Analysis Series on Oregon's High School Class of 2020

Methods Summary

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Introduction

This methods summary is a companion to the Oregon Child Integrated Dataset (OCID) analysis series on the high school Class of 2020. This series examines available state data across the lifespan of students from birth to graduation age in 2020, including equity components and connections across multiple publicly funded programs. The brief sets the foundation for building a deeper understanding of the class of 2020, providing context for in-depth analyses, and sparking additional areas of potential inquiry for OCID. This methods summary provides technical documentation of the analysis methods used to classify, define, and select the variables contained in the analytic series. Where applicable, additional detail is provided in appendices for specific products.

Products in the analysis series on Oregon's High School Class of 2020 include:

- Foundational Analyses (additional methods in Appendix E)
- Severe Chronic Absenteeism (additional methods in Appendix F)
- Juvenile Justice Contact (additional methods in Appendix G)
- Midyear School Transitions

Methods

Study Population

This descriptive analysis contained 2 cohorts. One cohort consisted of 30,410 individuals from the 2019-2020 public high school class. Students who were born in Oregon in 2001 or later to Oregon resident mothers, and who were enrolled in 9th grade in the Oregon public education system during the 2015-16 academic year, were included in the study population. We have data for these individuals from birth until the point of graduation. As the OCID population is anchored to Oregon birth records, this cohort is restricted to children born in Oregon to Oregon resident mothers beginning in 2001. Additionally, OCID does not include educational information reported for children who are homeschooled or attending private schools. As such, our descriptive analysis is further restricted to children attending Oregon public schools. The baseline inclusion criteria for students in the cohort is a minimum of 1-day of enrollment in a standard instruction program ever within an academic year.

We also analyzed a multiyear cohort of 124,880 individuals whom we studied from birth until their first-time high school enrollment in 9th grade for the academic years: 2016–2017, 2017–2018, 2018–2019, and 2019–2020. The sample was restricted to individuals with at least 1-day of enrollment in a standard instruction program ever within an academic year. This larger cohort, denoted 'multiclass 9th-grade cohort,' is selected to provide a more robust sample to accurately describe the distribution of student and family characteristics by the outcome of 9th grade on-track to graduate (9GOT) status. The Oregon Department of Education (ODE)[1] has previously reported on the validity of 9GOT as a predictor for 4-year graduation.

[1] Oregon Department of Education. Oregon Department of Education. Predictors of on-time high school graduation. 2020; https://www.oregon.gov/ode/students-and-family/GraduationImprovement/Documents/PredictorsofHSGraduation.pdf. Accessed April 4, 2022.

We used study identifiers (SIDs) generated by the Integrated Client Services (ICS) group within the Office of Forecasting, Research and Analysis at the Oregon Department of Human Services (ODHS) to link these 2 study population cohorts with further educational administrative records and state administrative records in vital statistics, child welfare, Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Medicaid/Children's Health Insurance Program (CHIP), Oregon Youth Authority (OYA) juvenile justice contact, and Head Start/Oregon Pre-kindergarten (HS/OPK).

Variable Creation and Validation

For this descriptive analysis, all variables under consideration were coded by the OCID project data team. During variable creation by the primary coder individual variable frequencies and summaries were outputted in a log file in a literate coding format. When comparable data were publicly available, the frequencies were checked against relevant state agency data or prior OCID reports. For all code, an independent second reviewer from the data team reviewed the code, the output, and relevant database reference tables or figures for the frequencies or other summaries around variable transformation and creation. If discrepancies were identified, the entire data team met to review the approach for the variable until a solution was identified and unanimously selected.

Variable Selection

All included variables were selected as potential exposures using a multifaceted approach that included the policy priorities of the OCID Governance Committee, evidence synthesis from a literature review, and a quantitative selection criteria. The policy priorities and the literature review first identified student and family characteristics in 3 groupings: equity components, potential exposures to income insecurity, and potential exposures to family or housing instability.

We used the quantitative selection criteria to screen for variables with a 20 percentage point or greater difference in the respective proportions of 4-year graduation and 9GOT. Difference refers to a difference in proportion either between those with and those without (e.g., proportion for group of program participants – proportion for group without program participation) *or* within the variable between reference groups (e.g., for sex/gender, we used male as the reference group). All results for 4-year graduation and 9GOT can be found in Appendices B and C. We did not automatically exclude variables if a 20 percentage point difference was not achieved.

For our literature review, we found a limited number of peer-reviewed sources on the topic. As a result, we decided to include a wide number of available variables from the OCID data. Our literature review and references can be found under Appendix A.

For the foundational descriptive brief, we reported variables as indicators for either equity components, potential exposures to income insecurity, or potential exposure to family or housing instability.

Our reported indicators of equity components included:

- Race and ethnicity
- Sex/gender
- Disability status indicated by Individualized Education Program (IEP)
- Geography (rural, urban, tri-county)

Our reported indicators of potential exposures to income insecurity included:

- Enrollment in TANF
- Enrollment in SNAP
- Parents' level of education at birth

Our reported indicators of potential exposures to family or housing instability included:

- Involvement in foster care
- Contact with juvenile justice
- Experiencing houselessness
- Changing school districts midyear
- Chronic absenteeism from school

Parental level of education was reported at birth. For race/ethnicity, sex/gender, disability, and geography we utilized the values at the time of the outcome, that is, data available in 12th grade for the 2020 graduation cohort and data in 9th grade each class in the multiclass cohort. For all other variables, we used values that were measured during any point in time through the 2019–2020 school year for the 2020 graduation cohort and through 9th grade for the multiclass cohort.

We considered the following additional variables for inclusion and/or utilized the metrics in the more focused products.

- Attendance at a Title 1 school
- Designation as a student learning English
- Eligibility (individual or community-based) for free or reduced price lunch
- Low birth weight
- Medicaid enrollment
- Medicaid-funded birth
- Substantiated maltreatment
- School discipline
- Midyear school transitions
- Employment-Related Day Care (ERDC)
- Head Start/Oregon Pre-kindergarten (HS/OPK)

We did not select these variables for the descriptive analysis based on our 3-pronged inclusion criteria.

Educational Outcome Measures

4-Year Graduation

We received data from ODE that included a variable labeled as "On-time Graduation." Individuals are designated as "graduated" or "not graduated." "Graduation" includes individuals who received a high school diploma within 4 years of their matriculation into 9th grade in the academic year of 2016–2017. For the 4-year graduation rate, our numerator for the count of graduating students comes directly from an ODE generated file with SIDs and basic demographic information. The numerator does not include obtainment of a general equivalency diploma (GED) or receipt of modified diplomas. Individuals with missing graduation status are counted as not having graduated. ODE lists an 82.6% 4-year graduation rate[2] for the 2019–2020 cohort for all students. This compares to our finding of an 81% rate within the OCID sample.

Our sample is restricted to the OCID population. This includes youth who attended 1 or more day of school with a standard instruction program and who were born in Oregon to Oregon resident mothers from 2001 onward. Currently OCID does not have 5- or 6-year graduation data, as the 2020 graduating class was the first to matriculate within the OCID cohort.

Source: ODE

9th Grade On-Track to Graduate

We used a binary (yes or no) 9GOT variable from ODE data. ODE defined being "on-track" as first-time high school students enrolled in 9th grade who earned at least 25% of regular graduation credits by the start of their 10th grade year. Our sample includes individuals matriculating into 9th grade for the academic years of 2016–2017, 2017–2018, 2018–2019, and 2019–2020.

For the 9GOT proportion, our numerator for the count of on-track high school students enrolled in 9th grade for the first time comes directly from an ODE generated file with SIDs and basic demographic information. Our denominator consists of all first-time high school students enrolled in 9th grade who attended 1 or more day of school within a standard instruction program and were born in Oregon, to Oregon resident mothers. Our reported proportions of 82% on-track to graduate, for the OCID multiclass 9th-grade cohort, corresponded closely to the 83% to 85% reported for all students reported in the ODE Statewide Report Card[3] for a similar reference period.

Due to the COVID-19 pandemic, 9GOT data collection in the 2019–2020 academic year differed from previous years. On a statewide level, there are minimal differences in 9GOT rates between the 2018–2019 and 2019–2020 academic years (84.5% vs 85.3%[4]). Because of the changes in

[2] Oregon Department of Education. ODE Cohort Trend Pages 2019-2020. 2020; https://www.oregon.gov/ode/reports-and-data/students/Documents/CohortTrendPages2019-20.pdf. Accessed April 4, 2022.

[3] Oregon Department of Education. ODE Statewide Report Card 2020-2021. 2021; https://www.oregon.gov/ode/schools-and-districts/reportcards/Documents/rptcard2021.pdf. Accessed April 4, 2022.

[4] Oregon Department of Education Annual Performance Progress Report. 2021; https://www.oregonlegislature.gov/lfo/APPR/APPR_ODE_2021-09-29.pdf. Accessed April 20, 2022.

data collection, ODE has cautioned against direct comparisons of 9GOT rates at a granular geographic level, such as by school district or school.

To determine whether the 2019–2020 9GOT rate was an outlier, we examined how 9GOT rates varied by school districts across 3 school years (2017–2018 through 2019–2020). As seen in Table B1 in Appendix B, the 2019–2020 percentages of "on-track" did vary by school district. When we examined the year-to-year differences at a statewide level, the average variation was not substantially different from that seen between years without COVID-19-related data collection changes. In Table 1 below, we present the statewide average for the difference between the on-track percentages for the reference year and the previous year. We also show the calculated average relative change (percent from previous year - percent from reference year / reference year). When comparing the 2017–2018 school year to the 2018–2019 school year, we found an average relative change in 9th grade on-track rates of 4.1 percentage points. This was similar to the average relative difference of 3.2 percentage points when we compared the 2018–2019 school year to the 2019–2020 school year. Given that our analysis was primarily at the state level and does not directly compare schools or school districts, we felt that this data was sufficiently robust for the 2019–2020 9th grade class to be used for our analysis.

