AN IMPACT EVALUATION OF THE MISDEMEANOR DIVERSION PROGRAM IN DURHAM COUNTY, NORTH CAROLINA

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SAFETY+JUSTICE CHALLENGE
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Executive Summary

Before the implementation of the Juvenile Justice Reinvestment Act in December 2019, North Carolina was the last state that still automatically charged 16-to-17-year-olds as adults in its justice system. In March 2014, a group of stakeholders from Durham County—led by then–chief district court judge Marcia Morey—started the Misdemeanor Diversion Program (MDP) to prevent 16-to-17-year-olds from entering the justice system. The program has since expanded to include adults up to 26 years old. The first program of its kind in North Carolina, the MDP gives law enforcement officers in Durham County the discretion to redirect people accused of committing their first misdemeanor offense(s) to community-based services (such as life skills courses, restorative justice efforts, and behavioral health treatment) in lieu of citation or arrest. The purpose was to diminish unnecessary arrests and time in jail and the collateral consequences of being charged with and potentially convicted of a crime. What is particularly unique about this program is that it occurs prearrest and precharge, meaning someone law enforcement officers believe may have committed a crime will not be arrested or charged and will not formally enter the justice system in any way. This impact evaluation, the first conducted for the MDP, found that from March 2014 to February 2020, law enforcement officers in Durham County referred fewer than one-quarter of all people eligible for diversion to the MDP, though when they did, the program had positive impacts.

In 2020 and 2021, with support from the John D. and Catherine T. MacArthur Foundation's Safety and Justice Challenge Research Consortium, the Urban Institute conducted an in-depth impact evaluation of the MDP, the findings of which are detailed in this report. This impact evaluation was one component of Urban's research on the MDP; Urban also conducted a detailed process evaluation that was described in a July 2021 report, *A Process Evaluation of the Misdemeanor Diversion Program in Durham County, North Carolina* (Engelhardt et al. 2021).

Key Takeaways

The data examined in this report cover January 2012 to February 2020 and were collected from North Carolina's Administrative Office of the Courts, the MDP, the Durham Police Department (DPD), and the Durham County Sheriff's Office. Box 1 provides five key findings the research team derived from these data. In this report, we assess the following:

- MDP enrollment
- MDP completion rates

- the MDP's impact on new arrests, convictions, and jail admissions for program participants
- the MDP's impact on disparities by race and ethnicity, sex, and age
- the MDP's impact on system-level arrests, convictions, and jail admissions

Analyses were separated into two population groups—people ages 16 to 17 and people ages 18 to 21—because each group was eligible for the MDP during different periods. These groups were statistically matched to comparison groups through propensity score matching for the analyses that examined new arrests, convictions, and jail admissions. The comparison groups were well balanced with the MDP participant groups (see **appendix D**) and were pulled from pools of people who were concurrently eligible for the program but did not participate.

BOX 1

Five Key Findings

- Approximately 77 percent of people eligible for the MDP were not referred to the program while it was operational from March 2014 to February 2020.
- Of those who did participate in the program, there was a very high completion rate of 95 percent.
- MDP participants had significantly lower rates of rearrests, convictions, or jail admissions than comparison groups within six months, one year, and two years.
- Participation in the MDP significantly reduced disparities in new arrests within two years and in new convictions and jail admissions within six months between 16-to-17-year-old Black people and non-Black people, making the differences in the levels of new arrests between these groups much more equivalent than between Black and non-Black people who did not participate in the MDP.
- The MDP did not have a larger impact on countywide rates of arrests, convictions, or jail admissions for either of the two age groups we analyzed.

MDP Enrollment

A total of 433 16-to-17-year-olds participated in the MDP from March 2014 to November 2019, and 305 18-to-21-year-olds participated from October 2015 to February 2020. Regarding enrollment, the research team was able to identify 822 additional 16-to-17-year-olds and 1,596 additional 18-to-21-year-olds who were eligible for the program but were not referred by the reporting officers. As such,

the majority of eligible people were *not* referred to the program as they were supposed to be (65 percent of 16-to-17-year-olds and 84 percent of 18-to-21-year-olds were *not* enrolled), supporting findings from the process evaluation that law enforcement agencies are crucial partners in the success of diversion programs.

MDP Completion Rates

Of the 738 people in this analysis who went through the MDP, the program marked only 6 as having failed the program with a new charge or arrest, resulting in a 99 percent completion rate. But analysis of the county's criminal justice administrative data identified an additional 29 people who received a new arrest within 90 days of being referred by law enforcement. Furthermore, it was noted that one person marked as having received a new charge or arrest by the MDP did not have a new arrest detailed in the administrative data. As such, we identified 34 people as having failed the program requirements, leading to a (still very high) 95 percent completion rate. Completion rates were similar for 16-to-17-year-olds (n = 411, 94.9 percent) and 18-to-21-year-olds (n = 293, 96.1 percent).

The MDP's Impact on New Arrests, Convictions, and Jail Admissions among Participants

Analyses of the MDP's impact on new arrests found that participants had significantly lower rates of rearrests than comparison groups. Results indicate that rates of new arrests for 16-to-17-year-olds who participated in the MDP were 19.4, 16.7, and 15.7 percentage points lower within six months, one year, and two years, respectively, than among statistically matched groups of people who were eligible for the program but were not enrolled to participate. Among the people who had a new arrest within two years, MDP participants' new arrests occurred roughly 286 days, on average, after their original offenses, whereas new arrests for nonparticipants occurred roughly 88 days sooner, or about 198 days, on average, after their original offenses. Moreover, we found significant reductions in disparities in new arrests by race among 16-to-17-year-olds: the MDP significantly reduced disparities in new arrests within two years for Black people compared with non-Black people by 20.8 percentage points, making the differences in the levels of new arrests between Black and non-Black participants much more equivalent than the differences between Black and non-Black people who did not participate. But disparity analyses that compared new arrests of Hispanic males with those of non-Hispanic males indicated that new arrests within one year and two years were higher for MDP participants than for nonparticipants, increasing disparities by 13.2 percentage points.

Results indicate that new arrests for 18-to-21-year-olds who participated in the MDP were 13.9, 13.2, and 10.4 percentage points lower within six months, one year, and two years, respectively, than

for statistically matched groups of nonparticipants. No differences were observed in the number of days to a new arrest within two years between 18-to-21-year-old MDP participants and nonparticipants. Nor were significant differences observed in the impact on disparities by race or ethnicity, sex, or age among 18-to-21-year-olds.

No differences were found in new arrests that resulted in a conviction within six months for 16-to-17-year-olds. Results indicate, however, that new convictions among 16-to-17-year-olds who participated in the MDP were 5.4 percentage points lower within one year and 6.2 percentage points lower within two years than among statistically matched groups of nonparticipants. Participation in the MDP reduced disparities in new convictions within six months for Black people compared with non-Black people by 3.5 percentage points, although we observed no significant improvements in disparities in new convictions between Black and non-Black people within one year or within two years.

In addition, we found no differences in new arrests that resulted in a jail admission within six months between 16-to-17-year-old MDP participants and comparison groups. Results indicate, however, that new jail admissions among 16-to-17-year-olds who participated in the MDP were 5.4 percentage points lower within one year and 7.9 percentage points lower within two years than among statistically matched groups of nonparticipants. We observed a reduction of roughly 5 percentage points in disparities in new jail admissions within six months between Black people and non-Black people, although we found no significant improvements in disparities in new jail admissions within one year or within two years for this population.

Among people ages 18 to 21, only 10 cases had a new arrest that resulted in a new conviction within two years: 4 from MDP participants and 6 from the matched comparison group. As such, more detailed and rigorous regression analyses examining the differences in convictions and new jail admissions were not possible for 18-to-21-year-olds, although descriptive differences are reported.

The MDP's Impact on System-Level Arrests, Convictions, and Jail Admissions

System-level analyses of all arrests, convictions, and jail admissions for low-level offenses, misdemeanors, and felonies for both the 16-to-17-year-old and 18-to-21-year-old populations indicate that fewer of these three criminal justice system events occurred after the MDP was implemented than before.[1] Results indicate that on average, there were 33 percent fewer arrests, 32 percent fewer convictions, and 26 percent fewer jail admissions for 16-to-17-year-olds in the months following MDP implementation. But results from interrupted time series indicated that the postimplementation trends were similar to the preimplementation trends, indicating that the reductions likely did not result from the MDP. For the 18-to-21-year-old group, results indicate that on average, arrest levels were 29

percent lower, convictions were 45 percent lower, and jail admissions were 49 percent lower in the months following MDP implementation. The pre- and postimplementation jail admission trends were statistically equal for the 18-to-21-year-old population, but results indicate that arrests and convictions were not declining as steeply in the postimplementation period as the preimplementation period.

Together, these results show that law enforcement officers in Durham County failed to refer the majority of people eligible for diversion to the MDP, though when they did, the program reduced new arrests, convictions, and jail admissions within two years. The program's success is further exemplified by findings that show reductions in racial disparities among participants, especially Black participants.

The Misdemeanor Diversion Program in Durham County, North Carolina

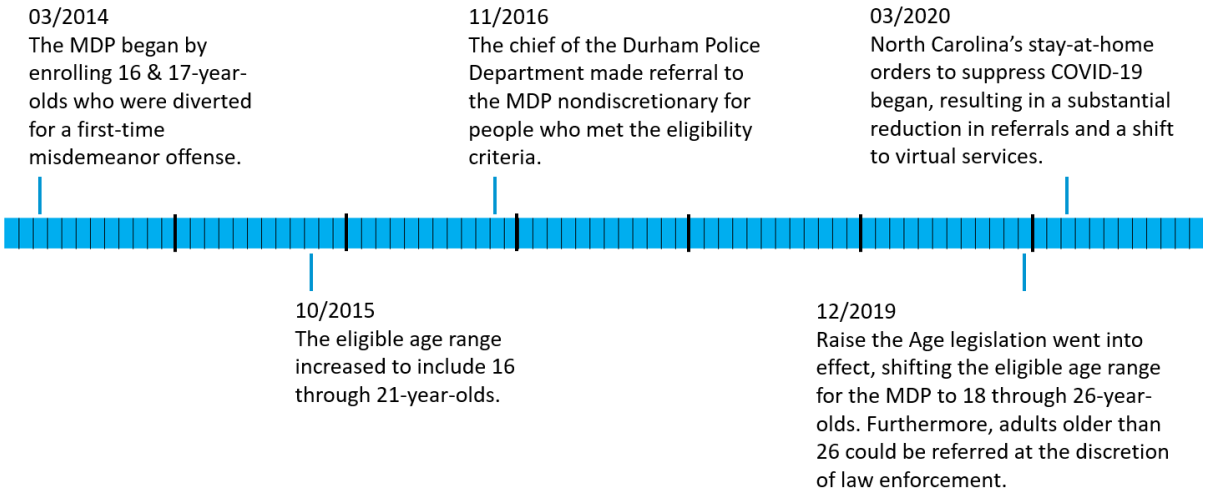
Before the implementation of the Juvenile Justice Reinvestment Act legislation (hereafter referred to as Raise the Age legislation) in December 2019, North Carolina was the last state that automatically charged 16-to-17-year-olds as adults in its justice system. The Misdemeanor Diversion Program (MDP) was originally intended to divert 16-to-17-year-olds in Durham County, North Carolina, accused of committing their first misdemeanor offense(s) from the justice system. Eligibility for the program was determined through meetings and conversations with stakeholders from numerous county agencies and with different perspectives in 2013. It was decided that people in Durham County would be eligible for the MDP if all allegations involved misdemeanors (except for allegations of firearms offenses, sex offenses, and traffic violations), they had no prior misdemeanor or felony arrests as adults, and they were within certain age groups. The MDP officially launched in March 2014 and was designed to last approximately 90 days, and successful completion was defined as not having any new arrests during those 90 days.

The MDP gives law enforcement officers in Durham County the discretion to redirect eligible people accused of committing their first misdemeanor offense(s) to community-based services in lieu of citation or arrest (though the Durham Police Department [DPD] has since made the referral of eligible people nondiscretionary). The purpose is to diminish unnecessary arrests and jail time and the collateral consequences of being charged with and potentially convicted of a crime. What is particularly unique about this program is that it occurs prearrest and precharge, meaning someone law enforcement officers believe may have committed a crime will not be arrested or charged and will not formally enter the justice system in any way.

From its launch in March 2014 through September 2015, only people ages 16 and 17 were eligible to participate in the MDP. In October 2015, eligibility was expanded to include people ages 16 to 21. In December 2019, the state's Raise the Age legislation took effect, requiring that youth up to age 18 remain outside the adult justice system and only be processed in the juvenile justice system. Consequently, the MDP updated its eligibility criteria to primarily serve people ages 18 through 26, and also allowed some adults of any age to be referred to the program at a law enforcement officer's judgement. **Figure 1** shows a timeline detailing changes to the MDP from 2014 through 2020.

FIGURE 1

Timeline of the Misdemeanor Diversion Program in Durham County, North Carolina



Source: Urban research team.
Note: MDP = Misdemeanor Diversion Program.

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Any law enforcement agency in the county can refer people to the MDP, but the DPD is the primary referring agency, and the Durham County Sheriff's Office is the secondary referring agency (these are the two main law enforcement agencies in the county). Over time, the role of law enforcement in the program has changed. Initially, referral was left to officers' discretion across all county law enforcement agencies. In November 2016, the DPD chief made referral of eligible people to the program by DPD officers nondiscretionary. This meant that an officer was expected to refer a person to the program if that person met the eligibility criteria, a notable structural change applauded by local supporters of the program. Referral to the MDP by the sheriff's office, however, remains discretionary. For more background about the MDP and details about its processes and implementation, see the companion process evaluation, published in July 2021 (Engelhardt et al. 2021).

Despite having operated for more than six years and having been replicated in other North Carolina jurisdictions, the MDP has never been evaluated by outside, third-party research organizations. In October 2020, Urban began an impact evaluation to assess MDP enrollment and completion rates; the program's impact on new individual-level arrests, convictions, and jail admissions; and its impact on system-level arrests, convictions, and jail admissions. Before the impact evaluation, Urban completed an in-depth process evaluation that produced information about the program's background and development; its diversion, enrollment, and engagement efforts; stakeholders', staff members', and participants' perceptions of the program; implementation challenges; and lessons learned and recommendations (Engelhardt et al. 2021). The subsequent chapters of this report describe our methodology for the impact evaluation, results from the analyses, and conclusions and recommendations for the MDP.

Methodology

To conduct this impact evaluation, the Urban research team collected, cleaned, and analyzed administrative data covering January 2010 to February 2020 from the MDP, the North Carolina Administrative Office of the Courts, the DPD, and the Durham County Sheriff's Office. These administrative data provided an encompassing record of arrests, convictions, and jail admissions in the county, and we used them to identify MDP participants and their criminal histories. Using these administrative data, Urban researchers sought to answer the following research questions:

1. To what extent does the MDP divert young adults from an arrest or booking?
2. What are the case outcomes and impacts of these strategies for diverted people?
3. To what extent does the MDP affect disparities in criminal justice system events by demographic characteristics?
4. Are there system-level impacts as a result of the MDP?

Data Sources and Cleaning

The administrative data corresponded to people arrested in Durham County for an alleged first misdemeanor when they were 16 to 21 years old from March 2014 to February 2020. We collected criminal history data from as early as January 2010 to identify prior criminal offenses for these people. No data from March 2020 or later were examined because of how the COVID-19 pandemic likely affected offense behaviors, police responses to those offenses, and MDP enrollment and participation.

From March 2014 (the month the MDP began) to September 2015, MDP cases were limited to 16-to-17-year-olds. In October 2015, the eligible age range for the MDP expanded to include 16-to-21-year-olds. In December 2019, eligibility was expanded to age 26 and Raise the Age legislation went into effect, requiring youth younger than 18 to remain in the juvenile justice system. The MDP was changed and now primarily serves ages 18 to 26, but this change occurred too recently to include in our analyses.[2] Other eligibility criteria for the MDP remained the same even as the eligible age range was changed. As such, our analyses focused on two samples of people: participants who were 16 or 17 and began their participation in the MDP from March 2014 to November 2019, and participants who were 18 to 21 and began their participation in the MDP sometime from October 2015 to February 2020.

A notable challenge with these individual-level administrative data was that identification numbers were not attached to people across source datasets, and we observed errors involving the consistency of identification numbers for people within source datasets. The Urban research team had to ensure that a person's criminal justice system events (i.e., arrests, convictions, and jail admissions) were appropriately linked with a master identification number at the individual level. Early in the data cleaning phase, the team quickly identified instances where people's names were spelled differently across data sources or criminal cases, as well as inconsistencies in how dates of birth were entered by the agencies (e.g., mm/dd/yyyy versus dd/mm/yyyy across cases for the same person).

To correct these errors and identify and match criminal justice events that involved the same person, the research team first used the MATCHIT command in Stata to create a similarity score across all pairs of cases using the full name of the person and their reported date of birth. The research team had to separate the name-matching analyses by pulling all cases that began with the same first letter of the last name. This was necessary because the computation power to run the analysis with the full dataset would have been too cumbersome (the original combined administrative dataset included roughly 916,000 criminal justice system event cases, which would have resulted in 839 billion examined pairs). Once similarity scores were calculated for each letter group, the research team manually reviewed mismatched cases that had similarity scores of 0.85 or higher, indicating that they were likely the same person.

The benefit of this analysis was that the research team was able to (1) more easily identify criminal justice events that pertained to the same person, and (2) create a master identification number that was unique at the individual level. But even after running this matching code, the research team still identified roughly 400 cases that were mismatched from other cases but involved the same person. These cases were identified through additional data cleaning checks, such as checks on outlier dates of birth, missing dates of birth, and different dates of birth within a master identification number, and observation of cases that had similar names and dates of birth but were not matched together. The Urban research team was confident in the linkage of people across criminal justice events by the conclusion of this labor-intensive process. All MDP participants who had a subsequent criminal justice event were identified in the final clean administrative dataset, and those who were not identified (meaning those who successfully completed the MDP) were added to the data to ensure they were included in the analyses.

Administrative Data Inconsistencies

Urban identified a small number of instances of administrative error through the detailed examination of the administrative data. Many of these inconsistencies were only recognized as a result of the specific rules and eligibility criteria the research team had knowledge of from its process evaluation of the program (see Engelhardt et al. 2021). Urban noted three instances of arrest and court data in the county systems that were connected to the MDP-enrolling incidents. As part of the MDP, these data should not have been included in the county's administrative data.

Urban also noted inconsistencies within the MDP participant data. There were six instances where people were enrolled in the MDP a second time many months after first participating. Technically, these arrests were these people's first recidivism events and therefore made them ineligible for the MDP. But all six instances involved school resource officers from the sheriff's office using their discretion to send young people through the MDP a second time for minor infractions, mainly to keep them eligible for college, the military, or potential jobs. Nonetheless, these cases were treated as recidivism events for the impact evaluation. Lastly, the research team also noted four instances where people were noted to be slightly outside the age limitations for eligibility at the time of their incidents.

