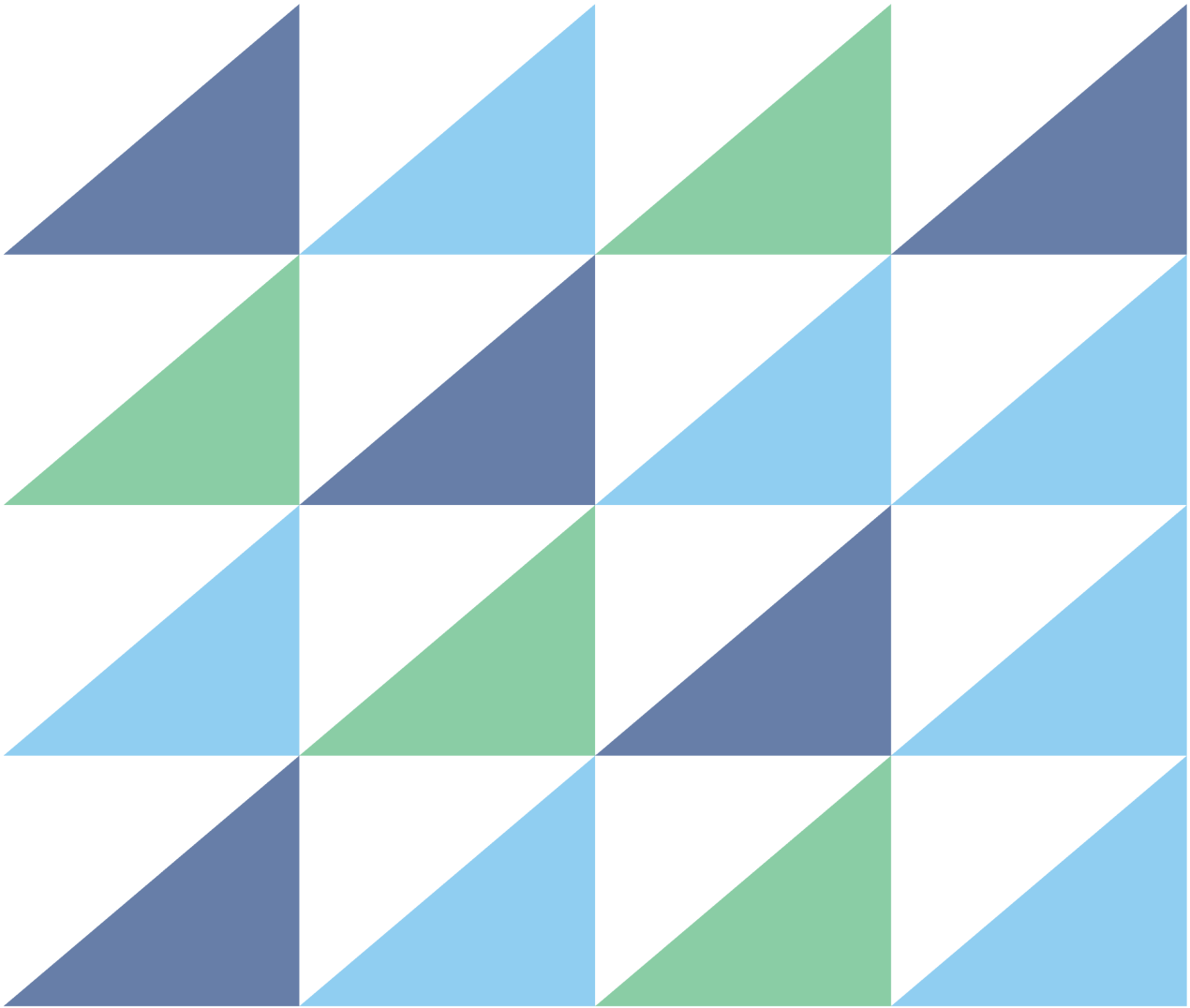


# EDUCATION OUTCOMES OF NYC YOUTH IN FOSTER CARE



**SUPPORTED BY THE CONRAD N. HILTON FOUNDATION**

MAY 2022



**The City of New York  
Mayor Eric Adams**





# About the Center for Innovation Through Data Intelligence (CIDI)

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CIDI is a research and policy center in the Office of the Mayor of the City of New York. CIDI conducts citywide interagency research to identify areas of service need in the city. The vision of CIDI is *to make data come alive to inspire change*.

To learn more about CIDI, visit [www.nyc.gov/cidi](http://www.nyc.gov/cidi).



## Acknowledgments

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With much gratitude,

Maryanne Schretzman, DSW  
Executive Director  
The Center for Innovation Through Data Intelligence



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# 1. Summary

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A high school diploma is critical for long term success, yet until now, New York City (NYC) has known little about secondary education outcomes of the young people who have spent time in foster care. This study reports, for the first time, the high school graduation rates of New York City youth who experience foster care. Using administrative data and rigorous research methods, CIDI calculated graduation rates and identified the factors that help and hinder youth with foster care experience in graduating from high school. The study reports sobering findings: although rates have increased in the past few years, only a quarter of NYC youth who experience foster care during high school graduate in four years.

Several factors create obstacles to graduation for NYC youth in foster care. Youth with foster care experience, as a group, come from families that often experience structural racism, housing challenges, and weak community support systems that impact their ability to remain in school (CIDI, 2015). Youth in foster care are disproportionately Black, Latinx, and LGBTQAI, identities that often intersect and put youth at risk for prejudice, discrimination, and violence. Most youth who experience foster care come from neighborhoods that have few public amenities, a lack of public and private investment, and low performing schools.

These structural and societal risk factors partially explain the poor secondary school outcomes in youth that have experienced foster care. However, the public also bears the responsibility to ensure that youth who were placed in foster care on the grounds that they will be better off, actually do experience an improvement in their circumstances. A high school degree is a critical steppingstone to achieving career goals, participating in civil society, and having opportunity in life. The trajectory of youth without a high school diploma is associated with a lifetime of underemployment, low wages, and poverty. Early identification of youth at risk of not obtaining a high school diploma is essential for NYC to deliver on the promise of a better future for youth in foster care.

## The Study

CIDI undertook a comprehensive longitudinal study to examine the high school graduation rates of NYC youth in foster care and to identify predictors of graduation. The study used administrative data collected by the NYC Department of Education (DOE) and the NYC Administration for Children Services (ACS) to determine graduation rates of over 11,000 youth who spent time in foster care during their high school years from 2005 through 2019. This study used data for all years of high school, not just the fourth year, which extends the scope of similar studies done before this report.

CIDI conducted descriptive analyses to understand the demographics and foster care experiences of the students and to calculate their graduation rates. To understand the student's educational and foster care experiences associated with diploma receipt, the study employed logistic regression, a multivariate technique.

This is the first time the educational outcomes of youth in foster care in New York City have been reviewed in such detail over this long a period. The study provides information that can help develop a framework for system accountability and improvement across the educational and child welfare systems.

## The Findings

The study found that although graduation rates had increased for youth in foster care over a 10-year period, in 2019, only 25 percent of youth with foster care experience graduated in four years. In comparison, 77 percent of all New York City students graduate in four years (NYC DOE, 2020).

The educational measures associated with an increased likelihood of graduation were higher 8<sup>th</sup> grade attendance and higher 8<sup>th</sup> grade Math and English Language Arts scores. Educational measures associated with a decreased likelihood of graduation were 8<sup>th</sup> grade students classified with disabilities, attendance at two or more schools in a

given school year, and attendance in certain school districts. Taken together, these findings suggest that the educational challenges of children who experience foster care often start before entering high school, that disabilities among the foster care population (which are more common than in the general population) hinder educational advancement, and that school instability (which is often linked with foster care placement instability) contributes to low graduation rates.

The foster care measures associated with an increased likelihood of graduation were spending more cumulative months in foster care and living in kinship care or a foster boarding home. Spending some or most of the time in residential care was associated with a decreased likelihood of graduation. That spending more cumulative months in foster care may contribute to graduation is consistent with other research in New York City, albeit dated, that found that school attendance increased following entry into foster care (Conger & Rebeck, 2001). That children who spend more time in congregate care have lower graduation rates highlights the importance of keeping children in family-based foster care whenever possible.

The study's findings about foster care involvement and educational experiences will inform New York City policies and programs with the goal of helping youth in foster care earn a high school diploma. The predictors align with services that schools and child welfare agencies can feasibly implement and monitor for purposes of accountability and actionable steps, such as collaborative education and child welfare initiatives. The dialogue and work required are already underway.

## **Background**

It is widely recognized that for young people, a high school education is critical for developing and maintaining important relationships and providing the opportunity to achieve long-term economic success. In the realm of education, there has been a focus on the attainment of a high school education as a milestone on the path to adulthood. Obtaining a high school diploma is necessary for economic security and social mobility (Sum et al., 2009).

