the estimation section. Not clear for people who aren’t familiar with Bayesian methods
  + Failure of constant weights assumption – the weights are not part of DGP. Reword this because this is not an assumption, but rather a restriction.
  + Add graph back in(?)
* Doug
  + The first sentence is in abstract problematic. Rewrite
  + Synthetic control is a method

Section 3/Model

* Jaime
  + ??
* Antoine
  + <https://amstat.tandfonline.com/doi/abs/10.1080/01621459.2019.1686986?journalCode=uasa20#.Xp846OhKhPY>
* Gonzalo
  + Section 3 needs much more detail. What are potential outcomes? Observed, unobserved? Who’s treated, who’s not? Much much more detail
  + Equation 1 is a bit out of the blue. What is observed/unobserved
  + Normality assumptions are very restrictive
    - Argue/convince that the benefits of imposing assumptions outweigh the loss of generality
* Antoine
  + Placebo tests might have to assume normality. Will find paper that does this.
* Ryan
  + Sentence “appropriate solution is … Gibbs sampler” not clear about this paragraph. What are you trying to say?
* Dick
  + You have a lot of things on your mind. Put everything down on paper and clean it up. Add context
  + Estimating state space models without normality can be very painful. Assume it for now, but later on come back and see if you can remove normality assumptions
  + Maybe think about adding some X variables in equation 1 (lags?).
* Doug
  + Equations 1, 2, 3: if you took subscript t away from beta, it would be the synthetic control model. Do that first so people know where you’re starting. Then add subscript and discuss – are you the first to do this? Misspecification?
* Antoine
  + Give brief outline of what each thing you’re doing does (state space, synthetic control, lasso, etc.) and then start to bring them together.
  + https://www.mdpi.com/2225-1146/5/4/52 paper that references the need for normality

Rest of Paper

* Jaime
  + Page 11, “treatment effect is initially set to 0” but when you introduce more simulations, there a multiplicative effect, with coefficient going from 1 to 2. Try additive effects instead of multiplicative effects. Mult effects will probably need logs, which will then be additive
  + ??
* Doug
  + We know very little about asymptotics about synthetic control
* Antoine
  + You mention causal inference, but it’s not clear. What are confidence intervals?
  + Have a section that explains how you are going to do inference
* Doug
  + Focus on writing and making ideas clear. Then come back to coding.