Finally, there were 10 people enrolled in the MDP whose criminal histories made them ineligible for the program. Four people were enrolled who had prior misdemeanor arrests that did not result in convictions, three enrolled people had prior misdemeanor arrests that did result in convictions, two enrolled people had prior felony arrests with no convictions, and one person had a felony arrest that was convicted as a misdemeanor with a 45-day jail sentence. A person is only eligible for the MDP if the arrest is their first and is for only misdemeanor or lesser offenses (i.e., traffic and infraction offenses). According to how the program was designed, these 10 people should not have been eligible for the MDP. The research team learned during follow-up conversations with MDP staff that these were likely instances where the district attorney's office requested that a person be enrolled in the MDP as part of a broader deferred prosecution. In other words, to avoid charges, the person would have to successfully complete the MDP in addition to other county programs, such as community service, screening for mental health and/or drug abuse, and program follow through based on the results of the screenings.

Appendix A provides more information about each of the above administrative data inconsistencies and how Urban treated the data for its impact evaluation.

Creating Comparison Groups

Once the final administrative data of all criminal justice system events were finalized and cleaned, the Urban research team identified *the full population* of people ages 16 to 21 with arrests for first-time misdemeanors that did not include felony or firearms offenses, sex offenses, or traffic violations. The data were then reshaped and aggregated to create an individual-level dataset that included a host of pertinent information. A full list of the final variables that were created for the analyses is detailed in **appendix B**. Briefly stated, the final dataset included information about the first-misdemeanor arrest or the MDP-enrollment incident for each MDP participant (hereafter referred to as the first-misdemeanor incident); arrest and conviction histories before the first-misdemeanor incident; information on arrests, convictions, and jail admissions that occurred after the first-misdemeanor incident, and the person's demographic information. **Box 2** explains how we dated recidivism events for our analysis.

BOX 2

A Note on the Arrests Data

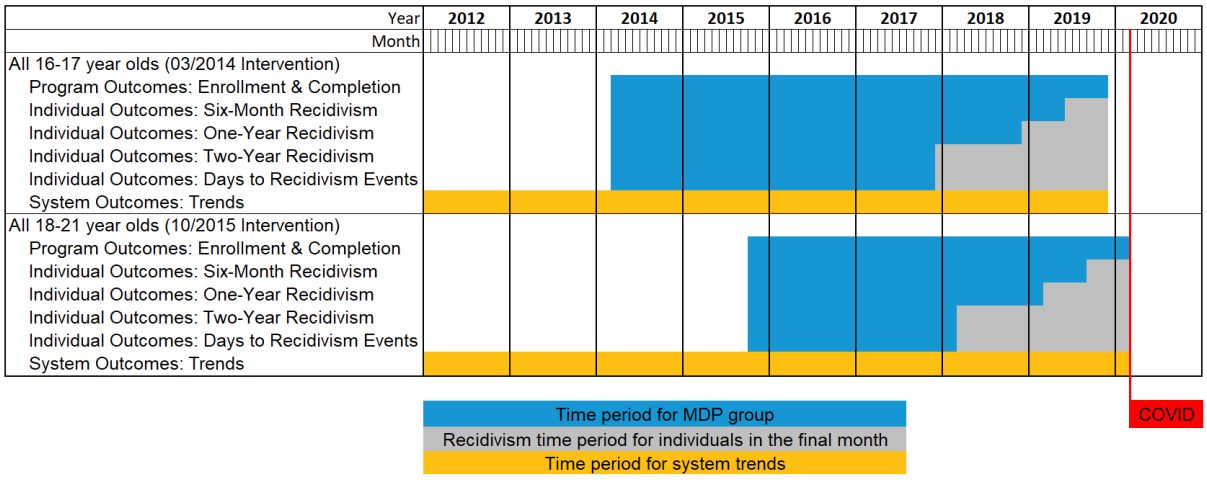
The research team used the dates of arrests associated with convictions and/or jail admissions as opposed to the dates that those events occurred. In other words, we did not use the date of a person's conviction or jail admission, but the date of their arrest that resulted in those events, as the recidivism date. We did this because the time between arrests and court hearings and/or sentence hearings is outside people's control, and we did not want to incorrectly assess their recidivism time frames. Instead, we focus solely on when a new arrest occurred, which much more closely measures a person's behaviors (or a law enforcement officer's decision to arrest them) as opposed to criminal justice system proceedings. As such, some new arrests were associated with convictions and jail admissions and would therefore all use the same dates of those arrests, whereas other cases had new arrests that did not have convictions and we therefore relied on the next arrest dates—if there were other arrests—connected to convictions and/or jail admissions.

Equivalent comparison samples were matched to 16-to-17-year-olds and to 18-to-21-year-olds in the MDP using no-replacement propensity score matching (Rosenbaum and Rubin 1983). Propensity score matching is a technique that matches preidentified units to appropriate comparison units based on their conditional probability of assignment to the preidentified group given observed covariates. As such, we used a pool of people for each age group who had criminal justice system events during the same periods as the MDP participants. As detailed in **figure 2**, the periods used to select people varied by age group and the six-month, one-year, and two-year recidivism periods under examination. For

example, we needed to ensure a full two-year follow-up period was used for the two-year recidivism analysis; as such, we could only include 16-to-17-year-olds up to November 2017, as the criminal justice system event data went to November 2019.

FIGURE 2

Periods of Urban's Impact Analyses



Source: Urban research team.
Note: MDP = Misdemeanor Diversion Program.

The sample frames of MDP participants and the potential pool of nonparticipants available to match from are detailed in **table C.1** (in **appendix C**). There were more people to match from than there were participants to match to in all instances. To create the best matches possible, MDP participants were matched on demographic information, including the following variables:

- race/ethnicity
- sex
- age
- arrest location (within the city of Durham or outside of the city of Durham)
- number of prior nonmisdemeanor and nonfelony offenses (i.e., traffic and infraction offenses, hereafter referred to as low-level offenses)
- number of misdemeanor charges at time of arrest

This procedure produced groups of 16-to-17-year-olds and 18-to-21-year-olds associated with criminal justice events who matched the 16-to-17-year-old and 18-to-21-year-old MDP participants,

respectively, based on the above list of variables. No MDP participants were dropped from the samples as a result of not having a match. **Tables D.1 through D.6** in **appendix D** present the descriptive statistics of these variables and the outcomes used in the regression models. Balance between the groups was assessed using the Cohen's *d* effect size and *t* statistics, also presented in **tables D.1 through D.6**. Imbalance would be exhibited by a Cohen's *d* value in excess of +/- 0.20 and a *t* value in excess of +/- 1.96. Though there were some variables with minor degrees of imbalance, we determined that overall, these groupings were well balanced in their composition.

Analytic Strategy

To conduct the impact evaluation and answer the research questions, the Urban research team separated the analyses to focus on (1) program outcomes, (2) participant recidivism outcomes, and (3) system-level outcomes.

Program Outcome Analyses

To answer the first research question, which asked to what extent the MDP diverts people from physical arrests or bookings, the research team examined descriptive and inferential statistics of the population of people with first-misdemeanor incidents in Durham County, the rate of MDP enrollment, and the rate of MDP completion. Analysis of enrollment disparities by race were first assessed using a compound ratio, which provides a ratio of the percentage of enrolled people of color to the corresponding percentage of enrolled people who were white. This can be expressed with the following formula, where B = Black people, H = Hispanic people, O = people of another race, and W = white people:

$$\frac{Enrolled_{B\ or\ H\ or\ O} / Eligible_{B\ or\ H\ or\ O}}{Enrolled_{W} / Eligible_{W}}$$

This compound ratio provides a clear and compelling interpretation: it measures how much more or less likely eligible people of color are to be enrolled in the MDP than eligible white people.

The results from the compound ratios, while useful as an overall indicator, do not take into account any information about the specific characteristics associated with MDP enrollment. To better assess enrollment rates, we also used logistic regression models to compare MDP participants with people in

the county with first-misdemeanor incidents who were not referred to the program. We created three of these models: Model A, which examines likelihood of enrollment among 16-to-17-year-olds; Model B, which examines rates among 18-to-21-year-olds; and Model C, which looks at all 16-to-21-year-olds in the county. The models include covariates on a person's age, race or ethnicity, sex, prior arrests for low-level offenses, and number of misdemeanor offenses that occurred at the time of the first-misdemeanor incident. Most importantly, we included a pre/post variable that accounted for whether the arrest was made before or after the DPD made referral of eligible people nondiscretionary in November 2016.

Participant Recidivism Outcome Analyses

The second research question focused on assessing the program's impact on diverted people's case outcomes. To answer this question, we assessed the MDP's impact on three independent recidivism outcomes for participants—new arrests, new arrests resulting in convictions, and new arrests resulting in jail admissions—and compared these results with the matched group of people who did not participate in the MDP. We also conducted an analysis comparing the average number of days that people in each group had before their first new arrest after the first-misdemeanor incidents. Recidivism outcomes of new arrests, convictions, and jail admissions were examined for follow-up periods of six months, one year, and two years using the start of the MDP for participants and the first-misdemeanor offense arrest date for the matched comparison groups. The statistical models for new arrests, convictions, and jail admissions were logistic regressions, and ordinary least squares regressions for the days to those events. We used a two-year recidivism period to examine days to recidivism events, to include as many people who may have had a recidivism event as possible. All models included covariates on people's age, race or ethnicity, sex, prior low-level offenses, and the number of misdemeanor charges that occurred at the time of the first-misdemeanor incident, along with a field designating MDP participants from the matched nonparticipants. The next chapter presents results by event category (new arrests, new convictions, and new jail admissions) and age group.

To answer the third research question, which asked to what extent the MDP affected disparities in criminal justice system events by demographic characteristics, the research team conducted secondary models on the recidivism outcomes that included a demographic variable interaction term on MDP participation. Specifically, for each recidivism period, variables were included in the models on the interaction of MDP participation versus nonparticipation and the following demographic groups:

- Black people and non-Black people (i.e., white people, Hispanic people, and people of other races)

- white people and non-white people (i.e., Black people, Hispanic people, and people of other races)
- Hispanic people and non-Hispanic people (i.e., white people, Black people, and people of other races)
- people of other races and people not of other races (i.e., white people, Black people, and Hispanic people)
- females and males
- Black males and non-Black males (i.e., white males, Hispanic males, and males of other races)
- Black females and non-Black females (i.e., white females, Hispanic females, and females of other races)
- white males and nonwhite males (i.e., Black males, Hispanic males, and males of other races)
- white females and nonwhite females (i.e., Black females, Hispanic females, and females of other races)
- Hispanic males and non-Hispanic males (i.e., white males, Black males, and males of other races)
- Hispanic females and non-Hispanic females (i.e., white females, Black females, and females of other races)
- males of other races and males not of other races (i.e., white males, Black males, and Hispanic males)
- females of other races and females not of other races (i.e., white females, Black females, and Hispanic females)
- 16-year-olds and 17-year-olds
- 18-year-olds and non–18-year-olds (i.e., 19-, 20-, and 21-year-olds)
- 19-year-olds and non–19-year-olds (i.e., 18-, 20-, and 21-year-olds)
- 20-year-olds and non–20-year-olds (i.e., 18-, 19-, and 21-year-olds)
- 21-year-olds and non–21-year-olds (i.e., 18-, 19-, and 20-year-olds)

All interaction models were independent from each other. Though we conducted numerous models to assess how disparities changed, we only report the results of the interactions found to be significant.

All interaction models control for prior low-level offenses, the number of misdemeanor offenses or charges associated with the originating event, as well as people's other demographic characteristics.

The above matching procedure and regression models were used successfully in a recent Urban evaluation of Kentucky's statewide youth diversion program (Harvell et al. 2020). These analyses enabled us to examine the impact of the MDP on the above recidivism outcomes, and to assess disparities by key characteristics of justice-involved people, such as race/ethnicity, sex, age, location/referring agency, and offense type.

System-Level Outcome Analyses

The fourth research question asked what the system-level impact of the MDP might be. To answer this question, we examined the aggregate monthly counts for all low-level, misdemeanor, and felony (1) arrests, (2) convictions, and (3) jail admissions for the two age groups. Two statistical models were used to assess the change in trends for the two samples: interruptive time series analyses and count regression models.

The interrupted time series provide information on the immediate change in the first month after the program's implementation, as well as the change in the postimplementation trend line compared with the preimplementation trend line (Linden 2015). Interrupted time series models also provide an average per-month change in the postimplementation period, enabling a researcher to state the specific change in an outcome by month after an intervention occurred. Because the outcomes are aggregated to the monthly level for the analysis, individual-level characteristics cannot be included as covariates. We did, however, include a month-of-the-year covariate to control for seasonal effects on the outcomes. The figures in the next chapter simply provide a graphic representation of the trend lines, whereas detailed regression tables are included in **tables E.1 and E.2** in **appendix E**.

The count models were random-effects negative binominal regressions that provide information on the percentage difference in the count of the outcomes between the pre- and postimplementation periods, on average (Hilbe 2011; Long and Freese 2006; Macdonald and Lattimore 2010). Because the outcomes are count measures that have evidence of skewness and overdispersion, we used the NBVARGR command and postestimation statistics in Stata to assess whether Poisson or negative binominal distributions are more appropriate for these data. Negative binomial regression models, unlike Poisson models, take into account unobserved heterogeneity among observations and do not have downward-biased standard errors. We found random-effects negative binomial regression models were superior to prevent biased estimates that could result from ordinary least squares regressions

(Hilbe 2011; Long and Freese 2006; MacDonald and Lattimore 2010). **Tables E.2 and E.4** in **appendix E** detail the regression results using the incidence rate ratio that is more intuitive to determine the percentage change of the outcome between the pre- and postimplementation periods on average (Piza 2012). As an example, the incidence rate ratio for the pre/post estimator of first-misdemeanor incidents for 16- and 17-year-olds (**table E.2**) was 0.67, indicating that the count of arrests decreased by 33 percent on average during the postimplementation period compared with the preimplementation period.

For both the interrupted time series and count regression models, March 2014 was used as the intervention cut point for the 16- and 17-year-old sample, whereas October 2015 was used for the 18-to-21-year-old sample. Taken together, these models examined the impact of the changes in the outcomes with three different measurements, providing a clear picture of how the diversion program affected justice-related outcomes. The count models provided an average percentage change, and the time series models provided the change in the first month after program implementation and the difference in trend lines between the pre- and postimplementation periods.

Results

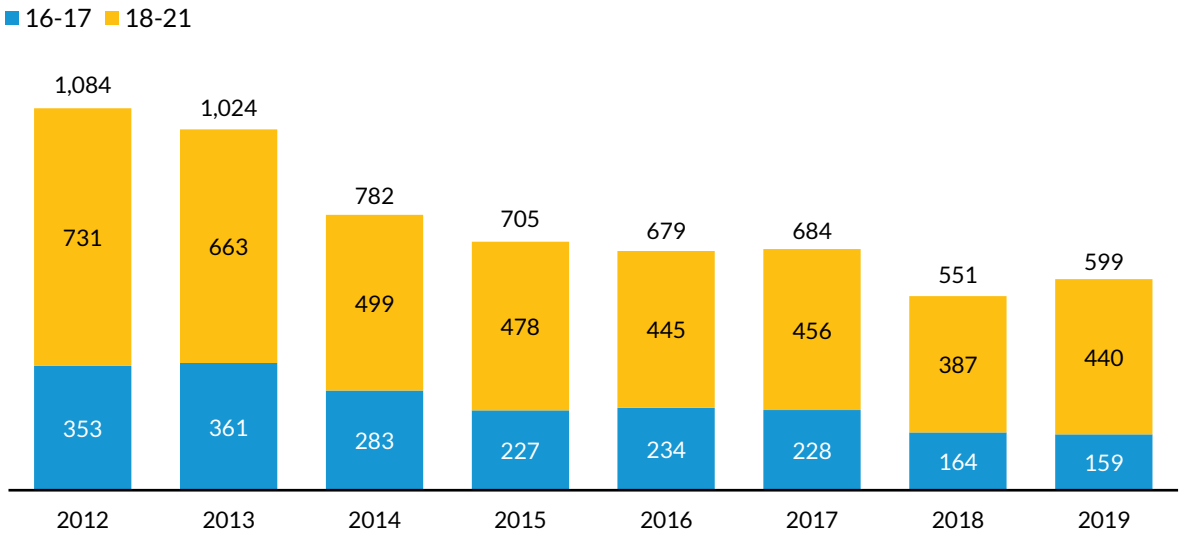
This chapter details the main findings from our impact evaluation to assess MDP enrollment and completion rates; the program's impact on new individual-level arrests, convictions, and jail admissions; and its impact on system-level arrests, convictions, and jail admissions.

First-Misdemeanor Incidents in Durham County

Urban was first interested in examining first-misdemeanor incidents among 16- and 17-year-olds and 18-to-21-year-olds in Durham County. **Figure 3** presents the counts of people identified in the administrative data who had a first-misdemeanor incident from January 2012 to December 2019, who totaled to 6,108 people. For both age groups, we observed a general decline in the number of first-misdemeanor incidents, with the most arrests observed earlier in the time frame and the fewest in 2018 and 2019.[3]

FIGURE 3

People with a First-Misdemeanor Incident in Durham County from January 2012 to December 2019, by Age and Year



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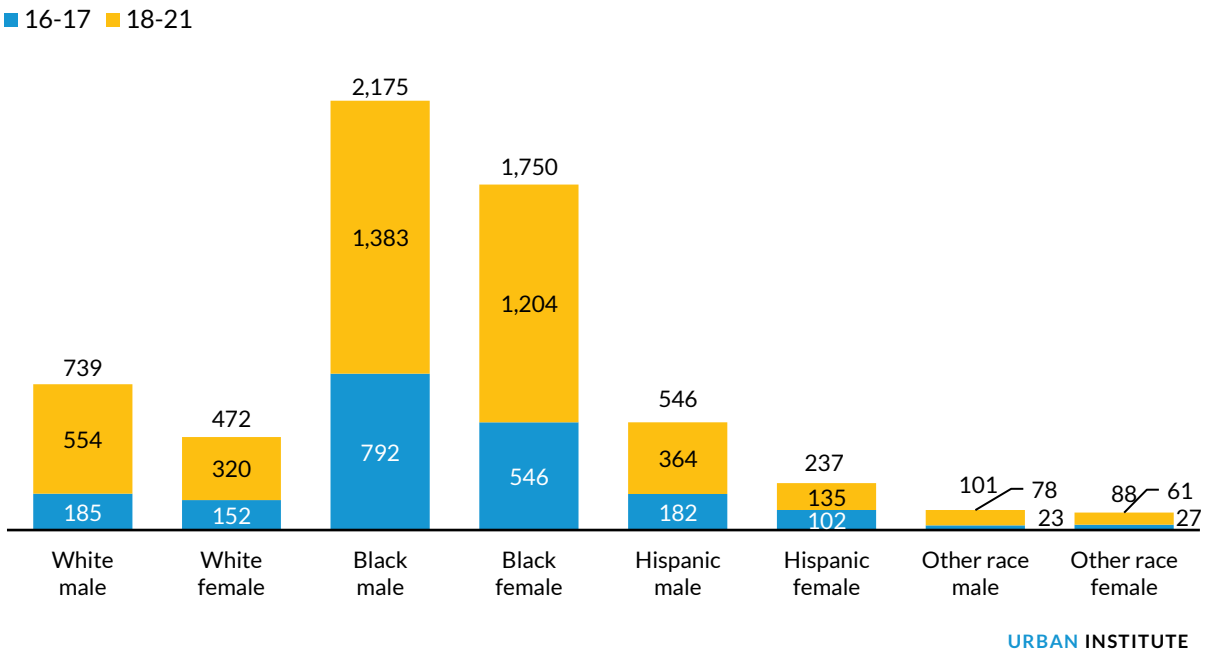
Source: Urban analysis of Durham County, North Carolina, data.
Note: Raise the Age legislation began in December 2019, requiring that youth younger than 18 remain outside the adult justice system and only be processed in the juvenile justice system.

