

# Classroom Peer Effects:

**A Model of Disruptive Behavior in Middle School Classrooms**

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# Introduction

- Importance
  - Problem behavior negatively effects educational success in the classroom.
- Office Discipline Referrals
  - Issued when a student expresses problem behavior that cannot be addressed within a specific amount of time.
  - An ODR removes the student from the classroom, limiting the negative effects to educational output.
- Peer Effects
  - Are those externalities of peer induced behavior, both positive and negative, that influence peer behavior.

# Background

- Positive Behavior System, PBS
  - Goal: to decrease the time a teacher spends addressing issues of problem behavior within the classroom
- School-Wide Information System, SWIS
  - Web-based information system that assists school personnel in using office referral data to adapt school-wide and individual student interventions
  - Only records office discipline referral descriptions

# Literature Review

- Several studies concern student peer effects
  - Main focus has been to separate out each type of effect
    - Lazear – direct effects
    - Hanushek – reciprocal nature
- Our data will enable us to account for both direct and indirect effects

# Data Description

- School-Wide Information System (SWIS)
  - web-based information system
  - created to assist school personnel in adapting school-wide and individual student problem behavior intervention programs
  - Not comprehensive data collector (only tracks incidents of problem behavior)
- We used data spanning the 2001-02 school year through February of 2004.
- We used data from one middle school (6<sup>th</sup>–8<sup>th</sup> graders)
  - Middle schools students receive more ODRs
  - Greater variation in type of incident warranting ODR

# ODR Description

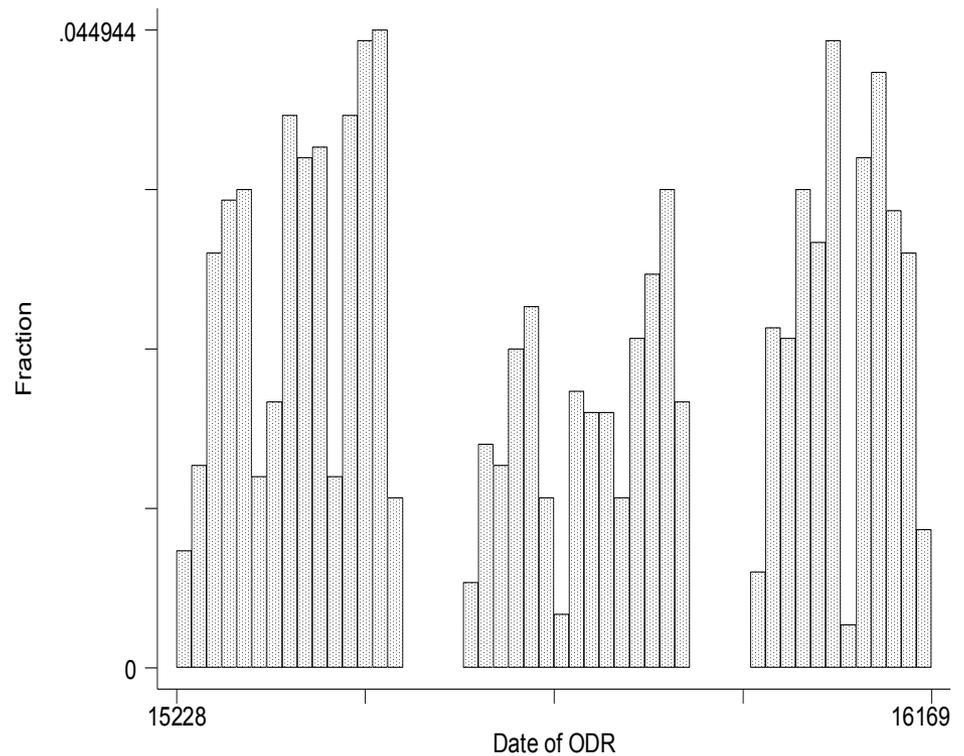
- Personal ID numbers for each individual and ODR
- Provides date, location, time in 15 minute intervals
- Problem Behaviors :
  - Provides a description of the problem behavior (ex: disruption, fighting, possession of tobacco or a bomb threat)
- Others involved
  - This variable accounts for who else was involved in the incident (ex: peer, teacher, or other)
- Consequences or actions taken
  - These are the administrative actions taken in response to the issuing of an ODR (ex: time in office, parent contact, in-school or out of school suspensions, or expulsion)

