Football Appended

Update: Football Games + NIBRS

This update will focus on the addition of adding in footballs games from sports-reference.com/espn.com in addition to spillovers using the NIBRS data set.

Questions about the paper:

- I think it's a little awkward having the baseline specification, and then showing event studies/reporting with the preferred specification. A lot of the NIBRS data would also "look better" if I used the baseline specification just because I'm really lacking a lot of data in these graphs. I'm not sure if switching back and forth between all of these specifications is a great idea since it confuses the reader. While the lindo paper went through a ton of specifications in their main table, maybe this can be a robustness check? Not quite sure how to proceed here. Of course, I could also justify the baseline specification with power issues.

- Placement of the spillovers. I have data on CSS (residence hall stuff) and NIBRS. Not entirely sure where best this fits in. On one hand, it makes sense to put them in the results section, but on the other, they're both using different data sets and this is really trying to get at the mechanism. Maybe best in the discussion/mechanisms as I have already?

- What exactly is a moratorium? I looked into this more and this is what I could find:

  - Moratoriums could include things such as all social events, drop-ins, formals, semi-forms, phil-anthropic events, house parties, new member activities, and third party events (e.g., events at bars/restaurants). There is a ton of heterogeneity between each school, and some are vague with "social events". Not sure how I should describe this in the paper. Maybe in a footnote?

Football games

I was able to collect data on football games for 34 of the 38 schools. The 8 schools remaining do not have football teams. Additionally, I obtained football game data for my other "untreated" schools to verify the results further. While not included in this document, the results only get more precise and more significant. I will focus on the "only treated" schools as I do in the paper, although this brings the question of whether my sample should include never treated schools in the main results.

Basic summary statistics for game days/moratoriums are shown in Table 1.

Football games as controls

In Table 2, I replicate my main table in the paper except with football games as controls. A comparison is shown. Main idea here is that football games as controls do not change the results very much at all.

What are the effects of Moratoriums and Game Days?

It is important to see what the effects of each of these things are. Table 3 shows the preferred specification (2) split by weekends and weekdays while showing the effects of each game days and moratoriums, along with the interaction. Notice that game days cause significant increases in alcohol offenses as expected, although no significant increases in sexual assaults (likely due to power). However, the coefficient is positive, thus consistent with the Lindo paper.

Table 4 shows the effect of game days AND moratoriums together. There are no significant effects here, although there is evidence that football games are causing more alcohol and sexual assaults (positive sign). This matches intuition - while moratoriums can decrease behavior, they can only mitigate the effects of game days.

NIBRS

The NIBRS data is bad but it's only here to try and show spillover effects. The big concern is that fraternity members/other partyers are just going off campus and partying somewhere else despite my evidence that partying is going into the residence halls.

Replicating the Lindo paper

I replicate the Lindo paper using their fixed effects specifications. I divide this into two tables. Table 5 shows the replication of the Lindo results using all alcohol offenses and sexual assaults (I use sexual assaults, not rapes which is defined as rape + statutory rape + fondle + sexual assault with an object), and Table 6 which separates into college-aged victims only (e.g., ages 17-22). I use Poisson regression in lieu of OLS since this is what Lindo does. Note that the NIBRS data only gives me a total of

Spillovers

I split spillover effects into multiple tables. I can show more if requested. The ones I think are most relevant are Table 7 which shows the effects of moratoriums using NIBRS with local police departments and university police and Table 8 which shows the effects of moratoriums using NIBRS with only local police departments (e.g., nearby place). I can show for college-aged individuals as well, but didn't want to overload with tables.

Heterogeneity: IFC Fraction

Doing heterogeneity analysis on the fraction of IFC populations to total enrollment. Similar to moratorium length, I split into 3 quantiles based on the 33rd and 66th percentile. Note that I only have 34/38 universities that give IFC participation. The results are shown in Table 9 where it appears that there really isn't a difference between how much presence the IFC has. If anything, this is just significantly underpowered like pretty much every other heterogeneity analysis.

Raw Data Graph

I tried to make a few raw data graphs, although it was difficult given that the reporting between universities is vastly different. As an alternative graph, I plot the raw data by weekdays and weekends, split by frequency of crimes occurring/reported at police departments. This was inspired by the results needing the university fixed effects to really show up. This is shown in the barplot Figure 1

Table 1: Distribution of Game Days and Moratoriums Over Sample Period

Day Type	Number of Days
No Game No Moratorium	51705
Game Day	2314
Moratorium	2786
Moratorium and Game Day	89
Number of Schools with Football Games	**34**

Note:
Schools without football games do not have a football team. Days represent academic-calendar days.

Tables and Figures

Table 2: Effect of Moratoriums on Alcohol Offenses and Sexual Assaults (OLS).