As detailed in **figure 4**, the order of the race-by-sex demographic groups by most to fewest first-misdemeanor incidents was the same for 16- and 17-year-olds and for 18-to-21-year-olds. Approximately 39 percent of 16- and 17-year-olds and 34 percent of 18-to-21-year-olds were Black males; the second-largest group comprised Black females, who made up 27 percent of the population of 16- and 17-year-olds and 29 percent of 18-to-21-year-olds. White males constituted a slightly larger share of 18-to-21-year-olds (14 percent) than of 16- and 17-year-olds (9 percent). Hispanic males constituted 9 percent of both age groups, and white females constituted 8 percent of both age groups. Hispanic females constituted a slightly larger share of 16- and 17-years-olds (5 percent) than they did of 18-to-21-year-olds (3 percent).

FIGURE 4

First-Misdemeanor Incidents from January 2012 to December 2019 in Durham County, North Carolina, by Age, Race, and Sex



Source: Urban analysis of Durham County, North Carolina, data.
Note: Raise the Age legislation began in December 2019, requiring that youth younger than 18 remain outside the adult justice system and only be processed in the juvenile justice system.

Enrollment in the MDP

The research team identified a total of 738 people who participated in the MDP from its inception to February 2020 and who met the age criteria of being 16 to 21 years old. There were more 16-to-17-

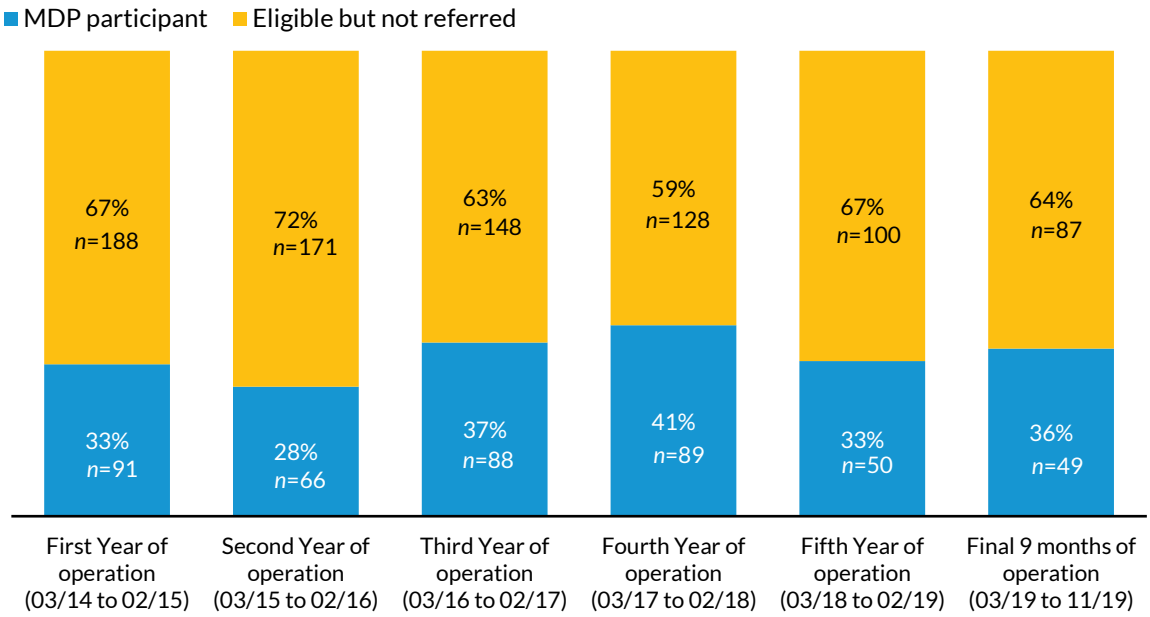
year-olds in the program from March 2014 to November 2019 (*n* = 433) than there were 18-to-21-year-olds from October 2015 to February 2020 (*n* = 305). Compared with the number of people with first-misdemeanor incidents identified in figures 3 and 4, we can immediately notice a large discrepancy between the number who participated in the MDP and the number who were eligible for participation: 822 16-to-17-year-olds and 1,596 18-to-21-year-olds were eligible for the MDP with a first-misdemeanor incident but were not enrolled.

Analyses found that 2,418 people—77 percent of all eligible people—were eligible for the MDP with a first-misdemeanor incident but were not enrolled in the program.

Why exactly these 2,418 people were not enrolled in the program is unknown, but it likely owes to how law enforcement officers in Durham County review criminal histories when they are considering making an arrest and using their discretion to enroll or not enroll eligible people. Results from our process evaluation reflect the importance of law enforcement buy-in and participation to the success of this diversion program (Engelhardt et al. 2021). Officer support for the MDP was challenging to acquire and required various activities to build. Officers' lack of awareness of the MDP was a substantial issue that MDP staff responded to by implementing formal training and conducting informal outreach to officers. In addition, stakeholders needed to build formal support for the program among law enforcement, support they received when the DPD made referrals to the program nondiscretionary on general order from the chief. It appears that these efforts may not have built support for the program and increased enrollments of eligible people. **Figures 5 and 6** show the shares of eligible people who were enrolled and not enrolled among our two age groups. Among 16-to-17-year-olds (figure 5), the average rate of enrollment was relatively low at only 34.5 percent from March 2014 through November 2019. This rate increased slightly in the third and fourth years of the program's operation but returned to initial levels by the fifth and sixth years.

FIGURE 5

Referrals of Eligible 16-to-17-Year-Olds to the Misdemeanor Diversion Program, March 2014 to November 2019



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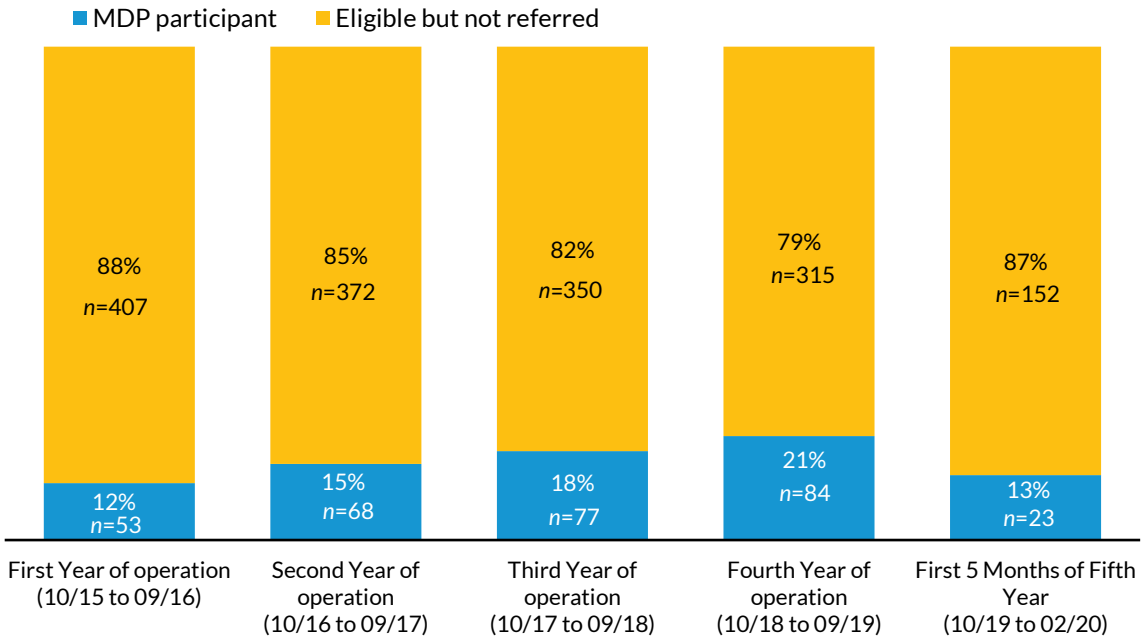
Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. Raise the Age legislation began in December 2019, requiring that youth younger than 18 remain outside the adult justice system and only be processed in the juvenile justice system.

The enrollment rate among 18-to-21-year-olds was substantially lower than among 16-to-17-year-olds: 16 percent of eligible people in this group were enrolled in the MDP (figure 6). The most enrollments, by proportion (21 percent) and number (*n* = 84), occurred in the fourth year of the program's operation. The low enrollment rates among this age group indicate that officers may consider older people a greater risk to public safety or less deserving of leniency and therefore not suitable for diversion programs. The fact that only some eligible 18-to-21-year-olds were diverted to the MDP may indicate that officers are hand selecting who should go into the program, or that only a small group of officers are aware of the program and persistently enroll eligible people—although these would likely be the same officers making enrollment decisions about 16-to-17-year-olds, supporting the hypothesis that age is a determining factor in officers' referral decisions.

FIGURE 6

Referrals of Eligible 18-to-21-Year-Olds to the Misdemeanor Diversion Program, March 2014 to February 2020



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. COVID-19 stay-at-home order began March 2020.

To assess enrollment disparities by race and ethnicity, we first examined the results from the compound ratios, which provided ratios of the percentages of enrolled people of color to the corresponding percentages of enrolled white people. **Table 1** separates the ratios by the two age groups and provides a combined analysis. Using this approach, the compound ratio for 16-to-17-year-old Black people was 0.77, meaning Black people were enrolled in the MDP 0.77 times as much as white people in that age group. This finding was more pronounced for the 18-to-21-year-olds: Black people in this age group were enrolled 0.59 times as much as white people. Overall, Black people were enrolled 0.71 times as much as white people.

TABLE 1

Compound Ratios of Enrollment in the Misdemeanor Diversion Program

	Enrolled	Eligible	Compound ratio
16-to-17-year-olds			
White people	87	218	--
Black people	253	827	0.77
Hispanic people	77	176	1.10
People of another race	16	34	1.18
18-to-21-year-olds			
White people	93	392	--
Black people	164	1,169	0.59
Hispanic people	29	271	0.45
People of another race	19	69	1.16
16-to-21-year-olds			
White people	180	610	--
Black people	417	1,996	0.71
Hispanic people	106	447	0.80
People of another race	35	103	1.15

Source: Urban analysis of Durham County, North Carolina, data.
Note: Compound ratios were calculated as: (Enrolled people of color / Eligible people of color) / (Enrolled white people / Eligible white people).

Although the combined analysis found that Hispanic people were enrolled 0.80 times as much as white people, there was a mixed finding for Hispanic people across the two age groups. The compound ratio indicated that 16-to-17-year-old Hispanic people were enrolled 1.10 times as much as white people of the same age, meaning they were enrolled more than their white counterparts. But among the 18-to-21-year-old group, Hispanic people were enrolled only 0.45 times as much as white people. Lastly, overall and across the two age groups, people of another race were enrolled roughly 1.15 times as much as white people.

The results from the compound ratios, though useful as overall indicators, do not take into account any information about the specific characteristics associated with MDP enrollment. To better assess reasons why people are enrolled, we conducted a logistic regression on enrollment that included a host of demographic and arrest characteristics. Most importantly, we included a pre/post variable that accounted for whether the arrest was made before or after referral by DPD officers was made nondiscretionary in November 2016. This policy required officers to refer eligible people and has been touted as a reason for the program's sustainability.

Results of the models are presented in **table 2,** with many notable findings standing out. First, the DPD's November 2016 policy had no impact on the number of MDP enrollments. In fact, enrollment rates decreased after the policy took effect, although the difference was not significant and most likely a result of lower crime rates in the county (see the section on system-level impacts).

TABLE 2

Likelihood of Being Referred to the Misdemeanor Diversion Program by Age Group

	Model A: 16-to-17-year-olds odds ratio (SE)	Model B: 18-to-21-year-olds odds ratio (SE)	Model C: 16-to-21-year-olds odds ratio (SE)
After DPD nondiscretionary referral policy	0.70 (0.30)	0.87 (0.42)	0.78 (0.25)
Had no prior low-level offense arrests (vs. 1 or more prior low-level offense arrests)	1.42 (0.62)	1.76 (0.52)	1.64 (0.39) *
Current arrest included only 1 misdemeanor offense (vs. 2 or more misdemeanor offenses)	32.03 (10.14)***	20.99 (7.28) ***	26.54 (6.20) ***
Race/ethnicity and sex			
Black female (vs. Black male)	0.92 (0.16)	1.57 (0.29) *	1.19 (0.15)
White male (vs. Black male)	1.05 (0.25)	1.54 (0.36)	1.25 (0.21)
White female (vs. Black male)	1.90 (0.50) *	4.83 (1.18) ***	3.27 (0.58) ***
Hispanic male (vs. Black male)	1.14 (0.28)	0.55 (0.19)	0.87 (0.16)
Hispanic female (vs. Black male)	2.19 (0.66) **	2.53 (0.88) **	2.33 (0.53) ***
Other race male (vs. Black male)	0.50 (0.30)	5.40 (2.36) ***	2.14 (0.75) *
Other race female (vs. Black male)	3.76 (2.14) *	1.96 (1.11)	2.54 (0.94) *
Age			
17 years old (Models A & C: vs. 16 years old)	0.76 (0.10) *	--	0.73 (0.10) *
18 years old (Model C: vs. 16 years old)	--	--	0.47 (0.07) ***
19 years old (Model B: vs. 18 years old, Model C: vs. 16 years old)	--	0.44 (0.08) ***	0.21 (0.04) ***
20 years old (Model B: vs. 18 years old, Model C: vs. 16 years old)	--	0.29 (0.06) ***	0.15 (0.03) ***
21 years old (Model B: vs. 18 years old, Model C: vs. 16 years old)	--	0.28 (0.07) ***	0.13 (0.03) ***
Year of arrest			
2015 (Models A & C: vs. 2014)	0.78 (0.17)	--	0.77 (0.16)
2016 (Models A & C: vs. 2014, Model B: vs. 2015)	1.22 (0.28)	1.28 (0.50)	1.00 (0.20)
2017 (Models A & C: vs. 2014, Model B: vs. 2015)	2.83 (1.37) *	2.11 (1.29)	1.85 (0.69)
2018 (Models A & C: vs. 2014, Model B: vs. 2015)	1.78 (0.58)	3.62 (2.22) *	1.86 (0.70)
2019 (Models A & C: vs. 2014, Model B: vs. 2015)	1.83 (0.91)	2.69 (1.65)	1.81 (0.68)
2020 (Models A & C: vs. 2014, Model B: vs. 2015)	--	3.33 (2.45)	2.25 (1.26)
Constant	0.02 (0.01) ***	0.01 (0.00) ***	0.02 (0.01) ***
Chi-Square	343.18 ***	382.10 ***	811.55 ***
Observations	1,255	1,901	3,156
Pseudo R2	.21	.23	.24
Goodness-of-fit Chi-Square	183.03	330.17	579.91
Percent Correctly Classified	70.36%	85.27%	78.61%

Source: Urban analysis of Durham County, North Carolina, data.

Notes: DPD = Durham Police Department. SE = standard error. * p <.05; ** p <.01; *** p <.001

Regarding arrests, the model found that people with no prior arrests for low-level offenses were approximately 1.64 times as likely to be enrolled in the program as people with one or more of those prior arrests. This could owe to officers misunderstanding the MDP eligibility criteria, as people with prior arrests for low-level offenses are still eligible for the program. Similarly, we found that people

arrested for a single misdemeanor were 21 to 32 times as likely to be enrolled as people arrested for two or more misdemeanors. This also likely owes to officers misunderstanding the eligibility criteria, as people being arrested for multiple misdemeanors are eligible for the MDP as long as all of the misdemeanors are concurrent to the first incident that could lead to arrest.

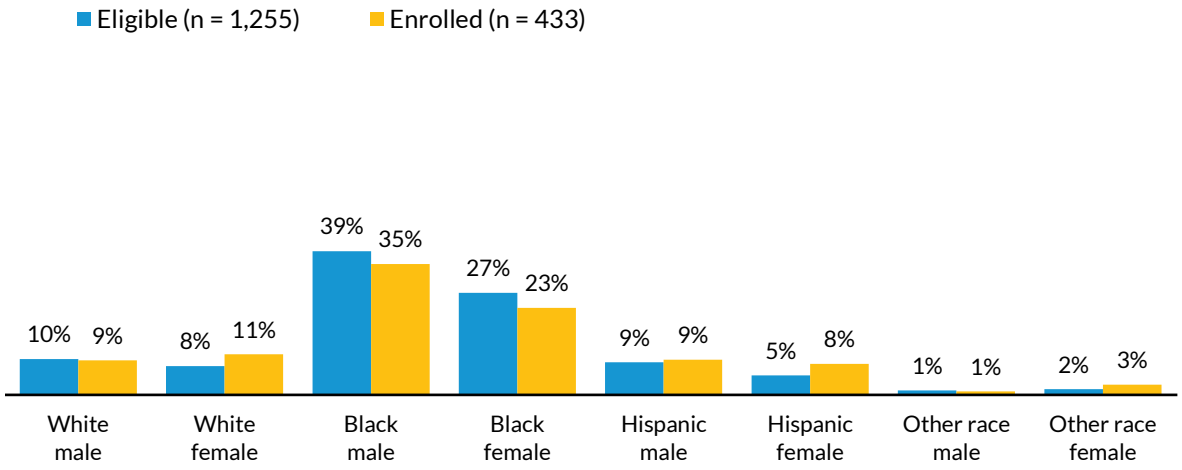
Regarding age, younger people were more likely to be enrolled in the MDP; put another way, the likelihood of enrollment decreased as age increased. People who were 17 years old were 0.76 times as likely to be enrolled as 16-year-olds, and 19-, 20-, and 21-year-olds were 0.44, 0.29, and 0.28 times as likely, respectively, to be enrolled as 18-year-olds. Race and sex characteristics were compared with Black males, the largest group of eligible people. Results indicate that white females were 1.90 to 4.83 times as likely and Hispanic females were 2.19 to 2.53 times as likely to be enrolled as Black males. Black males had similar enrollment levels as Black females, white males, and Hispanic males.

These findings on race by sex are shown in **figures 7 and 8**, which detail the proportions of MDP participants by race and sex along with the proportions of the total eligible people in Durham County with first-misdemeanor incidents. The differences between these groups are not substantially different for the 16-to-17-year-old population, although as the regression results indicated, Black males made up 39 percent of eligible 16-to-17-year-olds, whereas Black males made up 35 percent of 16-to-17-year-olds who entered the program. Black females made up 27 percent of eligible 16-to-17-year-olds but only 27 percent of those enrolled. Contrastingly, white females made up 8 percent of eligible 16-to-17-year-olds but made up 11 percent of those enrolled in the program. Similarly, Hispanic females made up 5 percent of eligible 16-to-17-year-olds but made up 8 percent of those enrolled.

