



The Stickiness of Pandemic-Driven Disenrollment from Public Schools

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The extent to which pandemic-induced public school enrollment declines will persist is unclear. Student-level data from Michigan through fall 2021 yields three relevant findings. First, relative to pre-pandemic trends, fall 2021 enrollment had partially recovered for low-income, Black, and Hispanic students, but had declined further for non-low-income, White, and Asian students. Second, annual public school exit rates remained elevated for elementary students and accelerated further for middle school students. Third, public school exit is sticky and varies by chosen alternative. Only 21 percent of those who left for private schools in fall 2020 had returned by fall 2021, while 50 percent of those who left for homeschooling had returned. These findings suggest that pandemic-driven public school enrollment declines may persist, and more so among higher income families.

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Abstract:

The extent to which pandemic-induced public school enrollment declines will persist is unclear. Student-level data from Michigan through fall 2021 yields three relevant findings. First, relative to pre-pandemic trends, fall 2021 enrollment had partially recovered for low-income, Black, and Hispanic students, but had declined further for non-low-income, White, and Asian students. Second, annual public school exit rates remained elevated for elementary students and accelerated further for middle school students. Third, public school exit is sticky and varies by chosen alternative. Only 21 percent of those who left for private schools in fall 2020 had returned by fall 2021, while 50 percent of those who left for homeschooling had returned. These findings suggest that pandemic-driven public school enrollment declines may persist, and more so among higher income families.

¹ This research used data structured and maintained by the MERI-Michigan Education Data Center (MEDC). MEDC data is modified for analysis purposes using rules governed by MEDC and are not identical to those data collected and maintained by the Michigan Department of Education (MDE) and/or Michigan's Center for Educational Performance and Information (CEPI). Results, information and opinions solely represent the analysis, information and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE and CEPI or any employee thereof

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1. Introduction

During the first year of the Covid-19 pandemic, 1.5 million elementary and secondary students in the U.S. left the public education system in favor of alternative schooling sectors such as home schooling and private schooling (Irwin et al., 2022). This large and sudden decline in demand for public schooling was driven – at least in part – by concerns about schools’ ability to strike the preferred balance of providing high-quality education while mitigating health risks of the global Covid-19 pandemic. Schools providing in-person instruction, for example, disproportionately lost students to homeschooling, suggesting concerns over the health risks of in-person instruction; schools providing remote instruction, on the other hand, disproportionately lost students to private schools, which were more likely to operate in-person (Musaddiq et al, 2022). As schooling has returned to the pre-Covid levels of in-person learning, we seek to understand whether Covid-induced enrollment declines represent a short-term blip or a new equilibrium.

There are several reasons to believe that demand for public schooling may recover. Most notably, much of the disruption of the 2020-21 school year has subsided and schools have returned to in-person instruction (NCES, 2021). Health concerns are also substantially lower than in the 2020-21 school year, with lower overall transmission and lower rates of serious effects (i.e., hospitalization, death). Vaccines for children at least 5 years of age became available in the beginning of the 2021-22 school year, lowering the risk of serious illness for school aged children (FDA, 2021). As a result, districts across the country anticipated a recovery in demand for public education in 2021-22 (e.g., Hollingsworth & Attanasio, 2021).

On the other hand, there are also reasons to be concerned that we have entered a new era of decreased demand for public schools. Despite reduced health concerns relative to the 2020-21 school year, the perceived risk of Covid-19 spread remains as new sub-variants continue to emerge

(Araf et al., 2022). The surge of the omicron variant in December of 2021, for example, forced many schools across the country to temporarily halt in-person instruction. Given ongoing health risks, some families – particularly those with immunocompromised members – may remain reluctant to send their children back to in-person schooling. Beyond health concerns, some students may have found unexpected benefits in alternative learning environments, such as a decline in bullying or improvements to their mental health (Bacher-Hicks et al., 2022; Hansen et al., 2022). Finally, the persistence of remote work may also make homeschooling a more realistic option for families who prefer alternatives to public education (Barrero, Bloom & Davis, 2021).

To date, studies have largely investigated the extent of enrollment loss during the first year of the pandemic, with a focus on variation by grade, race, and instruction mode (Dee, 2023; Dee et al., 2021; Dee & Murphy, 2021; Bassok & Shapiro 2021; Cascio, 2021; Weiland et al., 2021; Musaddiq et al., 2022). These results consistently show a large decline in public school enrollment in 2020-21, particularly among early grades.

Evidence on the persistent effects into the 2021-22 school year is still emerging, but national estimates suggest that public school enrollment did not recover in the 2021-22 school year and remained approximately 3 percent below pre-pandemic enrollment levels (NCES, 2022; Dee, 2023). New York State’s public school enrollment continued to decline in 2021-22 even beyond the large drop in 2020-21 (Roy & Nguyen-Hoang, 2022). Existing evidence based on aggregate enrollment numbers does not, however, tell us whether these continued declines in 2021-22 were driven by A) students who left in 2020-21 and remained detached from the public system, or B) additional substantial cross-sector movement, where some students returned but other students left.

We add to the existing literature by using longitudinal administrative data from Michigan for the 2017-18 through 2021-22 school years to track student enrollment changes in 2020-21 and 2021-22 relative to pre-Covid levels. We ask these three research questions:

1. How did student enrollment in public schools change one and two years into the pandemic?
2. How did exit rates one and two years into the pandemic compare to pre-Covid exit rates from the public school system?
3. To what extent did students who exited the public system during the pandemic re-enroll after two years?

Our three main findings respond to these questions. First, consistent with prior work in other contexts, we document that statewide enrollment dropped substantially in 2020-21 and continued to decline in 2021-22. Overall, two years into the pandemic, statewide enrollment was 3.6 percent below pre-Covid levels. Adjusting for pre-pandemic enrollment trends, we find that 2021-22 enrollment recovered substantially for Black, Hispanic, and low-income students, but declined further beyond the initial 2020-21 enrollment drops for White, Asian and non-low-income students. This result highlights differences across families in Covid-19's impact on their attachment to the public school system, even as schools returned to in-person instruction.

Second, using longitudinal administrative data from Michigan for the 2017-18 through 2021-22 school years, we provide the first evidence that public school exit rates rose and remained high for at least the first two school years since the onset of Covid. Prior to the pandemic, about 4 percent of elementary and middle school children exited the Michigan public school system each year, by moving to homeschooling or private schooling, or by leaving the state. This rate nearly doubled for kindergartners when the pandemic hit, with 7.6 percent not returning for 1st grade in fall 2020. There were substantial increases in all other elementary and middle school grades as

well, but no increase in exits among high school grades. Importantly, exit rates also remained substantially elevated for elementary and middle school grades in the next school year (fall 2021). That is, elementary and middle school students enrolled in public schools in 2020-21 exited the public system at nearly the same rate as those who exited after 2019-20. Part of the persistence in overall enrollment declines into 2021-22 was therefore driven by a second straight year of elevated exit rates, even as schools largely returned to in-person instruction.