	Without Football			With Football Controls		
	(1)	(2)	(3)	(1)	(2)	(3)
Panel A: Alcohol Offenses						
In Moratorium	-0.148**	-0.132*	-0.145**	-0.142**	-0.122*	-0.135**
	(0.049)	(0.050)	(0.046)	(0.048)	(0.049)	(0.045)
Observations	56514	56514	56514	56514	56514	56514
Mean of Dependent Variable	0.497	0.497	0.497	0.497	0.497	0.497
Panel B: Sexual Assaults						
In Moratorium	-0.009*	-0.010	-0.007	-0.009*	-0.010	-0.007
	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.006)
Observations	56514	56514	56514	56514	56514	56514
Mean of Dependent Variable	0.055	0.055	0.055	0.055	0.055	0.055
Controls for Panels A-B:						
FE: Day of Week	X	X	X	X	X	X
FE: Holiday	X	X	X	X	X	X
FE: Game Day				X	X	X
FE: Semester (Spring/Fall)	X	X	X	X	X	X
FE: University	X			X		
FE: Academic Year	X			X		
FE: University by Academic Year		X			X	
FE: University by Academic Year by Semester			X			X

Note:
Standard errors are clustered by university and each offense is defined as per-25000 enrolled students. Weekends consist of Fridays, Saturdays, and Sundays. Weekdays consist of Monday through Thursday. Holiday controls include controls for Veterans Day, Thanksgiving, Labor Day, Halloween, and MLK Day. Christmas/New Years/July 4th are not included since these holiday's are not on any university's academic calendar. A moratorium is a temporary halt on fraternity-related activities with alcohol. Specification (2) is the preferred specification due to the flexibility of the fixed effects and the conservativeness of the estimates.
+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Effect of Moratoriums on Alcohol Offenses and Sexual Assault by Weekend/Weekdays (OLS).

	Days of the Week		
	All Days	Weekends	Weekdays
Panel A: Alcohol Offenses			
In Moratorium	-0.124*	-0.242*	-0.033
	(0.049)	(0.103)	(0.027)
Game Day	0.685***	0.653***	0.603*
	(0.181)	(0.159)	(0.240)
Moratorium x Game Day	0.055	0.016	-0.006
	(0.612)	(0.545)	(0.875)
Observations	56514	24244	32270
Panel B: Sexual Assaults			
In Moratorium	-0.010	-0.017	-0.005
	(0.007)	(0.011)	(0.006)
Game Day	0.015	0.010	0.013
	(0.009)	(0.010)	(0.023)
Moratorium x Game Day	0.026	0.003	0.157*
	(0.044)	(0.043)	(0.068)
Observations	56514	24244	32270
Controls for Panels A-B:			
FE: Day of Week	X	X	X
FE: Holiday	X	X	X
FE: Semester (Spring/Fall)	X	X	X
FE: University by Academic Year	X	X	X

Note:

Standard errors are clustered by university and each offense is defined as per-25000 enrolled students. The column 'All Days' represents specification (2) from the main results table. Weekends consist of Fridays, Saturdays, and Sundays. Weekdays consist of Monday through Thursday. Holiday controls include controls for Veterans Day, Thanksgiving, Labor Day, Halloween, and MLK Day. Christmas/New Years/July 4th are not included since no university's academic calendar contains them. A moratorium is a temporary halt on fraternity-related activities with alcohol.

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Effect of Moratoriums on Alcohol Offenses and Sexual Assault by Weekend/Weekdays (OLS).

	Days of the Week		
	All Days	Weekends	Weekdays
Panel A: Alcohol Offenses			
Moratorium x Game Day	0.514	0.352	0.567
	(0.644)	(0.591)	(0.948)
Observations	56514	24244	32270
Panel B: Sexual Assaults			
Moratorium x Game Day	0.032	0.001	0.165*
	(0.042)	(0.041)	(0.067)
Observations	56514	24244	32270
Controls for Panels A-B:			
FE: Day of Week	X	X	X
FE: Holiday	X	X	X
FE: Semester (Spring/Fall)	X	X	X
FE: University by Academic Year	X	X	X

Note:
Standard errors are clustered by university and each offense is defined as per-25000 enrolled students. The column 'All Days' represents specification (2) from the main results table. Weekends consist of Fridays, Saturdays, and Sundays. Weekdays consist of Monday through Thursday. Holiday controls include controls for Veterans Day, Thanksgiving, Labor Day, Halloween, and MLK Day. Christmas/New Years/July 4th are not included since no university's academic calendar contains them. A moratorium is a temporary halt on fraternity-related activities with alcohol.
$+ \ p < 0.1$, $* \ p < 0.05$, $** \ p < 0.01$, $*** \ p < 0.001$

Table 5: Effect of Game Day on Alcohol Arrests and Sexual Assaults (Poisson).