The differences by race and sex are starker for the 18-to-21-year-old population. Black males made up 32 percent of eligible people in this group, but only 21 percent of MDP participants, an 11-percentage-point difference. Similarly, Hispanic 18-to-21-year-old males made up 11 percent of those eligible for the MDP but only 4 percent of those enrolled. These differences were mostly counterbalanced by the fact that white females constituted larger shares of 18-to-21-year-olds enrolled in the MDP than of people who were eligible (18 percent versus 8 percent, respectively). Black females accounted for a slightly larger share of 18-to-21-year-olds enrolled (33 percent) than 18-to-21-year-olds eligible (29 percent), and Hispanic females made up a slightly larger share of 18-to-21-year-olds enrolled (5 percent) than of 18-to-21-year-olds eligible (3 percent. Lastly, 18-to-21-year old males of other races made up 5 percent of enrolled 18-to-21-year-olds versus 2 percent of eligible 18-to-21-year-olds.

FIGURE 7

Composition of the 16-to-17-Year-Old Groups Eligible for and Enrolled in the Misdemeanor Diversion Program, by Race/Ethnicity and Sex



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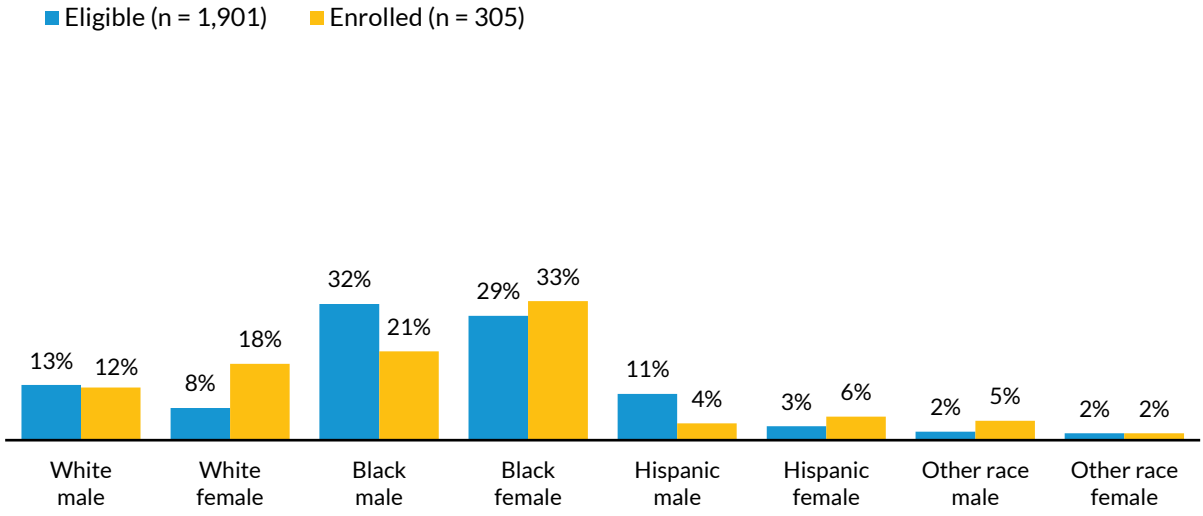
Source: Urban analysis of Durham County, North Carolina, data.

FIGURE 8

Composition of the 18-to-21-Year-Old Groups Eligible for and Enrolled in the Misdemeanor Diversion Program, by Race/Ethnicity and Sex



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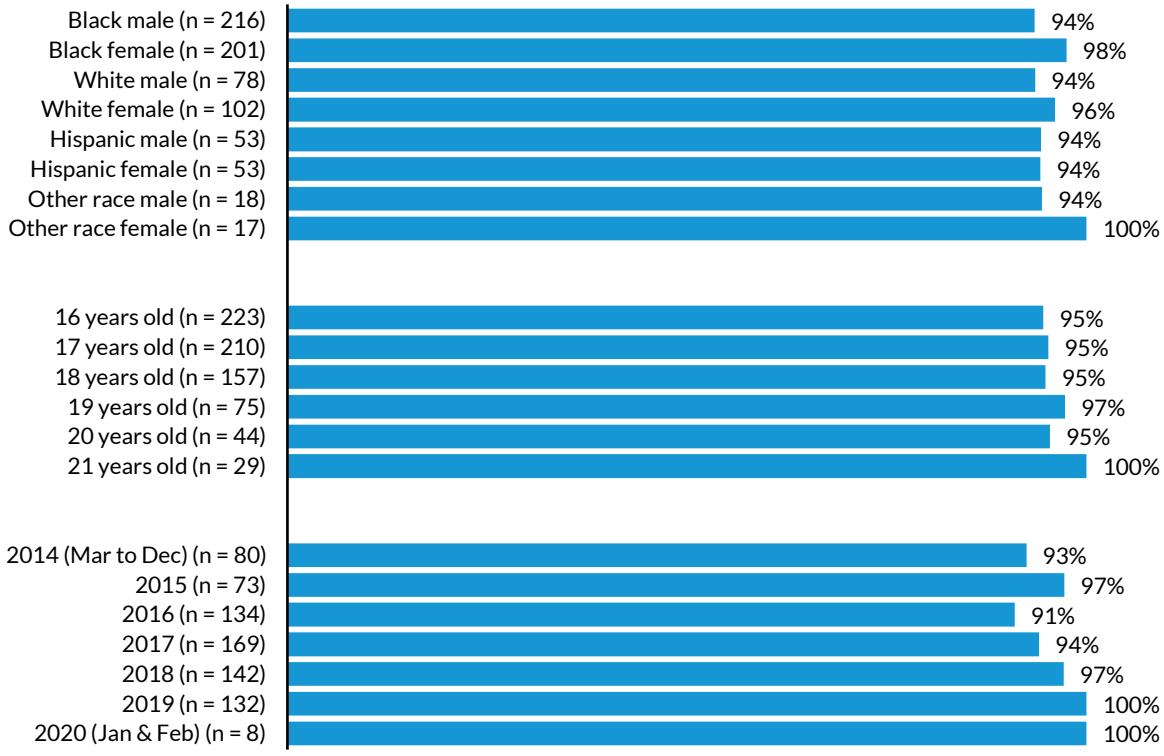
Source: Urban analysis of Durham County, North Carolina, data.

MDP Completion Rates

The length of the MDP is approximately 90 days from the start of the program, and the MDP defines successful completion as not having any new arrests within that time frame. Of the 738 people who went through the MDP, only six were marked by the program as having failed with a new arrest, resulting in a 99 percent completion rate. Urban's analysis of the administrative data, however, identified an additional 29 people with a new arrest within 90 days of their original arrest. Furthermore, it was noted that one person the MDP marked as failing did not have a new arrest within 90 days documented in the administrative data. As such, we identified 34 people as failing the program requirements, leading to a still very respectable 95 percent completion rate. **Figure 9** details the completion rates by race/ethnicity and sex, age at program entry, and year of program entry. Similar completion rates were found across all these groupings, although the lowest completion rate (91 percent) was observed for the year 2016. The two main age groupings both had high completion rates, with 16-to-17-year-olds at 95 percent and 18-to-21-year-olds at 96 percent.

FIGURE 9

Misdemeanor Diversion Program Completion Rates by Race/Ethnicity and Sex, Age at Program Entry, and Year of Program Entry



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Source: Urban analysis of Durham County, North Carolina, data.

Recidivism Analyses

The 90-day recidivism period may be appropriate for defining successful completion of the MDP. Most recidivism studies, however, do not examine such a short period, nor a single criminal justice system event. As such, the Urban team conducted detailed recidivism analyses of MDP participants by examining the six-month, one-year, and two-year rates for new arrests, new arrests connected to a conviction, and new arrests connected to a jail admission. We focus on arrests that resulted in convictions and jail admissions to better assess people's behaviors—or police officers' discretion to arrest people—as opposed to the duration of criminal justice court proceedings. Our analyses are separated for the 16-to-17-year-old and 18-to-21-year-old groups, and the models compared MDP participants with statistically matched comparison groups of people who were eligible for the MDP but were not enrolled.

New Arrests among 16-to-17-year-olds

Table 3 provides the logistic regression results associated with new arrests among 16-to-17-year-olds. Across all three recidivism time periods, results indicate that the MDP dramatically lowered rates of new arrests among participants. Within six months, MDP participants were 0.27 times as likely to have a new arrest as their statistically matched comparison group. As the recidivism period increased, this difference lessened: MDP participants were 0.42 times as likely to have a new arrest within one year and 0.48 times as likely within two years.

MDP participants who were 16 to 17 years old were about half as likely to be arrested again within two years as a statistically matched group of people who did not participate.

We also used other characteristics to estimate the likelihood of rearrest. People who had had one or more arrests for low-level offenses before their first-misdemeanor incident were 2.9 to 5.5 times as likely to have a rearrest within two years as people with no prior arrests. White people were slightly more than half as likely as Black people to be rearrested; Hispanics and people of other races had lower but statistically similar rearrest levels as Black people. Lastly, females were 0.34 to 0.43 times as likely to be rearrested as males.

TABLE 3

New Arrests Among 16-to-17-Year-Olds by Follow-Up Period

	Within six months odds ratio (SE)	Within one year odds ratio (SE)	Within two years odds ratio (SE)
Characteristic			
MDP participant (vs. nonparticipant)	0.27 (0.05) ***	0.42 (0.07) ***	0.48 (0.08) ***
Individual had 1 or more prior arrests for low-level offenses at time of originating event	2.92 (1.48) *	4.50 (2.32) **	5.54 (3.02) **
Originating event included two or more misdemeanor offenses	0.59 (0.39)	1.44 (0.72)	1.73 (0.84)
Race/ethnicity			
White (vs. Black)	0.47 (0.14) *	0.42 (0.11) **	0.39 (0.10) ***
Hispanic (vs. Black)	0.63 (0.18)	0.66 (0.17)	0.67 (0.17)
Other race (vs. Black)	0.75 (0.50)	0.24 (0.25)	0.84 (0.61)
Female (vs. male)	0.41 (0.08) ***	0.43 (0.08) ***	0.34 (0.06) ***
17 years old (vs. 16 years old)	0.81 (0.15)	0.87 (0.15)	0.90 (0.16)
Constant	0.81 (0.13)	1.14 (0.18)	1.89 (0.32) ***
Chi-Square	91.11 ***	81.84 ***	92.15 ***
Observations	806	744	646
Pseudo R^2	.11	.09	.11
Goodness-of-fit Chi-Square	75.56 *	62.88	56.73
Percentage correctly classified	78.91%	69.35%	64.55%

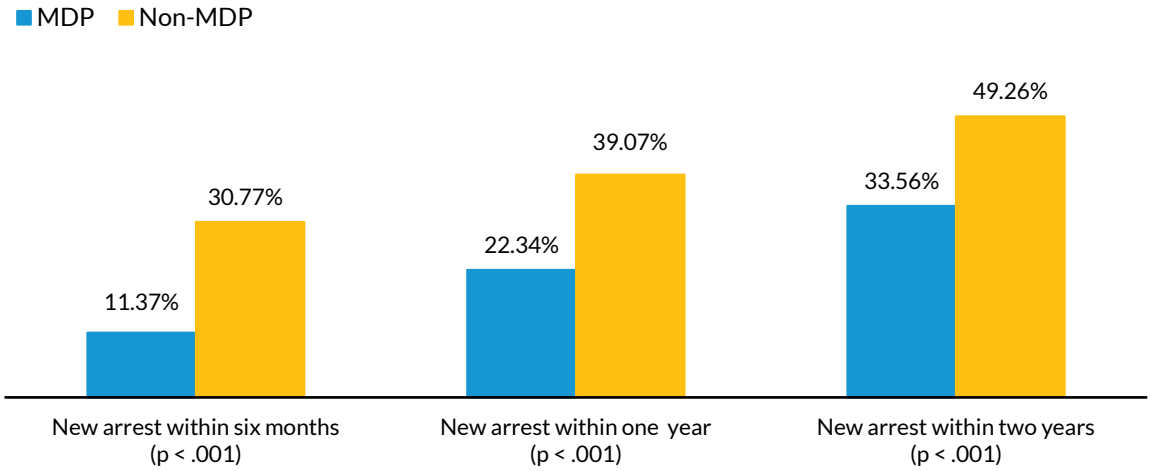
Source: Urban analysis of Durham County, North Carolina, data.

Notes: MDP = Misdemeanor Diversion Program. SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$.

The predicted margins from the regression models are presented in **figure 10** for the MDP participants and their comparison groups. Approximately 11 percent of MDP participants had a new arrest within six months, compared with 31 percent of the comparison group of people who were eligible but not enrolled. The proportion of people with a new arrest increased for both groups, to where 34 percent of MDP participants were rearrested within two years, compared with 49 percent of people who did not go through the MDP.

FIGURE 10

Predicted Margins for New Arrests of 16-to-17-Year-Olds, by Misdemeanor Diversion Program Participation and Period



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$.

A total of 268 people were identified as having a new arrest using the two-year, 16-to-17-year-old recidivism sample, allowing the research team to examine how many days it took for MDP participants to have a new arrest compared with those who did not enter the program. The ordinary least squares model presented in **table 4** indicates that of the people who had a new arrest within two years, MDP participants' new arrests occurred about 286 days, on average, after their original offense, whereas nonparticipants' new arrests occurred roughly 88 days sooner, or about 198 days, on average, after their original offense.

TABLE 4

Days to New Arrests within Two Years among 16-to-17-Year-Olds

	Days to new arrest b (SE)
Characteristic	
MDP Participant (vs. nonparticipant)	88.42 (24.40) ***
Individual had one or more prior arrests for low-level offenses at time of originating event	12.04 (49.66)
Originating event included two or more misdemeanor offenses	62.32 (61.98)
Race/ethnicity	
White (vs. Black)	-28.52 (37.26)
Hispanic (vs. Black)	8.72 (36.21)
Other race (vs. Black)	5.86 (114.06)
Female (vs. male)	23.03 (27.22)
17 years old (vs. 16 years old)	8.75 (23.60)
Constant	186.51 (20.97) ***
Chi-Square	2.01 *
Observations	268
Adjusted R^2	.03

Source: Urban analysis of Durham County, North Carolina, data.

Notes: MDP = Misdemeanor Diversion Program. SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$.

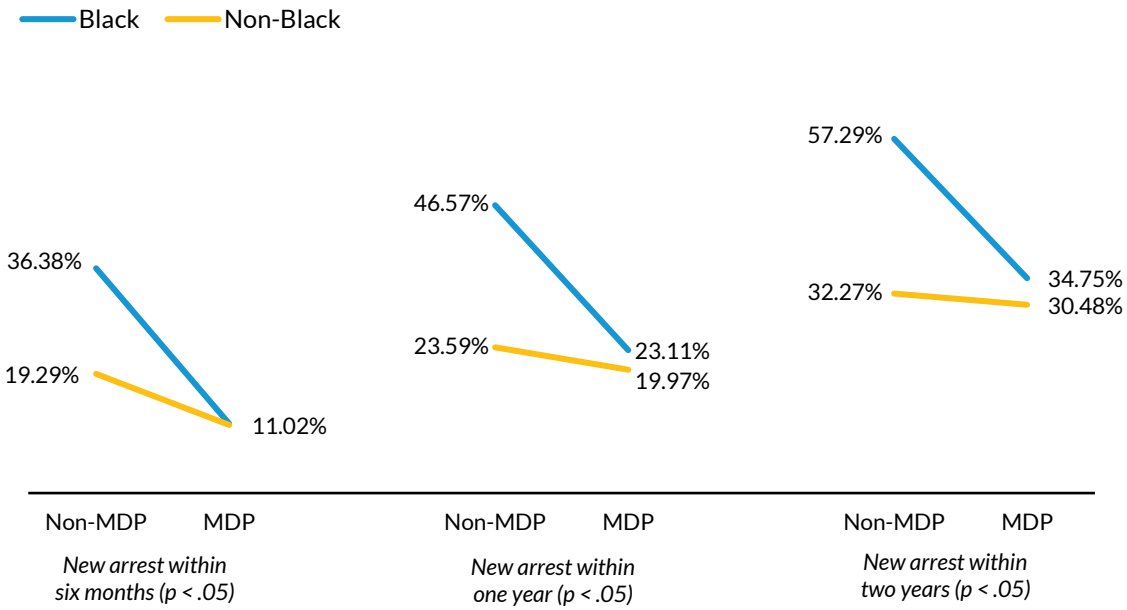
INTERACTION MODELS OF NEW ARRESTS AMONG 16-TO-17-YEAR-OLDS BY PERIOD

The research team conducted secondary regression models on the recidivism outcomes that included a demographic variable interaction term on MDP participation. Though the examined interaction terms included race/ethnicity, sex, race/ethnicity by sex, and age, the results we report are associated only with statistically significant findings (unless otherwise noted as nonsignificant).

Figure 11 details the predicted margins on the interaction terms for 16-to-17-year-old Black and non-Black participants and nonparticipants across each of the three recidivism periods. As can be seen by the dramatic reduction between Black and non-Black groupings, results indicate that the MDP reduces disparities in new arrests for its 16-to-17-year-old Black participants. For example, disparities in rearrests within two years of first-misdemeanor incidents were 25 percentage points between Black and non-Black nonparticipants, but only 4 percentage points between Black and non-Black participants. In addition, the MDP reduced two-year rearrests for non-Black people by 2 percentage points, but it reduced rearrests for Black people by 22.5 percentage points. As such, the MDP substantially reduced disparities in rearrests between 16-to-17-year-old Black and non-Black people.

FIGURE 11

Interaction Model of New Arrests among Black and Non-Black 16-to-17-Year-Old Misdemeanor Diversion Program Participants and Nonparticipants



URBAN INSTITUTE

Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$.

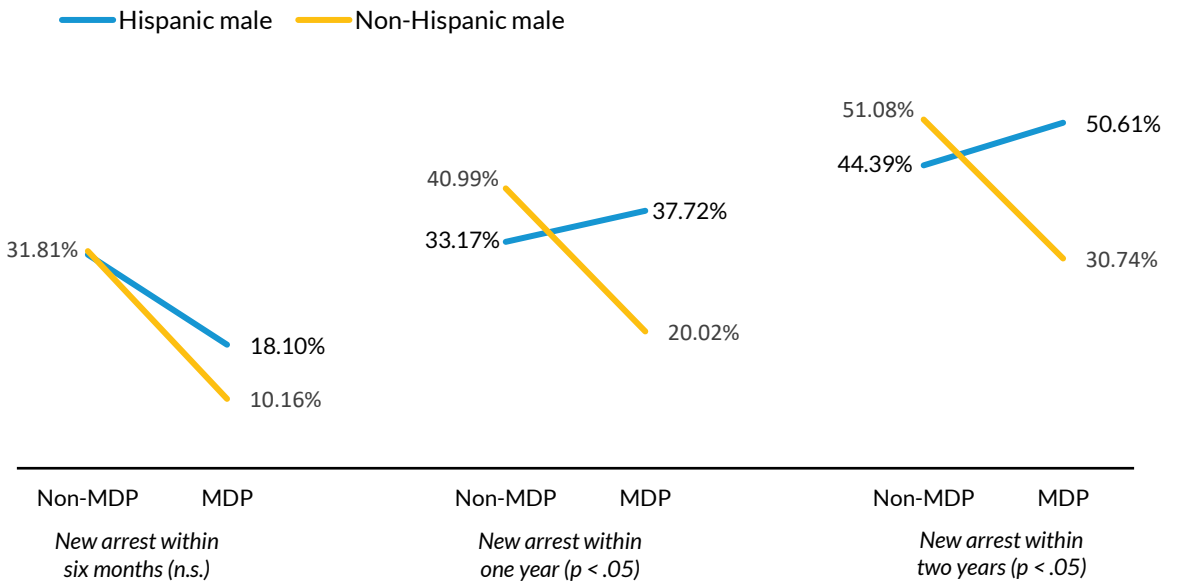
The MDP had a substantial impact on reducing disparities in rearrests between 16-to-17-year-old Black and non-Black people. The difference between two-year rearrests for Black and non-Black people who did not participate in the MDP was 25 percentage points, and this difference was reduced to 4 percentage points among MDP participants.