Table 1. Year-to-Year Variation in Statewide Percent of 9th Grade On-Track

	CHANGE IN ON-TRACK RATE IN PERCENTAGE POINTS	
	2018–2019 TO 2019–2020	2017–2018 TO 2018–2019
Average difference	1.4	1.1
Average relative difference	3.2	3.8

Source: ODE

Equity Components

Race/Ethnicity

OCID data partners and agencies may have different data definitions or methodology for reporting individual or family race and ethnicity, which are not easily reconciled. With input from state partners and subject matter experts, we developed a methodology to select information for individuals when there were multiple options within and across points in time. The OCID Race and Ethnicity Data Overview provides a detailed summary on the guiding methodology and technical steps used to assign race and ethnicity from across the OCID data sources.

Table 2 below shows a comparison between OCID's race and ethnicity designations and ODE's records for the class of 2020 cohort. The OCID methodology typically results in higher proportions of populations identified as American Indian/Alaskan Native, Asian, and Black/African American.

Table 2. Comparison of OCID and ODE Methodology for Determining Race and Ethnicity Categories for Students in the Class of 2020 Cohort

	OCID METHODOLOGY		ODE METHODOLOGY	
RACE OR ETHNICITY CATEGORY	NUMBER	PERCENT	NUMBER	PERCENT
American Indian/Alaskan Native	3,730	12%	420	2%
Asian	1,330	4%	860	3%
Black/African American	1,000	3%	440	2%
Hispanic/Latinx	4,270	14%	6,200	21%
Native Hawaiian/Pacific Islander	390	1%	130	<1%
Multiracial	*Not used*	*Not used*	1,610	6%
White	19,690	65%	19,250	63%
Unknown	<11	<1%	1,500	5%

Source: ODE, Oregon Health Authority (OHA), ODHS

Sex/Gender

We utilized sex assigned at birth from birth certificate information, data collected through participation in ODE and OHA programs, and other data that captures gender terminology used to collect sex. Similar to the OCID race and ethnicity methodology, individuals are initially documented as the sex assigned at birth, and then reassigned if more recent data indicate a change in identification. Most sources were restricted to male/female categories until 2018–2019, when ODE added a non-binary option to enrollment forms.[5]

While we explored the option of including non-binary gender, none of the youth within this cohort were indicated as having identified as non-binary in the administrative data we received. Possible explanations for this include records automatically rolling over from one school year to another, and the completion of demographic forms by the parent or caregiver rather than the student themselves. We intend for future OCID briefs to include non-binary gender to better estimate the effects across gender identities.

Source: Vital Statistics; ODHS; OYA; ODE; OHA

Disability (IEP)

We used an indicator for disability with a binary (ever or never) variable that included K-12 public school students with an Individual Education Program (IEP) designation, a school system assignment that a student requires accommodations to learn in the classroom, at any point during their educational career. Our data for this variable comes from the special education indicator in the ODE administrative dataset. We are aware of other available indicators for disability in the OCID data that include eligibility for Section 504 services, participation in Early Intervention or Early Childhood Special Education services, and information from Medicaid/CHIP

[5] Colt, G. Oregon Department of Education. Executive Numbered Memo: 008-2017-18 New Gender Code for 2018-19. 2018; https://www.oregon.gov/ode/about-us/Documents/Executive%20Numbered%20Memo%20Gender%20ID%20for%20data%20collections.pdf. Accessed April 4, 2022.

claims data. We limited our exploration of disability in this analysis to students with IEPs during any academic year of the students' records.

Source: ODE

Geography

We divided counties in Oregon into 3 categories based on current population density: rural, urban, and the tri-county region.

- Rural counties included those whose largest city has a population fewer than 50,000: Baker, Clatsop, Columbia, Coos, Crook, Curry, Douglas, Gilliam, Grant, Harney, Hood River, Jefferson, Josephine, Klamath, Lake, Lincoln, Malheur, Morrow, Sherman, Tillamook, Umatilla, Union, Wallowa, Wheeler, Wasco, and Yamhill
- Urban counties included non-Metro counties whose largest city has a population of greater than 50,000: Benton, Deschutes, Jackson, Lane, Linn, Marion, and Polk
- Tri-county region included the 3 counties comprising the Portland metropolitan region: Clackamas, Multnomah, and Washington

Source: OCID methodology

Indicators of Potential Exposure to Family or Housing Instability

Contact with Foster Care

Foster care contact was coded as a binary variable (ever or never) from 'report end date' in the Adoption and Foster Care Analysis and Reporting System (AFCARS) data sent to OCID from ODHS. Based on conversations with members at ODHS, we considered any enrollment or designation of administrative enrollment as contact with the foster care system, regardless of the placement outcome. Foster care contact data consists of any placement since 2001.

Source: ODHS

Contact with Juvenile Justice

We coded contact with the juvenile justice system as a binary variable (ever or never) based on data sent to OCID from OYA. We considered any referral for a misdemeanor, felony, murder, violation, or other offense based on the most serious Oregon Revised Statutes code, regardless of the outcome of that referral, as having contact with the juvenile justice system.

Source: OYA

Students Experiencing Houselessness

We coded students experiencing houselessness as a binary variable (ever or never) based on data sent to OCID by ODE. For our proxy of students experiencing houselessness, we considered any students who were determined to be McKinney-Vento eligible for any duration of an academic year, as having experienced houselessness. McKinney-Vento eligibility is defined as individuals who lack a fixed, regular, and adequate nighttime residence. This definition includes individuals sharing the housing of other people ("doubling-up"); living in emergency or

transitional shelters; living in motels, hotels or campgrounds; and living in vehicles, public spaces, abandoned buildings, or substandard housing.

This indicator of experiencing houselessness first became available for individual student administrative records during the 2012–2013 academic year; therefore, we do not have information about houselessness prior to that academic year. Due to school closures during the COVID pandemic, estimates of youth experiencing houselessness may be underestimated for the 2019–2020 academic year.

Source: ODE

Changing School Districts Midyear

We coded midyear school district transitions as a binary variable (ever or never), based on data sent to OCID from ODE. Individuals were classified as having experienced a midyear school district transition if they attended 1 or more school districts, for at least 1 day, within a single academic year. Transitions outside of public school (i.e., homeschooled or private schools) and during the summer between school years were not included.

Due to the COVID-19 pandemic, attendance data was not collected for the 2019–2020 academic year. Therefore, data for the 2019–2020 academic year includes all youth, as it was not possible to exclude youth with less than 1 day of enrollment.

Source: ODE

Chronic Absenteeism

We coded student absenteeism as a binary variable (chronically absent or regular attender), based on data from ODE. Students were classified as chronically absent if they were absent for at least 10% of instructional days within an academic year, for any academic year within their education career. Instructional days are the sum of absent and present days as measured by ODE.

Due to the COVID-19 pandemic, attendance data were not collected for the 2019–2020 academic year. Therefore, data are only reported through 2018–2019 academic year.

Source: ODE

Indicators of Potential Exposure to Income Insecurity

Enrollment in TANF

We coded enrollment in TANF as a binary variable (ever or never), based on data sent to OCID by ICS. TANF provides cash assistance to families with income eligibility up to 37% of the federal poverty level. Participation in this program served as a proxy for the highest level of documented income insecurity within our analysis. We designated students as enrolled in TANF if the child's family was enrolled during any calendar year of the child's life until the measurement of the outcome. As TANF is measured at the family level and does not indicate individual receipt of services, all children within a family are designated as having received TANF.

Source: ICS

Enrollment in SNAP

We coded enrollment in SNAP as a binary variable (ever or never), based on data sent to OCID by ICS. SNAP, with the requirement of a family unit income eligibility of up to 185% of the federal poverty level, provides another proxy for documented income insecurity above TANF eligibility levels. We designated students as enrolled in SNAP if the child's family was enrolled at any time during the child's life until the measurement of the outcome. As SNAP is measured at the family level, and does not indicate individual receipt of services, all children within a family were designated as having received SNAP.

Source: ICS

Parents' Level of Education at Birth

We categorized students by the reported highest number of years of education for the first or second parent listed on the birth certificate. From this variable, students were designated as having a parent who completed fewer than 4 years of high school, fewer than 4 years or college education, or 4 or more years of college education. We collapsed information from the birth record into the 3 categories described above.

Source: Vital Statistics

Other Variables Considered for Foundational Analysis and/or Used in Other Documents in the Series

Designation as a Student who is Learning the English Language

We coded students learning the English language as a binary variable (ever or never), based on data sent to OCID by ODE. This variable indicated students whose administrative records show that they were ever eligible for services related to learning the English language.

Source: ODE

Experiencing School Discipline

We coded students experiencing school discipline as a binary variable (ever or never), based on data sent to OCID by ODE. This variable indicated students ever had documentation of school discipline while enrolled in Oregon public schools, including students with a suspension (in-school or out-of-school) or expulsion during any school year of the students' records. This category did not include removal of students to an alternative setting. Due to the COVID-19 pandemic in 2020, counts for experiences of school discipline may be underestimated for the 2019–2020 academic year.

Source: ODE

Individual or Community Eligibility for Free or Reduced Price Lunch (FRPL)

We coded student eligibility for FRPL as a binary variable (ever or never), based on data from ODE. This variable indicates if the student ever attended a school with FRPL at the school level or was determined as being individually eligible for FRPL. The ever or never FRPL variable could be an indicator of either individual eligibility for FRPL based on family economic circumstances, or school-wide eligibility based on a certain proportion of students in that school meeting the individual eligibility requirements.