	(1)	(2)	(3)	(4)
Panel A: Alcohol Arrests				
Game Day	1.051**	1.041**	1.013**	1.038**
	(0.397)	(0.374)	(0.358)	(0.360)
Observations	33230	32612	30506	30155
Mean of Dependent Variable	0.654	0.654	0.654	0.654
Panel B: Sexual Assaults				
Game Day	0.198***	0.081	0.081+	0.054
	(0.046)	(0.054)	(0.048)	(0.057)
Observations	33238	30254	22579	21926
Mean of Dependent Variable	0.238	0.238	0.238	0.238
Controls for Panels A-B:				
FE: Day of Week	X	X	X	X
FE: Holiday	X	X	X	X
FE: Agency	X			
FE: Year	X	X	X	
FE: Agency by Month		X		
FE: Agency by Week			X	
FE: Agency by Month by Week				X

Note:

Standard errors clustered by agency. Alcohol arrests and sexual assaults are counts. Sexual assaults is the sum of rape, fondling, statutory rape, and sexual assault with an object.

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Effect of Game Day on Alcohol Arrests and Sexual Assaults College Aged Only (Poisson).

	(1)	(2)	(3)	(4)
Panel A: Alcohol Arrests				
Game Day	1.188**	1.128**	1.086**	1.126**
	(0.454)	(0.434)	(0.404)	(0.405)
Observations	33230	32342	29555	29088
Mean of Dependent Variable	0.348	0.348	0.348	0.348
Panel B: Sexual Assaults				
Game Day	0.224	0.114	0.086	0.088
	(0.143)	(0.119)	(0.118)	(0.125)
Observations	33230	29078	19498	18637
Mean of Dependent Variable	0.055	0.055	0.055	0.055
Controls for Panels A-B:				
FE: Day of Week	X	X	X	X
FE: Holiday	X	X	X	X
FE: Agency	X			
FE: Year	X	X	X	
FE: Agency by Month		X		
FE: Agency by Week			X	
FE: Agency by Month by Week				X

Note:

Standard errors clustered by agency. Alcohol arrests and sexual assaults are counts. Sexual assaults is the sum of rape, fondling, statutory rape, and sexual assault with an object. College aged is victim of 17-22 age.

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 7: Effect of Moratoriums on Alcohol Arrests and Sexual Assaults in Universities and Nearby Agencies (OLS).

	(1)	(2)	(3)
Panel A: Alcohol Offenses			
In Moratorium	-0.241*	-0.131+	-0.174*
	(0.098)	(0.070)	(0.072)
Observations	33230	33230	33230
Mean of Dependent Variable	1.225	1.225	1.225
Panel B: Sexual Assaults			
In Moratorium	0.021	0.001	0.004
	(0.027)	(0.011)	(0.012)
Observations	33230	33230	33230
Mean of Dependent Variable	0.478	0.478	0.478
Controls for Panels A-B:			
FE: Day of Week	X	X	X
FE: Holiday	X	X	X
FE: Game Day	X	X	X
FE: Semester (Spring/Fall)	X	X	X
FE: Agency	X		
FE: Academic Year	X		
FE: Agency by Academic Year		X	
FE: Agency by Semester by Academic Year			X

Note:

14/38 univerisites included due to reporting issues. Standard errors clustered by agency. Alcohol offenses are only arrests. Sexual assaults are the sum of rape, fondling, sexual assault with an object, and statutory rape. Offenses are per-25000 enrolled students.

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Effect of Moratoriums on Alcohol Arrests and Sexual Assaults in Nearby Agencies (OLS).

	(1)	(2)	(3)
Panel A: Alcohol Offenses			
In Moratorium	-0.268	-0.092	-0.244
	(0.178)	(0.122)	(0.141)
Observations	13764	13764	13764
Mean of Dependent Variable	1.225	1.225	1.225
Panel B: Sexual Assaults			
In Moratorium	0.036	0.005	0.000
	(0.061)	(0.028)	(0.027)
Observations	13764	13764	13764
Mean of Dependent Variable	0.478	0.478	0.478
Controls for Panels A-B:			
FE: Day of Week	X	X	X
FE: Holiday	X	X	X
FE: Game Day	X	X	X
FE: Semester (Spring/Fall)	X	X	X
FE: Agency	X		
FE: Academic Year	X		
FE: Agency by Academic Year		X	
FE: Agency by Semester by Academic Year			X

Note:

Nine nearby agencies are included. Standard errors clustered by agency. Alcohol offenses are only arrests. Sexual assaults are the sum of rape, fondling, sexual assault with an object, and statutory rape. Offenses are per-25000 enrolled students.