We observed a very different finding for 16-to-17-year-old Hispanic males. For this group, interaction terms indicated that people who participated in the MDP (n = 40) were more likely to have new arrests within one and two years, and the disparities compared with non-Hispanic males increased as a result. **Figure 12** displays the predicted margins on the interaction terms for MDP participation across 16-to-17-year-old Hispanic males and people who were not Hispanic and male for each of the

three recidivism periods. Although the interaction term of these groups was not significant at the six-month period, significant differences were observed for new arrests within one and two years.

FIGURE 12

Interaction Model of New Arrests among 16-to-17-Year-Old Hispanic Male and Non-Hispanic Male Misdemeanor Diversion Program Participants and Nonparticipants



URBAN INSTITUTE

Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. n.s. = not significant, * $p < .05$; ** $p < .01$; *** $p < .001$.

Approximately 51 percent of people who were not Hispanic males and not MDP participants were rearrested within two years from their first-misdemeanor incident, compared with 44 percent of Hispanic, non-MDP males. This is a difference of roughly 7 percentage points between Hispanic males and people who were not. For the MDP participants, this difference was increased to 20 percentage points and the rates across the groups flipped: approximately 31 percent of MDP participants who were not Hispanic and male were rearrested within two years, compared with 51 percent of Hispanic male MDP participants. This pattern was observed for the one-year recidivism level as well. Essentially, participation in the MDP reduced rearrests for people who were not Hispanic and male from 51 percent to 31 percent within two years, but MDP participation increased new arrests from 44 percent to 51 percent for Hispanic males. In all of the analyses conducted as part of this impact evaluation, this finding among 16-to-17-year-old Hispanic males was the only interaction term that produced significant negative impacts associated with MDP participation.

New Arrests among 18-to-21-year-olds

Table 5 provides the logistic regression results associated with new arrests among 18-21-year-olds. Similar findings were observed compared to the same analyses for the 16-17-year-old group; across all three recidivism time periods, results indicate that the MDP dramatically lowered 18-21-year-old participants' levels of new arrests. Within six months, MDP participants were 0.28 times as likely to have a new arrest compared to their statistically matched comparison group. As the recidivism time period increased, this difference lessened to where MDP participants were 0.41 times as likely to have a new arrest within one year, and 0.58 times as likely within two years. None of the other characteristics in the models significantly predicted the relationship on new arrests.

TABLE 5

New Arrests among 18-to-21-Year-Olds by Follow-Up Period

	Within six months odds ratio (SE)	Within one year odds ratio (SE)	Within two years odds ratio (SE)
Characteristic			
MDP participant (vs. nonparticipants)	0.28 (0.08) ***	0.41 (0.10) ***	0.58 (0.16) *
Individual had one or more prior arrests for low-level offenses at time of originating event	1.83 (0.99)	1.17 (0.64)	1.43 (0.72)
Originating event included two or more misdemeanor offenses	--	0.86 (0.58)	1.78 (1.19)
Race/ethnicity			
White (vs. Black)	0.79 (0.26)	0.63 (0.19)	0.79 (0.25)
Hispanic (vs. Black)	1.15 (0.50)	0.74 (0.32)	1.04 (0.46)
Other Race (vs. Black)	0.39 (0.30)	0.36 (0.23)	0.19 (0.21)
Female (vs. male)	0.78 (0.21)	0.64 (0.16)	0.75 (0.21)
Age			
19 years old (vs. 18 years old)	1.00 (0.31)	0.70 (0.21)	0.86 (0.28)
20 years old (vs. 18 years old)	0.58 (0.25)	0.55 (0.22)	0.81 (0.35)
21 years old (vs. 18 years old)	0.81 (0.42)	0.53 (0.27)	0.43 (0.25)
Constant	0.36 (0.42)	0.69 (0.17)	0.66 (0.19)
Chi-Square	28.52 ***	28.05 **	12.72
Observations	529	472	302
Pseudo R^2	.07	.06	.04
Goodness-of-fit Chi-Square	56.68	69.20	77.40 *
Percent Correctly Classified	86.01%	80.51%	73.51%

Source: Urban analysis of Durham County, North Carolina, data.

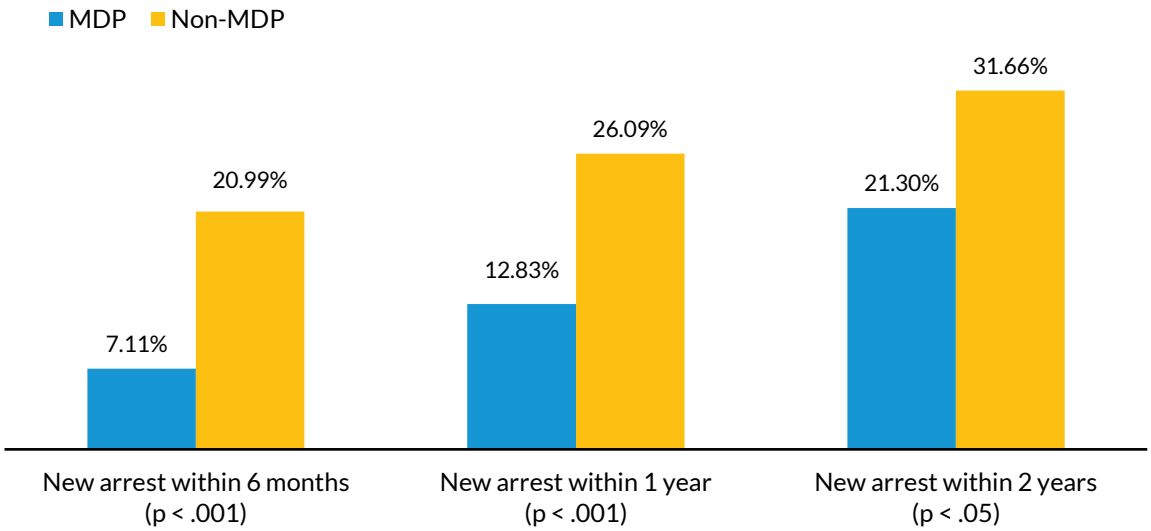
Notes: MDP = Misdemeanor Diversion Program. SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$.

The predicted margins from the regression models are presented in **figure 13** for the 18-to-21-year-old MDP participants and their comparison groups. This older age group had lower levels of recidivism than the younger group (see **figure 10**), with similar, albeit smaller, differences between the

MDP participants and their comparison groups. Approximately 7 percent of MDP participants had a new arrest within six months, compared with 21 percent of the comparison group of people who were eligible for the MDP but were not enrolled. The proportion of people with a new arrest increased for both groups, to where 21 percent of MDP participants where rearrested within two years compared with 32 percent of people who did not go through the MDP.

FIGURE 13

Predicted Margins for New Arrests for 18-to-21-Year-Olds by Misdemeanor Diversion Program Participation and Period



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$.

INTERACTION MODELS OF NEW ARRESTS AMONG 18-TO-21-YEAR-OLDS BY PERIOD

The Urban research team conducted the same analyses to assess the interactions of different demographic characteristics and MDP participation among the 18-to-21-year-old group, including examination by race/ethnicity, sex, race/ethnicity by sex, and age. All interaction terms were found not significant, indicating that the MDP did not affect disparities across demographic characteristics.

New Convictions among 16-to-17-year-olds

Table 6 provides the logistic regression results associated with new convictions among 16-to-17-year-olds. No differences in new convictions within six months were observed between MDP participants

and their matched group, but results did indicate that the MDP dramatically lowered rates of new convictions within one year and two years. Within one year, MDP participants were 0.45 times as likely to have a new conviction as their statistically matched comparison group, and this difference lessened slightly within two years, when MDP participants were 0.55 times as likely to have a new conviction. Only sex was found to affect the likelihood of a new conviction: females were roughly 0.15 times as likely to be convicted as males.

TABLE 6

New Convictions among 16-to-17-Year-Olds by Follow-Up Period

	Within six months odds ratio (SE)	Within one year odds ratio (SE)	Within two years odds ratio (SE)
Characteristic			
MDP participant (vs. nonparticipant)	0.49 (0.20)	0.45 (0.13) **	0.55 (0.14) *
Individual had one or more prior arrests for low-level offenses at time of originating event	1.28 (1.37)	1.38 (1.10)	1.62 (0.98)
Originating event included two or more misdemeanor offenses	--	--	2.06 (1.26)
Black (vs. non-Black)[a]	1.62 (0.72)	1.27 (0.41)	1.54 (0.43)
Female (vs. male)	0.15 (0.09) **	0.15 (0.07) ***	0.14 (0.05) ***
17 years old (vs. 16 years old)	0.70 (0.27)	0.67 (0.20)	0.65 (0.16)
Constant	0.07 (0.03) ***	0.19 (0.06) ***	0.28 (0.08) ***
Chi-Square	22.12 ***	39.64 ***	58.98 ***
Observations	785	723	646
Pseudo R^2	.08	.10	.12
Goodness-of-fit Chi-Square	28.77	17.26	37.15
Percentage correctly classified	96.05%	92.12%	87.00%

Source: Urban analysis of Durham County, North Carolina, data.

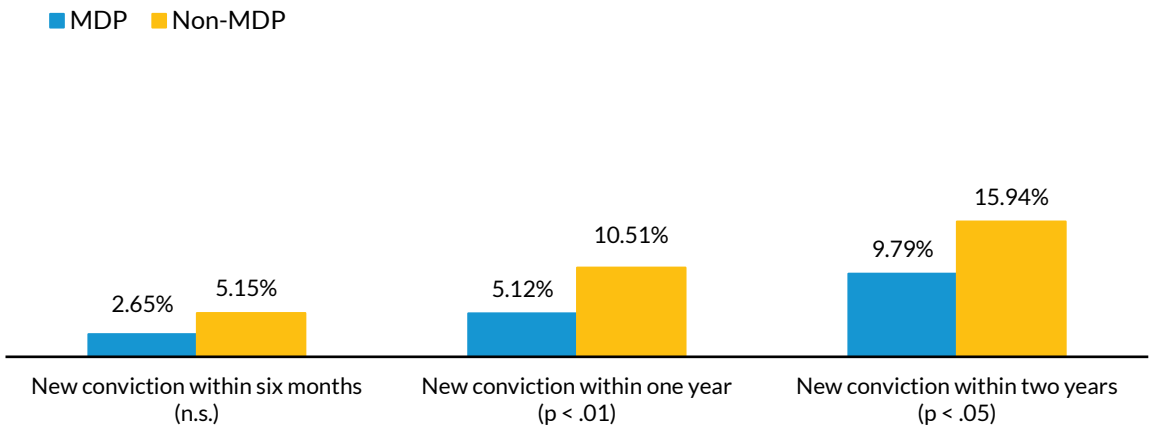
Notes: MDP = Misdemeanor Diversion Program. SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$.

[a] Race reduced to Black vs. non-Black to improve model fit.

The predicted margins from the regression models are presented in **figure 14** for the MDP participants and their comparison groups. Approximately 5 percent of MDP participants had a new conviction within one year, compared with 11 percent of the comparison group of people who were eligible for the MDP but were not enrolled. The proportion of people with a new conviction increased within two years, at which point 10 percent of MDP participants were arrested and subsequently convicted, compared with 16 percent of people who did not go through the MDP.

FIGURE 14

Predicted Margins for New Convictions for16-to-17-Year-Olds by Misdemeanor Diversion Program Participation and Period



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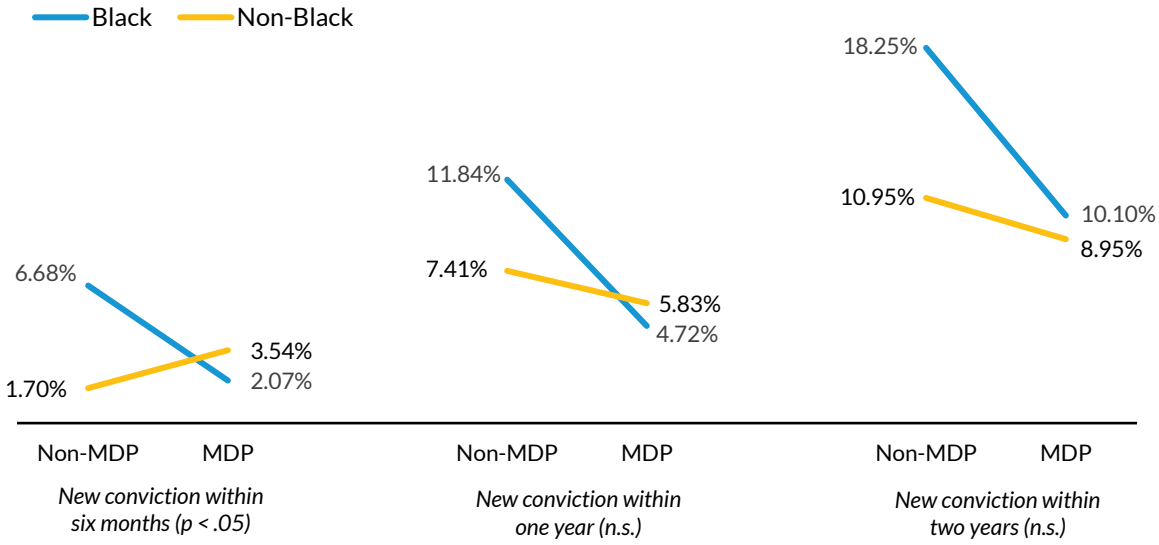
Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. n.s. = not significant, * $p < .05$; ** $p < .01$; *** $p < .001$.

INTERACTION MODELS OF NEW CONVICTIONS AMONG 16-TO-17-YEAR-OLDS BY PERIOD

Figure 15 details the predicted margins on the interaction terms for 16-to-17-year-old Black and non-Black people and MDP participation across each of the three recidivism periods. Results indicate that the MDP reduced disparities in new convictions for its 16-to-17-year-old Black participants across the three examined recidivism periods, although only the six-month period was statistically significant. Analyses found that approximately 1.7 percent of non-Black, non-MDP participants were convicted within six months of their first-misdemeanor incident, compared with 6.7 percent of Black, non-MDP participants. This is a difference of about 5 percentage points between Black and non-Black people. For the MDP participants, this difference was reduced to 1.5 percentage points and flipped across the grouping, to where approximately 3.5 percent of non-Black MDP participants were rearrested with an eventual conviction within six months, compared with just 2.1 percent of Black MDP participants. This is further emphasized in that the MDP reduced six-month convictions for Black people by 4.6 percentage points (6.68 percent to 2.07 percent) but new convictions for non-Black MDP participants actually increased by 1.8 percentage points (3.54 percent to 1.70 percent). Although similar patterns were observed within one year and two years, the results were not significant. As such, the MDP reduced disparities in new convictions associated with a rearrest within six months between 16-to-17-year-old Black and non-Black people.

FIGURE 15

Interaction Model of New Convictions among Black and Non-Black 16-to-17-Year-Old Misdemeanor Diversion Program Participants and Nonparticipants



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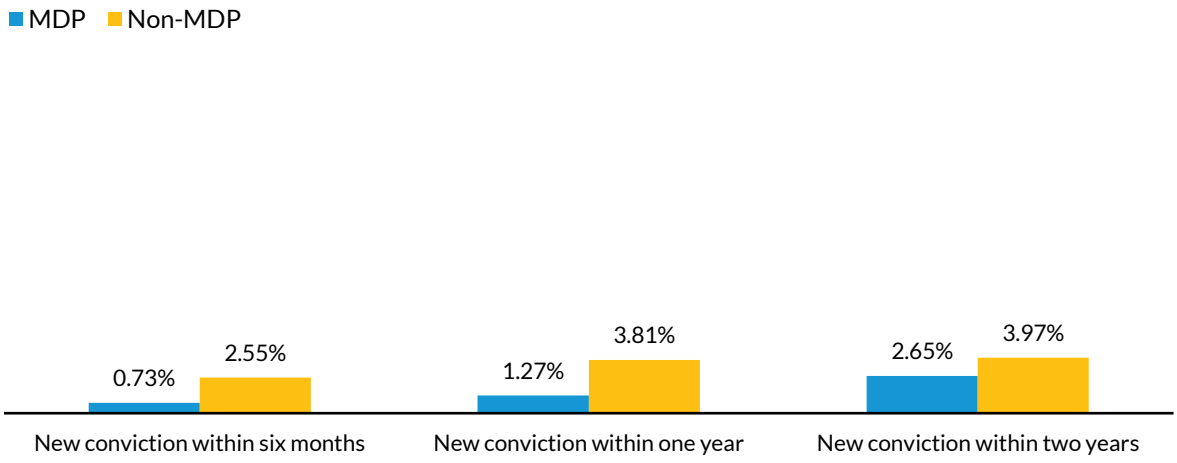
Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. n.s. = not significant, * $p < .05$; ** $p < .01$; *** $p < .001$.

New Convictions among 18-to-21-Year-Olds

We found that very few participants and nonparticipants in this age group had new arrests resulting in new convictions, so few that regression analyses could not be conducted to assess the impact of the MDP on this outcome. Nonetheless, **figure 16** provides the descriptive percentages of new convictions among these two groups within six months, one year, and two years. Of the 550 people included in the six-month recidivism models (275 MDP participants and 275 people who were matched), only 9 had a new arrest that resulted in a conviction within six months. This corresponded to 2 people from the MDP and 7 who did not enroll in the program. Recidivism levels increased time, but only slightly. In the separate analyses that examined convictions within two years, a total of 10 people from the 302 people examined (151 in each group) were found to have a new conviction. This corresponded to 4 people from the MDP and 6 who did not enroll in the program. Although we cannot assess the statistical significance of these differences, these patterns indicate that the MDP has been negatively correlated with receiving a new conviction.

FIGURE 16

New Convictions Among 18-to-21-Year-Old Misdemeanor Diversion Program Participants and Nonparticipants by Follow-Up Period



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program.

INTERACTION MODELS OF NEW CONVICTIONS AMONG 18-TO-21-YEAR-OLDS BY PERIOD

The Urban research team conducted the same analyses to assess the interactions of different demographic characteristics and MDP participation among the 18-to-21-year-old group, including examination by race/ethnicity, sex, race/ethnicity by sex, and age. All interaction terms were found not significant, indicating that the MDP did not affect disparities across demographic characteristics.

New Jail Admissions among 16-to-17-Year-Olds

Table 7 provides the logistic regression results associated with new jail admissions among 16-to-17-year-olds. As with convictions, we observed no differences between MDP participants and their matched group for new jail admissions within six months, but we observed that the MDP dramatically lowered participants' rates of new admissions within one year and two years. Within one year, 16-to-17-year-old MDP participants were 0.36 times as likely to have a new jail admission as their statistically matched comparison group, and within two years, MDP participants were 0.41 times as likely to have a new conviction. Sex was found to affect the likelihood of a new jail admission in all three models, where females were between 0.10 and 0.16 times as likely to have a jail admission than males. For the one-year model, we did observe that Black people were 2.42 times as likely to have a jail admission as non-Black people, although this finding was null in the six-month and two-year models.