Source: ODE

Changing Schools Midyear

We coded midyear school transitions as a binary variable (ever or never), based on data sent to OCID from ODE. Individuals were classified as having experienced a midyear school transition if they attended 2 or more schools, for at least 1 day, within a single academic year. Transitions outside of public school (e.g., homeschools, private schools) were not included.

Due to the COVID-19 pandemic, attendance data was not collected for the 2019–2020 academic year. Therefore, data for the 2019–2020 academic year includes all youth, as it was not possible to exclude youth with less than 1 day of enrollment.

Source: ODE

Severe Chronic Absenteeism

Students were classified as severely chronically absent if they were absent for at least 20% of instructional days within an academic year, for any academic year within their education career. Instructional days are the sum of absent and present days as measured by ODE.

Due to the COVID-19 pandemic, attendance data were not collected for the 2019–2020 academic year. Therefore, data are only reported through 2018–2019 academic year.

Source: ODE

Medicaid Enrollment

We coded Medicaid enrollment as a binary variable (ever or never), based on OHA Medicaid enrollment file data. This variable indicates that the healthcare coverage was provided by the Oregon Health Plan, the state's Medicaid program. Individuals were classified as having ever been enrolled in Medicaid if the individual had 1 or more total months' of enrollment during any time of the child's life until the measurement of the outcome. As we only have partial Medicaid claims data from 2001, data for youth born in 2001 were supplemented with health coverage information reported on the birth certificate. While birth certificate data underestimate the number of individuals covered by Medicaid, due to being self-reported among other factors, these data were included to present a more complete picture of enrollment by age for the oldest youth in our cohort.

Source: OHA and Vital Statistics

Substantiated Maltreatment

We coded substantiated maltreatment as a binary variable (ever or never), based on data sent to OCID from ODHS. Individuals were coded as having experienced substantiated maltreatment if they ever had a report of maltreatment that was substantiated, regardless of the outcome of that investigation (e.g., removal to foster care, safety plan for staying in current home).

Due to the availability of information for records of substantiated maltreatment beginning in 2005, early experiences of maltreatment (prior to 2005) may not be captured for the oldest youth in our cohort. Our indictor may therefore underestimate the count of youth who have ever experienced substantiated maltreatment.

Source: ODHS

Attending a Title I School

We coded enrollment in a Title 1 School as a binary variable (ever or never), based on data sent to OCID by ODE. This variable indicates the students whose administrative records indicate that they were ever enrolled at a Title I school.

Source: ODE

Enrollment in Employment-Related Day Care (ERDC)

We coded ERDC enrollment as a binary variable (ever or never), based on data sent to OCID from ICS. This variable indicates the students whose administrative records indicated they were ever enrolled in ERDC, for any duration of time. Due to the measurement of ERDC enrollment at the family level, any youth within a family that was enrolled in ERDC was coded as having received ERDC services.

This variable may therefore overestimate the percentage of students who attended day care using supplemental funding from ERDC, as it was not possible to determine individual receipt of service.

Source: ICS

Prenatal Tobacco Use

We coded prenatal tobacco use as a binary variable (yes or no), based on data sent to OCID from information collected on birth certificates. This variable indicates youth whose gestational parent indicated using tobacco products for any length of time in any quantity during the prenatal period.

This variable does not capture frequency or amount of gestational parent tobacco use, type of tobacco product, prior tobacco use, or household, occupational, or other environmental exposures to tobacco products.

Source: Vital Statistics

Medicaid-funded Birth

We coded Medicaid-funded birth as a binary variable (yes or no), based on OHA Medicaid enrollment file data. This variable indicates that the costs associated with an individual's birth were paid for by the Oregon Health Plan, the state's Medicaid program. We only have partial Medicaid claims data from 2001 so we excluded this year from any outcome calculations.

Source: OHA

HS/OPK Enrollment

We coded HS/OPK enrollment as a binary variable (yes or no), based on data sent to OCID from ODE's Early Learning Division (ELD). This variable indicates any student with enrollment in HS/OPK, for any duration, within an academic year.

Information about HS/OPK enrollment data is not available to OCID prior to 2005. Therefore, our indicator may underestimate the proportion of youth with OPK enrollment, particularly for the oldest youth in our cohort (born 2001 to 2002).

Source: ELD

Low Birth Weight

We coded low birthweight as a binary variable (yes or no), based on data sent to OCID from vital statistics at OHA. This variable indicated any individual with a birth weight of less than 2,500 grams on their birth certificate.

Source: OHA

Limitations

The following section outlines main limitations for the findings we presented in the descriptive analysis.

In our descriptive analysis of graduation and 9GOT, we did not conduct formal statistical tests or evaluate associations in a robust manner. We designed the descriptive analysis to present layered counts and frequencies between variables. We did not make assumptions for associations or causal inference. We were reliant on the accuracy of secondary data collected for different purposes. Our data points were transformed into binary measures that may not accurately capture either the full individual experience or the larger environmental, structural, or social effects present.

Some of the proxies used may undercount actual exposure to poverty, child abuse or neglect, and disability. Other characteristics, such as geographical location, may change over time and this change was not captured in the analysis. Additionally, we were reliant on the accuracy of secondary data collected for different purposes (i.e., administration of programs). Our data points were transformed into binary measures that may not accurately capture either the full individual experience or the larger environmental, structural, or social effects present.

As stated before, the OCID sample was restricted to children born in Oregon to Oregon resident mothers, which limits our sample to approximately three quarters of the entire body of students receiving public school education. We reported on 24,560 individuals designated as 4-year graduates in OCID compared to 35,964 high school diplomas awarded statewide as reported by ODE.[6] As such, we might expect that some of the observed differences by layered variables may differ those from the total population of students enrolled in Oregon public schools.

The COVID-19 pandemic began in the spring of 2020, followed by large-scale wildfires throughout the state during the summer of 2020. For individual variables, change in reporting or suspected threats to validity are detailed above.

Acknowledgments

We are grateful to all participating members of our Governance Committee and to our collaborating data partners with multiple state agencies for their assistance on this work.

[6] Oregon Department of Education. Cohort graduation rate 2019-2020 media file. 2021; https://www.oregon.gov/ode/reports-and-data/students/Documents/cohortmediafile2019-2020_revised.xlsx. Accessed April 9, 2022.

Appendix A. Literature Review

Development of Search

Our team conducted a literature review to identify relevant factors of interest for graduation or 9GOT. Our review included internet searches using DuckDuckgo and Google Scholar. Key terms used to search were *9th-grade on-track*, *high school graduation* and *high school graduation rates*. We also searched select state government Departure of Education (DoE) websites (including Oregon, Washington, Pennsylvania, and Maryland) to identify relevant articles.

Findings

We identified limited information about 9GOT, particularly peer-reviewed articles. Most of the information we identified was gathered from DoE websites, newspaper articles, blogs, and doctoral theses.

We identified 30 potential articles from our search, of which 8 articles described attendance rates, 9GOT, course enrollment, mobility, and discipline as predictors for graduation on time.[1-8] Several of these variables were measured through indicators such as Early Warning Indicator and Intervention Systems (EWS), course credits enrollment, and mentoring through school-based coaches, tutoring, and counseling. Houselessness, economically disabled students, chronic absenteeism were variables that negatively affected student's graduation and 9GOT status. Students identified as Black/African-American or Hispanic/Latino students were more likely to be off-track and to experience negative school-related outcomes, whereas students identified as Asian and White were noted to experience more positive outcomes. We considered these findings during the selection process for our variables of interest. Given the limited number of sources on the topic, we decided to include a wide number of available variables from the OCID data.

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Appendix B. State-Level Changes by Year for 9th Grade On-Track Status

In Table B1, we report various metrics for the year-to-year changes in the percent of on-track first time high school students enrolled in 9th grade for all Oregon school districts. We compare the average and median annual changes in the percent of students on-track to graduate by school district from 2017–2018 and 2018–2019 to the most recent academic year of data (2019–2020). We also compare the relative difference (percent comparison year – percent reference year / percent reference year), to better understand the magnitude of differences. Finally, due to both positive and negative changes in 9th grade on-track rates across school districts, we compare the absolute value of differences.

Table B1: Statewide Annual Percentage Point Change for 9th Grade On-Track Status

	CHANGE IN ON-TRACK RATE IN PERCENTAGE POINTS		
	2017–2018 TO 2018–2019	2018–2019 TO 2019–2020	2017–2018 TO 2019–2020
Average difference	1	1	0
Median difference	0	0	0
Average relative difference	4	3	3
Average absolute difference	10	11	11

Source: ODE

Appendix C. Class of 2020 Cohort

In Table C1, we show the numbers, percentages, and differences in the respective proportions of 4-year graduation by variable for all variables considered for this analysis. Except where noted otherwise, all characteristics are measured as ever occurring across a student's lifespan through the 2019-2020 school year. The numbers we present are rounded counts of students.