Today, a high school diploma no longer guarantees a stable, living wage career, as employers have been accelerating demand for post-secondary skills and education since the 1980s (Carnevale et al., 2019b). Wage inequality between those who earned only a high school diploma compared to those who have earned more education credentials has grown in the past few decades. In terms of average lifetime earnings, a bachelor's degree is worth about \$2.8 million; college graduates earn 84 percent more than what high school graduates earn (Carnevale et al., 2011).

Long-term success requires that youth have, at a minimum, the skills as well as the social and emotional development to negotiate challenges they encounter. A high school education is the basic building block to these skills and development. Young people without a high school diploma usually face a lifetime of underemployment, low wages, and poverty.

## **Youth in Foster Care**

Youth involved in the foster care system are at risk of poor outcomes in adolescence and adulthood, such as disconnection from both work and school, teenage pregnancies, health issues, criminal justice involvement, and homelessness. Many lack robust familial, economic, and social networks to help them overcome the typical challenges of adolescence (Courtney & Dworsky, 2006). In addition, they may face challenges associated with the type and duration of their foster care (Clemens et al., 2018).

Youth in foster care have educational challenges including attending school regularly, adjusting to school moves, and achieving academic proficiency (Burley and Halpern, 2001). These challenges are exacerbated by exposure to traumatic events and the mental, emotional, and physical stressors that youth in foster care uniquely face (Clemens et al., 2018; Font et al., 2018). Collectively, these factors contribute to poor outcomes that can range from underdeveloped language skills in kindergarten to dropping out of high school as an adolescent (Wulczyn et al., 2009).

Youth who experience foster care have low graduation rates for many reasons other than their foster care experience. Many youth in foster care face overlapping and compounding challenges due to their class, ethnicity, race, and identity. Socioeconomic disadvantages and structural racism exacerbate the challenges they face in education and other aspects of their lives (Cage et al., 2018).

The children and youth who experience foster care are disproportionately Black and Latinx. Black and Latinx children are more likely than white children to face resource deprivation due to long-standing, enduring racism and housing segregation (Rothstein, 2017). Housing segregation, in turn, contributes to school segregation as elementary and middle school assignments are usually based on residence (Carnevale et al., 2019a).

Disparities in class intersect with disparities in race and ethnicity. Children involved in the child welfare system, regardless of their race or ethnicity, are disproportionately from families in poverty (Wulczyn et al., 2009). Among children coming from families of low socioeconomic status, white children have a higher chance (41 percent) of achieving upward mobility in ten years, whereas Black and Latinx children have a lower chance of doing so (29 and 33 percent, respectively) (Carnevale et al., 2019a).

In 2019, Black and Indigenous youth were 15 percent and 0.8 percent of the U.S. population, respectively (Federal Interagency Forum on Child and Family Statistics, 2021). The percentages of Black and Indigenous youth in foster care were disproportionately higher; nationally, they comprise 23 percent and 2 percent of the foster care population, respectively (Child Welfare Information Gateway, 2021).

New York City follows many of these national trends. Black children are 2.7 times more likely to experience an indicated finding of abuse or neglect than their peers<sup>i</sup> (CIDI, 2021). In 2019, Black youth were 22 percent of the City's youth population but accounted for 53 percent of the foster care population (NYC ACS, 2020; CCC, 2019). One-third of youth in foster care identify as LGBTQAI, substantially higher than the general youth population (NYC ACS, 2020). These identities expose youth to high rates of racism, sexism, homophobia, transphobia, and other forms of discrimination and implicit bias that hinder their social and economic development.



## 2. Purpose and Importance

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### Purpose

This study had three main goals:

- To develop a rigorous methodology for calculating high school graduation rates of youth who experience foster care that New York City and other jurisdictions can use.
- To use the methodology to calculate a high school graduation rate for New York City youth who experience foster care.
- To identify predictors of high school graduation among NYC youth who experience foster care.

### The Importance of the Methodology

Cities and localities rarely measure the educational outcomes of children who experience foster care (National Working Group of Foster Care and Education, 2018). When jurisdictions calculate high school graduation rates for youth with foster care experience, they often use methods that produce limited or even misleading results. The method that some states use, for example, includes only those students who spent at least one day in foster care during their fourth year of high school. This method excludes two important groups: youth who were reunified or adopted prior to their fourth year in high school, and youth in foster care or with a foster care history that stopped attending school (“dropped out”) before their fourth year of high school. Omitting the latter group is especially problematic, as those youth in foster care who marshal the resilience to make it to the fourth year of high school likely have different characteristics and experiences compared to those youth who do not.

As a result, policymakers, child welfare stakeholders, and educators have limited knowledge of graduation rates among youth who experience foster care. There is a limited empirical information concerning the child welfare and educational risk factors associated with graduation for this population. Two rigorous and valuable studies in this area show the limits of what we know. A study of Chicago students (Wulczyn et al., 2009) analyzed the impact of students’ level of exposure to the child welfare system on elementary and high school student outcomes, including dropout rates, but had a time frame of only five years. A study of the effect of early exposure to child maltreatment investigations on academic outcomes in third grade (Ryan et al., 2018) focused only on early measures of academic performance, not high school. As a result, those working to improve academic success among youth experiencing foster care have little to guide them on identifying those most at risk of not completing high school, and what level of intervention is needed to ensure graduation.

The Every Student Succeeds Act legislation (ESSA, 2015), however, provides the impetus to change this situation. For the first time there is a national requirement that every state calculate high school graduation rates for children in foster care. Some states, such as California, already publish high school graduation rates for children with foster care experience, but most do not.

The next section describes the method this study used to produce the comprehensive information the field needs to improve outcomes.



## 3. Data and Methods

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This study uses a longitudinal design that examines the child welfare and educational histories of several cohorts of students and includes the period up to the last year youth could possibly graduate high school. The study uses a broad definition of foster care experience: youth who spent seven days or more in foster care in the four years from the onset of 9<sup>th</sup> grade were included.

### Data

Through partnerships with ACS and DOE, CIDI accessed data on the entirety of youths' education and foster care experiences. Further, to understand more about the backgrounds of youth, CIDI sought to obtain cash assistance data from the New York City Human Resources Administration (HRA). Accessing these data required navigating a variety of complex legal regulations and ethical concerns related to sharing data between ACS, HRA, and DOE. These data are subject to state laws concerning confidentiality. Educational data are subject also to a federal law, the Family Educational Rights and Privacy Act (FERPA), which restricts the sharing of education data. CIDI worked closely with agency attorneys and other staff to design a data sharing protocol that met all legal requirements and respected the confidentiality of youth with foster care experience and their families.

The ability to access entire histories allowed CIDI to gain a more complete understanding of factors that were consequential to graduation for youth in foster care than has been previously available in any other jurisdiction to our knowledge. Analyses of these data allowed CIDI to identify key factors in predicting educational outcomes. Knowing those outcomes, in turn, allowed CIDI to provide more relevant and targeted recommendations for areas of intervention.

### Study Sample

The study included youth who were in foster care for at least seven days during their high school years. The study used NYC ACS data from January 2001 through November 2019 and first matched those data with cash assistance data from HRA for the years 2001 through 2019. The NYC DOE then matched the resulting dataset with NYC DOE student records from school years dating from 2005-2006 through 2018-2019. The dataset CIDI examined was stripped of individual identifiers.

This process yielded a dataset of 11,383 students who first entered 9<sup>th</sup> grade between September 2005 and September 2015. CIDI used September 2015 as the last date so that at least four years of high school data were available to review before the end of the study data (2019). Youth in foster care were treated as eligible to graduate until they turned 21. Diploma receipt rates were calculated by year in high school, where four years would be the standard on-time graduation rate. Separately, attainment of the GED equivalent was also calculated in the same manner, but results are not included in this report.

### Statistical Methods

A descriptive analysis was performed, allowing the team to learn about the characteristics of the sample and to assess the quality and completeness of the dataset. Most important, the descriptive analysis produced the graduation rates of the youth in the sample.

To identify the factors associated with high school graduation, the study uses a multivariate modeling technique called logistic regression (also called maximum likelihood estimation (MLE) models). Logistic regression is used when the outcome of interest, in this case, high school graduation, has only two outcomes. Logistic regression analysis shows the odds of graduating high school associated with each variable while simultaneously controlling for all the other variables in the model. The variables in the model included school attendance, test scores, time in foster care, foster care placement, and many more; see Section 6 for more details. Following the logistic models, CIDI calculates average marginal effects (AMEs) to report predicted likelihoods of graduation (i.e., the predicted likelihood of graduating by high school cohort or by months in foster care).