TABLE 7

New Jail Sentences among 16-to-17-Year-Olds by Follow-Up Period

	Within six months odds ratio (SE)	Within one year odds ratio (SE)	Within two years odds ratio (SE)
Characteristic			
MDP participant (vs. nonparticipant)	0.49 (0.20)	0.36 (0.12) **	0.41 (0.11) **
Individual had one or more prior arrests for low-level offenses at time of originating event	1.42 (1.53)	0.92 (0.98)	0.75 (0.59)
Originating event included two or more misdemeanor offenses	1.65 (1.79)	1.00 (1.07)	2.47 (1.54)
Black (vs. non-Black)[a]	2.45 (1.26)	2.42 (0.99) *	1.65 (0.50)
Female (vs. male)	0.10 (0.08) **	0.16 (0.07) ***	0.10 (0.05) ***
17 years old (vs. 16 years old)	0.60 (0.24)	0.58 (0.19)	0.66 (0.18)
Constant	0.05 (0.03) ***	0.10 (0.04) ***	0.26 (0.08) ***
Chi-Square	27.98 ***	43.78 ***	65.28 ***
Observations	806	744	646
Pseudo R^2	.11	.12	.14
Goodness-of-fit Chi-Square	35.57	40.62	51.82 *
Percent Correctly Classified	96.40%	93.55%	88.70%

Source: Urban analysis of Durham County, North Carolina, data.

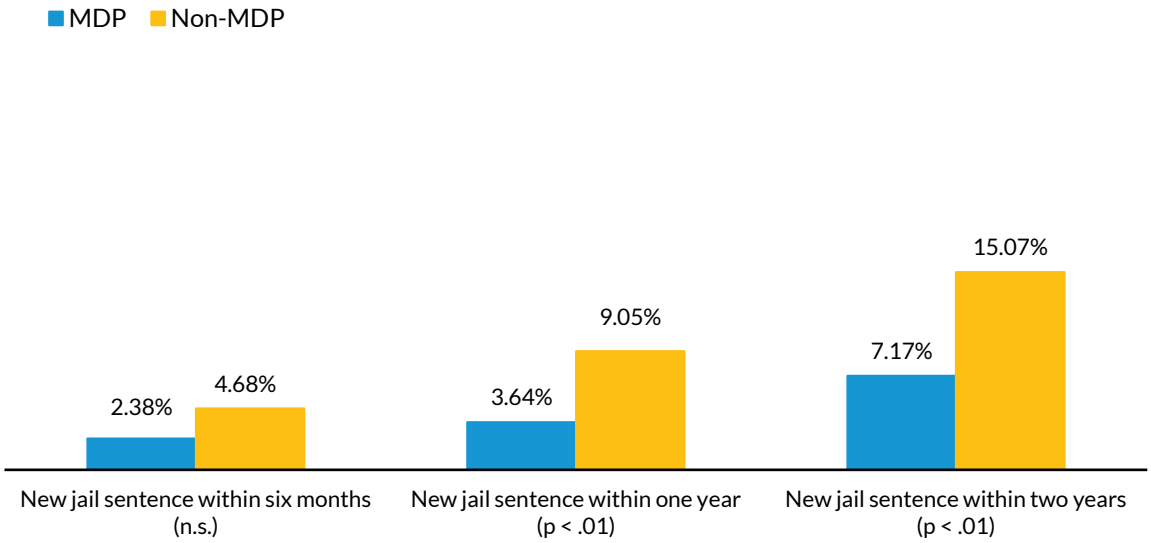
Notes: MDP = Misdemeanor Diversion Program. SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

[a] Race/ethnicity was reduced to Black vs. non-Black to improve model fit.

The predicted margins from the regression models are presented in **figure 17** for the MDP participants and their comparison groups. Approximately 4 percent of MDP participants had a jail admission within one year, compared with 9 percent of the comparison group of people who were eligible for the MDP but were not enrolled. The proportion of people with a new conviction increased within two years, at which point 7 percent of MDP participants were arrested and subsequently sentenced to jail, compared with 15 percent of people who did not go through the MDP.

FIGURE 17

Predicted Margins for New Jail Sentences for16-to-17-Year-Olds by Misdemeanor Diversion Program Participation and Period



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. n.s. = not significant, * p < .05; ** p < .01; *** p < .001.

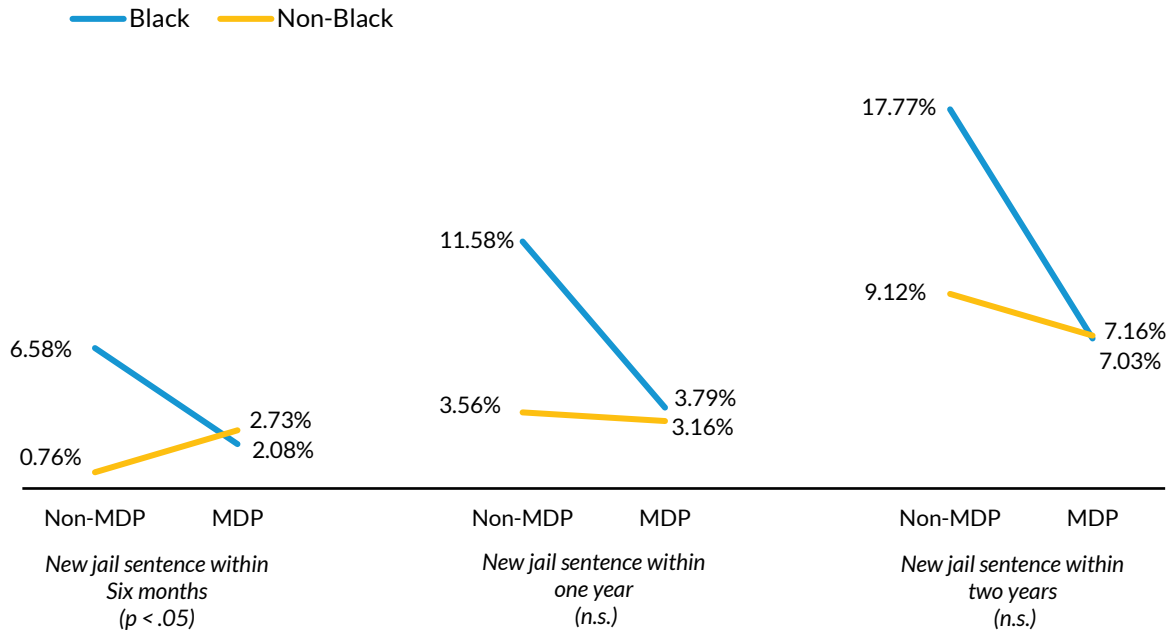
INTERACTION MODELS OF JAIL ADMISSIONS AMONG 16-TO-17-YEAR-OLDS BY PERIOD

Figure 18 details the predicted margins on the interaction terms for 16-to-17-year-old Black and non-Black people and by MDP participation across each of the three recidivism periods. Results are similar to those observed in the analyses of convictions. The MDP reduced disparities in jail sentences for its 16-to-17-year-old Black participants across the three periods, although only differences within six months were statistically significant. Analyses found that approximately 1 percent of non-Black, non-MDP participants were sentenced with jail time within six months of their first-misdemeanor incident, compared with 6.6 percent of Black, non-MDP participants. This is a difference of about 6 percentage points between Black and non-Black people. For the MDP participants, this difference was reduced to 0.7 percentage points and flipped across the grouping, to where approximately 3 percent of non-Black, MDP participants were rearrested with an eventual jail admission within six months, compared with just 2.1 percent of Black MDP participants. This is further emphasized by the fact that the MDP reduced six-month jail admissions for non-Black people by 4.5 percentage points (6.58 percent to 2.08 percent) but jail admissions for non-Black MDP participants actually increased by 2.0 percentage points (2.73 percent to 0.76 percent). Though similar patterns were observed within one year and two years, the

results were not significant. As such, the MDP reduced disparities in new arrests that resulted in jail sentences between 16-to-17-year-old Black and non-Black people.

FIGURE 18

Interaction Model of New Jail Sentences among Black and Non-Black 16-to-17-Year-Olds



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Source: Urban analysis of Durham County, North Carolina, data.
Notes: MDP = Misdemeanor Diversion Program. n.s. = not significant, * p < .05; ** p < .01; *** p < .001.

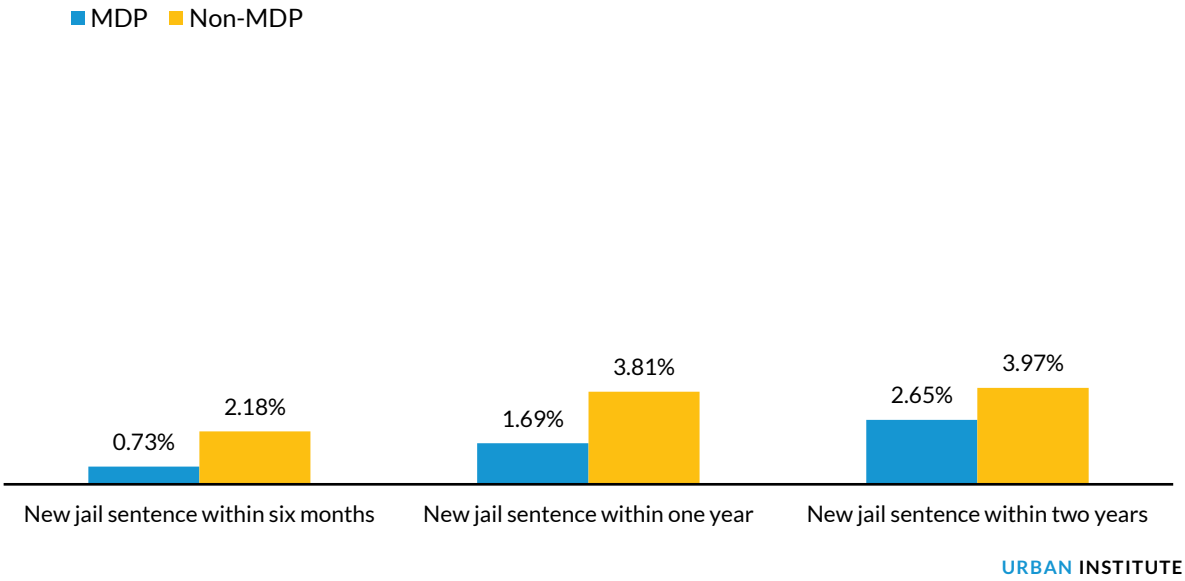
New Jail Admissions among 18-to-21-Year-Olds

Like the examination of new arrests that resulted in convictions among the 18-to-21-year-old group, we observed very low rates of jail admissions among this group, so much so that regression analyses could not be conducted to assess the impact of the MDP on this outcome. Nonetheless, **figure 19** provides the percentages of jail sentences among participants and nonparticipants within six months, one year, and two years. Of the 550 people included in the six-month recidivism models (275 MDP participants and 275 matched nonparticipants), only 8 had a new arrest that resulted in a jail sentence within six months. This corresponded to 2 people from the MDP and 6 nonparticipants. Recidivism rates barely increased over time. In the analyses that examined jail admissions within two years, 10 people of the 302 people examined (151 in each group) were found to have had a new arrest that resulted in sentenced jail time. This corresponded to 4 people from the MDP and 6 in the comparison group. Though we cannot assess

the statistical significance of these differences, these patterns indicate that participating in the MDP has been negatively correlated with being sentenced to jail as a result of new arrests.

FIGURE 19

New Jail Sentences among 18-to-21-Year-Old Misdemeanor Diversion Program Participants and Nonparticipants by Follow-Up Period



Source: Urban analysis of Durham County, North Carolina, data.
Note: MDP = Misdemeanor Diversion Program.

INTERACTION MODELS OF NEW JAIL ADMISSIONS AMONG 18-TO-21-YEAR-OLDS BY PERIOD

The Urban research team conducted the same analyses to assess the interactions of different demographic characteristics and MDP participation among the 18-to-21-year-old group, including examination by race/ethnicity, sex, race/ethnicity by sex, and age. All interaction terms were found not significant, indicating that the MDP did not affect disparities across demographic characteristics.

System-Level Impacts

Our final research question concerned whether the MDP had any system-level impacts. To examine this issue, we conducted system-level outcome analyses in which we examined aggregate, monthly trends in arrests, convictions, and jail admissions for the two age groups. We used two statistical models to assess the change in trends for the two samples: interrupted time series analyses and count regressions.

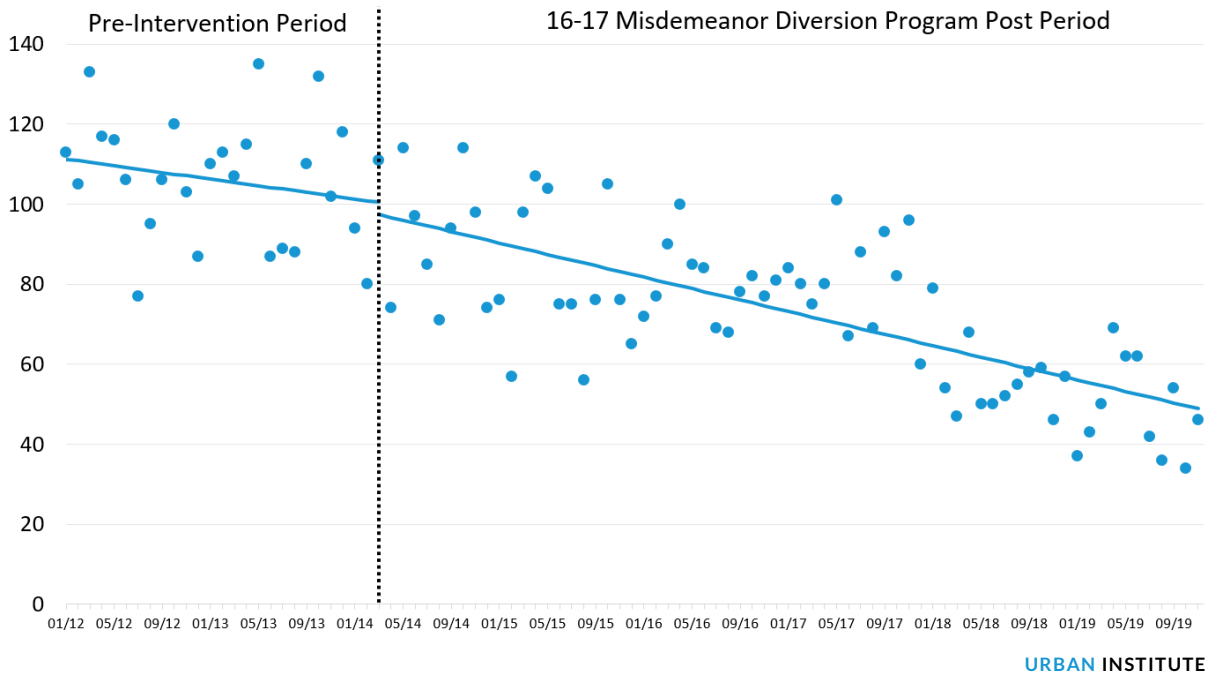
The figures that follow present the simple, line-of-best-fit trend lines associated with the pre- and postintervention system-level arrests, convictions, and jail admissions in Durham County for 16-to-17-year-olds and 18-to-21-year-olds. The interrupted time series included a categorical month-of-the-year covariate to control for seasonal effects on the outcome; as such, the trend lines examined in the interrupted time series model would look slightly different than those presented in these figures. The full regression results for the interrupted time series are presented in **table E.1** for the 16-to-17-year-old group and in **table E.3** for the 18-to-21-year-old group. The count regressions are presented in **tables E.2 and E.4** for the 16-to-17-year-old and 18-to-21-year-old groups, respectively.

System-Level Impacts among 16-to-17-Year-Olds

As presented in the trend lines in **figure 20**, arrests of 16-to-17-year-olds declined from January 2012 to November 2019. The pre-MDP monthly average of 16-to-17-year-old arrests was approximately 106, compared with an average of 73 after the MDP began. Results from the count models estimate that arrests in the period after the implementation of the MDP were roughly 33 percent lower than arrests before the program's implementation. Although this may seem promising for the impact of the MDP, the results from the interrupted time series found no difference between the trend lines during the pre- and postintervention periods, nor an immediate impact once the program was implemented in March 2014.

FIGURE 20

System-Level Arrests of 16-to-17-Year-Olds from January 2012 to November 2019, by Month

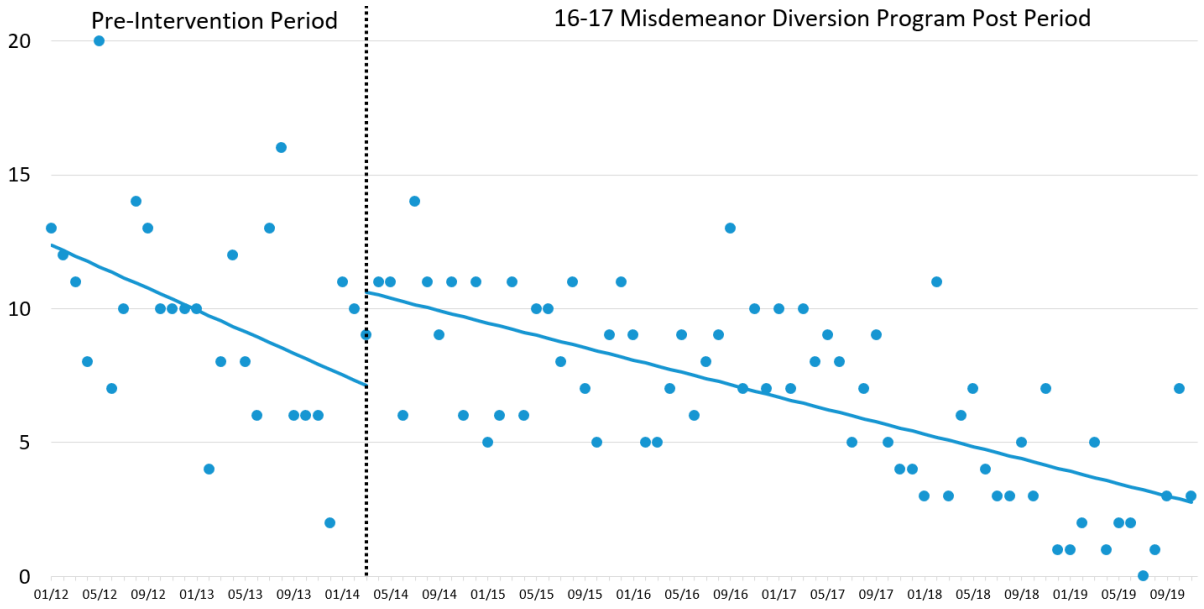


Source: Urban analysis of Durham County, North Carolina, data.
Note: Vertical line indicates Misdemeanor Diversion Program start date for 16-to-17-year-olds (03/2014).