# Descriptive Statistics/ Analysis

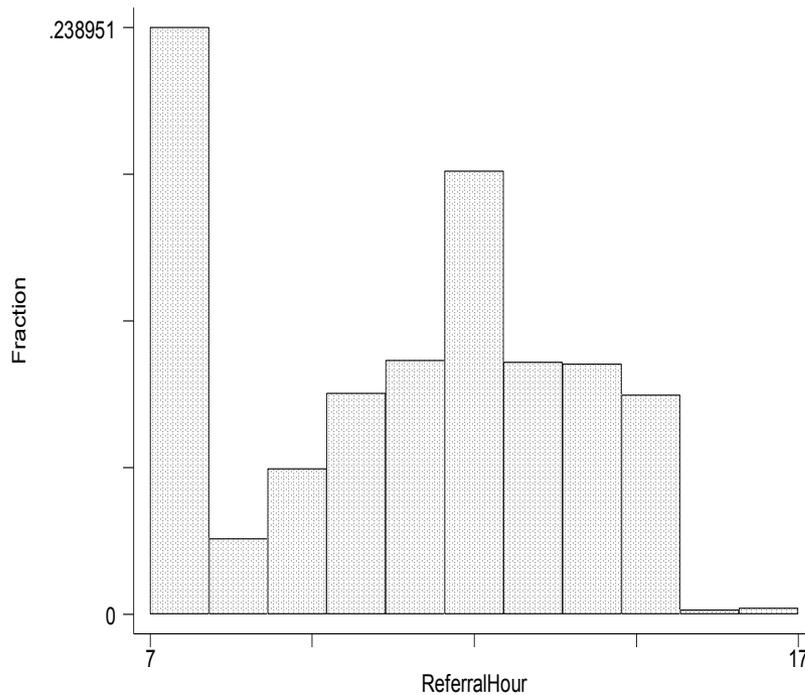
- We address
  - ODRs over time (by year and during the day)
  - Severity of ODR by grade
- We Regress
  - To find the implications of receiving an ODR in the first year
  - Last Period Effect

# Results

- ODRs increase over the course of the school year.



# Results



- ODRs peak in volume at 1pm.
- The spike attributed to educators filling out ODRs from the previous day and also ODRs related to attendance.

# Descriptive Statistics

Severity Level	1	2	3	4	Total
Grade 6					
Frequency	25	252	94	1	372
Percentage of ODR by severity	22.12	26.72	35.74	20	28.1
Grade 7					
Frequency	35	353	78	2	468
Percentage of ODR by severity	30.97	37.43	29.66	40	35.35
Grade 8					
Frequency	53	338	91	2	484
Percentage of ODR by severity	46.9	35.84	34.6	40	36.56
Total	113	943	263	5	1,324
	100	100	100	100	100

# ODRs after the first year

Dependant Variable:	
Number of ODRs in Year 2 and 3 by student	
Number of ODRs in Year 1	0.367
	(3.75)***
(mean) Severity of ODR	-0.48
	-0.51
(mean) Days Suspended	0.194
	-0.36
(mean) Count Educator	-0.002
	-0.35
Constant	4.124
	(2.06)**
Observations	85
R-squared	0.16
Absolute value of t statistics in parentheses	
* significant at 10%; ** significant at 5%; *** significant at 1%	

# Last Period Effect

Dependant Variable: Number of ODRs per day											
ODR included:	All ODRs	Language	Fighting	Disrespect	Harassment	Disruption	Skip Class	Other Behavior	Grade 6	Grade 7	Grade 8
Last Period	-0.779	-0.409	-0.108	-0.81	0.021	-0.08	0.256	-0.269	-0.69	-0.037	0.108
	(1.99)**	(1.85)*	-0.37	(5.26)***	-0.05	-0.31	-0.57	(3.40)***	(2.09)**	-0.14	-0.29
Severity	0.031	-	-	-	-	-	-	-	-0.009	-0.001	0.109
ODR(mean)	-0.11	-	-	-	-	-	-	-	-0.06	-0.01	-0.54
# ODRs per	-0.023	-0.019	-0.016	-0.025	-0.024	-0.019	-0.102	-0.013	-0.012	-0.029	-0.014
year by student	-0.48	-0.64	-0.75	-0.95	-0.7	-1.1	-1.54	-0.86	-0.42	-1.25	-0.46
# ODRs by	0.001	-0.001	0	0.002	0.001	0	0.001	0.001	-0.001	0.001	0
Educator(mean)	-0.54	-0.81	-0.47	-1.4	-1.26	-0.67	-0.76	(2.41)**	-1.19	-0.8	-0.49
Year2	0.893	-0.189	0.026	0.22	0.261	-0.297	-0.245	0.021	0.431	0.175	-0.009
	(3.63)***	-0.7	-0.15	-1.4	-1.47	-1.53	-0.68	-0.18	(2.34)**	-1.12	-0.05
Constant	2.638	1.59	1.508	1.601	1.085	1.609	1.783	1.223	1.828	1.707	1.571
	(4.02)***	(3.71)***	(8.40)***	(9.75)***	(5.80)***	(7.07)***	(3.53)***	(12.01)***	(4.14)***	(4.51)***	(3.24)***
Observations	290	48	84	173	50	77	41	85	148	183	177
R-squared	0.05	0.04	0.01	0.04	0.07	0.07	0.11	0.07	0.04	0.02	0
Robust t statistics in parentheses											
* significant at 10%; ** significant at 5%; *** significant at 1%											