# 4. Study Sample

This section provides some demographic, foster care, and other characteristics of the sample. The sample is majority female (54%, Figure 1).<sup>ii</sup> Racially, the majority of students are identified as Black (55%, Figure 2) with a considerable share of Hispanic (36%) students.<sup>iii</sup> Consistent with the disproportionality described above, Whites (5%) and Asians (3%) are a small fraction of the sample, with the remainder identified as Native American (1%) and Other Race (less than 1%). These demographics are consistent with prior studies conducted of New York City youth in foster care (CIDI, 2015; CIDI, 2017). The mean age of entry into 9<sup>th</sup> grade was 14.2 years.

Figure 1.

**GENDER OF SAMPLE**  
n=11,383

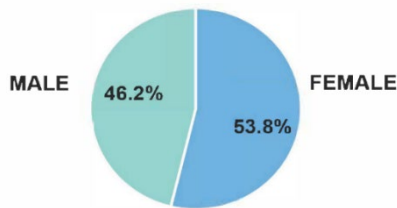
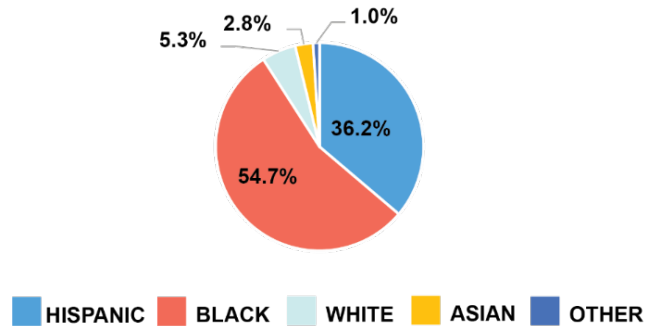


Figure 2.

**RACE/ETHNICITY OF SAMPLE**  
n=11,383



## Economic vulnerability, ability status, and English language learners

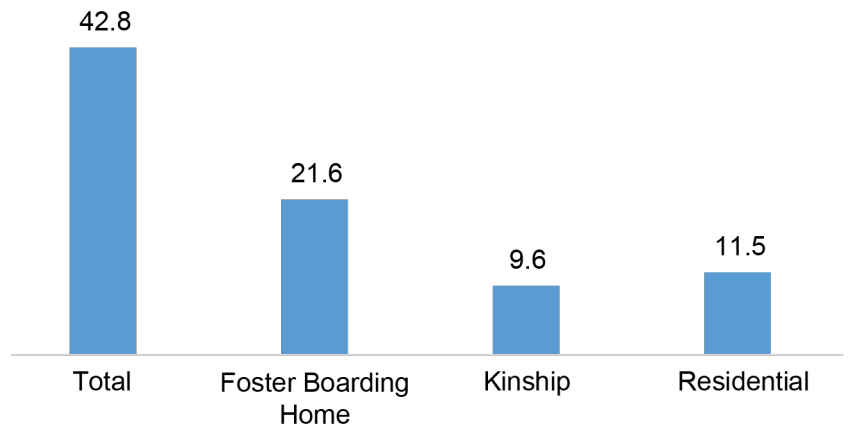
Many students in the sample came from families experiencing economic vulnerability. In the 9<sup>th</sup> grade, 87 percent received cash assistance, and 82 percent were eligible for the free or reduced-price lunch program, compared to 73 percent of all NYC students (NYC DOE, 2022). In addition, more than one-third of the 9<sup>th</sup> graders (36%) were classified with a disability, whereas 21 percent of NYC students have disabilities (NYC DOE, 2022). A smaller proportion (8%) were classified as English language learners,<sup>iv</sup> compared to 13 percent of all NYC students (NYC DOE, 2022).

## Foster care history

Sample youth spent an average of 43 total months (about 3.5 years) in foster care between 2005 and 2019 (including during and prior to high school). The average time spent in a foster boarding home was about 22 months. The average time spent in a residential setting was about 12 months, while the average time in kinship care was less than 10 months.

Figure 3.

**FOSTER CARE AVERAGE SYSTEM USAGE IN MONTHS (N=11,383)**



## 5. Descriptive Findings

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Of the most recent cohort CIDI examined, which started 9<sup>th</sup> grade in 2015, only one quarter (25.1%) of the youth with foster care experience graduated high school in four years. This is an improvement from the cohort that entered 9<sup>th</sup> grade in fall 2005, from which less than one in six (15.8%) graduated high school in four years. These graduation rates are a fraction of the rates for New York City youth generally. Nonetheless, graduation rates for youth in foster care have been increasing over time, as have graduation rates in the citywide four-year graduation rate (NYC DOE, 2020).

### **Graduation Rates for Youth in Foster Care**

Among cohorts entering 9<sup>th</sup> grade, the four-year high school graduation rates among youth with foster care experience ranged from a low of 15.1 percent in 2008 to a high of 25.1 percent in 2015 (Figure 4). Among all New York City youth entering 9<sup>th</sup> grade in 2015, 77 percent graduated in four years. Among all youth starting high school in New York State in 2015, 83 percent graduated in four years. Among all youth entering 9<sup>th</sup> grade nationally in 2015, 86 percent graduated in four years.

Nonetheless, the graduation rate of the 2015 cohort of youth with foster care experience was an improvement of the cohort that entered 9<sup>th</sup> grade in 2010, in which one in six (15.7%) graduated after four years of high school. The comparable New York City, New York State, and national high school graduation rates for the 2010 cohort are 68 percent, 78 percent, and 82 percent, respectively (NYC DOE, 2020; NCES, 2021a; NCES, 2021b). Researchers attribute the improvement in New York City graduation rates to citywide reforms in education, such as improvements in high school pedagogy and climate, and the preparation of middle school students for high school academics (Research Alliance for NYC Schools, 2019).

### **Graduation Rates by Over Longer Periods**

The challenges that youth with foster care experience face make graduation in four years difficult. To see how this phenomenon might impact graduation rates, CIDI calculated five- and six- year graduation rates. Of the entire study sample (11,383 youth in foster care) during the full period of the study (2005-2019), only 18 percent graduated in four years, about 22 percent graduated within five years, and nearly 24 percent graduated within six years (Figure 5). While six-year graduation rates have also increased over time, the rate is still about one-third of the four-year rate of all peers (NYC DOE, 2020).

Figure 4.