Third, we are also the first to show that re-enrollment decisions depended substantially on whether students had left the public system for home schools or private schools. Among students who left the public school system in 2020-21 for a homeschooling alternative, 50 percent had returned by 2021-22. In contrast, only 20 percent of those who exited for private schooling returned during the same period. This reveals that another important source of the persistent enrollment decline is the stickiness of initial exit decisions, particularly among those who left for private school.

Our findings suggest that pandemic-driven public school enrollment declines may persist and more so among higher income families, who are more likely to have left the public system for private schooling. Low-income students, Black students, and special education students, though relatively more likely to exit the public system in 2020-21, were also more likely to return. Families of these students may have been less satisfied with the non-public alternatives they accessed after exiting. Such exits reflected largely short-run enrollment declines, instead of the more persistent enrollment losses among higher income students, White students, and non-special education students. These differences in families' decisions to re-enter the public system after exiting may partly reflect inequality in access to educational resources and high-quality public-sector alternatives (Bacher-Hicks, Goodman, & Mulhern, 2021).

2. Data

We use longitudinal, student-level, administrative data from the Michigan Department of Education (MDE) and the Michigan Center for Educational Performance and Information (CEPI). The data contain information on student characteristics such as race, ethnicity, gender, eligibility for subsidized meals, school attended and enrollment status. Students are linked longitudinally across all years that students are enrolled in the Michigan public school system, including charter schools. If students exit the public system but subsequently return in future years, their enrollment spells are also linked across years.⁶

Our sample focuses on students enrolled in kindergarten through 12th grade from fall 2017 to fall 2021. The pre-Covid data allows us to account for existing trends in enrollment prior to the Covid-19 pandemic. Table 1 presents the summary statistics of students by year. At the start of the 2019-2020 school year, the last year beginning before the pandemic, Michigan public schools served 1.4 million students in grades K-12. Of these students, 65 percent identify as White, 18 percent as Black, 8 percent as Hispanic, and 4 percent as Asian-American. English Language Learners and Special Education students respectively comprise 7 and 13 percent of the population. Half (51 percent) are identified as low-income, either through direct certification (participation in the following government assistance programs: SNAP, TANF, Medicaid), migrant or homeless status, or through free and reduced-price school meal applications based on family's income eligibility.

Our analysis of exit rates (RQ2) and return rates (RQ3) leverage on the longitudinal nature of the student-level data. We identify students who exit the public school system (“exiters”) as

⁶ This allows us to track students who exited the public system (e.g., homeschooling, private schooling) and then subsequently re-enrolled in the public system.

those who were enrolled in the prior school year ($t-1$) but were not enrolled in the fall semester of the current school year (t). Similarly, we identify students who returned to the public school system (“returners”) as those who exited between $t-1$ and t , but then returned to enroll in the fall semester of the subsequent school year ($t+1$).

We supplement the overall exit and return data with detailed, district-provided exit codes. School districts are required to report information on student enrollment status twice in an academic year, once each in the fall and the spring term. For each enrollment count, districts update information on the enrollment status through an “exit code” that categorizes the student as either continuing in the Michigan public school system or, if not, specifying the alternative chosen, such as homeschooling or private schooling.⁷ We use this additional information to examine heterogeneity in exits to and returns from these two public school alternatives.

3. Results

3.1 Enrollment Trends

Overall public-school enrollment in Michigan decreased dramatically following Covid-19 pandemic. Figure 1 plots the average per-grade October enrollment in Michigan public schools since 2017. Before the Covid-19 pandemic, total enrollment had been declining by just under 1,000 students per grade annually, totaling more than 10,000 students per year.⁸ In fall 2020, total enrollment dropped by 3.2 percent, which was four times the historic trend and represents a single-year decline of more than 40,000 students. The fall 2020 enrollment drop was largest in

⁷ Of all students who exited between 2019-2020 and fall 2020, 36 percent have an exit code for homeschooling and 13 percent have an exit code for private schooling. As reported in Musaddiq et al. (2022), the increase in exits in fall 2020 to these two alternatives explains the majority of overall exit increases over this period, suggesting these were two common choices among those who exited during Covid.

⁸ Musaddiq et al. (2022) present an analogous figure using data back to fall 2014 showing a very similar pattern of pre-Covid enrollment decline in all grades except kindergarten.

kindergarten, which declined by 11.3 percent.⁹ In contrast, enrollment in high school grades remained roughly in-line with pre-Covid enrollment trends.

In the second school year following the pandemic onset (fall 2021), enrollment continued to decline. Overall enrollment in fall 2021 was 3.6 percent below the pre-pandemic levels in fall 2019, which corresponds to an additional loss of 0.4 percentage points from the 3.2 percent decline in fall 2020.¹⁰ Kindergarten enrollment partially recovered from the steep decline in fall 2020, but remained substantially below fall 2019 enrollment. Other grade levels continued to decline only modestly, except for middle school. Among middle school grades, enrollment dropped by an additional 3 percent in fall 2021 (compared to fall 2020), bringing the total middle school enrollment loss to 6.2 percent (compared to fall 2019).

Because overall enrollment had been declining prior to the pandemic in Michigan, some of the decline documented in Figure 1 would have been expected even without any additional Covid-induced disruption. We adjust for pre-Covid enrollment trends by generating enrollment predictions in fall 2020 and fall 2021 using only pre-Covid enrollment data.¹¹ We then subtract the predicted enrollment changes in fall 2020 and in fall 2021 from the actual enrollment changes in these years to generate a measure of “adjusted enrollment,” which nets out any predicted secular changes.

Figure 2 presents the change in adjusted enrollment in fall 2020 and fall 2021, compared to actual enrollment in fall 2019.¹² Adjusted enrollment dropped by 2.4 percent in fall 2020 relative

⁹ Appendix Table A1 provides enrollment numbers.

¹⁰ As shown in Appendix Table A1, overall enrollment declined by 42,993 students in fall 2020, but only declined by an additional 7,860 students in fall 2021, making the total enrollment loss 50,853 since fall 2019.

¹¹ Specifically, we estimate the average enrollment change from fall 2017 to fall 2018 and from fall 2018 to fall 2019. We use the average of these two one-year changes as the predicted change from fall 2019 to fall 2020, and again from fall 2020 to fall 2021.

¹² Appendix Figure A1 replicates Figure 2 using raw (not predicted) enrollment.

to fall 2019 and remained approximately 2 percent below 2019 levels in fall 2021. This enrollment decline is attenuated compared to the raw declines in Figure 1, but is still a substantial deviation from pre-existing trends. When examining subgroups by grade level (Panel A), the overall results largely align with the raw enrollment drops. The largest decline – by far – is in kindergarten. The adjusted enrollment declines are actually larger than the raw declines in kindergarten because pre-Covid kindergarten enrollment had been increasing. Middle school also stands out as the only grade span with a substantial additional drop in fall 2021 following the initial enrollment drop in fall 2020. High school enrollment, on the other hand, increased slightly in both years after accounting for pre-Covid trends, a point we return to when examining exit rates below.