Table C1. Class of 2020, 4-year Graduation by Selected Student or Family Characteristics

	GRADUATED		NOT GRADUATED			GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS)	
VARIABLE	NUMBER	ROW PERCENT	NUMBER	ROW PERCENT	ROW TOTAL	DIFF. FROM REFERENCE GROUP	> 20
Class of 2020	24,560	80.8	5,850	19.2	30,410		
Race and Ethnicity							
American Indian or Alaskan Native	2,830	75.9	900	24.1	3,730	-5.7	
Asian	1,220	91.7	110	8.3	1,330	10.1	
Black or African American	730	72.7	270	27.3	10,00	-8.9	
Hispanic or Latinx	3,390	79.4	880	20.6	4,270	-2.2	
Native Hawaiian or Pacific Islander	330	82.5	70	17.5	400	1.1	
White	16,070	81.6	3,620	18.4	19,690	ref	
Sex/Gender							
Male	12,240	78.7	3,300	21 .3	15,550	ref	
Female	12,310	82.8	2,550	17.2	14,860	4.1	
Disability							
Ever had an IEP	5,330	70.3	2,260	29.7	7,580	-13.9	
Never had an IEP	19,230	84.3	3,600	15.8	22,820	ref	

VARIABLE	GRADUATED NUMBER	GRADUATED ROW PERCENT	NOT GRADUATED NUMBER	NOT GRADUATED ROW PERCENT	ROW TOTAL	GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	> 20
Geography							
Rural	4,350	78.7	1,180	21.3	5,530	-3.3	
Tri-county	11,570	82.0	2,480	18.0	14,060	ref	
Urban	8,630	79.7	2,190	20.2	10,830	-2.2	
Parent Level of Education							
4 or more years of college	8,080	92.1	690	7.9	8,770	ref	
Fewer than 4 years of college	13,060	77.0	3,870	23.0	16,930	-15.1	
Fewer than 4 years of high school	3,180	71.6	1,250	28.2	4,440	-20.3	*
Enrolled in ERDC							
Ever	4,220	65.5	2,220	34.5	6,440	-19.3	
Never	20,340	84.9	3,640	15.2	23,970	ref	
Enrolled in TANF							
Ever	5,220	62.4	3,140	37.6	8,360	-25.3	*
Never	19,330	87.7	2,710	12.3	22,050	ref	
Enrolled in SNAP							
Ever	13,860	73.3	5,050	26.7	18,910	-19.7	
Never	10,700	93.0	800	7.0	11,500	ref	
Enrolled in HS/OPK							
Ever	2,910	70.6	1,210	29.4	4,120	-11.8	
Never	21,650	82.4	4,640	17.6	26,290	ref	
Enrolled in Medicaid							
Ever	14,770	74.1	5,170	25.9	19,940	-19.4	
Never	9,790	93.5	680	6.5	10,470	ref	

VARIABLE	GRADUATED NUMBER	GRADUATED ROW PERCENT	NOT GRADUATED NUMBER	NOT GRADUATED ROW PERCENT	ROW TOTAL	GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	> 20
Medicaid-funded Birth							
Yes	6,020	72.8	2,240	27.2	8,260	-16.6	
No	9,880	89.5	1,160	10.5	11,050	ref	
Low Birth Weight							
Yes	1,270	78.4	360	21.6	1,620	-2.5	
No	23,290	80.9	5,490	19.1	28,780	ref	
Prenatal Tobacco Use							
Yes	2,630	64.5	1,450	35.5	4,080	-18.8	
No	21,930	83.3	4,400	16.7	26,330	ref	
Substantiated Maltreatment							
Ever	2,410	60.3	1,590	39.7	4,000	-23.6	*
Never	22,150	83.9	4,260	16.1	26,410	ref	
Contact with Foster Care							
Ever	1,170	55.7	930	44.3	2,100	-26.9	*
Never	23,390	82.6	4,920	17.4	28,310	ref	
Contact with Juvenile Justice							
Ever	1,750	51.3	1,660	48.7	3,410	-33.2	*
Never	22,810	84.5	4,190	15.5	27,000	ref	
Students Experiencing Houselessness							
Ever	2,040	56.8	1,540	43.2	3,590	-27.1	*
Never	22,510	83.9	4,310	16.1	26,820	ref	
Changed School Districts Midyear							
Ever	5,060	61.2	3,210	38.8	8,270	-26.9	*
Never	19,490	88.1	2,640	11.9	22,130	ref	

VARIABLE	GRADUATED NUMBER	GRADUATED ROW PERCENT	NOT GRADUATED NUMBER	NOT GRADUATED ROW PERCENT	ROW TOTAL	GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	> 20
Changed Schools Midyear							
Ever	7,000	63.5	4,020	36.5	11,020	-27.1	*
Never	17,560	90.6	1,830	9.4	19,390	ref	
Chronic Absenteeism							
Ever	12,820	71.1	5,210	28.9	18,030	-23.7	*
Never	11,740	94.8	640	5.2	12,380	ref	
Experienced School Discipline							
Ever	5,940	64.5	3,260	35.5	9,210	-23.3	*
Never	18,620	87.8	2,590	12.2	21,200	ref	
Attended a Title I School							
Ever	3,150	77.0	940	23.0	4,090	-4.3	
Never	21,400	81.3	4,910	18.7	26,320	ref	
Individual or Community Eligibility for FRPL							
Ever	16,280	75.8	5,190	24.2	21,470	-16.6	
Never	8,280	92.6	670	7.5	8,940	ref	
Designation as a Student Learning the English Language							
Ever	3,710	81.0	870	19.0	4,580	0.3	
Never	20,850	80.7	4,980	19.3	25,830	ref	

Abbreviations: SNAP: Supplemental Nutrition Assistance Program: TANF: Temporary Assistance for Needy Families; Medicaid/CHIP: Medicaid/Children's Health Insurance Program; OYA: Oregon Youth Authority juvenile justice contact; HS/OPK: Head Start/Oregon Pre-kindergarten; FRPL: free or reduced price lunch.

Appendix D. Multiclass 9th-Grade Cohort

In Table D1, we show the numbers, percentages, and differences in the respective proportions of 9GOT by variable for all variables considered for this analysis. Except where noted otherwise, all characteristics are measured as ever occurring across a student's lifespan through the 2019-2020 school year. The numbers we present are rounded counts of students.

Table D1. Multiclass 9th-Grade Cohort, 9th Grade On-Track to Graduate by Selected Student and Family Characteristics

	ON-TRACK TO GRADUATE		OFF-TRACK TO GRADUATE			ON-TRACK RATE DIFFERENCES (PERCENTAGE POINTS)	
VARIABLE	NUMBER	ROW PERCENT	NUMBER	ROW PERCENT	ROW TOTAL	DIFF. FROM REFERENCE GROUP	>20
Multiclass 9th-grade cohort	101,850	81.6	23,030	18.4	124,880		
Race and Ethnicity							
American Indian or Alaskan Native	9,560	73.8	3,400	26.3	12,950	-9.7	
Asian	5,290	94.6	300	5.4	5,590	11.2	
Black or African American	3,030	72.8	1,130	27.2	4,160	-10.6	
Hispanic or Latinx	14,750	76.9	4,420	23.1	19,170	-6.5	
Native Hawaiian or Pacific Islander	1,190	80.4	290	19.6	1,480	-3.0	
White	67,990	83.4	13,500	16.6	81,480	ref	
Sex/Gender							
Male	50,780	79.1	13,380	20.9	64,160	ref	
Female	51,070	84.1	9,650	15.9	60,720	5.0	
Disability							
Ever had an IEP	21,900	71.6	8,690	28.4	30,600	-13.2	
Never had an IEP	79,940	84.8	14,340	15.2	94,280	ref	

VARIABLE	ON-TRACK TO GRADUATE NUMBER	ON-TRACK TO GRADUATE ROW PERCENT	OFF-TRACK TO GRADUATE NUMBER	OFF-TRACK TO GRADUATE ROW PERCENT	ROW TOTAL	ON-TRACK RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	>20
Geography							
Rural	21,740	78.7	5,870	21.3	27,610	-5.3	
Tri-county	43,940	84.0	8,400	16.0	52,340	ref	
Urban	36,170	80.5	8,760	19.5	44,930	-3.5	
Parent Level of Education							
4 or more years of college	34,680	94.5	2,000	5.5	36,680	ref	
Fewer than 4 years of college	53,550	78.0	15,110	22.0	68,660	-17.0	
Fewer than 4 years of high school	12,460	69.0	5,610	31.0	18,070	-26.0	*
Enrolled in ERDC							
Ever	16,930	66.8	8,400	33.2	25,330	-18.5	
Never	84,910	85.3	14,630	14.7	99,550	ref	
Enrolled in TANF							
Ever	21,370	63.3	12,410	36.7	33,780	-25.0	*
Never	80,480	88.3	10,630	11.7	91,100	ref	
Enrolled in SNAP							
Ever	55,510	73.3	20,180	26.7	75,690	-20.9	*
Never	46,340	94.2	2,850	5.8	49,180	ref	
Enrolled in HS/OPK							
Ever	13,290	70.2	5,630	29.8	18,920	-13.4	
Never	88,550	83.6	17,400	16 .4	105,950	ref	
Enrolled in Medicaid							
Ever	60,390	74.5	20,690	25.5	81,080	-20.2	*
Never	41,460	94.7	2,340	5.3	43,800	ref	

VARIABLE	ON-TRACK TO GRADUATE NUMBER	ON-TRACK TO GRADUATE ROW PERCENT	OFF-TRACK TO GRADUATE NUMBER	OFF-TRACK TO GRADUATE ROW PERCENT	ROW TOTAL	ON-TRACK RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	>20
Medicaid-funded Birth							
Yes	36,200	71.3	14,550	28.7	50,760	-18.9	
No	56,720	90.3	6,110	9.7	62,840	ref	
Low Birth Weight							
Yes	5,620	80.2	1,390	19.8	7,010	-1.4	
No	96,220	81.6	21,640	18.4	117,870	ref	
Prenatal Tobacco Use							
Yes	10,440	64.3	5,800	35.7	16,240	-19.8	
No	91,400	84.1	17,230	15.9	108,640	ref	
Substantiated Maltreatment							
Ever	10,500	62.1	6,410	37.9	16,900	22.4	*
Never	91,350	84.6	16,630	15.5	107,980	ref	
Contact with Foster Care							
Ever	5,010	58.6	3,550	42.4	8,550	-25.7	*
Never	96,840	83.3	19,480	16.7	116,320	ref	
Contact with Juvenile Justice							
Ever	3,180	41.4	4,510	58.6	7,690	-42.8	*
Never	98,670	84.2	18,520	15.8	117,190	ref	
Students Experiencing Houselessness							
Ever	6,800	57.3	5,080	42.7	11,870	-26.9	*
Never	95,050	84.1	17,950	15.9	113,000	ref	
Changed School Districts Midyear							
Ever	17,540	62.2	10,660	37.8	28,200	-25.0	*
Never	84,300	87.2	12,370	12.8	96,670	ref	