4-YEAR GRADUATION RATES FOR YOUTH IN FOSTER CARE

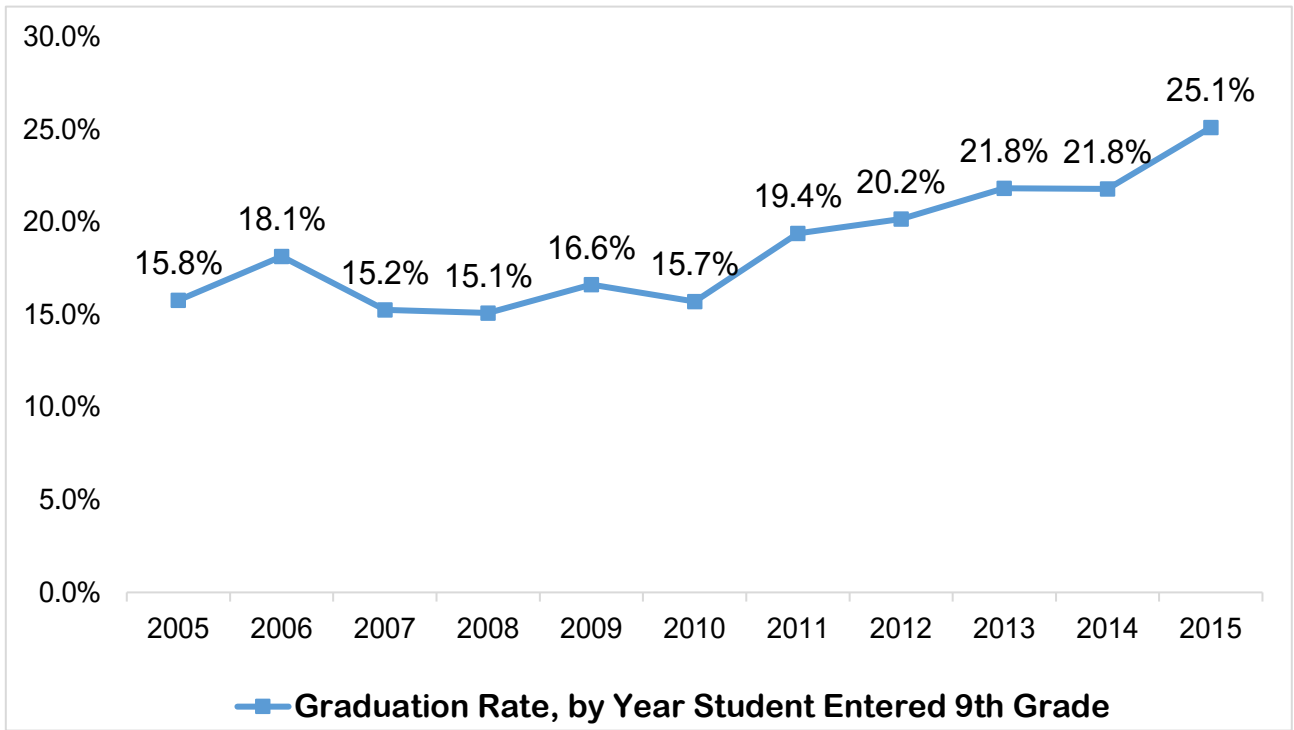
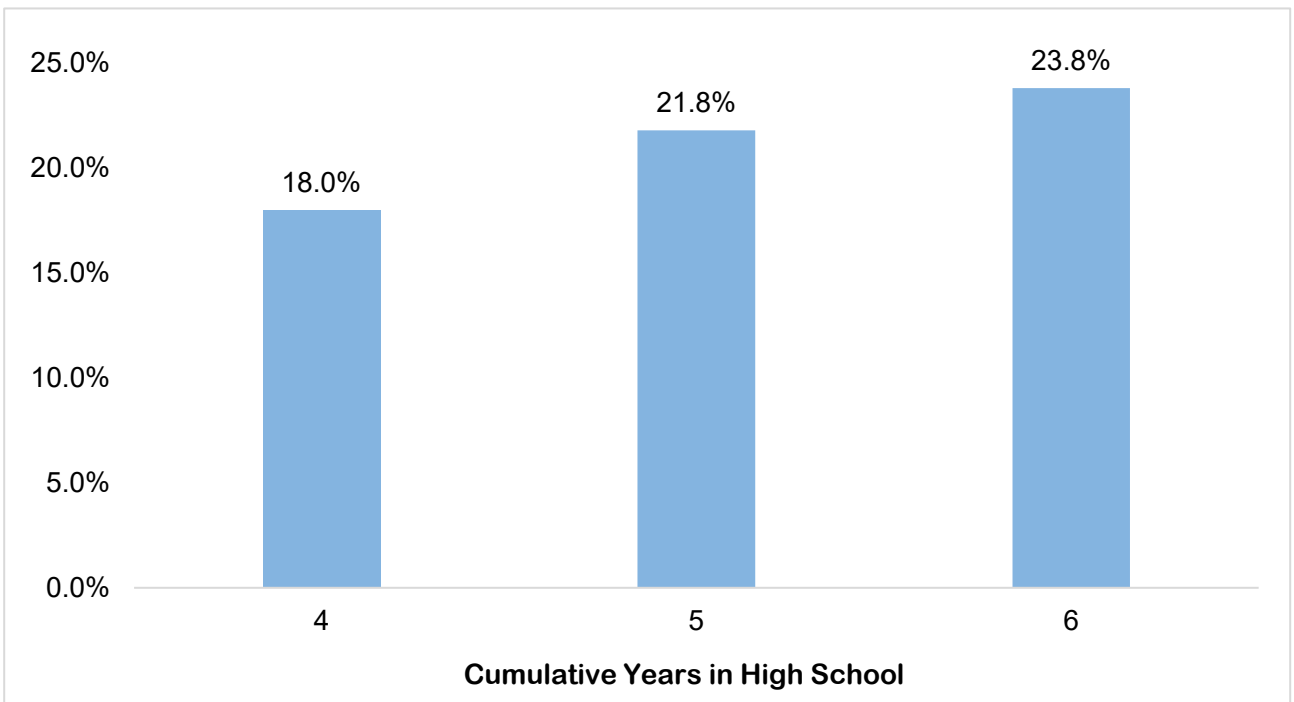


Figure 5.

GRADUATION RATES BY HIGH SCHOOL YEAR FOR STUDY SAMPLE



## Graduation Rates by Foster Care Characteristics

Youth who ever experienced kinship care had the highest graduation rates, followed by youth who ever experienced foster boarding homes. Graduation rates among youth who ever experienced a residential setting are far lower than those who ever spent time in family foster care. Youth who enter foster care before starting 9<sup>th</sup> grade had higher graduation rates than those who entered foster care during high school. Youth with more placement stability, as measured by movements per year, have higher graduation rates than peers who moved more frequently (Figure 6).

### Types of Care

*Kinship:* Youth who have ever been in kinship care (for 7+ days) as well as those who spend more time in kinship care have the highest graduation rates. For example, 28.3 percent of youth who were in kinship care for some time graduate in four years, while almost 40 percent of youth who spent 95 to 100 percent of their time in kinship care graduated in four years.

*Foster home:* Youth who spent time in a foster home had above average graduation rates compared to the entire sample of youth in foster care. Also, more time spent in foster homes yielded higher graduation rates. For example, 22 percent of youth who spent some time in a foster home graduated in four years, and 26.4 percent of those who spent almost all their time in foster homes graduated in four years.

*Residential settings:* Youth who spent any time in residential settings had the worst graduation outcomes, and those who spent more time in residential settings had the lowest rates. For example, only 7.6 percent of youth in residential settings graduate in four years, while only 5 percent—one in twenty—of those who spent almost all their time in residential care graduated in four years.

### Age at Entry

The data indicate that children entering foster care prior at younger ages have higher graduation rates. For example, youth who enter foster care before age 14 have higher graduation rates (22.4 percent) than those who enter foster care later (15.9 percent). This is consistent with prior research that shows school attendance generally increases following entry into foster care (Conger & Rebeck, 2001).

The pattern in age at entry, however, is not linear: children who enter foster care at incrementally older ages do not have incrementally lower graduation rates. For example, 26.6 percent of youth who enter foster care at age 12 graduate, and only 12.7 percent of youth who enter foster care at age 15 graduate. But the graduation rate increases to 15.7 percent among youth who enter foster care at age 16, and the rate increases to 21.5 percent for those who enter foster care at age 17.

### Time in care

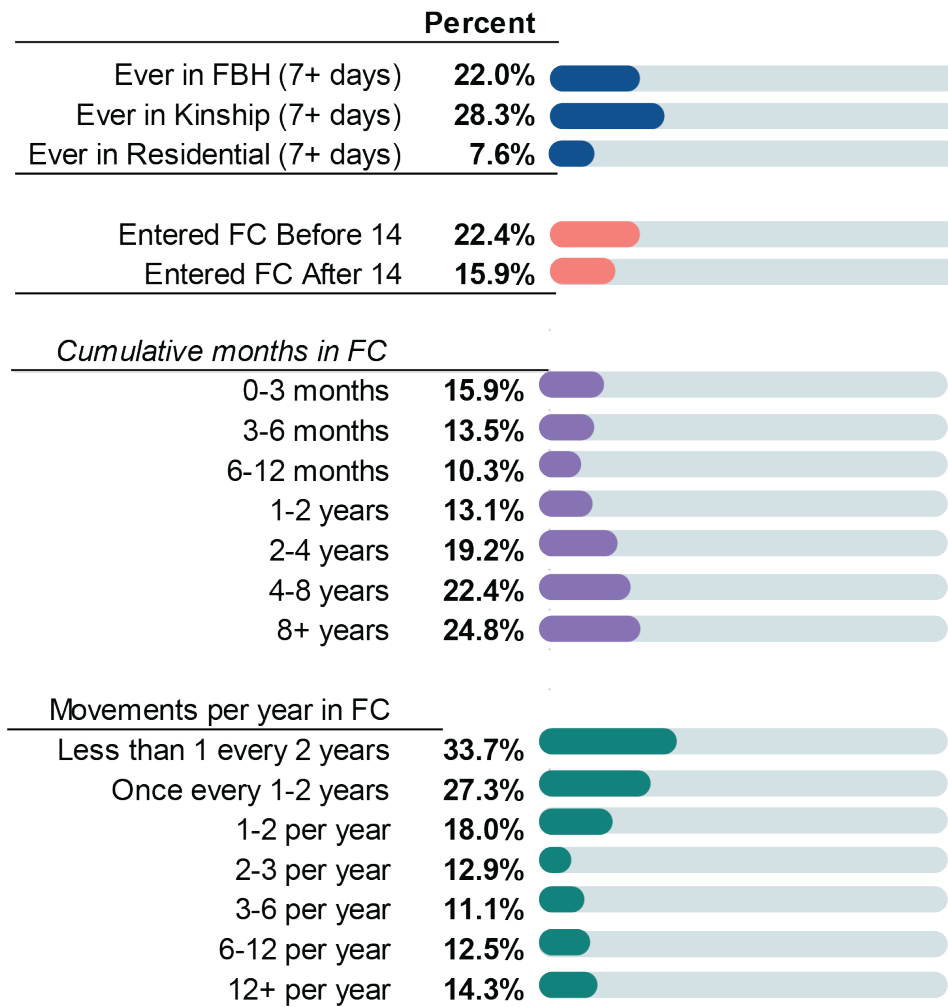
The graduation rate was generally higher for youth who spend more time in foster care. For youth who spent eight or more years in foster care, the graduation rate is the highest at almost 25 percent. In contrast, for youth who spent one to two years in foster care, the graduation rate was 13.1 percent, and for youth who spent only six to 12 months in care, the graduation rate was the lowest at 10.3 percent.