Panel B presents variation in enrollment changes across family income and students' race/ethnicity. In contrast to substantial variation across grade levels in Panel A, the fall 2020 drops are remarkably similar across family income and students' race/ethnicity, with enrollment declines ranging only from 2.0 to 2.6 percent.¹³ More variation emerges in fall 2021. By fall 2021, enrollment among low-income, Black, and Hispanic students partially recovered, while enrollment remained substantially below pre-Covid levels for more economically advantaged, White, and Asian students.

3.2 Exit Rates

The enrollment declines documented in Figures 1 and 2 could be the result of increases in students leaving the public system, decreases in students entering the public school system, or both. Because only a small fraction of Michigan students enrolls in the public school system prior

¹³ Appendix Table A1 presents raw enrollment numbers. More variation exists in the raw data due to different pre-Covid enrollment trends by race. For example, enrollment had been increasing for Hispanic and Asian students, but decreasing for White and Black students.

to kindergarten (e.g., pre-K or transitional kindergarten), the declines in kindergarten enrollment primarily reflect changes in initial enrollment. In other grades, however, we find that enrollment declines are largely driven by increased exit rates among students previously enrolled in public schools.

Figure 3 plots year-over-year public school exit rates, before and after the start of the pandemic. Prior to the pandemic, about 4 percent of kindergarten, elementary, and middle school students typically did not return to the public school system the following October. This rate nearly doubled for kindergartners when the pandemic hit, with 7.6 percent not returning for 1st grade in fall 2020. Other elementary grades also had large increases in exit rates in fall 2020, with average exit rates increasing to 6.1 percent in grades one through five. Exit rates in middle school grades also increased above pre-pandemic levels though the magnitude of the increase was not as large as in the younger grades. High school exit rates, on the other hand, followed a different pattern. They A) were notably higher in the pre-pandemic years than other grades in the pre-pandemic years and B) declined modestly following the pandemic. Put differently, though high school students tended to exit the system at higher rates than students in other grades, that gap narrowed following Covid.

Exit rates remained elevated in fall 2021, marking the second straight year of increased exits for kindergarten, elementary, and middle school students. Kindergarten exit rates, which saw the sharpest increase in fall 2020, partially returned to pre-Covid levels. In contrast, average exit rates in first through fifth grade remained at nearly the same level as in the prior year and middle school exits increased. In all three of these grade levels, exit rates were more than 25 percent higher than their pre-Covid rates. Finally, high school exit rates were again below pre-pandemic levels.

3.3 Re-Enrollment Rates

Our longitudinal data lets us track students who exit and subsequently re-enroll in the public system, allowing for the study of cross-sector movement over time. We focus this line of analysis on students who were enrolled in the public system in fall 2019 and subsequently exited before fall 2020. Among this group (“exiters”), we examine whether they remain unenrolled from the public school system in fall 2021.

Figure 4 shows that, overall, 55 percent of those who exited before fall 2020 re-enrolled in the public school system by fall 2021. This re-enrollment rate is highest among kindergarten students: 62 percent of students who left the public school system (i.e., did not enroll in first grade) by fall 2020 re-enrolled in fall 2021. Return rates for other elementary and middle school grades are slightly lower at 56 percent, and the return rates are lowest among high school students with only 40 percent returning.¹⁴ In contrast, re-enrollment rates in years prior to the pandemic were lower (24 percent, on average) and more stable across grades (Appendix Table A2).

We also find substantial variation in re-enrollment rates by alternative sector, with higher return rates among those who exited for homeschooling compared to those who exited for private schooling, the two most common alternatives to the public sector.¹⁵ Approximately 50 percent of students who exited for homeschooling by fall 2020 returned to the public sector by fall 2021. In contrast, only 20 percent of those who exited for private schooling returned. Both homeschooling exits and private schooling exits have the same pattern by grade level: relatively high returns among kindergarten exits and relatively low returns among high school exits. These results suggest

¹⁴ We only include students in 9th and 10th grade in 2019-20 to allow for returns to 11th and 12th grade in 2021-22.

¹⁵ Of all students who exited between 2019-2020 and fall 2020, roughly 36 percent exited for homeschooling and 13 percent exited for private schooling. The remaining students exited for a range of other reasons, including “unknown” exits.

that decisions to exit the public school system during Covid were sticky for those who chose private school alternatives, especially in the higher grades.

To better understand the characteristics of the students who made transitions to and from public school system, we fit a series of regression models in Table 2. The first two columns include students enrolled in Michigan public schools in fall 2019 and estimate the relationship between their observable characteristics and an indicator of whether they exit public school system before fall 2020. Compared to White students, Asian students were 3.3 percentage points more likely to exit, Black students were 2.0 percentage points more likely to exit, and Hispanic/Latinx students were 1.2 percentage points more likely to exit.

Low-income students and those with higher needs were more likely to exit before fall 2020. Low-income students were 1.3 percentage points more likely to exit, special education students were 0.4 percentage points more likely to exit, and English language learners were 2.1 percentage points more likely to exit. Male students were also more likely to leave than females, though the magnitude of the difference is among the smaller differences noted (0.4 pp). Mirroring patterns from Figure 3, the last three coefficients in Table 2 present differences by grade level. Compared to kindergarteners, students in other elementary grades and in middle school were less likely to exit in fall 2020. High school students, on the other hand, were more likely to exit than kindergarten students.¹⁶

Column 2 includes school fixed effects, which compares exit patterns between students with different observable characteristics who attended the same school in 2019-20. This analysis holds constant any of the school-specific responses to the pandemic that would have affected all

¹⁶ As shown in Figure 3, the high school exit rates are typically higher than in other grades.

students in the school. The patterns are largely consistent with the first set of results, though magnitudes attenuate for low-income and Black students. For example, the difference between Black and White students shrinks from 2 percentage points to 0.9 percentage points. These results highlight two things. First, the persistence of significant between-group differences within schools shows that families often made different educational decisions even when presented with the same school environment. Second, the attenuation in differences by race and income suggests that Black and low-income students attended schools that saw higher school-wide exit rates in fall 2020.

The last two columns present differences in students' choices to return to the public system in fall 2021 if they exited in fall 2020. The sample includes all students who were enrolled in a Michigan public school in 2019-20 and exited in fall 2020. Compared to White students, Black students are more likely to return (5.5 pp) and Asian students are less likely to return (-18.0 pp). Combining the results from Column (1), the disproportionate return among Black students narrows the enrollment gap created by their disproportionate exit. Asian students, on the other hand are both more likely to leave and less likely to return, thereby magnifying the long-run enrollment effects of their exit.