VARIABLE	ON-TRACK TO GRADUATE NUMBER	ON-TRACK TO GRADUATE ROW PERCENT	OFF-TRACK TO GRADUATE NUMBER	OFF-TRACK TO GRADUATE ROW PERCENT	ROW TOTAL	ON-TRACK RATE DIFFERENCES (PERCENTAGE POINTS) DIFF. FROM REFERENCE GROUP	>20
Changed Schools Midyear							
Ever	24,180	64.4	13,390	35.6	37,570	-24.6	*
Never	77,670	89.0	9,640	11.0	87,310	ref	
Chronic Absenteeism							
Ever	44,890	70.0	19,250	30.0	64,130	-23.8	*
Never	56,960	93.8	3,780	6.2	60,740	ref	
Experienced School Discipline							
Ever	19,550	61.0	12,500	39.0	32,040	-27.7	*
Never	82,300	88.7	10,530	11.3	92,830	ref	
Attended a Title I School							
Ever	11,370	75.0	3,790	25.0	15,160	-7.5	
Never	90,480	82.5	19,240	17.5	109,720	ref	
Individual or Community Eligibility for FRPL							
Ever	65,800	76.0	20,800	24.0	86,600	-18.2	
Never	36,050	94.2	2,230	5.8	38,280	ref	
Designation as a Student Learning the English Language							
Ever	16,220	77.9	4,590	22.1	20,820	-4.4	
Never	85,620	82.3	18,440	17.7	104,060	ref	

Abbreviations: SNAP: Supplemental Nutrition Assistance Program: TANF: Temporary Assistance for Needy Families; Medicaid/CHIP: Medicaid/Children's Health Insurance Program; OYA: Oregon Youth Authority juvenile justice contact; HS/OPK: Head Start/Oregon Pre-kindergarten; FRPL: free or reduced price lunch.

Appendix E. Predicting 4-Year Graduation for the Class of 2020

Key Question: Which indicators of potential exposure to income insecurity, housing or family instability, and learning needs were related to graduation within 4 years of enrolling in 9th grade for the cohort of students who entered 9th grade in 2015-16 in Oregon public schools?

Study Population: Students who were born in Oregon in 2001 or later to Oregon resident mothers, and who were enrolled in 9th grade in the Oregon public education system during the 2015-16 academic year, were included in the study population. There were 30,410 students identified for this cohort, and we referred to this cohort as the Class of 2020 in products associated with this analysis.

Method: The process used to identify and link records across multiple agency sources is described in the main body of this document. See Table E1 for the list of dependent variables considered for estimating a binary logistic regression model predicting the likelihood of graduating within 4 years of entering 9th grade. We selected dependent variables to test in the model based on 3 criteria:

- We focused on independent variables that were associated with significantly different proportions between groups of students who did and did not graduate within 4 years, and on constructs for which we had complete data during the years of life of this cohort. For example, OCID does not have access to substantiated maltreatment information prior to 2005, so we excluded that variable based on too much missing information in the first 4 years of life of the students in this cohort.
- We explored independent variables of interest to members of the OCID Governance Committee.
- We additionally considered independent variables that other work had shown to be linked to our outcome of graduation within 4 years of entering 9th grade outlined in Appendix A.

We fit a binary logistic regression model with robust standard errors that used risk ratios to describe the likelihood of graduation within 4 years for students who:

- Identified as female sex/gender in 12th grade
- Ever had an IEP
- Ever had 504 services
- Lived in a rural location in 12th grade
- Had a parent whose education was less than 12 years at the time of the child's birth
- Had a parent whose education was 12 to 15 years at the time of the child's birth
- Had exposure to prenatal tobacco use
- Ever experienced deep poverty
- Ever had foster care contact
- Ever had juvenile justice contact
- Ever had a midyear school transition
- Ever had severe chronic absence
- Ever had a school discipline incident (i.e., in-school suspension, out-of-school suspension, or expulsion)

- The primary model was fitted using the whole 2020 cohort (N = 30,410); see Table E2 for a summary of results. Risk ratios were estimated in place of odds ratios because the outcome of graduation within 4 years was not a rare outcome, and risk ratios more accurately assess the relationship between predictors and outcomes that occur in 10% or more in a given population.
- Each OCID analysis includes an exploration of equity components. In this analysis, we chose to explore whether the strength and direction of relationships between the dependent and independent variables were similar or different across categories defined by race and ethnicity. We found that interpreting the relationships within race and ethnicity categories was more straightforward with stratification of models, in which students of the same race and ethnicity category were compared against one another instead of being compared to students of a separate race and ethnicity category, rather than adding race and ethnicity categories as regressors in the primary model.
- We stratified the primary model by categories of race and ethnicity, and compared the estimates from each of these models to the estimates from the model with the whole cohort. We found that the strength and direction of the relationships were similar across students identified as American Indian/Alaska Native, Asian or Native Hawaiian/Pacific Islander, Hispanic/Latinx, and White. No pattern of differences in strength were identified between the race/ethnicity categories. The model for students who were identified as Black/African American did not converge, likely due to small numbers of students in this population.
- **Selected Limitations:** In addition to the strengths and limitations outlined previously in this document, it is important to note that some of the proxies used may undercount actual exposure to poverty, child abuse or neglect, and disability. Other characteristics, such as geographical location, may change over time and this change was not captured in the modeling technique used. This model did not explore the relationship between timing, dose, or overlap of exposures with graduation within 4 years.
- **Next Steps:** The large reductions in the likelihood of graduating within 4 years for groups of students who experienced severe chronic absenteeism, juvenile justice contact, and midyear school transitions suggest that further exploration of graduation within these groups may be worthwhile. Understanding the timing, sequence, dose, and overlap of characteristics, experiences, and exposures for students who experience severe chronic absenteeism, juvenile justice, and midyear school transitions may be useful for identifying students in future cohorts who might need additional support to graduate within 4 years of entering high school.

Table E1. Dependent and Independent Variables Included in Predictive Model

VARIABLE	AGENCY DATA SOURCE	ORIGINAL VALUES	OCID CODED VALUES	COMMENTS
Outcome				
4 year graduation	ODE	Y/N	1 (did graduate within 4 years) 0 (did not graduate within 4 years)	*This is an indicator of whether individual students who were enrolled in Oregon public schools as 9th grade students in 2015-16 then were issued a high school diploma 4 years later in the Oregon public school system (2019-20 academic year).*
Equity considerations				
Sex/gender	ODE, OHA	M/F/N	M (Male) F (Female) N (Non-binary)	*No students were noted as non-binary in this cohort.*
Race/ethnicity	ODE, OELD, ODHS, OHA	Varies	American Indian/Alaska Native Asian Black/African American Hispanic/Latinx Native Hawaiian/Pacific Islander White	*See OCID Race and Ethnicity Methodology document for details on categories collected.*
Disability	ODE	IEP: Y/N	1 (ever had IEP) 0 (never had IEP)	*Individualized education plan is the primary proxy for disability currently in OCID.*
Disability	ODE	504: Y/N	1 (ever had 504 services) 0 (never had 504 services)	*Smaller population than students with an IEP, and this cohort was most likely to have 504 services in high school (rather than in earlier grades).*
Geography	ODE	36 county names	1 (rural in 12th grade) 0 (urban or tricounty in 12th grade) Can also use as 3-level variable	*Rural counties included those whose largest city has a population <50,000*
Birth characteristics				
Parent education at child's birth	OHA	Numeric years of education	<12 years 12 to 15 years 16+ years	*This numeric format come from the old birth certificate form that was used through 2007. Parents were not given the option to indicate degrees attained on the form.*
Prenatal tobacco use	OHA	Y/N	1 (used tobacco) 0 (did not use tobacco)	
Income insecurity				
TANF	ICS	Enrollment date	1 (ever enrolled) 0 (never enrolled)	*Temporary Assistance for Needy Families. This is a proxy for "deep poverty".*

VARIABLE	AGENCY DATA SOURCE	ORIGINAL VALUES	OCID CODED VALUES	COMMENTS
Family or housing instability				
Foster care contact	ODHS (AFCARS)	Removal date	1 (ever removed) 0 (never removed)	
Juvenile legal system contact	OYA	Referral date	1 (ever referred) 0 (never referred)	
Changed school midyear	ODE	Enrollment date; Attending school identification number	1 (ever changed schools midyear) 0 (never changed schools midyear)	
Potential barriers to performing well on summative assessments				
Severe chronic absence	ODE	Attendance ratio (days present divided by instructional days)	1 (ever attended <80% of instruction days) 0 (never ever attended <80% of instruction days)	*Due to the COVID-19 pandemic, attendance data were not collected for the 2019–2020academic year. Therefore, data are only reported through 2018–2019 academic year.*
Discipline	ODE	Incident date	1 (ever had a discipline incident recorded) 0 (never had a discipline incident recorded)	

Table E2. Dependent and Independent Variables Considered but Not Included in Predictive Model