Similar trends were observed for the numbers of convictions and jail admissions for 16-to-17-year-olds, presented in **figures 21 and 22**, respectively. The average number of monthly convictions in the pre-MDP period was roughly 10, compared with roughly 7 in the post-MDP period, a significant decline of 32 percent as assessed in the count regression model. Similarly, the average number of monthly jail admission in the pre-MDP period was roughly 7, compared with roughly 5 in the post-MDP period, a significant decline of 26 percent. Even though these declines were observed, results from the interrupted time series found no distinction between the trend lines during the pre and postintervention periods.

FIGURE 21

System-Level Convictions of 16-to-17-Year-Olds from January 2012 to November 2019, by Month



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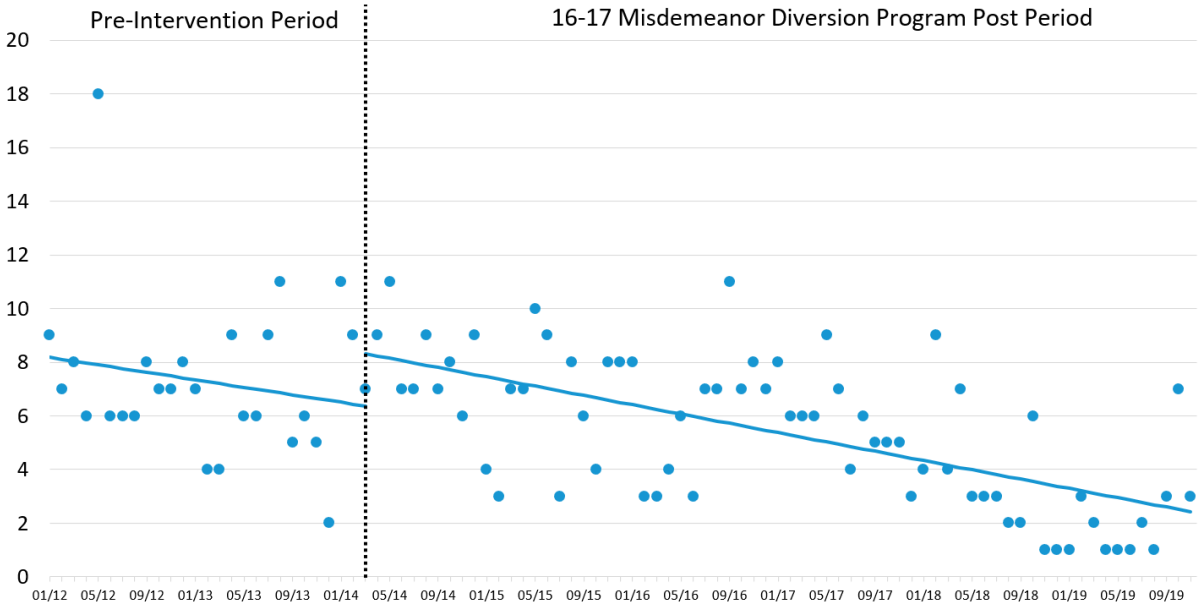
Source: Urban analysis of Durham County, North Carolina, data.

Note: Vertical line indicates Misdemeanor Diversion Program start date for 16-to-17-year-olds (03/2014).

FIGURE 22

System-Level Jail Admissions among 16-to-17-Year-Olds from January 2012 to November 2019, by Month



Source: Urban analysis of Durham County, North Carolina, data.

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Note: Vertical line indicates Misdemeanor Diversion Program start date for 16-to-17-year-olds (03/2014).

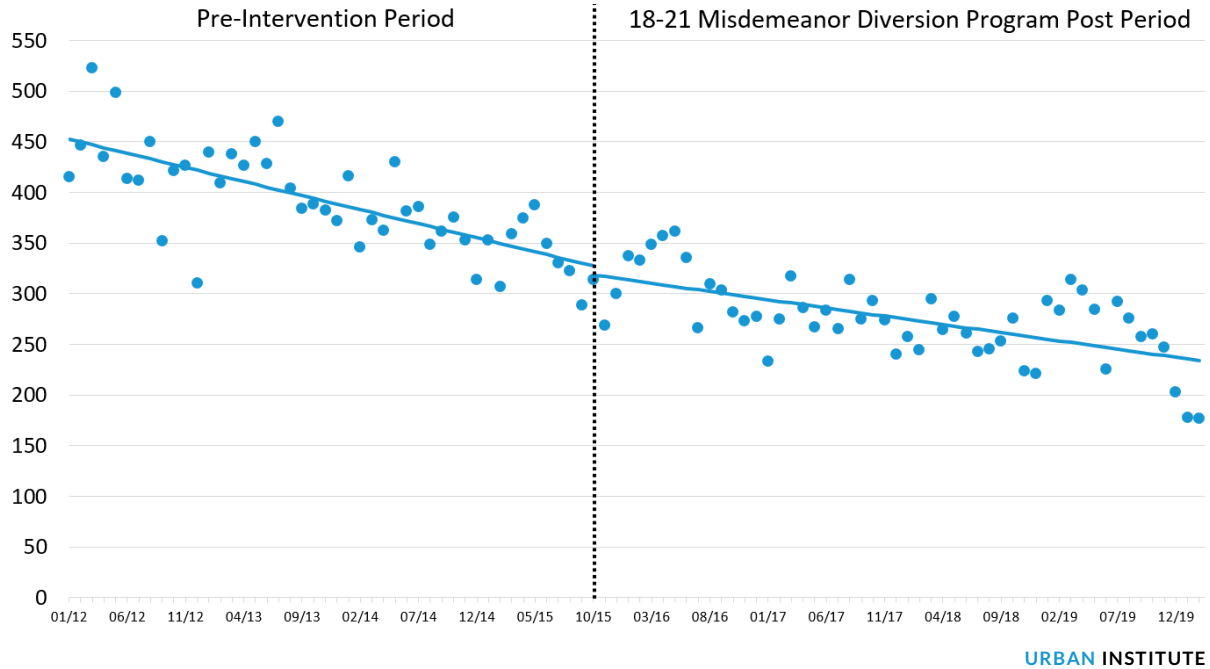
In summary, we observed significant declines in arrests, convictions, and jail admissions for 16-to-17-year-olds in the county over the examined periods, although the post-MDP trends were similar to the pre-MDP trends. As such, it is likely that the MDP did not have a broad effect on these events for this age group, and instead that county- and statewide sentiment—which did not support the arrests and adult prosecutions of these young people—were a leading cause of this decline alongside large crime deceases observed across the county. This sentiment was widely observed in interviews with stakeholders about the motivation for implementing a diversion program in Durham County (see Engelhardt et al. 2021), a sentiment that cumulated in the Raise the Age legislation in December 2019.

System-Level Impacts among 18-to-21-Year-Olds

Count models associated with the change in the numbers of arrests of 18-to-21-year-olds found a significant 29 percent reduction from the pre-MDP to post-MDP periods. In the pre-MDP period, the average number of monthly arrests was roughly 391, compared with roughly 276 in the post-MDP period (**figure 23**). Even though this decline was observed, results from the interrupted time series model found that monthly arrests were falling at a faster rate before than after implementation.

FIGURE 23

System-Level Arrests of 18-to-21-Year-Olds from January 2012 to February 2020, by Month

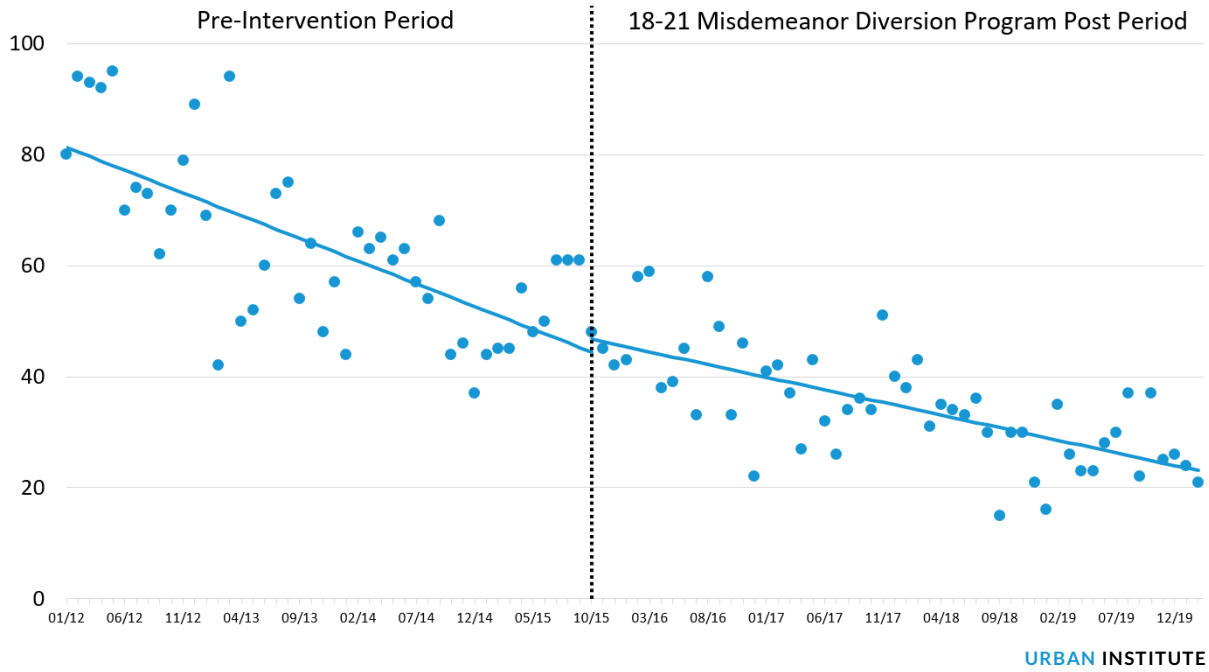


Source: Urban analysis of Durham County, North Carolina, data.
Note: Vertical line indicates Misdemeanor Diversion Program start date for 18-to-21-year-olds (10/2015).

A similar pattern was observed in the number of convictions of 18-to-21-year-olds. Before the MDP, 18-to-21-year-olds received roughly 63 convictions a month, compared with 35 a month after the MDP's implementation (**figure 24**). The count models report this as a significant 45 percent reduction, on average. And, as for arrests, the interrupted time series model found that convictions were declining at a faster rate before the program was implemented than after.

FIGURE 24

System-Level Convictions of 18-to-21-Year-Olds from January 2012 to February 2020, by Month

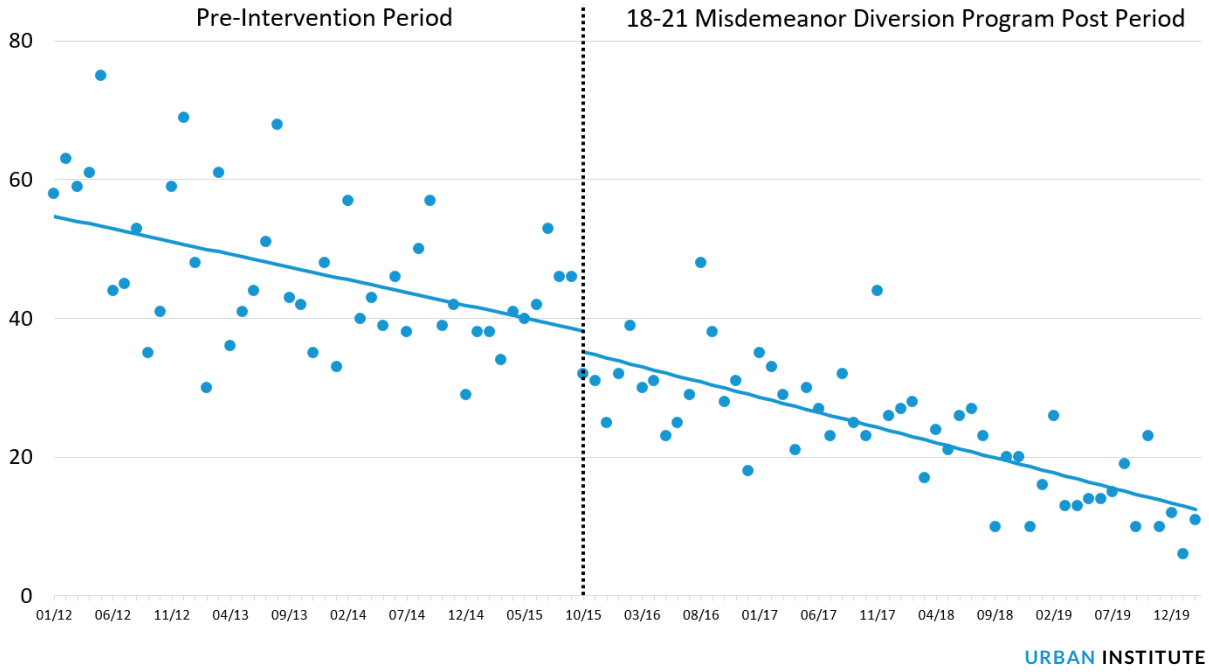


Source: Urban analysis of Durham County, North Carolina, data.
Note: Vertical line indicates Misdemeanor Diversion Program start date for 18-to-21-year-olds (10/2015).

As shown in **figure 25**, the number of jail admissions for 18-to-21-year-olds averaged roughly 47 a month before the MDP's implementation. This average reduced to approximately 24 a month after implementation. The incident rate ratios of the count regression reported this as a significant 49 percent reduction, but the interrupted time series found no difference between the trend lines in the preintervention and postintervention periods, nor an immediate impact after the program was implemented for this age group in October 2015.

FIGURE 25

System-Level Jail Admissions among 18-to-21-Year-Olds from January 2012 to February 2020, by Month



Source: Urban analysis of Durham County, North Carolina, data.
Note: Vertical line indicates Misdemeanor Diversion Program start date for 18-to-21-year-olds (10/2015).

In summary, we observed significant declines in arrests, convictions, and jail admissions among 18-to-21-year-olds in the county, but the declining trends observed in the post-MDP periods for arrests and convictions were less steep in the pre-MDP periods. As such, it is unlikely that the declines for this age group in these events can be attributed to the MDP.

Conclusion

The impact evaluation identified five key findings with about the use and impact of the Misdemeanor Diversion Program in Durham County. First, the majority of people eligible for the MDP were not referred to it from March 2014 to November 2019. Second, of those who did participate, there was a very high completion rate of 95 percent. Third, MDP participants had significantly lower rates of rearrests, convictions, and jail admissions than comparison groups within six months, one year, and two years. Fourth, participation in the MDP significantly reduced disparities in new arrests within two years, and in new convictions and jail admissions within six months, between 16-to-17-year-old Black people and non-Black people, making the differences in the levels of new arrests between Black people and non-Black people of this age group much more equivalent than those between people who did not participate in the program. Fifth, the MDP did not have a larger impact on overall rates of arrests, convictions, or jail admissions for the two age groups.

A total of 433 16-to-17-year-olds participated in the MDP from March 2014 to November 2019, and 305 18-to-21-year-olds participated from October 2015 to February 2020. Regarding program enrollment, the research team was able to identify 822 additional 16-to-17-year-olds and 1,596 additional 18-to-21-year-olds who were eligible for the program but were not referred to it by the reporting officer. As such, the majority of eligible people were *not* referred to the program as they were supposed to be (65 percent of 16-to-17-year-olds and 84 percent of 18-to-21-year-olds were *not* enrolled), supporting findings from the process evaluation that law enforcement agencies are crucial partners in the success of diversion programs.

Of the 738 people in this analysis who went through the MDP, the program marked only 6 as having failed with a new charge or arrest, resulting in a 99 percent completion rate. But analysis of the county's criminal justice administrative data identified an additional 29 people with a new arrest within 90 days of their MDP referral from law enforcement. Furthermore, it was noted that one person marked as having a new charge or arrest by the MDP did not have a new arrest detailed in the administrative data. As such, we identified a total of 34 people as having failed the program requirements, leading to a still very high 95 percent completion rate. Completion rates were similar for 16-to-17-year-olds (n = 411, 94.9 percent) and 18-to-21-year-olds (n = 293, 96.1 percent).

Analyses examining the impact the MDP had on new arrests found that program participants had significantly lower rates of rearrests than comparison groups. Results indicate that new arrests of 16-to-17-year-olds who participated in the MDP were 19.4, 16.7, and 15.7 percentage points lower within six months, one year, and two years, respectively, than the rates among statistically matched groups of

people who were eligible for the program but were not enrolled in it. Of the people who had a new arrest within two years, MDP participants' new arrests occurred roughly 286 days, on average, after their original offenses, and new arrests of nonparticipants occurred roughly 88 days sooner, or about 198 days, on average, after their original offenses. Significant reductions in disparities in new arrests by race/ethnicity were found among 16-to-17-year-olds. Specifically, the MDP significantly reduced disparities in new arrests within two years between 16-to-17-year-old Black people and non-Black people by 20.8 percentage points, making the differences in rates of new arrests between the two groups much more equivalent than the rates among those who did not participate in the MDP. But disparity analyses that examined 16-to-17-year-old Hispanic males compared with non-Hispanic males indicated that new arrests within one year and two years were higher for MDP participants compared with non-MDP participants, increasing disparities by 13.2 percentage points.

Results indicate that rates of new arrests of 18-to-21-year-olds who participated in the MDP were 13.9, 13.2, and 10.4 percentage points lower within six months, one year, and two years, respectively, than rates among their statistically matched groups of nonparticipants. No differences were observed in the number of days to a new arrest within two years between 18-to-21-year-old MDP participants and nonparticipants, nor were significant differences observed in the impact on disparities by race or ethnicity, sex, and age among 18-to-21-year-olds.

No differences were found in new arrests that resulted in a conviction within six months for the 16-to-17-year-old group, but results indicate that rates of new convictions for 16-to-17-year-olds who participated in the MDP were 5.4 percentage points lower within one year and 6.2 percentage points lower within two years than the rates among their statistically matched groups of nonparticipants. Participation in the MDP reduced disparities in new convictions within six months between Black people and non-Black people by 3.5 percentage points, although we observed no significant improvements in disparities in new convictions between Black and non-Black people within one year and two years.

In addition, we found no differences in new arrests that resulted in a jail admission within six months between the 16-to-17-year-old MDP and comparison groups, but results indicate that rates of new jail admissions for 16-to-17-year-olds who participated in the MDP were 5.4 percentage points lower within one year and 7.9 percentage points lower within two years than rates among their statistically matched groups of nonparticipants. A reduction in disparities in new jail admissions within six months were observed for Black people compared with non-Black people by roughly 5 percentage points, although no significant improvements in disparities in new jail admissions were found within one year and two years for this population.

System-level analyses on all low-level, misdemeanor, and felony offense arrests, convictions, and jail admissions for the 16-to-17-year-old and 18-to-21-year-old populations indicate that fewer of these three events occurred after the MDP was implemented than before. Results indicate that on average, there were 33 percent fewer arrests, 32 percent fewer convictions, and 26 percent fewer jail admissions among 16-to-17-year-olds in the months after MDP implementation. But results from interrupted time series indicated that the postimplementation trends were similar to the preimplementation, indicating that the reductions were not likely a result of the MDP. For the 18-to-21-year-old group, results indicate that on average, arrest levels were 29 percent lower, conviction levels were 45 percent lower, and jail admission levels were 49 percent lower in the months after the MDP implementation. The jail admission trends pre- and post-MDP implementation were statistically equal for the 18-to-21-year-old population, but results indicate that trends of arrests and convictions were not declining as steeply in the postimplementation period as the preimplementation period.