Low-income and special education students are also more likely to return in fall 2021, while ELL students are less likely to return. These return patterns therefore shrink the overall enrollment effect of exiting for low-income and special education students (i.e., more likely to exit but also more likely to return) and magnify enrollment effects of exiting for English language learners (i.e., more likely to exit and less likely to return).

Finally, the likelihood of returning decreases by grade level. Compared to kindergarteners who exited in fall 2020, students in grades 1 through 5 were 1.4 percentage points less likely to return in fall 2021. Middle school students (grades 6 through 8) were 4 percentage points less

likely to return and high school students (grades 9 and 10) were 19 percentage points less likely to return.

With the exception of the Black/White difference, these patterns are consistent with a model that includes fixed effects for 2019-2020 school.¹⁷ This suggests that the largest differences in return likelihood are driven by between-household differences, rather than differences in the school environment.

4. Discussion

Tens of thousands of Michigan families turned to alternatives to the public-school sector after the onset of the Covid-19 pandemic. Overall enrollment dropped by over three percent in fall 2020 and declined further in fall 2021. This pattern roughly matches national trends, adding to the importance of understanding the extent to which such declines are permanent or transitory.

We show that just over half of those who left the public school system during the first full post-pandemic school year returned in the subsequent fall. This suggests both some likelihood of further future enrollment recovery, as well as the possibility that a substantial fraction of those who left will not return to public schooling. That those who left for private schooling were much less likely to return than those who left for homeschooling suggests that long-run detachment from public schooling differs substantially by choice of alternative sector.

Echoing the variation by alternative sector chosen, differential enrollment changes by income and race also changed the composition of public-school student bodies, increasing the proportion of students who are low income, Black, or Hispanic. We find that initial enrollment

¹⁷ The attenuation of the Black/White difference suggests that, on average, Black students attend where the students who exited were more likely to return in fall 2021. Recall that there was a similar attenuation between columns (1) and (2), suggesting that Black students also attend where the students who exited at higher rates.

declines of higher income students accelerated in fall 2021, consistent with the fact that such students were more likely to leave for and remain in private schooling. In contrast, lower income students' enrollment partly recovered by fall 2021 from its initial decline, in part because of much higher rates of return to public schools among those who initially exited the system, often for homeschooling. Similarly, Black and Hispanic student enrollment partly recovered by fall 2021, while White student enrollment recovered very little. Asian student enrollment dropped nearly as much in fall 2021 as it had in fall 2020, in part because of much lower return rates among Asian students who had exited the system. The decline in Asian student enrollment arguably deserves more attention than it has previously received.

These enrollment changes varied by grade level. Kindergarten enrollment plummeted most dramatically in fall 2020 and then rebounded partly but not completely by fall 2021. Similarly, kindergartners' exit rates surged in fall 2020 and only partly returned to pre-pandemic levels in fall 2021. Enrollment in grades 1-5 has recovered only a little, with exit rates remaining as elevated in fall 2021 as in fall 2020. Middle school enrollment is particularly striking, as enrollment declined as much in fall 2021 as in fall 2020, in part due to exit rates that continued to rise. In contrast to substantial enrollment shifts in younger grades, high school enrollments and exit rates showed remarkably little change over this entire period.

The sensitivity of kindergarten enrollment suggests families are most open to public school alternatives when making initial enrollment decisions, while the stability in high school enrollment may indicate less interest in alternatives when only a few years of K-12 schooling remain. The accelerating decline in middle school enrollment arguably deserves more attention than it has previously received, and may relate to the particular importance of middle grades in a child's academic trajectory (Hoxby, 2021).

The persistence of enrollment declines measured here has several important implications for school systems. Perhaps most importantly, if enrollment remains below pre-pandemic levels, schools and districts will have to brace for budget reductions. Moreover, if year-to-year enrollment changes remain sizeable, schools and districts may be faced with additional logistical challenges, such as unpredictable teacher hiring needs. For example, the surge in kindergarten re-enrollment expected in 2021-22 did not materialize (Hollingsworth & Attanasio, 2021). Finally, the disproportionate recovery of enrollment among low-income students and students of color may complicate attempts to track school- and district-level educational progress. Researchers and policymakers often rely on cross-cohort comparisons of aggregate test scores, which will now be confounded with underlying differences in students who remain enrolled. Future analysis of cohort-level achievement trends will have to take these differences into account.

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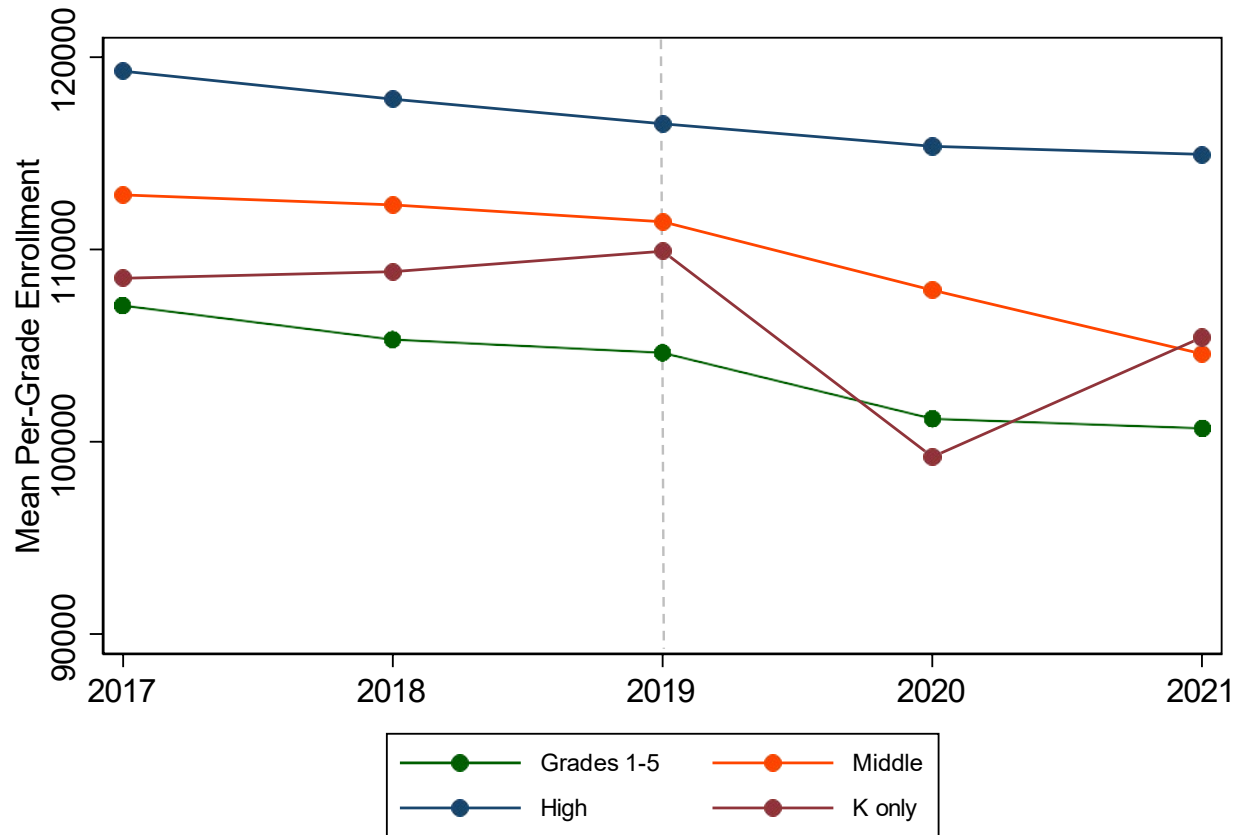
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Figures