VARIABLE	AGENCY DATA SOURCE	ORIGINAL VALUES	OCID CODED VALUES	COMMENTS
Birth characteristics				
Medicaid birth	OHA	Y/N	1 (costs associated with an individual's birth were paid for by the Oregon Health Plan) 0 (birth costs not paid by the Oregon Health Plan)	*We only have partial Medicaid claims data from 2001, so we excluded this year from the model, assuming that the information we have about this birth cohort is an undercount of actual births paid for by Medicaid.*
Prenatal tobacco use	OHA	Y/N	1 (used tobacco) 0 (did not use tobacco)	
Income insecurity				
SNAP	ICS	Enrollment date	1 (ever enrolled) 0 (never enrolled)	*Supplemental Nutrition Assistance Program. This is a proxy for "low family income" when we exclude students who have ever had TANF.*
Medicaid/CHIP	OHA	Enrollment date	1 (ever enrolled) 0 (never enrolled)	*Enrollment in the Oregon Health Plan.*
Family or housing instability				
Substantiated maltreatment	ODHS (NCANDS)	Report date; Disposition	1 (ever had report disposition of substantiated maltreatment) 0 (never had report disposition of substantiated maltreatment)	*OCID does not have substantiated maltreatment information prior to 2005. Because this encompasses the first 4 years of life for the current cohort, we excluded this from the model under the assumption that the information we have is an undercount.*
Houselessness, 2012 to end of 12th grade	ODE	McKinney-Vento categories:	1 (ever noted as experiencing any category of houselessness between 2012 and 10th grade) 0 (never noted as experiencing any category of houselessness between 2012 and 10th grade)	*Note that we only have individual level houselessness information from 2012 and later.* *McKinney-Vento: This definition includes individuals sharing the housing of other people ("doubling-up"); living in emergency or transitional shelters; living in motels, hotels or campgrounds; and living in vehicles, public spaces, abandoned buildings, or substandard housing.*

VARIABLE	AGENCY DATA SOURCE	ORIGINAL VALUES	OCID CODED VALUES	COMMENTS
Potential barriers to performing well on summative assessments				
English language learner	ODE	Indicator for Limited English Language Proficiency (Y/N)	1 (ever noted as learner / emerging bilingual) 0 (never noted as learner/ emerging bilingual)	*We do not likely have a representative sample of ELL students given how the dataset was built on in-state birth records, so we will not explore this.*
Chronic absence	ODE	Attendance ratio (days present divided by instructional days)	1 (ever attended <90% and more than 80% of instruction days) 0 (never ever attended <90% and more than 80% of instruction days)	*Due to the COVID-19 pandemic, attendance data were not collected for the 2019–2020* *academic year. Therefore, data are only reported through 2018–2019 academic year.* *MAY only use SCA (row below).*
Attended Title 1 school	ODE	Enrollment date	1 (ever enrolled in Title 1 school) 0 (never enrolled in Title 1 school)	
Eligibility for free or reduced price lunch	ODE	Y/N	1 (ever eligible) 0 (never eligible)	*This is more useful as an indicator of community income level, rather than individual income level.*

Table E3. Summary of Results from Predictive Model

PREDICTOR	RISK RATIOS: LIKELIHOOD OF GRADUATIING WITHIN 4 YEARS	HOW MANY STUDENTS HAD THIS CHARACTERISTIC IN THE 2020 COHORT?	HOW MANY STUDENTS WITH THIS CHARACTERISTIC RECEIVED A HIGH SCHOOL DIPLOMA FROM AN OREGON PUBLIC SCHOOL WITHIN 4 YEARS OF ENTERING 9TH GRADE?
Deep poverty ever	6% reduction (±1.4%)	8,361	62.46% of students who ever had TANF graduated within 4 years
Midyear school transition ever	9% reduction (±1%)	11,014	63.55% of students who ever had a midyear school transition graduated within 4 years
School discipline ever	4% reduction (±1%)	9,312	64.86% of students who ever had school discipline graduated within 4 years
IEP ever	5% reduction (±1%)	7,584	70.27% of students with an IEP graduated within 4 years
504 ever	Not significant: 1% increase (±1%)	2,278	79.46% of students with 504 services graduated within 4 years
Foster care ever	8% reduction (±3%)	2,102	55.61% of students who ever had foster care contact graduated within 4 years
Rural location in 12th grade	Not significant: 0.3% increase (±1%)	5,526	78.71% of students in rural areas graduated within 4 years
Parent education: less than 12 years	Not significant: 1% reduction (±1%)	4,437	71.75% of students whose parents had less than 12 years of education at their birth graduated within 4 years
Parent education: 12 to 15 years	1% reduction (±1%)	16,930	77.16% of students whose parents had 12 to 15 years of education at their birth graduated within 4 years
Female sex/gender in 12th grade	Not significant: 0.3% increase (±1%)	14,861	82.85% of students identified as female graduated within 4 years
Juvenile justice contact ever	16% reduction (±2%)	3,413	51.20% of students with JJIS contact graduated within 4 years
Severe chronic absence ever	35% reduction (±1.4%)	7,888	50.84% of students who ever had severe chronic absence graduated within 4 years
Prenatal tobacco use	3% reduction (±1.4%)	4,083	64.44% of students who were exposed to prenatal tobacco graduated within 4 years

Appendix F. Severe Chronic Absenteeism in the Class of 2020

This appendix provides the methods summary for more in depth investigation into the students who experience severe chronic absenteeism (SCA) in the Class of 2020. This methods summary provides technical documentation of the analysis methods used to classify, define, and select the variables contained within SCA-focused products.

Primary Study Population: Students Experiencing Severe Chronic Absenteeism

The cohort included 7,800 individuals who were enrolled in 9th grade during the 2016-17 academic year in a standard education program and was limited to students whose attendance records reported that the student had attended fewer than 80% of instructional days within any academic year they were enrolled in Oregon public education. This subset of students is part of a larger population of students who did not reach the benchmark of regular attendance, which is attending 90% or more of instructional days during all enrollments during a school year. This analysis focused on students who ever attended fewer than 80% of instructional days for which they were enrolled in an Oregon public school.

Attendance estimates were generated at the end of the academic year, so each student had a single proportion (instructional days attended/instructional days enrolled) per academic year. Categorical indicators of attendance (i.e., regular attender, chronically absent, or severely chronically absent) can be different within students across years. Attendance records were not used from the 2019-10 academic year due to the public health emergency that resulted in a mid-year shift away from in-person education. Therefore, attendance was assessed between kindergarten and the end of 11th grade for this cohort.

Experience of Focus: Severe Chronic Absenteeism

We coded SCA as a binary variable (ever had SCA versus never had SCA), based on data from ODE. Students were classified as having had SCA if they were absent for more than 20% of instructional days within an academic year, for any academic year within their education career. Instructional days are the sum of absent and present days as measured by ODE. We used the SCA identifier to limit the population of students from the 2020 graduation cohort to only students who had ever had SCA.

There was a difference of 20 percentage points in 4-year graduation rate between students who ever had SCA and students who had chronic absence but never SCA. The OCID team wanted to explore whether the groups of students in these categories may have differed on other experiences and characteristics, such as experiencing insufficient economic resources. Prior to exploring the students who had ever had SCA, we briefly compared the students who had ever had SCA with the students who had ever had chronic absence but never had SCA. This second group of students with chronic absence attended more than 80% of instructional days for each year that they were enrolled in Oregon public education, and attended fewer than 90% of instructional days during at least 1 academic year.

When comparing the severe group to the group of youth who had only chronic absence and never SCA, some notable differences were:

- Severe group had significantly higher proportion of youth who had ever enrolled in any program that had income thresholds (i.e., TANF, SNAP, Medicaid).
- Severe group had significantly higher proportion of youth with an IEP.
- Severe group had double or greater the proportion of youth ever having substantiated maltreatment (2005 and later), foster care contact, houselessness (2012 and later), and juvenile justice contact.
- Severe group had significantly higher proportion of youth ever experiencing school discipline, and youth ever experiencing a midyear school district transition.
- Severe group had significantly higher proportion of youth identified as American Indian/Alaska Native, and a significantly lower proportion of White youth.
- Chronic-absence-only group had significantly higher proportion of parents with 16+ years of education at birth, significantly lower proportion experienced prenatal tobacco use, and significantly lower proportion of youth with a Medicaid-funded birth.

When comparing the severe group to the only-chronic-never-severe, some **notable similarities** were:

- Sex/gender distribution
- Geographical distribution
- Attendance at a Title 1 school
- Status as an English language learner
- In both groups, most youth had parents with 12 to 15 years of education, and a similar proportion of parents with less than a high school diploma.

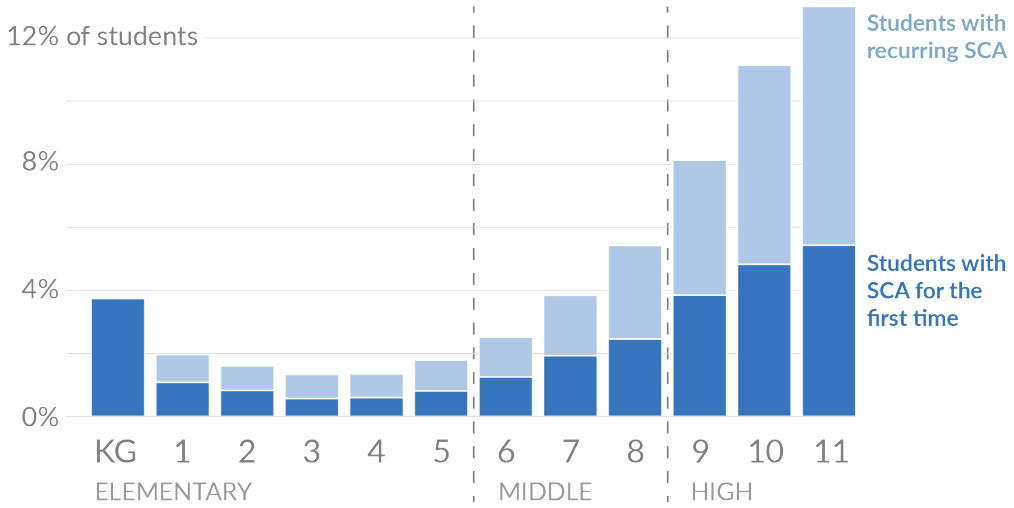
Grade Groupings

In some of the descriptive analysis and figures, there are 4 separate grade groupings described for students who ever experienced SCA. These students were categorized into the following 4 groups:

- students who experienced SCA only in an elementary school grade (i.e., kindergarten through 5th grade);
- students who only experienced SCA in a middle school grade (i.e., 6th grade through 8th grade);
- students who only experienced SCA in high school (i.e., 9th through 11th grades for this cohort); and
- students who had SCA in 2 or more of the categories above (e.g., a student with SCA in 1st grade and 9th grade).

