**Meeting attendees.**

Xia Jiang,  Garrett Barber

**Meeting time**

9:00 – 10:00 am, Jan 5, 2023

**Meeting agenda (an addition meeting in response to an email question).**

1. Review the results of running all current methods using the COVID data
2. Work assignment.

**Research Design**

iRCT – an intelligent pseudo randomized controlled trial.

1. Implement the simple matching estimator method as described in Jiang’s slide (AboutDID.pptx).
2. Created a simple test dataset using the same example Jiang used in her slides.
3. Test 1) with the dataset created in 2).
4. Include a transform function in our iRCT (See the MBIL package) that can convert all the covariates into one variable (such as the X in the example).
5. Develop a function that convert multi-value variables into a binary variable and include it in the iRCT pacakge.
6. Apply iRCT to our LSM-15year.
7. Identify more interesting “treatment” variables such as Menopausal status in our LSM-15 year, use method developed in 5) to convert them into binary each respectively, if they are non-binary. Then apply iRCT each respectively.
8. Compare what you learned from using iRCT with what you can learn from our MBIL methods, and from the other causal learning methods that we have access to.
9. In terms of the completed causal network, such as the you (Garrett) learned using FCI with our LSM-15year, you can just retrieve the direct causes to the target variable (BCM) and compare with our MBIL and iRCT.

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**Progress made in the past week.**

**Issues/Questions and Comments**

**Ongoing tasks that cover more than a week**

**Specific tasks for the coming week (the original task assignment for two weeks)**

1. Focus on getting rFCI and FGS work.
2. Based on the results we just got, the problem with iRCT is how to determine the direction of the relationship, ie, what is the cause and what is the effect. Please look into this by doing literature search, and think about an algorithm that can help determine the directions, which might be a good and new research topic.
3. The PC result is a bit out of my expectation. As I recall, according to the PC algorithm that I taught in class (by tracing it instead of implementing it), we receives better results than the one showed by Garrett. Due to this, we may need to re-implement the PC algorithm. For this week, understand how the current PC algorithm is implemented. Also understand the PC algorithm that I taught in class. Put together a quick presentation showing the comparison of the two versions.
4. I will generate new simulated datasets, and you can run more experiments with them after that.
5. Enhance the readme of iRCT so that a user can run his/her dataset by reading the readme.
6. Record running time and other results and organize them better.
7. Start putting together our iRCT methodology paper/technical report, push it to github whenever new changes are made.

**Less urgent tasks**