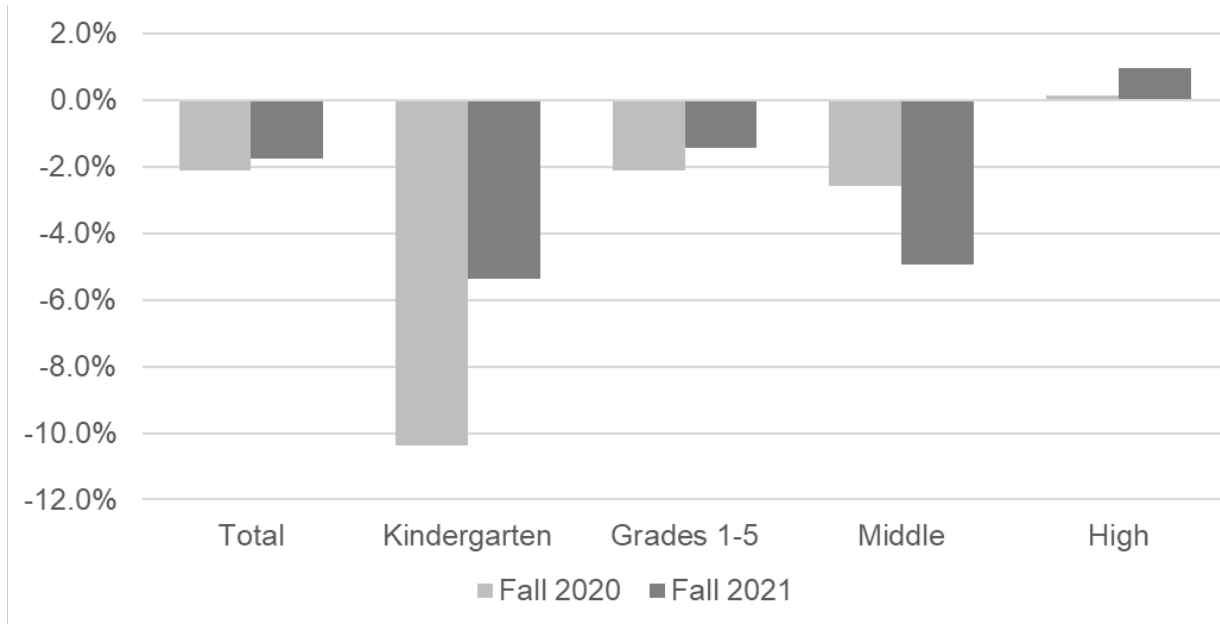
Figure 1: Fall Enrollment Per Grade in Michigan Public Schools



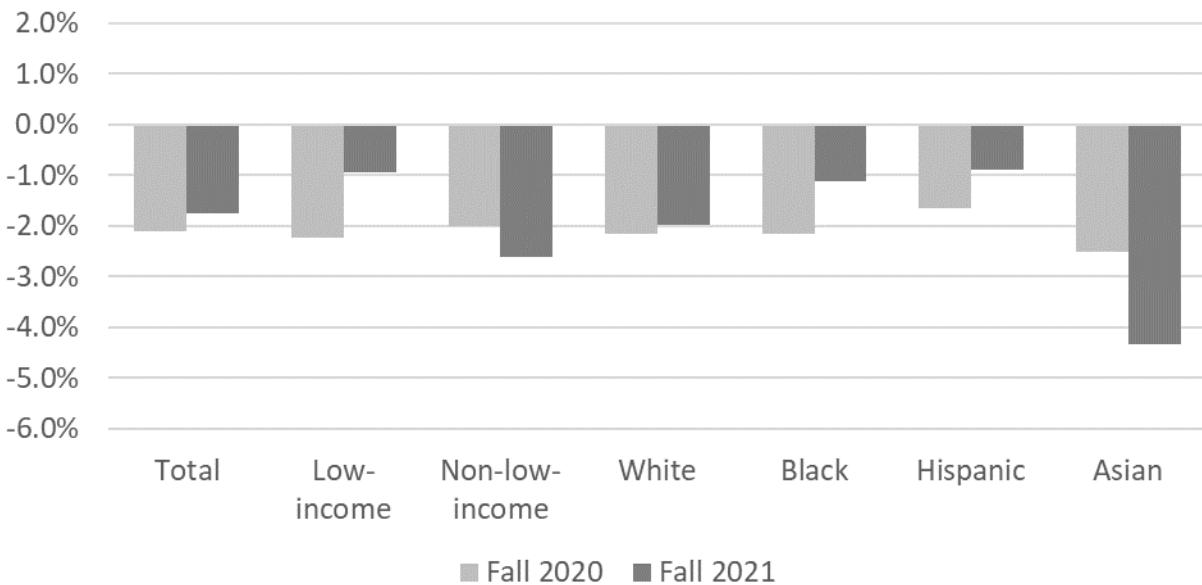
Notes: Grades 1-5 is the total enrollment in these grades divided by 5. “Middle” is enrollment in grades 6-8 divided by 3. “High” is enrollment in grades 9-12 divided by 4. K is enrollment in kindergarten, excluding transitional kindergarten and early childhood education.

