Learning Loss Recovery After COVID-19 Pandemic in Texas Public Schools

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Motivation

- COVID-19 school reopening decisions were difficult for policymakers since there was no consensus on the impact of school reopening on the spread of COVID-19.
- Learning loss was documented in many states including Texas.
- If we can identify most impactful factors on learning loss from publicly available data sources during pandemic, we can help policy makers make more informative decisions on learning recovery.

Research Questions

- Can we quantify the impact of the mode of instruction(hybrid, remote, in-person) on the learning loss?
- Are students from low-income background and minority students experiencing more learning loss?
- Are students from different grade levels experiencing learning loss differently?
- Did the amount of support funding a district received help alleviate learning loss, or support learning recovery?

Data Acquisition and Integrations

Data are acquired from 7 different sources below and integrated by matching School District ID and County FIPS Code with 79 variables from 1,165 school districts in 253 counties:

- STAAR test results, math and reading, by grade in 2019 through 2022 from the Texas Education Agency
- COVID case data, # of students on campus reported to the Texas Health and Human Services per county
- Student race/ethnicity, Title 1/Free lunch, Teacher-Student ratio per district from Common Core Data from the National Center for Education Statistics(NCES)
- Local Area Unemployment Statistics(LAUS) per county from U.S. Bureau of Labor Statistics
- Average Daily Attendance(ADA) per district from Texas Education Agency
- 2010 Census Block Group data from Texas Education Agency/Census Bureau
- Elementary and Secondary School Emergency Relief(ESSER) Grant from Texas Education Agency

Learning Loss Visualizations

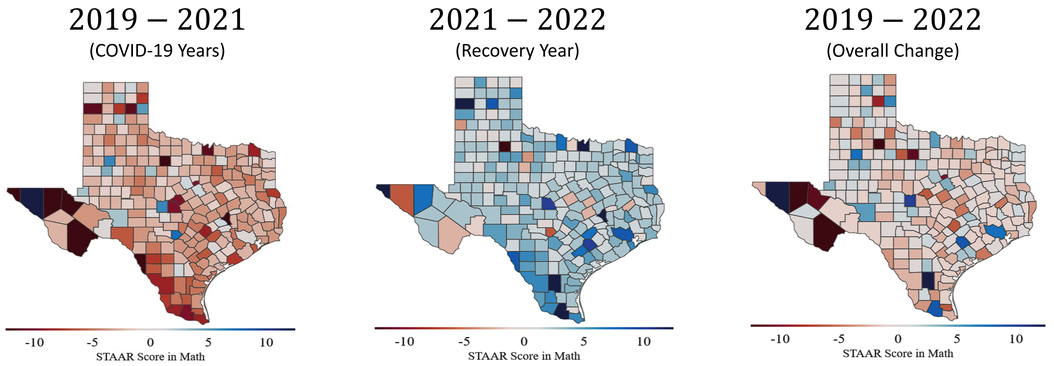


Figure 1: County-level Maps of Texas reflecting the change in Learning Loss in STAAR Math Scores at different year ranges

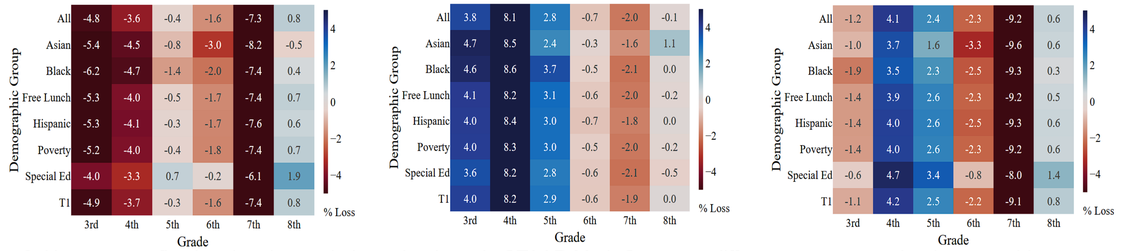


Figure 2: Heatmaps reflecting the change in Learning Loss in STAAR Math Scores at different year ranges by demographic group and grade

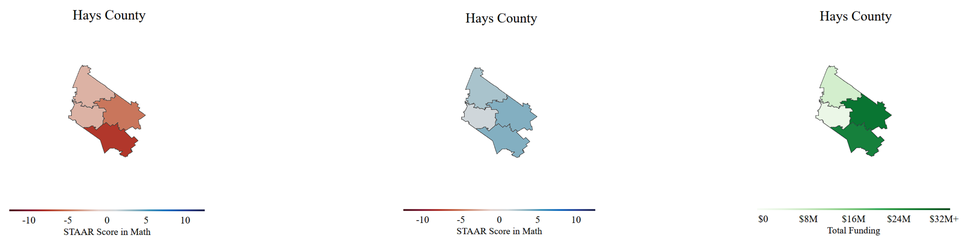
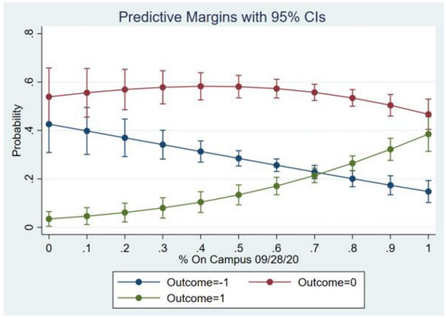


Figure 3: District-level Maps of Hays County reflecting the change in Learning Loss in STAAR Math Scores, and the corresponding total funding a district received.

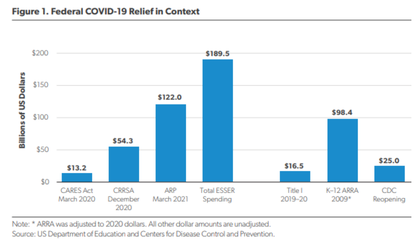
Important Findings/Notes

- Learning loss is calculated by getting STAAR score differences ((New Score – Old Score)/(Old Score)
- Label Learning loss: loss (below 25%), average (25%-75%), gain (>75%)
- Mathematics experienced more learning loss than reading for Texas children during the pandemic.
- Third grad students experienced more learning loss compared with higher grade students.
- Hispanic and black students suffered more learning loss compared with white students.
- Large cities experienced largest learning loss if we account for the number of students served by these school districts.

Impact of the Mode of Instruction



- Mode of instruction plays a crucial role in determining learning loss in both math and reading.
- How and what we could do to mitigate the learning loss experienced during the pandemic year.



https://www.aei.org/wp-content/uploads/2021/08/The-200-Billion-Question.pdf?x91208

Conclusion/Future Work

- There are learning loss in both subjects but math suffered more.
- There are large variations in terms of learning loss across different grade levels and amongst different racial groups.
- We need to ask whether ESSER funding has helped our children to recover learning loss.

Acknowledgements

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