Figure F1 illustrates the proportion of students in the 2020 cohort who experienced SCA for the first time (dark blue) by grade, and who experienced recurrent SCA (light blue) by grade. As an example, 8% of the 2020 cohort had SCA in 9th grade, and about half of those students were experiencing SCA for the first time and the other half had already had SCA in middle and/or elementary school; the latter students would be part of the multi-grade SCA category.

Figure F1. First Experience of SCA and Recurring SCA by Grade for the Class of 2020



Predictive Model Estimation

Table E1 lists dependent variables considered for estimating a binary logistic regression model predicting the likelihood of graduating within 4 years of entering 9th grade. We selected dependent variables to test in the model based on 3 criteria:

- We focused on independent variables that were associated with significantly different proportions between groups of students who did and did not graduate within 4 years, and on constructs for which we had complete data during the years of life of this cohort. For example, OCID does not have access to substantiated maltreatment information prior to 2005, so we excluded that variable based on too much missing information in the first 4 years of life of the students in this cohort.
- We explored independent variables of interest to members of the OCID Governance Committee.
- We additionally considered independent variables that other work had shown to be linked to our outcome of graduation within 4 years of entering 9th grade outlined in Appendix A.

We fit a binary logistic regression model with robust standard errors that used risk ratios to describe the likelihood of graduation within 4 years for students who:

- Ever had an IEP
- Ever had 504 services
- Lived in a rural location in 12th grade
- Had a parent whose education was less than 12 years at the time of the child's birth
- Had a parent whose education was 12 to 15 years at the time of the child's birth
- Ever experienced deep family poverty (i.e., enrolled in TANF)
- Ever had very low family income (i.e., enrolled in SNAP)
- Ever had foster care contact
- Ever had juvenile justice contact
- Ever had a midyear school transition
- Ever had a school discipline incident (i.e., in-school suspension, out-of-school suspension, or expulsion)

We controlled for contact with the juvenile justice system (see companion OCID products that highlight juvenile justice contact) and sex/gender. Because geographical location, foster care contact, and parent level of education were not significant predictors in the primary model, they were dropped from the final model. The primary model was fitted using the population of students from the 2020 graduation cohort who ever experienced SCA (N = 7,800); see Appendix B for a summary of results. Risk ratios were estimated in place of odds ratios because the outcome of graduation within 4 years was not a rare outcome, and risk ratios more accurately assess the relationship between predictors and outcomes that occur in 10% or more in a given population. Table F1 lists predictive model results.

Table F1. Predicted Likelihood of 4-Year Graduation Among Students with SCA

PREDICTOR	RISK RATIOS AND INTERPRETATION: AFTER CONTROLLING FOR JUVENILE JUSTICE CONTACT, SEX/GENDER, AND THE OTHER VARIABLES IN THIS TABLE…	HOW MANY STUDENTS WITH THIS CHARACTERISTIC RECEIVED A HIGH SCHOOL DIPLOMA FROM AN OREGON PUBLIC SCHOOL WITHIN 4 YEARS OF ENTERING 9TH GRADE?
Deep poverty	Among students who ever had SCA, those with very low family income had a 20% decreased likelihood of graduating within 4 years (±4%), compared to students who never had very low or low family income.	1,750 students ever had SCA + TANF and graduated within 4 years (42%)
Very low family income	Among students who ever had SCA, those with low family income had a 6% decreased likelihood of graduating within 4 years (±5%), compared to students who never had very low or low family income.	1,520 students had SCA + SNAP but never TANF and graduated within 4 years (48%)
Midyear school transition ever	Among students who ever had SCA, those who ever experienced a midyear transition had a 23% decreased likelihood of graduating within 4 years (±3%), compared to students who never had a midyear school transition.	2,260 students had SCA + a midyear transition and graduated within 4 years (43%)
School discipline ever	Among students who ever had SCA, those who ever had a school discipline event had 15% decreased likelihood of graduating within 4 years (±4%), compared to students who never had a school discipline event.	1,630 students ever had SCA + school discipline event(s) and graduated within 4 years (40%)
IEP ever	Among students who ever had SCA, those with an IEP had a 12% (±4%) decreased likelihood of graduating within 4 years compared to students without an IEP.	1,130 students had SCA + IEP and graduated within 4 years (43%)
504 ever	Among students who ever had SCA, those with a 504 plan had an 8% (±6%) increased likelihood of graduating within 4 years compared to students without a 504 plan.	470 students had SCA + 504 and graduated within 4 years (59%)

Abbreviation. IEP: individualized education plan; SCA: severe chronic absenteeism; SNAP: supplemental nutrition assistance program; TANF: temporary assistance for needy families.

As an additional exploration, we estimated a model that predicted likelihood of graduating within 4 years for students who had multi-grade group SCA. Preliminary models found that parent education level, foster care contact, and geography were not significant predictors of likelihood of 4-year graduation among students with multi-grade SCA. The final model included the following predictors: juvenile justice contact, midyear school transition, deep poverty (i.e., very low family income, TANF enrollment), school discipline, and controlled for IEP status. We were not able to stratify this model by race and ethnicity because of the low number of students in the multi-grade SCA group. Being identified as female was the only protective factor, which indicated that students with multi-grade SCA who were identified as female had a higher likelihood of graduating within 4 years compared to students with multi-grade SCA who were identified as male.

Among students with SCA across multiple grade group categories:

- Females had a 16% increased likelihood of graduating within 4 years (±12%) compared to males.
- Students who had ever enrolled in TANF had a 24% decreased likelihood of graduating within 4 years (±8%) compared to students never enrolled in TANF.
- Students who had juvenile justice contact had a 39% decreased likelihood of graduating within 4 years (±10%) compared to students who never had juvenile justice contact.
- Students with a midyear school district transition had a 28% decreased likelihood of graduating within 4 years (±8%) compared to students who never had a midyear transition.
- Students with a school discipline event had an 11% decreased likelihood of graduating within 4 years (±10%) compared to students who never had a school discipline event.
- Parent education, IEP status, geographical location, and foster care contact were not significant predictors of graduating within 4 years in this population.

Heterogeneity Analysis

Each OCID analysis includes an exploration of equity components. In this analysis, we chose to explore whether the strength and direction of relationships between the dependent and independent variables were similar or different across categories defined by race and ethnicity. We found that interpreting the relationships within race and ethnicity categories was more straightforward with stratification of models, in which students of the same race and ethnicity category were compared against one another instead of being compared to students of a separate race and ethnicity category, rather than adding race and ethnicity categories as regressors in the primary model.

We stratified the primary model by categories of personal and family characteristics, and compared the estimates from each of these models to the estimates from the model with the whole cohort. Appendix C details the categories used and patterns of findings across models.

Table F2. Summary of Heterogeneity Analyses

GROUPING VARIABLES	SIMILARITIES WITH MAIN MODEL	DIFFERENCES FROM MAIN MODEL	NOTES
Race and Ethnicity *(American Indian/Alaska Native; Asian; Black/African American; Native Hawaiian/Pacific Islander; Hispanic/Latinx; White)*	All groups had same direction of relationship for all predictors.	Groups with the lowest numbers had the least precise estimates, and often the estimates at the extreme ends of the ranges from the main model. Baseline graduation rates varied by group, with a spread of 13% between the lowest group (American Indian/Alaska Native, 48%) to the highest group (Native Hawaiian/Pacific Islander, 61%).	See the OCID race and ethnicity methodology brief for details on how group memberships are determined with cross-agency data. We used the information that was reported closest to the end of the students' 12th grade academic year.
Sex/Gender *(Female; Male)*	Both groups had same direction of relationship for all predictors.	Baseline graduation rates varied between males (46%) and females (56%) with SCA.	
Disability *(ever had IEP; never had IEP)*	Both groups had same direction of relationship for all predictors, but the group with an IEP had a stronger relationship between low family income and decreased likelihood of graduating within 4 years compared to the group of students without IEPs.	Baseline graduation rates varied between students with an IEP (43%) and students without an IEP (51%) with SCA.	
Geography *(Rural; Urban; Tri-County)*	Models with only rural or only urban students did not converge. The model with only students in the Tri-county region was similar in direction and strength to the primary model.	Baseline graduation rates across the geographical delineations were all close to 51%.	
Family Income *(Deep poverty; very low income; low income; no known experience of low income)*	The model limited to students with low income (i.e., enrolled in Medicaid but never SNAP nor TANF) did not converge, likely because there were so few youth in this category. The other 3 models were similar in direction of effect, but the strength of effect was larger in the 2 models with lower income (e.g., greater reduction in likelihood of 4-year graduation when also experienced a midyear school transition).	Baseline graduation rates varied between the models defined by family income proxies and experience of SCA, from 42% for youth with deep poverty to 73% for youth who had no record of income support program enrollment. Very low income (SNAP, never TANF) had a 57% graduation rate, and low income (Medicaid, never SNAP nor TANF) had a 60% graduation rate.	

Appendix G: Juvenile Justice Contact in the Class of 2020

This methods summary is a companion document to the Oregon Child Integrated Dataset (OCID) briefs on Juvenile Justice System contact within the Oregon high school graduating class of 2020. The briefs are part of a series of resources that examine available state data on the lifespan of students with justice system contact from birth to graduation age in 2020. The briefs set the foundation for building a deeper understanding of students with justice system contact, providing context for in-depth analyses, and sparking additional areas of potential inquiry for OCID. This methods summary provides technical documentation of the analysis methods used to classify, define, and select variables contained within the brief.