# Last Period Effects

- Game between students and teachers
  - Incentives change in the last period
  - Test for combined teacher/student last period effects
- Account for differences between years, severity of ODRs, measures of student misbehavior and teacher toughness.
  - 0.779 fewer ODRs per day in the last period.
  - -0.810 Defiance/Disrespect/Non-Compliance
  - -0.269 Other Behavior
  - -0.409 Abusive/Inappropriate Language (10% significance)
  - Sixth graders likely to get 0.69 fewer ODRs per day, other grades insignificant

# ODRs per year by student

Dependant Variable: Number of ODRs per year by student								
ODR included:	All ODRs	Language	Fighting	Disrespect	Harassment	Disruption	Skip Class	Other
Grade	-0.151	0.031	-0.134	-0.219	-0.164	-0.111	0.234	-0.005
	-0.98	-0.59	(1.83)*	(1.73)*	(2.24)**	-1.31	(2.39)**	-0.07
year1	-0.452	-0.314	-0.27	-0.54	-0.546	-0.208	-0.065	-0.302
	-1.45	(2.46)**	-1.52	(1.95)*	(3.15)***	(1.81)*	-0.24	(2.11)**
year2	-1.044	-0.505	-0.223	-1.007	-0.506	-0.318	-0.483	-0.583
	(3.82)***	(4.88)***	-1.37	(4.62)***	(3.00)***	(2.50)**	(2.92)***	(5.46)***
Severity	-0.247	-	-	-	-	-	-	-
ODR(mean)	-1.3	-	-	-	-	-	-	-
# ODRs by	-0.001	0	0.001	0.005	0	0	0	0
Educator(mean)	-0.96	-0.91	-1.01	(1.69)*	-0.71	-1.1	-0.36	-0.46
Constant	5.115	1.337	2.606	3.928	2.851	2.357	-0.132	1.701
	(4.06)***	(3.33)***	(5.16)***	(4.20)***	(4.69)***	(3.55)***	-0.19	(3.22)***
Observations	497	81	131	237	77	111	61	143
R-squared	0.03	0.24	0.04	0.07	0.22	0.05	0.12	0.13
Robust t statistics in parentheses								
* significant at 10%; ** significant at 5%; *** significant at 1%								

# ODRs per year by student

- Explore the effect of grade and year on number of ODRs per student/year
  - -0.164 Harassment/Tease/Taunt
  - 0.234 Skip Class/ Truancy
  - -0.134 Fighting/ Physical Aggression
  - -0.219 Defiance/Disrespect/Non-Compliance
  - -1.044 in 2002-03

# Days Suspended

Dependant Variable: Days Suspended				
	All Data	All Data	All Data	Without AP
Grade 7	-0.026	-0.077	-0.07	-0.105
	-0.33	-1.04	-0.95	(1.73)*
Grade 8	0.207	0.17	0.183	0.031
	(2.56)**	(2.29)**	(2.44)**	-0.5
Year 2	-0.173	-0.138	-0.129	-0.035
	(2.20)**	(1.91)*	(1.79)*	-0.58
Year 3	-0.202	-0.069	-0.061	-0.014
	(2.68)***	-1	-0.87	-0.25
ODR defiant	-0.57	-0.342	-0.347	-0.229
	(5.92)***	(3.81)***	(3.87)***	(3.02)***
ODR violent	0.321	0.336	0.337	0.329
	(3.04)***	(3.46)***	(3.47)***	(3.78)***
ODR rules	-0.461	-0.291	-0.286	-0.195
	(3.72)***	(2.55)**	(2.50)**	(2.04)**
ODRs with Peer Involvement (count) probbehavid	-0.041	-0.125	-0.122	0.026
	-0.57	(1.91)*	(1.87)*	-0.5
	-	0.005	0.005	-0.001
	-	(15.60)***	(15.62)***	-1.08
yrcount_stuODR	-	-	0.014	0.018
	-	-	-1.36	(2.17)**
Constant	0.944	0.407	0.341	0.421
	(8.38)***	(3.73)***	(2.85)***	(3.99)***
Observations	1322	1322	1322	1049
Number of	372	372	372	329

Absolute value of z statistics in parentheses  
 \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

# ODR by Student History

Dependant Variable:	
Number of ODRs in Year 2 and 3 by student	
Number of ODRs in Year 1	0.367
	(3.75)***
(mean) Severity of ODR	-0.480
	-0.510
(mean) Days Suspended	0.194
	-0.360
(mean) Count Educator	-0.002
	-0.350
Constant	4.124
	(2.06)**
Observations	85
R-squared	0.16
Absolute value of t statistics in parentheses	
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# Conclusion

- ODRs increase during the course of the school year
- ODRs peak in volume for the entire school at about 1 pm
- Students tend to receive more ODRs of lower severity levels such as inappropriate language and skipping class as they get older.
- Last Period Effects
- Suspensions and student history
- Effect of year and grade
- ODRs by Student History

# Follow up

- Possible improvements in the data
  - Severity level that has more variation between ODR types
  - Direct Observation
- We did not have time to explore the educational data
  - With the educational data it would be possible to explain the educator/ student ODR relationship
  - Educational Data would provide a measure other than ODRs for the effects of problem behavior.