Office Hours, Demographic Groups and COVID

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Motivation

- We examine how students were affected by the COVID-19 pandemic and the shift to online learning
- In particular, we study how the pandemic affected student use of office hours
- We also examined the way these effects intersected with a student's gender and racial demographics

Research Questions

- Did office hours usage change after the onset of the pandemic?
- Did office hours usage patterns differ with gender or URM status?
 - URM = "underrepresented minority"

Methods

Curriculum



Highlighted courses were analyzed in our study.

Office Hours Queue

- Students join a digital queue
- Instructors remove students as they help them

Anonymous Studentan hour ago	
Anonymous Studentan hour ago	
Anonymous Student54 minutes ago	
Anonymous Student49 minutes ago	
Anonymous Student29 minutes ago	
Anonymous Student20 minutes ago	

Variables

Dependent Variable

• Office hours encounters per student in a single course and semester

Independent Variables

- Pre- vs. Post-Pandemic Onset
- Gender
- URM status
 - "Underrepresented minority" students are those who are Hispanic, Native American, Black or African American, Native Hawaiian or Other Pacific Islander.

Confounding Variables

We controlled for the following variables in our model:

- Course
 - Account for differences between the introductory and upper-level courses
- Fall/Winter Semester Status
 - Account for potential changes in student behavior across different semesters

Results/Discussion

Data Point Examples

Student	Course	Semester	Gender	URM	Pandemic	# of Encounters
student1@umich.edu	CS2	w19	Man	URM	Pre	25
student2@umich.edu	CS3	w19	Woman	URM	Pre	3
student3@umich.edu	ULCS	f20	Woman	Non-URM	Post	15
Unique	Identifier			Independent Variables	:	Dependent Variable

Summary Statistics



GEE Procedure

- "Generalized Estimating Equations"
- A form of Poisson regression that can be used on non-normal data
- Multiplicative model that accounts for cases where the same student shows up multiple times in the dataset

Results: Pre- vs. Post-Pandemic



Results: URM vs. Non-URM

- Differences were also not statistically significant
 - p = 0.114 0



Results: Men vs. Women

- Differences were statistically significant
 - p = 0.000
- On average, men had 31.49%
 fewer encounters than women.



Results: Men vs. Women Over Time



We used an expanded dataset of 5 years to see if the trend continues

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Corroborating Prior Work

Doebling '21:

- Examines the behavior of different student demographic groups in office hours
- 138 student survey responses, 15 one-on-one student interviews
- Our results corroborate their findings using a larger sample size:
 - Men used office hours and other help-seeking resources less frequently than women.
 - They found no statistically significant association between help-seeking frequency and ethnicity.

Conclusion

- We analyzed office hours data from three large courses at a large, public research university.
- We found that pandemic and URM status were **not** associated with differences in office hours usage behavior.
- We did find that gender was was associated with differences in office hours usage behavior, and that women tended to use office hours significantly more than men.

Questions?