$+ p < 0.1$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 9: Effect of Moratoriums by Fraction of Enrollment in IFC

	Type of Offense	
	Alcohol Offenses	Sexual Assaults
Panel A: Below 33rd Percentile in IFC Participation		
In Moratorium	-0.189	-0.002
	(0.119)	(0.006)
Observations	49345	49345
Panel B: Between 33rd and 66th Percentile in IFC Participation		
In Moratorium	-0.125+	-0.011
	(0.071)	(0.009)
Observations	49345	49345
Panel C: Above 66th Percentile in IFC Participation		
In Moratorium	-0.100	-0.016
	(0.086)	(0.019)
Observations	49345	49345

Note:

Standard errors are clustered by university and each offense is defined as per-25000 enrolled students. These estimates represent 34/38 universities with moratoriums. Four universities did not release information on their IFC populations. Each panel represents the interaction of an indicator equal to one if a university's fraction of IFC population to total enrollment was below the 33rd percentile, between the 33rd and 66th percentile, and above the 66th percentile. Controls include day of week, spring semester, holiday, and university by academic year. Holiday controls include controls for Veterans Day, Thanksgiving, Labor Day, Halloween, and MLK Day. Christmas/New Years/July 4th are not included since no university's academic calendar contains them. A moratorium is a temporary halt on fraternity-related activities with alcohol.

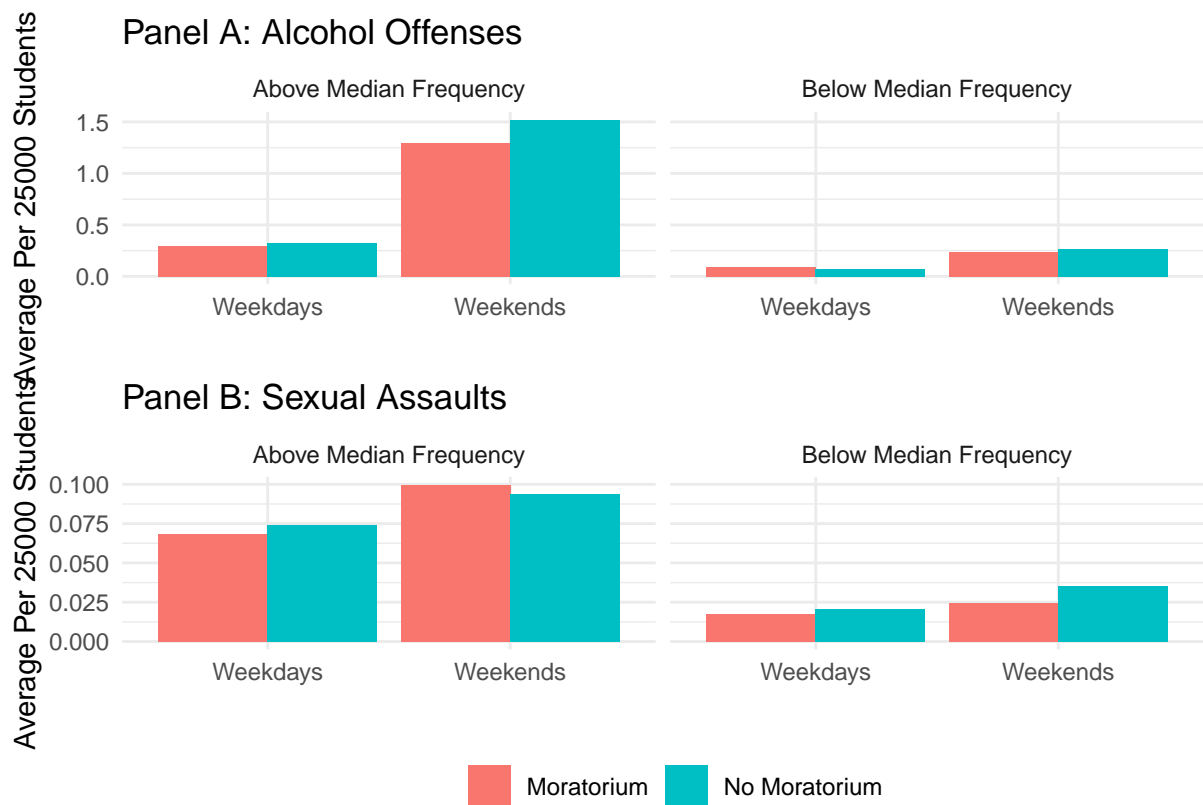+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Figure 1: Distribution of alcohol offenses and sexual assaults by weekends (Fri-Sun) and weekdays (Mon-Thurs).