Figure 2: Changes in Enrollment, Adjusted for Pre-Covid Trends

Panel A: Percent Change Relative to 2019-20, by Grade Level

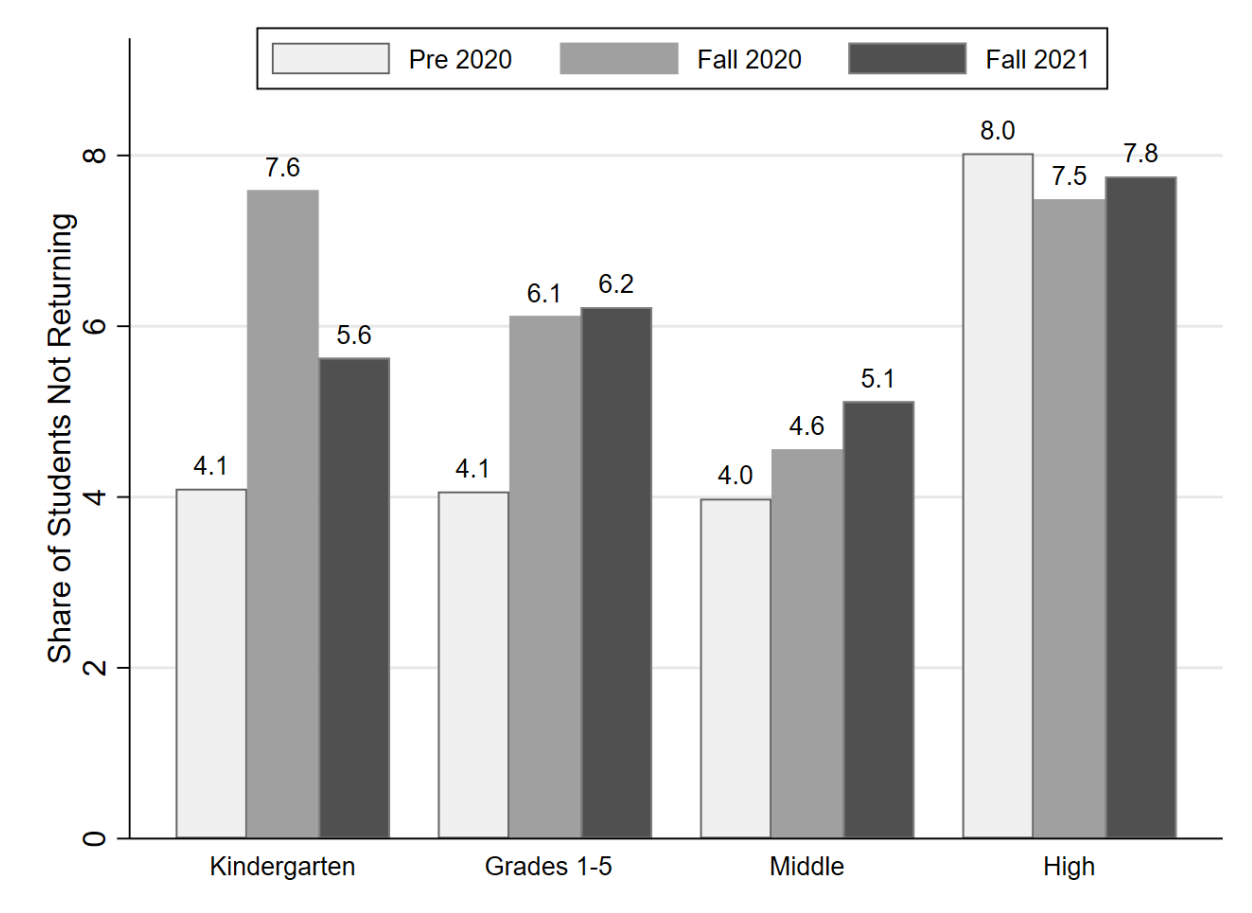


Panel B: Percent Change Relative to 2019-20, by SES and Race/Ethnicity



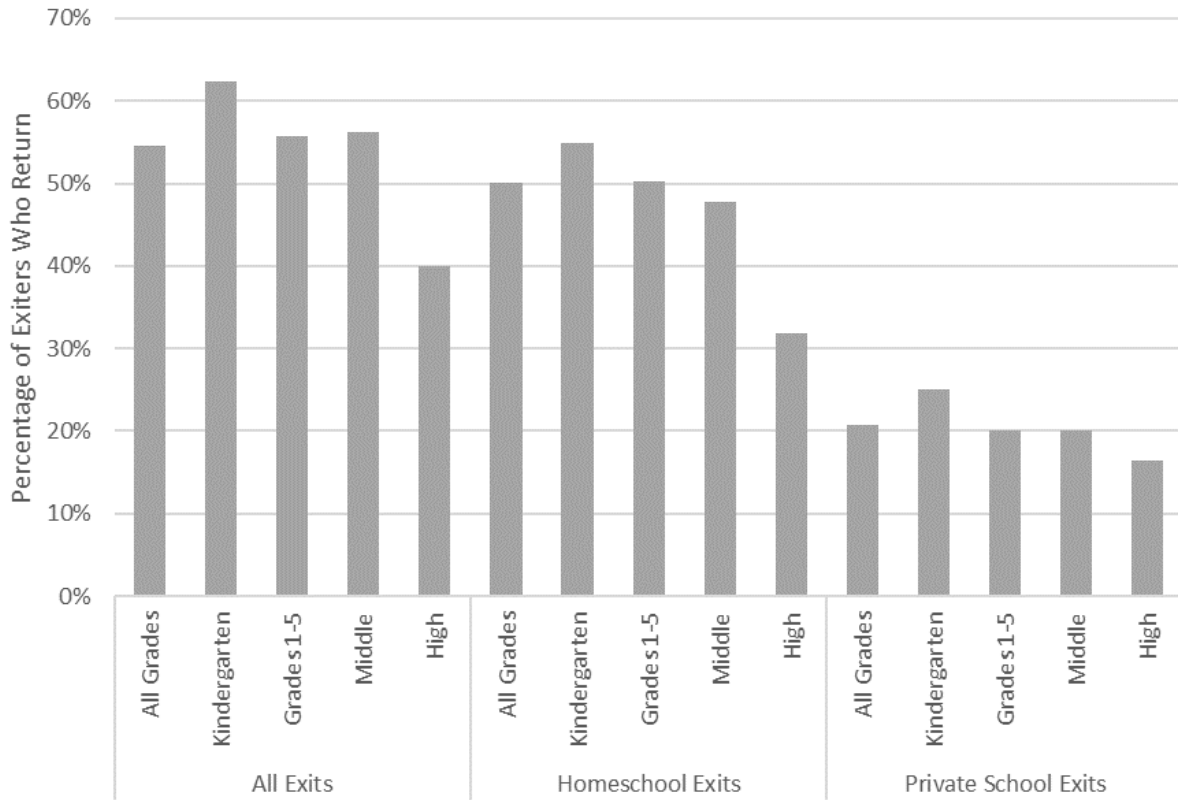
Notes: This figure presents the percent change in predicted student enrollment in fall 2020 and fall 2021 compared to pre-Covid enrollment in fall 2019. Enrollment in fall 2020 and fall 2021 is predicted for each subgroup based on pre-Covid enrollment trends in fall 2017 through fall 2019. Appendix Figure A1 presents the analogous versions of this chart using actual (not predicted) enrollment.

Figure 3: Exit Rates by Grade Level



Notes: Sample includes students enrolled in kindergarten through grade 11. Pre-2020 includes students in 2017-18 and 2018-19.

Figure 4: Share of 2019-20 Exiters Who Returned to Public Schools by 2021-22



Notes: Sample includes students enrolled in a Michigan public school in 2019-20 and subsequently exited in 2020-21. Among this sample of exiters, we present the percentage of students who re-enrolled in the public school system in 2021-22. We separate students by grade level in 2019-20 and exit type. High school grades only include students enrolled in 9th and 10th grade in 2019-20 to allow for returns in 2021-22. Appendix Figure A2 presents total numbers of students who exited.