### Movements per year

A relationship exists between the time spent in foster care and the number of movements while in care. There was a higher rate of graduation when the number of moves *per year* was lower. The graduation rate was 33.7 percent for youth with less than one move every two years. However, the graduation rate was only 12.9 percent for youth who had two or three moves a year and even lower at 11.1 percent for youth who had three to six moves a year.

Figure 6.

## 4-YEAR GRADUATION RATES BY FOSTER CARE CHARACTERISTICS



## 6. MLE Framework and Results

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This section explores the association between educational and foster care measures and graduation outcomes. This section starts with the main findings, then describes the statistical methods used to produce them.

### **Factors associated with graduation rates**

The findings addressed each of the three principal research questions. The study identified education and foster care measures that were associated with higher graduation rates and measures that had a negative impact on graduation rates.

#### **Educational measures associated with increased likelihood of graduation**

- Higher 8<sup>th</sup> grade attendance
- Higher 8<sup>th</sup> grade Math and English Language Arts (ELA) scores

#### **Educational measures associated with decreased likelihood of graduation**

- Attendance at two or more schools in a given school year
- Students classified with disabilities in 8<sup>th</sup> grade
- Attendance in certain school districts: These school districts included District 79 (alternative schools), District 75 (specialized instructional support for students with significant challenges), and District 16 (targeted support and improvement for consistently underperforming student subgroups).

#### **Foster care measures associated with increased likelihood of graduation**

- Spending some time or almost of the time in kinship or foster boarding homes

#### **Foster care measures associated with decreased likelihood of graduation**

- Spending some time or almost of the time in residential care

### **MLE Framework**

This section explores the association between educational and foster care measures and graduation outcomes within a maximum likelihood estimation (MLE) framework. The MLE is estimated using logistic regression to predict the likelihood of diploma receipt. It predicted the likelihood of high school graduation controlling for a variety of foster care and education measures. This model is advantageous over other models given the binary outcome (either graduating or not graduating by age 21), the large sample size available, and the ease of interpretability of results.

The baseline model predicted high school diploma receipt, given high school year (i.e., at year 1, 2, 3, 4, 5, or 6). This model includes no other covariates and can be interpreted as the unadjusted likelihood of graduating among students in a given high school year.

In adjusted models, CIDI controlled for the following indicators:

- School and academic characteristics: Number of schools attended, 8<sup>th</sup> grade attendance rate, 8<sup>th</sup> grade math scores, 8<sup>th</sup> grade ELA scores
- Entering high school at age 16 or older
- Educational statuses: Special education, English language learner (ELL)
- Cohort, gender, race/ethnicity, age
- Economic factors: Cash assistance, free or reduced-price lunch status
- Percent of total foster care time in kinship, foster home, and residential care
- Cumulative months in foster care

- Community school district fixed effects, which control for non-random geographic variation in the distribution of school district resources

The method provided the ability to glean the probability of specific educational indicators affecting graduation rates while describing graduation rates by how much foster care a young person received and what kind of placement was associated with that care.

## Measuring Probability

The variables included allowed for understanding how the probability of graduation changes with the different cohorts of students, that is, by the passing of each high school year. For each year of high school beginning in the 9<sup>th</sup> grade, the probability of graduation for each year is low but rises with each year until age 19 or 20 when the probability of graduation begins to decrease.

To account for how the probability changes with time, the unit-time probability of graduation from high school in any given year was used. Because the likelihood of graduation is contingent on the school year, it is reasonable to identify a group of youth in foster care during the year they were in 9<sup>th</sup> grade and determine whether they graduated from high school.

The clock for that particular cohort is then reset at the beginning of 10<sup>th</sup> grade when they are reassessed for whether they graduated. At that point, some students may have transferred to another school system, some may have dropped out, and a near-negligible fraction may have graduated. They are then subtracted from the total 9<sup>th</sup> grade group to form the group of young people from the 9<sup>th</sup> grade who are still in school at the start of 10<sup>th</sup> grade.

This process is repeated each school year until a student ages out of the education system, at age 21, to form an unambiguous baseline high school graduation rate with respect to time, or in this case, grade level.

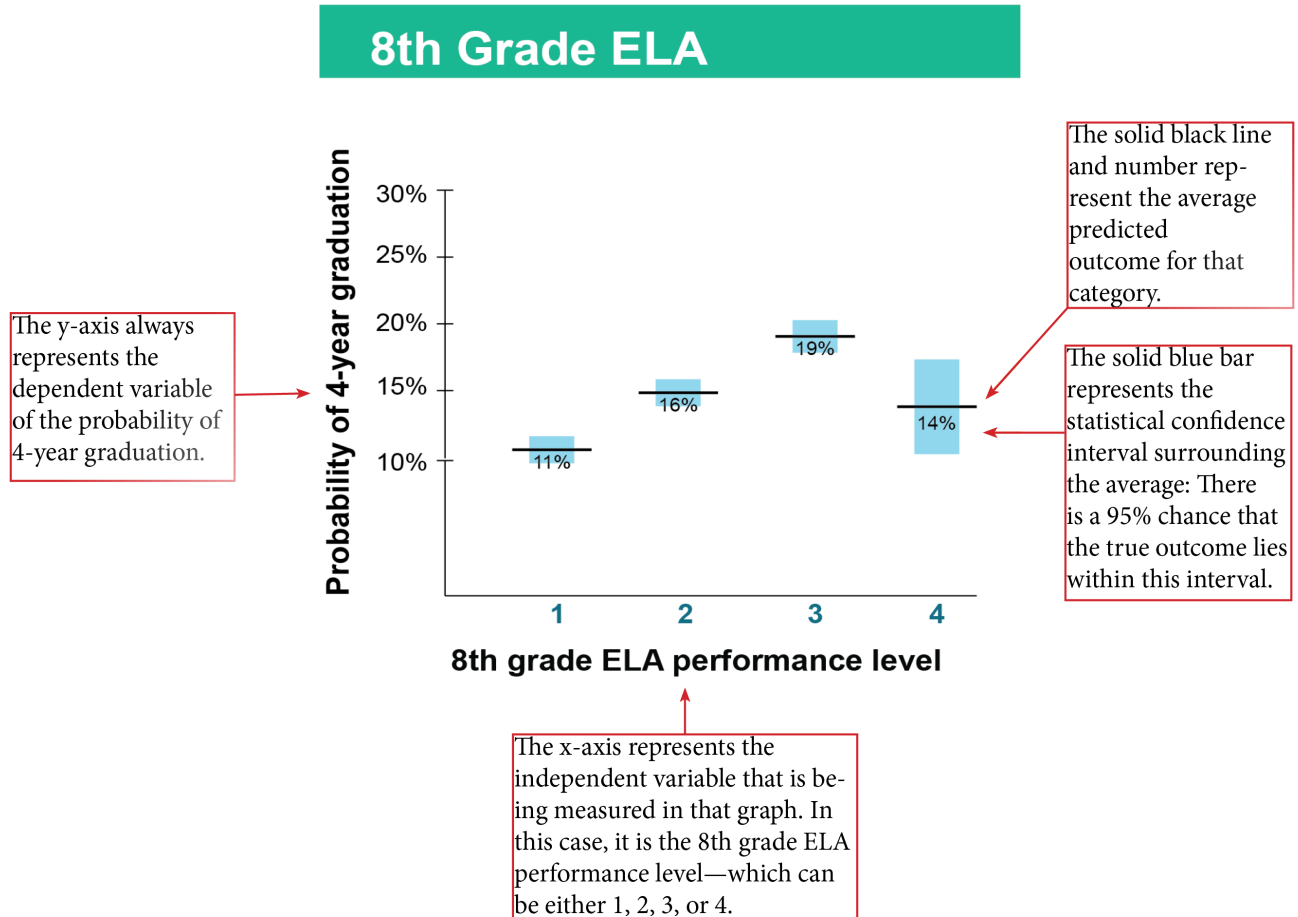
The unit-time probability of graduation is measured with a MLE regression inside discrete periods of time. As such, given that a young person could graduate in the next year, the discrete time model detects the likelihood that graduation will happen during the next school year. This is well-suited to statistical models that measure both the baseline likelihood of graduation plus the effect that various school, family, and child factors could have on the chances a young person graduates from high school. The statistical properties of this model are well known and widely used (Efron & Feldman, 1991; Efron, 1988; Gibbons et al., 2010; Huhr & Wulczyn, 2020).

The next six figures (Figures 7-12) depict the logistic regression results, presenting the probability of four-year high school graduation given certain educational and foster care indicators.