Methods

Study Population

This descriptive analysis was conducted on a sample of Oregon students in 9th grade in the 2016 – 2017 academic year, who experienced justice system contact at least once before reaching age 18. Due to the inclusion of data from the birth certificate, the sample is restricted to Oregon-born children. Additionally, OCID does not include educational information reported for children who are homeschooled or attending private schools. As such, our descriptive analysis is further restricted to children attending Oregon public schools.

Study identifiers (SIDs) generated by the Integrated Client Services (ICS) group within the Office of Forecasting, Research, and Analysis at the Oregon Department of Human Services (ODHS) were used to identify this population and link the cohort with further educational administrative records and state administrative records in vital statistics, child welfare, Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Medicaid/Children's Health Insurance Program (CHIP), Oregon Youth Authority (OYA) allegations, and Head Start/Oregon Pre-kindergarten (HS/OPK).

Experience of Focus: Juvenile Justice System Contact

Within this analysis, youth with justice contact describes youth that ever received at least one criminal referral with an ORS most serious offense category of violation, misdemeanor, felony, or murder, regardless of the outcome of that referral. Referrals with a most serious ORS category of dependency were removed from this analysis. OCID acknowledges that this is a broader definition than is typically reported by OYA and other juvenile justice departments. Efforts to further restrict this population by disposition type (i.e., diversion, commitment to DHS, etc.) or the outcome of the referral (i.e., residential placements) were explored, but ultimately not included in the analysis as they severely limited the population of youth being studied.

Variable Creation: Pre-Justice Contact Experiences

In order to study experiences and program contacts of youth with justice contact, we created variables that indicate whether or not the first occurrence took place before the first justice system contact. When possible, dates associated with the experience or program contact were compared to the first instance of justice system contact for each youth. For variables collected

over a specific period of time as opposed to a specific date (i.e., school attendance), the calendar year of the first occurrence was compared to the first date of justice contact. In this scenario, experiences were considered to have occurred before justice system contact if they occurred in the year prior to justice contact. Experiences that occurred in the same year as justice contact were coded as having occurred after justice system contact.

Table 1: Frequency of Experiences Before Justice Contact

	COUNT	PERCENT
Enrollment in SNAP - Ever	2930	85.8%
Enrollment in SNAP - Pre-JC	2830	82.9%
Chronic Absenteeism - Ever	2920	85.6%
Chronic Absenteeism - Pre-JC	2540	74.4%

Equity Components

Race/Ethnicity

OCID data partners and agencies may have different data definitions or methodology for reporting individual or family race and ethnicity, which are not easily reconciled. With input from state partners, subject matter experts, we developed a methodology to select information for individuals when there were multiple options within and across points in time. The OCID Race and Ethnicity Data Overview provides a detailed summary on the guiding methodology and technical steps used to assign race and ethnicity from across OCID data sources.

Table 2 below shows a comparison between OCID's race and ethnicity designations and ODE's records for the class of 2020 cohort. The OCID methodology typically results in higher proportions of populations identified as American Indian/Alaskan Native, Asian, and Black/African American.

Table 2. Comparison of OCID and ODE Methodology for Determining Race and Ethnicity Categories for Students in the Class of 2020

	OCID METHODOLOGY		ODE METHODOLOGY	
RACE/ETHNICITY	NUMBER	PERCENT	NUMBER	PERCENT
American Indian/Alaskan Native	552	16.2%	109	3.2%
Asian	49	1.4%	25	0.7%
Black/African American	164	4.8%	85	2.5%
Hispanic/Latinx	493	14.4%	756	22.2%
Native Hawaiian/Pacific Islander	50	1.5%	17	0.5%
Multiracial	Not Used	Not Used	216	6.3%
White	2105	61.7%	2206	64.6%

Table 3: Class of 2020, 4-year Graduation by Selected Student or Family Characteristics

	GRADUATED		NOT GRADUATED			GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS)	
VARIABLE	NUMBER	ROW PERCENT	NUMBER	ROW PERCENT	ROW TOTAL	DIFFERENCE	> 10
Class of 2020 with Justice Contact	1750	51.3%	1660	48.7%	3410		
Race and Ethnicity							
American Indian or Alaskan Native	260	47.3%	290	52.7%	550	-12.7%	
Asian	30	60.0%	20	40.0%	50	0.0%	
Black or African American	80	47.1%	90	52.9%	170	-12.9%	
Hispanic or Latinx	260	53.1%	230	46.9%	490	-6.9%	
Native Hawaiian or Pacific Islander	30	60.0%	20	40.0%	50	0.0%	*
White	1090	51.9%	1010	48.1%	2100	ref	
Sex/Gender							
Female	650	53.3%	570	46.7%	1220	3.1%	
Male	1100	50.2%	1090	49.8%	2190	ref	
Disability							
Ever had an IEP	530	43.1%	700	56.9%	1230	-13.1%	*
Never had an IEP	1230	56.2%	960	43.8%	2190	ref	
Geography							
Rural	540	54.5%	450	45.5%	990	4.5%	
Tri-county	710	50.0%	710	50.0%	1420	ref	
Urban	500	50.0%	500	50.0%	1000	0.0%	
Designation as a Student Learning the English Language							
Yes	260	53.1%	230	46.9%	490	2.2%	
No	1490	50.9%	1440	49.1%	2930	ref	

VARIABLE	GRADUATED NUMBER	GRADUATED ROW PERCENT	NOT GRADUATED NUMBER	NOT GRADUATED ROW PERCENT	ROW TOTAL	GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS) DIFFERENCE	> 10
Medicaid/CHIP Enrollment							
Ever enrolled	1400	47.1%	1570	52.9%	2970	-30.6%	*
Never enrolled	350	77.8%	100	22.2%	450	ref	
SNAP Enrollment							
Ever enrolled	1370	46.9%	1550	53.1%	2920	-30.6%	*
Never enrolled	380	77.6%	110	22.4%	490	ref	
TANF Enrollment							
Ever enrolled	690	38.3%	1110	61.7%	1800	-27.5%	*
Never enrolled	1060	65.8%	550	34.2%	1610	ref	
FRPL Eligibility							
Ever eligible	1450	48.2%	1560	51.8%	3010	-26.8%	*
Never eligible	300	75.0%	100	25.0%	400	ref	
Title 1 School							
Yes	360	52.2%	330	47.8%	690	1.3%	
No	1390	50.9%	1340	49.1%	2730	ref	
Medicaid Birth							
Yes	630	45.7%	750	54.3%	1380	-9.5%	
No	1120	55.2%	910	44.8%	2030	ref	
Foster Care							
Yes	190	32.2%	400	67.8%	590	-23.1%	*
No	1560	55.3%	1260	44.7%	2820	ref	

	GRADUATED		NOT GRADUATED			GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS)	
VARIABLE	NUMBER	ROW PERCENT	NUMBER	ROW PERCENT	ROW TOTAL	DIFFERENCE	> 10
Substantiated Maltreatment							
Yes	400	38.1%	650	61.9%	1050	-19.3%	*
No	1360	57.4%	1010	42.6%	2370	ref	
Midyear District Transition							
Yes	710	37.6%	1180	62.4%	1890	-30.4%	*
No	1040	68.0%	490	32.0%	1530	ref	
Chronic Absenteeism							
Yes	1320	45.2%	1600	54.8%	2920	-40.8%	*
No	430	86.0%	70	14.0%	500	ref	
Severe Chronic Absenteeism							
Yes	610	31.4%	1330	68.6%	1940	-46.1%	*
No	1140	77.6%	330	22.4%	1470	ref	
Student Houselessness							
Yes	350	36.5%	610	63.5%	960	-20.9%	*
No	1410	57.3%	1050	42.7%	2460	ref	
Midyear School Transition							
Yes	940	40.3%	1390	59.7%	2330	-34.7%	
No	810	75.0%	270	25.0%	1080	ref	
Frequency of Justice Contact							
1 referral	360	32.1%	760	67.9%	1120	-28.5%	*
2 or more referrals	1400	60.6%	910	39.4%	2310	ref	

	GRADUATED		NOT GRADUATED			GRADUATION RATE DIFFERENCES (PERCENTAGE POINTS)	
VARIABLE	NUMBER	ROW PERCENT	NUMBER	ROW PERCENT	ROW TOTAL	DIFFERENCE	> 10
Residential Placement in OYA							
Yes	30	27.3%	80	72.7%	110	-24.8%	*
No	1720	52.1%	1580	47.9%	3300	ref	
School Suspension							
Yes	1210	45.8%	1430	54.2%	2640	-24.3%	*
No	540	70.1%	230	29.9%	770	ref	
School Expulsion							
Yes	120	36.4%	210	63.6%	330	-16.7%	*
No	1640	53.1%	1450	46.9%	3090	ref	
Age at first Justice Contact							
14 and under	600	42.3%	820	57.7%	1420	-15.2%	*
15 and up	1150	57.5%	850	42.5%	2000	ref	
Parent's Education at Birth							
fewer than 4 years of high school	290	42.6%	390	57.4%	680	-28.1%	*
fewer than 4 years of college	1140	49.8%	1150	50.2%	2290	-21.0%	*
4 or more years of college	290	70.7%	120	29.3%	410	ref	
Prenatal Tobacco Use							
Yes	350	38.9%	550	61.1%	900	-16.9%	*
No	1400	55.8%	1110	44.2%	2510	ref	
Low Birthweight							
Yes	70	46.7%	80	53.3%	150	-4.7%	
No	1680	51.4%	1590	48.6%	3270	ref	