Table 1. Summary Statistics

	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021
<i>Student Demographics</i>					
White	0.66	0.66	0.65	0.65	0.64
Black	0.18	0.18	0.18	0.18	0.18
Hispanic	0.08	0.08	0.08	0.08	0.09
Asian	0.03	0.03	0.04	0.04	0.04
Male	0.51	0.51	0.51	0.51	0.51
Low-income	0.50	0.50	0.51	0.51	0.51
Sped	0.12	0.12	0.13	0.13	0.13
ELL	0.07	0.07	0.07	0.06	0.07
<i>Sample Distribution by grade</i>					
Kindergarten	0.07	0.08	0.08	0.07	0.08
Elem. (1-5)	0.37	0.36	0.36	0.36	0.36
Middle	0.23	0.23	0.23	0.23	0.23
High	0.33	0.33	0.33	0.33	0.33
Observations:	1,459,219	1,443,415	1,433,317	1,390,324	1,382,464

Notes: Sample includes students enrolled in grades K-12. Students enrolled in transitional kindergarten are not included.

Table 2. Heterogeneity in Exits and Returns

	Exit in Year 1		Return in Year 2 Conditional on Year 1 Exit	
	(1)	(2)	(3)	(4)
Black	0.020*** (0.002)	0.009*** (0.001)	0.055** (0.026)	-0.011 (0.012)
Hispanic	0.012*** (0.002)	0.009*** (0.001)	-0.014 (0.014)	-0.020 (0.013)
Asian	0.033*** (0.005)	0.033*** (0.003)	-0.180*** (0.017)	-0.156*** (0.015)
Low-income	0.013*** (0.001)	0.005*** (0.001)	0.103*** (0.009)	0.070*** (0.008)
Sped	0.004*** (0.001)	0.003*** (0.001)	0.029*** (0.009)	0.021** (0.009)
ELL	0.021*** (0.004)	0.024*** (0.002)	-0.097*** (0.015)	-0.070*** (0.015)
Male	0.004*** (0.000)	0.003*** (0.000)	-0.009* (0.005)	-0.010* (0.005)
Grades 1 to 5	-0.013*** (0.001)		-0.014** (0.007)	
Middle	-0.014*** (0.001)		-0.040*** (0.009)	
High	0.026*** (0.003)		-0.190*** (0.011)	
Constant	0.025*** (0.001)	0.028*** (0.000)	0.353*** (0.010)	0.334*** (0.005)
School FE		X		X
Observations	1,326,987	1,326,973	32,907	32,646
R-squared	0.012	0.085	0.044	0.184

Notes: Sample includes students in grade 10 and below in 2019-20, which allows us to observe patterns of exits in 2020-21 and returns in 2021-22 for all students in the sample.

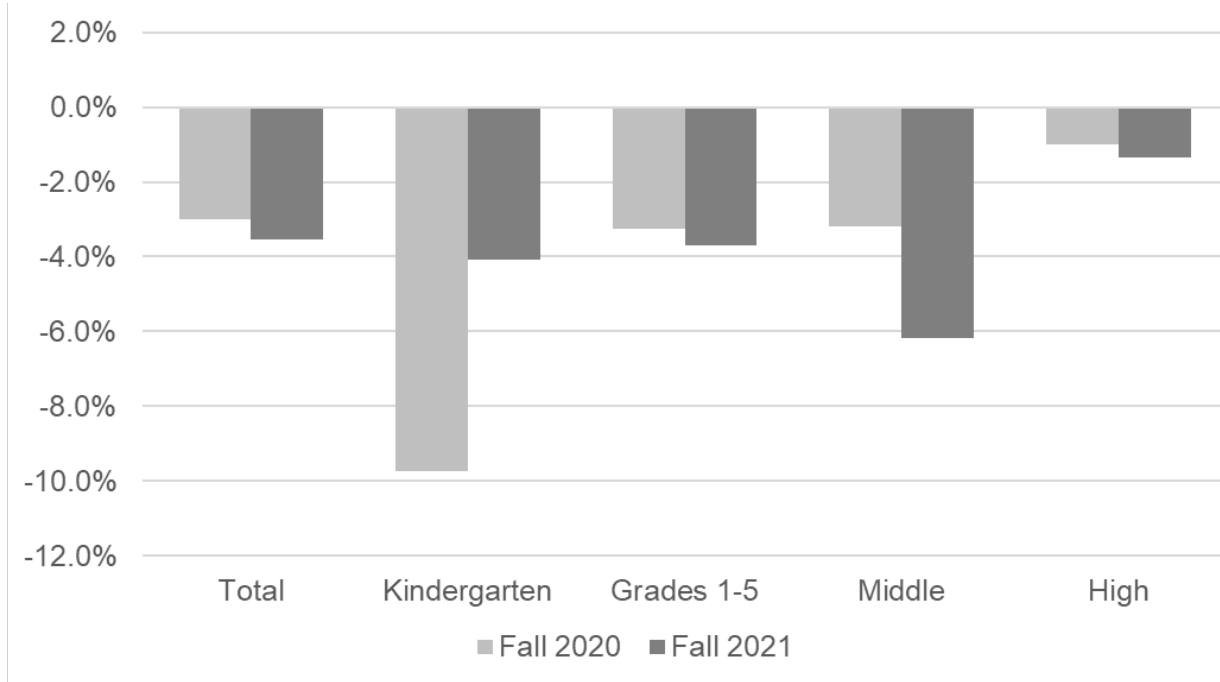
Heteroscedasticity-robust standard errors in parentheses.