# Results

## How to Read the Charts



When interpreting the charts, if the confidence intervals (the blue bars) overlap between two outcomes measured in the independent variable, then the differences in results between those categories are not statistically significant. In the above example, scoring in level 4 was not statistically significantly different from the other levels because the large confidence interval associated with it overlapped with all of the other levels. In this case, this is a result of the few of students in the sample who scored in level 4.

Figure 7.

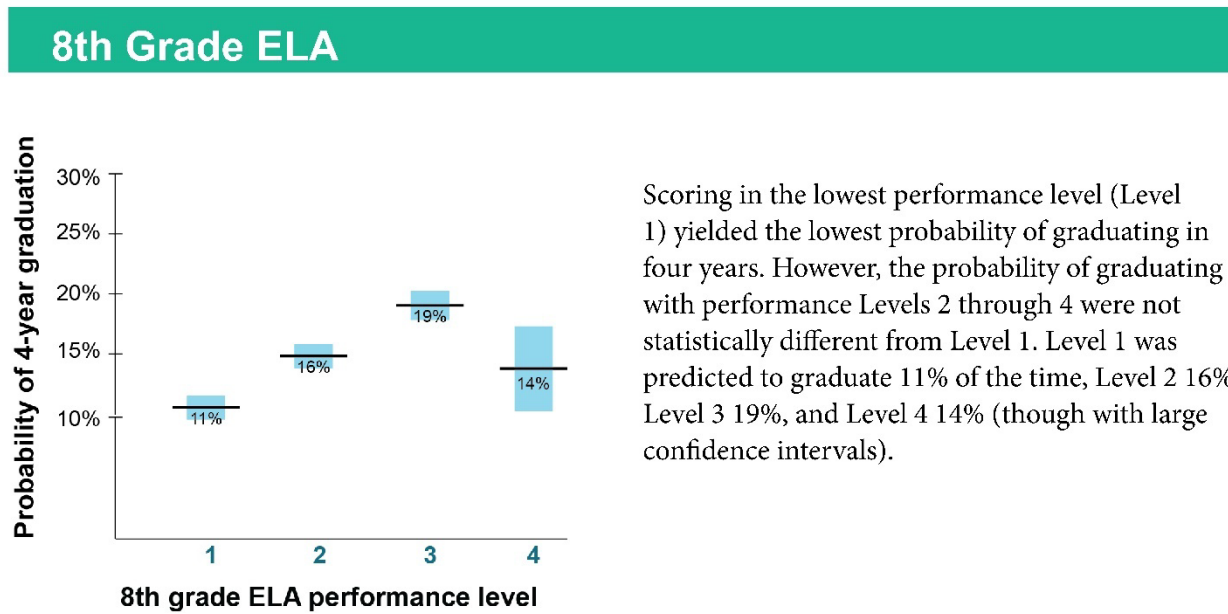


Figure 8.

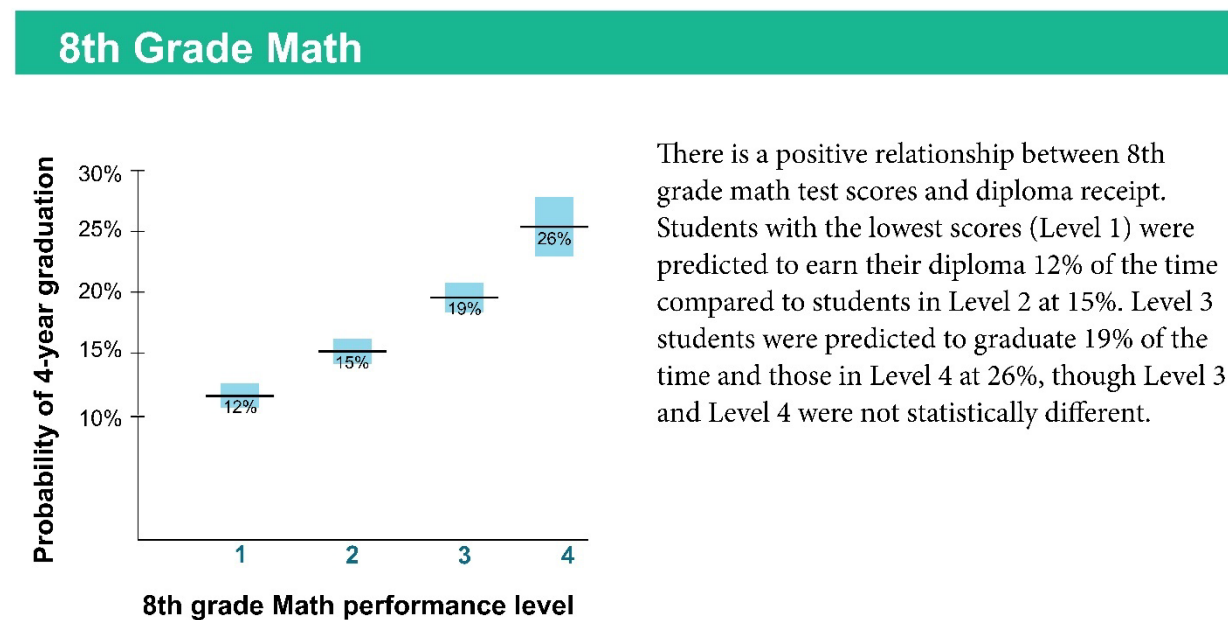


Figure 9.

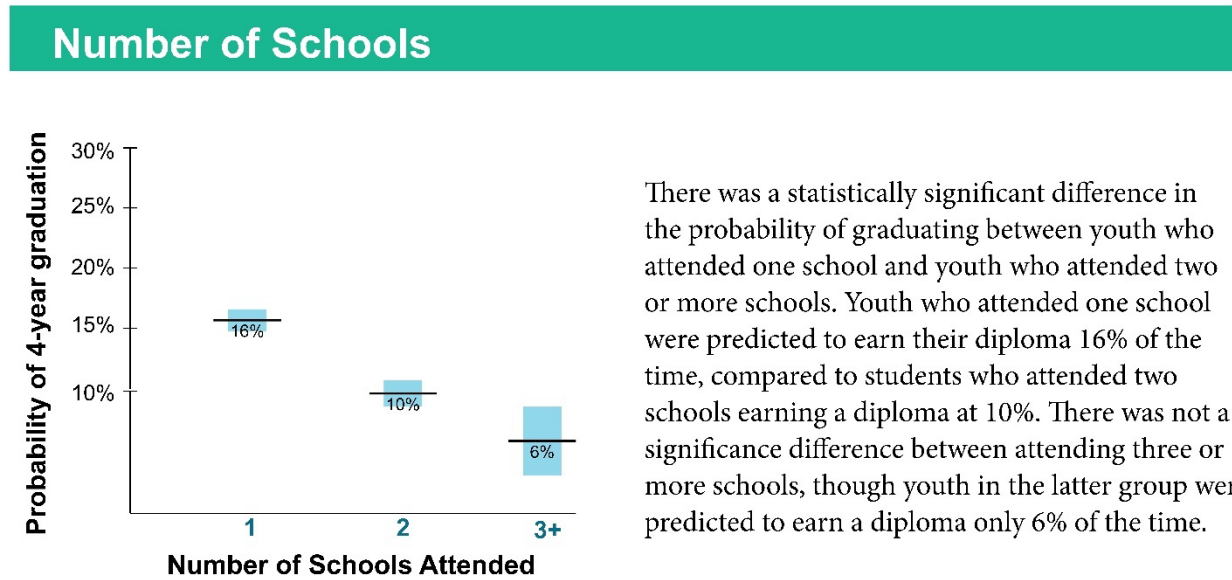


Figure 10.

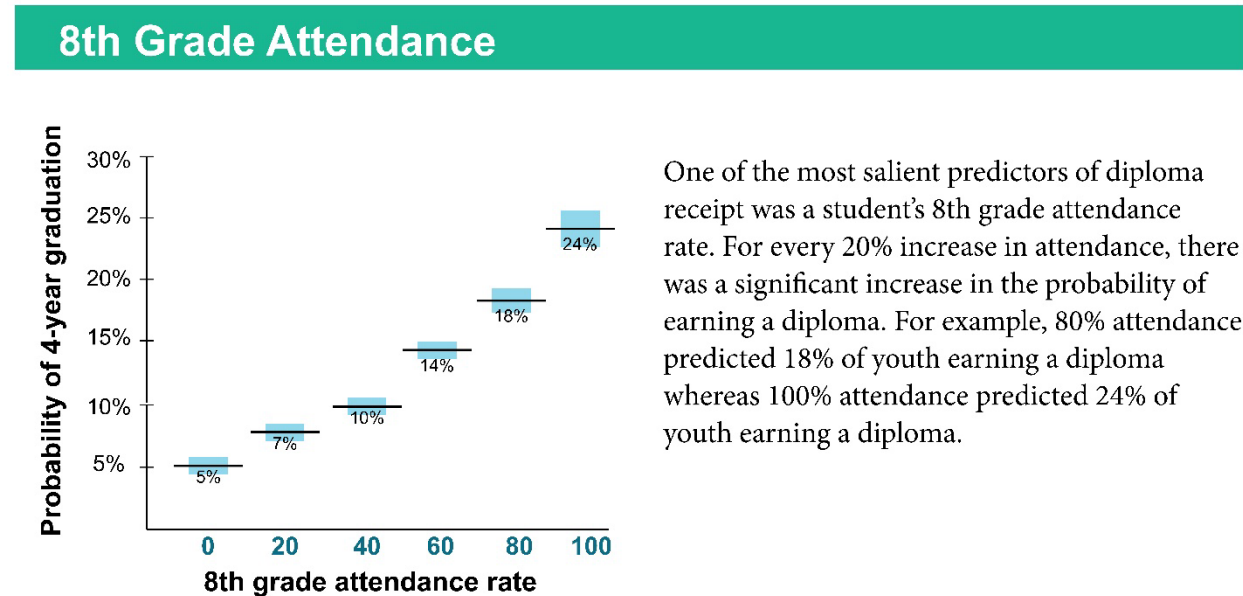
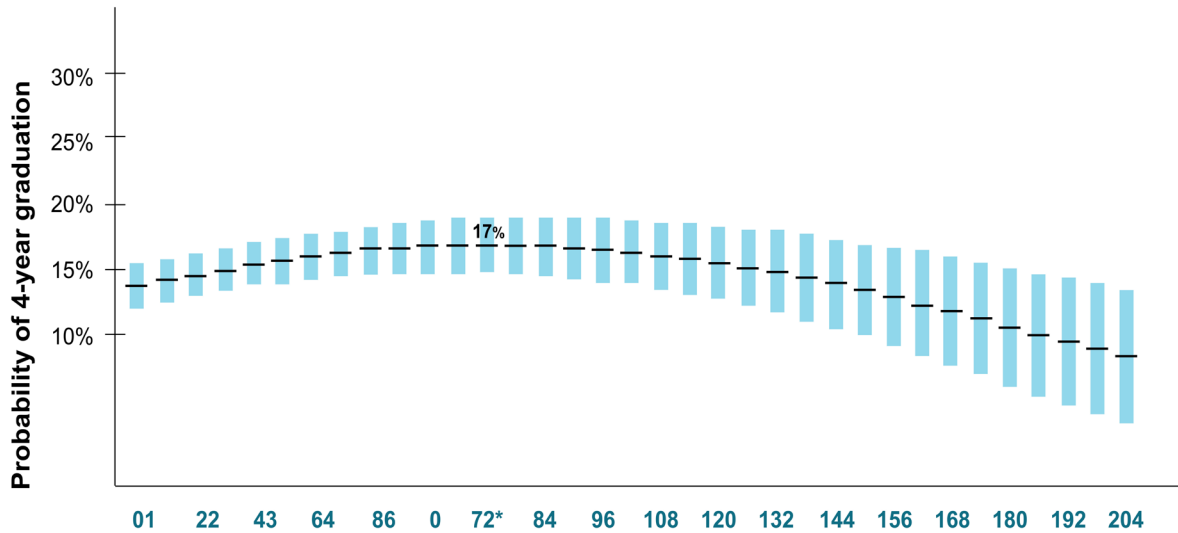


Figure 11.

## Months in Foster Care



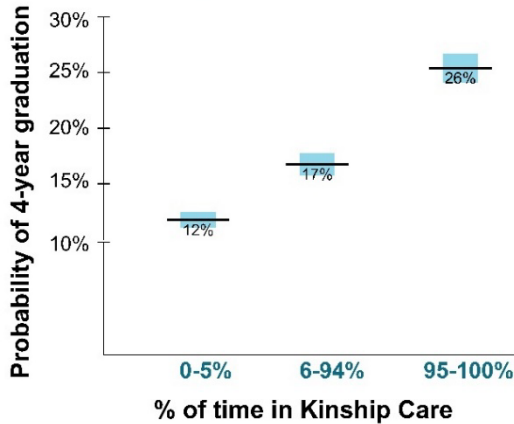
### Months in Foster Care

The length of time in foster care had an impact on the predicted probability of graduating in four years: Spending 6 years (72 months) in foster care yielded the highest probability of diploma receipt, approximately 17%. However, this trend was only statistically significant compared to those who were in foster care for very long periods of time, specifically for 16-17 years. Those long-term foster care youth were predicted to receive diplomas just 7-10% of the time.

Figure 12.

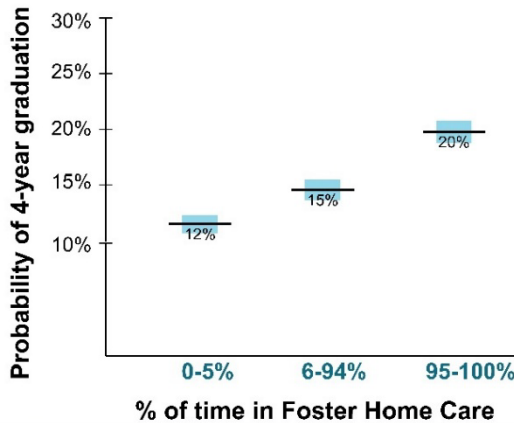
For all three types of foster care, the distribution of time spent tends to be bimodal—most youth spend almost none or almost all of their time in each type of care. In this analysis, youth were categorized by the percent of time they spent in each of the three categories: almost none (0-5%), some (6-94%), or almost all (95-100%).

### Kinship Care



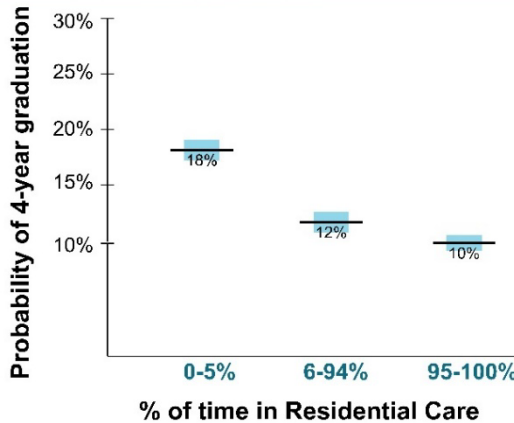
Spending almost all of the time in kinship care was associated with an increased likelihood of graduating. Youth who spent almost all their time in kinship care were predicted to graduate in four years 26% of the time.

### Foster Boarding Home Care



Spending almost all of the time in foster boarding home was associated with an increased likelihood of graduating. Youth who spent almost all of their time in foster boarding homes were predicted to graduate in four years 20% of the time.

### Residential Care



Spending almost all of the time in residential care was associated with a decreased likelihood of graduating. The probability of graduating in four years for youth who spent almost all their time in residential care was 10%.

## 7. Conclusion

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This study is one of the most comprehensive research studies to date on NYC youth in foster care in the education system. It used administrative data from three city agencies that included complete high school education data for youth in foster care at any point during their high school years. The research tracked youth longitudinally across 15 years of educational data, a lengthy period of time for examining education outcomes. The findings provided predictors on education, foster care, and access to social services that affect four-year graduation rates.

Furthermore, this study developed a methodology to track outcomes over time. The analyses provide annual graduation rates for students who entered high school from 2005 through 2015 and will serve as a baseline to measure graduation rates in future years.

### **Predictors**

The research identified educational variables predictive of four-year high school graduation that are measurable—namely 8<sup>th</sup> grade attendance, scores on English and Math 8<sup>th</sup> grade standardized tests, and number of school transfers.

It also identified foster care characteristics associated with high school graduation. Generally, spending some or almost all of a youth's time in kinship care or foster boarding homes was associated with higher graduation rates, whereas spending time in residential care settings was associated with lower graduation rates.

### **Impact**

Schools and child welfare agencies can feasibly monitor these variables for purposes of accountability and actionable steps. These factors can contribute to the development of an early warning system that can inform both schools and child welfare agencies of foster care students at risk of poor high school outcomes, and thus, help target interventions appropriately.

These findings are also important in understanding the impact of various initiatives such as Fair Futures, a model that includes professional coaching and tutoring to help young people in foster care achieve their academic, career development, and life goals.

### **Limitations**

This report relies on administrative data, limiting the focus to only foster care and education measures.

### **Future Research**

Research in the future will extend in two directions. First, CIDI will expand the study to include children in foster care in middle school to understand the impact on long-term educational outcomes. Second, future research will investigate how foster care exposure impacts future labor force participation, particularly in the areas of employment stability, earnings, and type of employment. These studies will continue to inform city policies and programs to support improved educational outcomes among youth in foster care.