*** p<0.01, ** p<0.05, *p<0.1

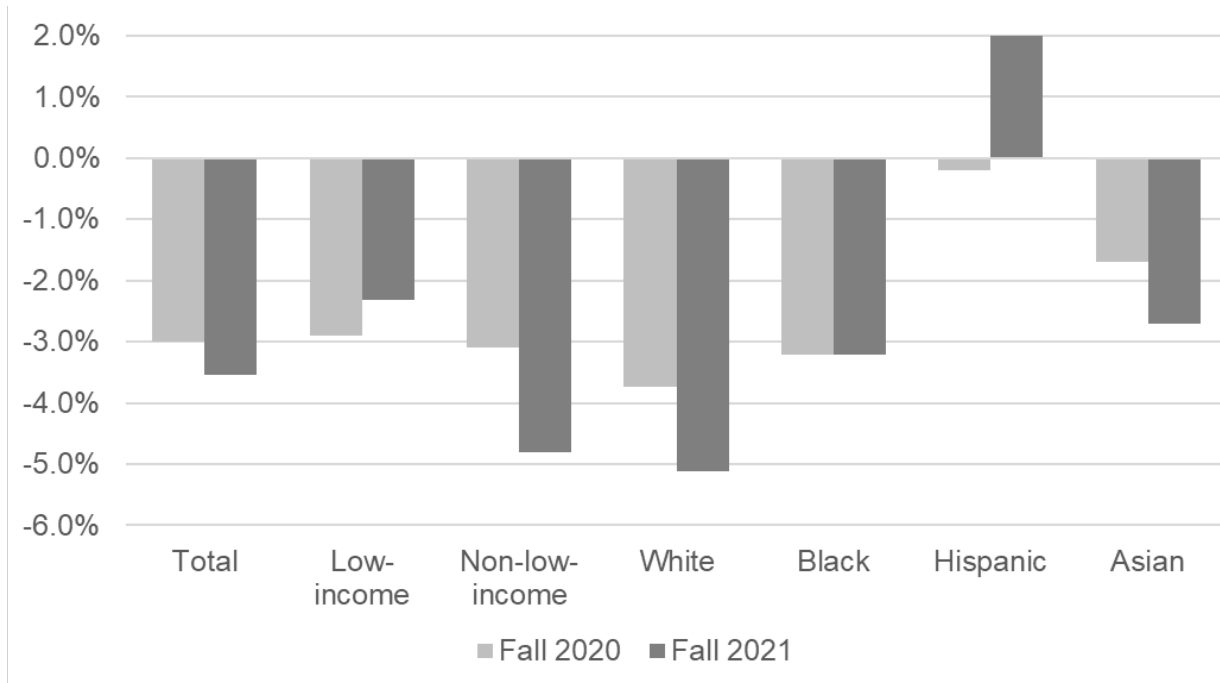
Appendix

Appendix Figure A1: Changes in Unadjusted Enrollment

Panel A: Percent Change Relative to 2019-20, by Grade

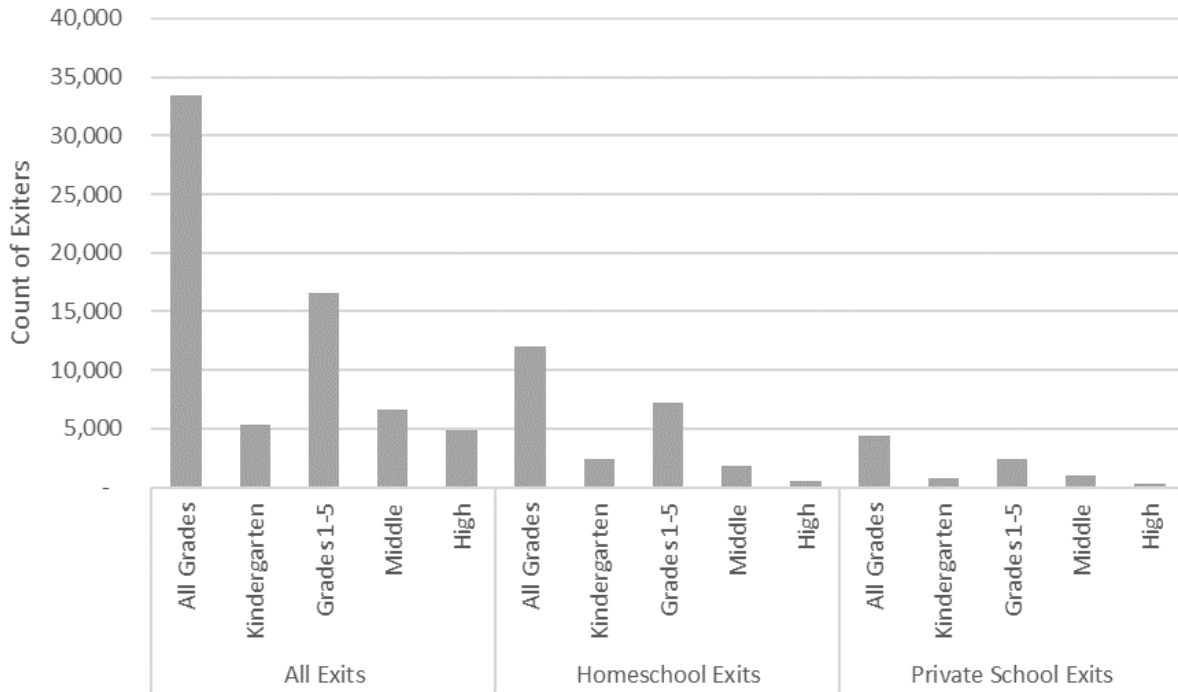


Panel B: Percent Change Relative to 2019-20, by SES and Race/Ethnicity



Notes: This figure presents the percent change in student enrollment in fall 2020 and fall 2021, compared to pre-Covid enrollment in fall 2019.

Appendix Figure A2: Counts of Exitors



Notes: Sample includes students enrolled in a Michigan public school in 2019-20 and subsequently exited in 2020-21. We separate students by grade level in 2019-20 and exit type. High school grades only include students enrolled in 9th and 10th grade in 2019-20 to allow for returns in 2021-22. This corresponds to the same sample used in Figure 4.

Table A1. Student Enrollment in Michigan Public Schools

	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021
<i>Panel A: Total Enrollment</i>					
	1,459,219	1,443,415	1,433,317	1,390,324	1,382,464
<i>Panel B: By Grade Level</i>					
Kindergarten	108,491	108,840	109,904	99,202	105,422
Grades 1-5	535,169	526,431	523,028	506,086	503,619
Middle	338,495	336,925	334,284	323,621	313,671
High	477,064	471,219	466,101	461,415	459,752
<i>Panel C: By Student Characteristics</i>					
Low-income	736,361	724,480	726,279	705,179	709,441
Non-low-income	722,858	718,935	707,038	685,145	673,023
White	968,745	952,197	938,537	903,421	890,489
Black	259,785	255,417	254,354	246,167	246,179
Hispanic	113,936	115,689	117,266	117,021	119,615
Asian	49,541	50,106	50,352	49,501	48,992

Notes: Kindergarten enrollment excludes transitional kindergarten.

Table A2. Pre-Pandemic Exits and Re-Enrollment

Grade in Fall 2017	Total Number of Exits in From Fall 2017 to Fall 2018	Total Number Re- Enrolled by Fall 2019	% Total of Exits who Re-Enrolled
K	1,512	360	24%
1	1,429	331	23%
2	1,354	351	26%
3	1,379	334	24%
4	1,335	309	23%
5	1,456	322	22%
6	1,386	365	26%
7	1,249	388	31%
8	1,871	450	24%
9	2,329	569	24%
10	2,686	475	18%
Total	17,986	4,254	24%

Notes: Sample includes students enrolled in a Michigan public school in fall 2017 and subsequently exited before fall 2018. We separate students by grade level in fall 2017. High school grades only include students enrolled in 9th and 10th grade in fall 2017 to allow for returns in fall 2019. This corresponds to the same sample used in Figure 4.