# References

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- Burley, M., and Halpern, M. (2001). *Educational Attainment of Youth in foster care: Achievement and Graduation Outcomes for Children in State Care* (p. 43). Washington State Institute for Public Policy. [http://www.wsipp.wa.gov/ReportFile/773/Wsipp\\_Educational-Attainment-of-Foster-Youth-Achievementand-Graduation-Outcomes-for-Children-in-State-Care\\_Full-Report.pdf](http://www.wsipp.wa.gov/ReportFile/773/Wsipp_Educational-Attainment-of-Foster-Youth-Achievementand-Graduation-Outcomes-for-Children-in-State-Care_Full-Report.pdf).
- Cage, J., Corley, N. A., & Harris, L. A. (2018). The educational attainment of maltreated youth involved with the child welfare system: Exploring the intersection of race and gender. *Children and Youth Services Review*, 88, 550–557. <https://doi.org/10.1016/j.chilyouth.2018.04.006>.
- Carnevale, A. P., Fasules, M. L., Quinn, M. C., & Campbell, K. P. (2019a). Born to Win, Schooled to Lose: Why Equally Talented Students Don't Get Equal Chances to Be All They Can Be (p. 59). Georgetown University. [https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/FR-Born\\_to\\_win-schooled\\_to\\_lose.pdf](https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/FR-Born_to_win-schooled_to_lose.pdf).
- Carnevale, A. P., Rose, S. J., & Cheah, B. (2011). The College Payoff: Education, Occupations, Lifetime Earnings (p. 37). Georgetown University. <https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/collegepayoff-completed.pdf>.
- Carnevale, A. P., Strohl, J., Gulish, A., Campbell, K. P., & Van Der Werf, M. (2019b). The Unequal Race for Good Jobs: How Whites Made Outsized Gains in Education and Good Jobs Compared to Blacks and Latinos (p. 44). Georgetown University. <https://cew.georgetown.edu/cew-reports/raceandgoodjobs/>.
- Center for Innovation through Data Intelligence (CIDI). (2015). *Young Adult Outcomes of Foster Care, Justice, and Dually Involved Youth*. NYC Office of the Mayor. [https://www1.nyc.gov/assets/cidi/downloads/pdfs/foster\\_care\\_justice\\_and\\_dually\\_involved\\_report.pdf](https://www1.nyc.gov/assets/cidi/downloads/pdfs/foster_care_justice_and_dually_involved_report.pdf).
- Center for Innovation through Data Intelligence (CIDI). (2017). *Housing Trajectories of Transition-Age Youth*. NYC Office of the Mayor. <https://www1.nyc.gov/assets/cidi/downloads/pdfs/housing-trajectories-of-transitionage-youth.pdf>.
- Center for Innovation through Data Intelligence (CIDI). (2021). *Disparity Report Update 2021*. NYC Office of the Mayor. <https://www1.nyc.gov/assets/cidi/downloads/pdfs/2021-disparity-report-update.pdf>.
- Child Welfare Information Gateway. (2021). Foster care statistics 2019 (p. 12). <https://www.childwelfare.gov/pubpdfs/foster.pdf>.
- Citizens' Committee for Children (CCC). (2019). Child Population Demographics, 2019 (Keeping Track Online: The Status of New York City Children). <https://data.cccnewyork.org/data/map/98/child-population#11/17/3/19/62/a/a>.
- Clemens, E. V., Klopfenstein, K., Lalonde, T. L., & Tis, M. (2018). The effects of placement and school stability on academic growth trajectories of students in foster care. *Children and Youth Services Review*, 87, 86–94. <https://doi.org/10.1016/j.chilyouth.2018.02.015>.
- Conger, D. & Rebeck, A. (2001). How Children's Foster Care Experiences Affect Their Education (p. 63). Vera Institute of Justice.
- Courtney, M. E., & Dworsky, A. (2006). Early outcomes for young adults transitioning from out-of-home care in the USA. *Child and Family Social Work*, 11(3), 209–219. <https://doi.org/10.1111/j.1365-2206.2006.00433.x>.
- Efron, B. (1988). Logistic Regression, Survival Analysis, and the Kaplan-Meier Curve. *Journal of the American Statistical Association*, 83(402), 414–425. <https://doi.org/10.2307/2288857>.
- Efron, B., & Feldman, D. (1991). Compliance as an Explanatory Variable in Clinical Trials. *Journal of the American Statistical Association*, 86(413), 9–17. <https://doi.org/10.2307/2289707>.
- Every Student Succeeds Act (ESSA), Pub. L. No. 114–95, 6301 392 (2015). <https://www.congress.gov/114/plaws/publ95/PLAW-114publ95.pdf>.
- Federal Interagency Forum on Child and Family Statistics. (2021). America's Children: Key National Indicators of Well-Being, 2021 (p. 204). [https://www.childstats.gov/pdf/ac2021/ac\\_21.pdf](https://www.childstats.gov/pdf/ac2021/ac_21.pdf).
- Font, S. A., Berger, L. M., Cancian, M., & Noyes, J. L. (2018). Permanency and the Educational and Economic Attainment of Former Foster Children in Early Adulthood. *American Sociological Review*, 83(4), 716–743. <https://doi.org/10.1177/0003122418781791>.
- Gibbons, R. D., Hedeker, D., & DuToit, S. (2010). Advances in Analysis of Longitudinal Data. *Annual Review of Clinical Psychology*, 6(1), 79–107. <https://doi.org/10.1146/annurev.clinpsy.032408.153550>.

- Huhr, S. & Wulczyn, F. (2020). *Do Intensive In-Home Services Prevent Placement?: A Case Study of Youth Villages' Intercept® Program* (p. 23). Center for State Child Welfare Data, Chapin Hall, University of Chicago. <https://fcda.chapinhall.org/wp-content/uploads/2019/10/YV-Intercept-Results-1-8-2020-final.pdf>.
- National Center for Education Statistics (NCES). (2021a). *Public high school 4-year adjusted cohort graduation rate (ACGR), by selected student characteristics and state: 2010-11 through 2018-19* [Statistics database]. [https://nces.ed.gov/programs/digest/d20/tables/dt20\\_219.46.asp](https://nces.ed.gov/programs/digest/d20/tables/dt20_219.46.asp).
- National Center for Education Statistics (NCES). (2021b). *Public High School Graduation Rates. Condition of Education*. U.S. Department of Education, Institute of Education Sciences. <https://nces.ed.gov/programs/coe/indicator/coi>.
- National Working Group of Foster Care and Education. (2018). *Fostering Success in Education: National Factsheet on the Educational Outcomes of Children in Foster Care*. <https://fosteringchamps.org/wp-content/uploads/2018/04/NationalEducationDatashet2018-2.pdf>.
- NYC Administration for Children's Services (ACS). (2020). *Youth in Foster Care, 2019* (p. 12). <https://www1.nyc.gov/assets/acs/pdf/data-analysis/2019/ReportOnYouthInFC2019.pdf>.
- NYC Department of Education (DOE). (2020). *New York City Graduation Rates Class of 2020 (2016 Cohort)*. <https://infohub.nyced.org/docs/default-source/default-document-library/2020-graduation-rates-website-deck.pdf>.
- NYC Department of Education (DOE). (2022). *DOE Data at a Glance*. <https://www.schools.nyc.gov/about-us/reports/doc-data-at-a-glance>.
- Research Alliance for NYC Schools. (2019). *Better Evidence for Better Schools* (p. 24). NYU Steinhardt School. [https://steinhardt.nyu.edu/sites/default/files/2021-03/Better\\_Evidence\\_Brief.pdf](https://steinhardt.nyu.edu/sites/default/files/2021-03/Better_Evidence_Brief.pdf).
- Rothstein, R. (2017). *The Color of Law: A Forgotten History of How Our Government Segregated America* (First edition). Liveright Publishing Corporation, a division of W. W. Norton & Company.
- Ryan, J. P., Jacob, B. A., Gross, M., Perron, B. E., Moore, A., & Ferguson, S. (2018). Early Exposure to Child Maltreatment and Academic Outcomes. *Child Maltreatment*, 23(4), 365–375. <https://doi.org/10.1177/1077559518786815>.
- Sum, A., Khatiwada, I., McLaughlin, J., & Palma, S. (2009). *The Consequences of Dropping Out of High School* (p. 16). Northeastern University. <https://repository.library.northeastern.edu/downloads/neu:376324>.
- Wulczyn, F., Smithgall, C., & Chen, L. (2009). Child Well-Being: The Intersection of Schools and Child Welfare. *Review of Research in Education*, 33(1), 35–62. <https://doi.org/10.3102/0091732X08327208>.





## Notes

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- <sup>i</sup> An indicated finding means that Child Protective Services has enough evidence to support the claim that a child has been abused or neglected.
- <sup>ii</sup> Only two gender categories are listed in the available data. CIDI recognizes that students may have additional gender identities.
- <sup>iii</sup> These racial categories are limited by the categories in the available data. Hispanic students may be of any race.
- <sup>iv</sup> An English Language Learner, or ELL, is a student whose home language is not English and needs support learning English.



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