Recommendations

The results of this in-depth impact evaluation of Durham County's MDP show that law enforcement officers in the county did not refer all eligible people to the MDP, though when they did, the program had positive impacts, resulting in fewer new arrests, convictions, and jail admissions within two years. The success of this program is further exemplified by findings that show reductions in racial disparities among participants, especially Black people. As a result of these findings, the research team has identified several recommendations for the MDP and Durham County:

- **Buy-in and awareness from law enforcement are needed.** Because the MDP is a prearrest diversion program, it is unsurprising that buy-in and support from law enforcement is necessary for its success. Still, the findings from the impact evaluation demonstrate that many people who are eligible for the program are not being referred to it. Law enforcement operating in Durham County must make this referral to the program, but many are not. Based on findings from the process evaluation, this is likely because of a combination of some law enforcement officers not supporting the MDP, and others not being aware of it and of their ability to refer people to the program.
- **Identify ways to scale the MDP**. The impact and success of the program on individual outcomes is clear, based on the findings of this impact evaluation. But the program's impact can be increased, largely by ensuring that more people are referred to it. First, and foremost, the county should focus on referring all eligible people to the program. This is the simplest way to scale up the program without changing policy or approach. Next, expand the eligibility requirements for the program. Several stakeholders we interviewed for the process evaluation reported that they would like for people accused of committing additional offenses to be eligible for the program. They suggested relaxing the requirement that an incident must involve someone's first misdemeanor and allowing officers to refer people who have committed a second misdemeanor, or not using criminal history as an eligibility requirement at all. These changes would enable more people to be referred to and enter the program, potentially increasing the program's impact and keeping more people out of the criminal justice system. But stakeholders have been unable to make these changes because of a lack of law enforcement support for expanding the eligibility criteria. Stakeholders suggested that if other jurisdictions are developing a similar program, they should not use criminal history in their eligibility criteria.

- **Improve data collection practices in North Carolina.** Although the MDP has been operational and collecting programmatic data since 2014, an impact evaluation of the program had never been conducted by an outside research organization until now. The complexity of the state's Administrative Office of the Courts data makes it difficult for third-party research organizations to measure key MDP outcomes, such as rearrests, reconvictions, and reincarceration. A main challenge is that data systems in the state do not work together. This research team was supported with a grant from the MacArthur Foundation, allowing it to implement different methods to collect, clean, and then analyze these data; all of these activities were time-consuming and difficult to replicate. Improved data management systems at the state level enable local and national evaluators to better assess the impact of the MDP (as well as other state and county programs) and would enable areas of improvement to be identified faster.
- **Continue local support for the program model.** The process evaluation showed there is widespread support for the MDP from stakeholders and participants, and this impact evaluation demonstrated the positive outcomes associated with the program. Because of these findings, the research team is hopeful that the program will continue to be supported locally by elected officials, service providers, law enforcement, and other local actors, and that our recommendations will be considered as the program grows and matures.

Appendix A. Administrative Data Inconsistencies, Detailed

Presence of county data for an offense linked to an MDP enrollment

- An arrest was observed in the Durham Police Department arrest dataset for the first-misdemeanor offense of a subsequently enrolled MDP participant.
- Court data was observed for an MDP participant in the AOC data that was connected to their first-misdemeanor offense. The court data listed a first-misdemeanor offense date that was 10 days prior to the listed MDP intake date. Interestingly, the court data listed the offense as a misdemeanor "POSSESS HANDGUN BY MINOR" and a felony "LARCENY OF A FIREARM," which should have made the case ineligible for the MDP. Follow-up conversation with the MDP advised that this instance likely occurred because the information had not yet been entered by the county clerk by the time that the MDP intake occurred.
- Court data was observed for an MDP participant in the AOC data that was connected to their first-misdemeanor offense. The court data listed a first-misdemeanor offense date that was four days prior to the listed MDP intake date. Interestingly, the court data listed the offense as a felony "LARCENY FROM THE PERSON," which should have made the case ineligible for the MDP. Follow-up conversation with the MDP advised that this instance likely occurred because the information had not yet been entered by the county clerk by the time that the MDP intake occurred.

MDP participants with multiple MDP entry dates

- A case in the MDP data had two entry dates that were 74 days apart, but the later date was not in either police agency arrest data. Both MDP cases were listed as successful completions. As such, the individual was submitted a second time while currently in the MDP for the first offense.
- Five people in the MDP data were marked as successful MDP completions but were rearrested at a later date and were again enrolled into the MDP. In these instances, the research team treated the second arrest as an arrest recidivism event in impact models.

- Follow-up conversation with the MDP advised that these instances occurred because school resource officers from the Sherriff's Office used their discretion to send youth through the MDP a second time for minor infractions, mainly to keep the person eligible for college, the military, or potential jobs.

MDP participants with ages outside of eligible range

- Four MDP cases were noted to be outside the age limitations for eligibility, but just barely so. Three people entered the MDP when they were 15 years old; however, their ages at entry were 15.89 or higher. The research team changed this case's age from 15 to 16 for the analyses. One individual entered the MDP when only 16-to-17-year-olds were eligible for the program, but they had just turned 18. It seems that the MDP treated this individual as a 17-year-old to have them in the program. The research team changed this case's age from 18 to 17 for the analyses.

Enrolled MDP participants with prior misdemeanor arrests that did not result in a conviction

- An individual entered the MDP after having a previous misdemeanor arrest. The individual had a misdemeanor arrest approximately one year prior to their MDP enrollment that did not result in a conviction. The research team dropped first arrest and court data to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having a previous misdemeanor arrest. The individual had a misdemeanor arrest approximately half a year prior to their MDP enrollment that did not result in a conviction. The research team dropped first arrest and court data to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having two previous misdemeanor arrests, both of which resulted in no convictions. The individual had court data that indicated two misdemeanor arrests approximately one year and three months prior to their MDP enrollment. The research team dropped these arrests and court data to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having an arrest with two misdemeanor offenses that resulted in no convictions. The individual was arrested 1.5 years prior to enrolling into the

MDP. Both offenses did not result in convictions. The research team dropped this arrest and court data to treat MDP arresting-case as first time misdemeanor offense.

Enrolled MDP participants with prior misdemeanor arrests that resulted in a conviction

- An individual entered the MDP after having multiple prior misdemeanor arrests and convictions. This individual had a guilty misdemeanor conviction roughly three years prior to their MDP enrollment for an arrest that occurred a month earlier, and another guilty misdemeanor conviction roughly 1.5 years prior to their MDP enrollment for an arrest that occurred six months earlier. These arrests and convictions were for traffic offenses; specifically, "No Operator's License," which may be why this person was still found eligible for the MDP. However, the imposed structured sentence offense classes were Level 3 misdemeanors, which would have meant they were ineligible for the MDP. The research team dropped the above court and arrest cases to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having a prior misdemeanor arrest and conviction. The individual had a guilty misdemeanor conviction two years prior to enrolling in the MDP for an offense that occurred two months earlier. The offense was for a traffic offense; specifically, "Speeding," which may be why this person was still found eligible for the MDP. However, the imposed structured sentence offense classes were Level 3 misdemeanors, which would have meant they were ineligible for the MDP. The research team dropped the above court and arrest cases to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having a prior misdemeanor arrest and conviction. The individual had a misdemeanor arrest roughly half a month prior to enrolling into the MDP. It is possible that this arrest was the arresting-case for enrollment into the MDP; however, approximately one month later, the individual was convicted for the offense. Nonetheless, the individual stayed in the MDP and was marked as a successful completion. The research team dropped the above court and arrest cases to treat MDP arresting-case as first time misdemeanor offense.

Enrolled MDP participants with prior felony arrests that did not result in a conviction

- An individual entered the MDP after having a felony arrest. The individual was arrested for a misdemeanor offense and a felony offense approximately 15 days prior to enrolling in the MDP. Both charges were voluntary dismissal by the DA two months after the arrest. The research team dropped these arrests and court data to treat MDP arresting-case as first time misdemeanor offense.
- An individual entered the MDP after having a felony arrest. The individual was arrested with two felony charges roughly two years before they enrolled into the MDP; however, both these charges were voluntary dismissed by the DA, which is why perhaps the individual remained eligible for the program. The research team dropped this arrest and court data to treat MDP arresting-case as first time misdemeanor offense.

Enrolled MDP participants with prior felony arrests that resulted in a conviction and time served

- An individual entered the MDP after having a felony arrest and having served time in jail. The individual was arrested for a felony offense (ASSAULT PHY INJ LE/PROB/PAR OF) that resulted in a guilty conviction to a lesser misdemeanor offense (ASSAULT - FREE TEXT) four month later. They served a 45-day sentenced. Roughly a 1.5 years later, the individual was enrolled into the MDP. The research team dropped this arrest, court, and jail data to treat MDP arresting-case as first time misdemeanor offense.

Appendix B. Variable Descriptions of Final Dataset

First-Misdemeanor Incident

Variable	Description
f_date	Date of first-misdemeanor incident
f_max_misdarrest	First-misdemeanor incident included a misdemeanor offense
f_max_felonyarrest	First-misdemeanor incident included a felony offense
f_max_lesserarrest	First-misdemeanor incident included a lower than misdemeanor offense
f_max_misdconvict	First-misdemeanor incident resulted in a misdemeanor conviction
f_max_felonyconvict	First-misdemeanor incident resulted in a felony conviction
f_max_lesserconvict	First-misdemeanor incident resulted in a low-level offense conviction
f_sum_misdarrest *	Count of misdemeanor offense charges at first-misdemeanor incident
f_sum_felonyarrest	Count of felony offense charges at first-misdemeanor incident
f_sum_lesserarrest	Count of low-level offense charges at first-misdemeanor incident
f_sum_misdconvict	Count of misdemeanor offense convictions from first-misdemeanor incident
f_sum_felonyconvict	Count of felony offense convictions from first-misdemeanor incident
f_sum_lesserconvict	Count of low-level offense convictions from first-misdemeanor incident
f_jailadmit	First-misdemeanor incident resulted in a jail sentence

Criminal Histories Prior to First-Misdemeanor Incident [a]

Variable	Description
f_priorarrestless *	Count of arrests for low-level offenses prior to first-misdemeanor incident
f_priorconvictless	Count of convictions for low-level offenses prior to first-misdemeanor incident

Arrest Recidivism

Variable	Description
recidarr_date	Date of first arrest after first-misdemeanor incident
recidarr_arr	Individual has a new arrest after first-misdemeanor incident
recidarr_max_misd	First arrest after first-misdemeanor incident included a misdemeanor offense
recidarr_max_fel	First arrest after first-misdemeanor incident included a felony offense
recidarr_max_less	First arrest after first-misdemeanor incident included a lower than misdemeanor offense
recidarr_sum_misd	Count of misdemeanor offense charges at first arrest after first-misdemeanor incident
recidarr_sum_fel	Count of felony offense charges at first arrest after first-misdemeanor incident
recidarr_sum_less	Count of low-level offense charges at first arrest after first-misdemeanor incident
daystorecidarr	Number of days between first-misdemeanor incident and first arrest after first-misdemeanor incident
recidarrMDP	Marker that first arrest after first-misdemeanor incident occurred within 90 days
recidarr6m	Marker that first arrest after first-misdemeanor incident occurred within 6 months
recidarr1y	Marker that first arrest after first-misdemeanor incident occurred within 1 year
recidarr2y	Marker that first arrest after first-misdemeanor incident occurred within 2 years

Arrest Recidivism that resulted in a conviction

Variable	Description
recidcon_date	Date of first arrest with a conviction after first-misdemeanor incident
recidcon_max_misd	First arrest after first-misdemeanor incident with a conviction included a misdemeanor offense
recidcon_max_fel	First arrest after first-misdemeanor incident with a conviction included a felony offense
recidcon_max_less	First arrest after first-misdemeanor incident with a conviction included a lower than misdemeanor offense
recidcon_sum_misd	Count of misdemeanor offense charges at first arrest with a conviction after first-misdemeanor incident

recidcon_sum_fel	Count of felony offense charges at first arrest with a conviction after first-misdemeanor incident
recidcon_sum_less	Count of low-level offense charges at first arrest with a conviction after first-misdemeanor incident
daystorecidcon	Number of days between first-misdemeanor incident and first arrest with a conviction after first-misdemeanor incident
recidconMDP	Marker that first arrest with a conviction after first-misdemeanor incident occurred within 90 days
recidcon6m	Marker that first arrest with a conviction after first-misdemeanor incident occurred within 6 months
recidcon1y	Marker that first arrest with a conviction after first-misdemeanor incident occurred within 1 year
recidcon2y	Marker that first arrest with a conviction after first-misdemeanor incident occurred within 2 years

Arrest Recidivism that resulted in a jail admission

Variable	Description
recidjail_date	Date of first arrest with a jail admission after first-misdemeanor incident
recidjail_admit	Marker of first arrest with a jail admission after first-misdemeanor incident
daystorecidjail	Number of days between first-misdemeanor incident and first arrest with a jail admission after first-misdemeanor incident
recidjailMDP	Marker that first arrest with a jail admission after first-misdemeanor incident occurred within 90 days
recidjail6m	Marker that first arrest with a jail admission after first-misdemeanor incident occurred within 6 months
recidjail1y	Marker that first arrest with a jail admission after first-misdemeanor incident occurred within 1 year
recidjail2y	Marker that first arrest with a jail admission after first-misdemeanor incident occurred within 2 years

Individual Demographic Characteristics

Variable	Description
f_white *	Dummy Coded, Individual was White
f_black *	Dummy Coded, Individual was Black
f_hispanic *	Dummy Coded, Individual was Hispanic
f_otherrace *	Dummy Coded, Individual was other race
f_female *	Individual was female
f_male *	Individual was male
durham *	Individual's first-misdemeanor incident occurred in Durham City
othercntycity	Individual's first-misdemeanor incident occurred in another city within Durham County
outsidecnty	Individual's first-misdemeanor incident occurred outside of Durham County
unklocation	Individual's first-misdemeanor incident location unknown
treatment	Individual is a participant in the Durham Misdemeanor Diversion Program
ageorgeventRD *	Individual's age (rounded up) at time of first-misdemeanor incident

Notes:

[a] By definition, cases included in the data could not have a prior misdemeanor or felony arrest or conviction.

* Variable was included in propensity score matching to create equal treatment and comparison groupings.

Appendix C. Sample Sizes

TABLE C.1

Eligible and Final Sample Sizes of Youth, by Group

	Time period for first misdemeanor incident	Number of MDP participants	Total eligible non-MDP participants	Final matched MDP cases	Final matched non-MDP cases
16-17 Group					
6 Month Recidivism	03/14 to 05/19	403	776	403	403
1 Year Recidivism	03/14 to 11/18	372	744	372	372
2 Year Recidivism	03/14 to 11/17	323	599	323	323
18-21 Group					
6 Month Recidivism	10/15 to 08/19	275	1,416	275	275
1 Year Recidivism	10/15 to 02/19	236	1,251	236	236
2 Year Recidivism	10/15 to 02/18	151	951	151	151

Source: Urban analysis of Durham County, North Carolina, data.

Note: MDP = Misdemeanor Diversion Program.

Appendix D. Descriptive Statistics and Group Balance

TABLE D.1

Descriptive Statistics and Group Balance for 16-to-17-Year-Olds, Six-Month Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	403	403	--	--
Prior Low-Level Offenses				
Zero	0.97 (0.01)	0.98 (0.01)	-0.45	-0.03
One	0.01 (0.01)	0.01 (0.00)	0.33	0.02
Two or more	0.01 (0.01)	0.01 (0.01)	0.30	0.02
Number of Misd. Charges at Originating Event				
One	0.97 (0.01)	0.98 (0.01)	-0.22	-0.02
Two	0.01 (0.01)	0.02 (0.01)	-0.58	-0.04
Three or more	0.01 (0.01)	0.01 (0.00)	1.01	0.07
Race / Sex				
Black male	0.42 (0.02)	0.36 (0.02)	1.88	0.13
Black female	0.29 (0.02)	0.23 (0.02)	1.69	0.12
White male	0.09 (0.01)	0.10 (0.01)	-0.61	-0.04
White female	0.06 (0.01)	0.11 (0.02)	-2.43 *	-0.17
Hispanic male	0.09 (0.01)	0.10 (0.01)	-0.49	-0.03
Hispanic female	0.04 (0.01)	0.07 (0.01)	-2.13 *	-0.15
Other race male	0.01 (0.00)	0.01 (0.00)	0.38	0.03
Other race female	0.01 (0.00)	0.02 (0.01)	-1.62	-0.11
Arrest Location in Durham City	0.91 (0.01)	0.94 (0.01)	-1.59	-0.11
Age				
Age 16	0.50 (0.02)	0.52 (0.02)	-0.42	-0.03
Age 17	0.50 (0.02)	0.48 (0.02)	0.42	0.03
Outcomes				
New arrest within 6 months	0.32 (0.02)	0.11 (0.02)	7.46 ***	0.53
New arrest with conviction within 6 months	0.05 (0.01)	0.02 (0.01)	2.02 *	0.14
New arrest with jail sentence within 6 months	0.05 (0.01)	0.02 (0.01)	2.08 *	0.15

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE D.2

Descriptive Statistics and Group Balance for 16-to-17-Year-Olds, One-Year Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	372	372	--	--
Prior Low-Level Offenses				
Zero	0.97 (0.01)	0.98 (0.01)	-0.48	-0.03
One	0.01 (0.01)	0.01 (0.01)	0.33	0.02
Two or more	0.01 (0.01)	0.01 (0.01)	0.33	0.02
Number of Misd. Charges at Originating Event				
One	0.97 (0.01)	0.97 (0.01)	-0.22	-0.02
Two	0.01 (0.01)	0.02 (0.01)	-0.58	-0.04
Three or more	0.02 (0.01)	0.01 (0.00)	1.01	0.07
Race / Sex				
Black male	0.42 (0.03)	0.37 (0.03)	1.35	0.10
Black female	0.28 (0.02)	0.24 (0.02)	1.42	0.10
White male	0.09 (0.02)	0.10 (0.02)	-0.12	-0.01
White female	0.07 (0.01)	0.11 (0.02)	-2.18 *	-0.16
Hispanic male	0.09 (0.01)	0.09 (0.01)	0.13	0.01
Hispanic female	0.03 (0.01)	0.06 (0.01)	-1.86	-0.14
Other race male	0.00 (0.00)	0.00 (0.00)	--	--
Other race female	0.01 (0.00)	0.03 (0.01)	-1.96	-0.14
Arrest Location in Durham City	0.90 (0.02)	0.94 (0.01)	-1.86	-0.14
Age				
Age 16	0.50 (0.03)	0.52 (0.03)	-0.73	-0.05
Age 17	0.50 (0.03)	0.48 (0.03)	0.73	0.05
Outcomes				
New arrest within 1 year	0.40 (0.03)	0.22 (0.02)	5.66 ***	0.42
New arrest with conviction within 1 year	0.10 (0.02)	0.05 (0.01)	2.91 **	0.21
New arrest with jail sentence within 1 year	0.09 (0.02)	0.03 (0.01)	3.30 **	0.24

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE D.4

Descriptive Statistics and Group Balance for 16-to-17-Year-Olds, Two-Year Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	323	323	--	--
Prior Low-Level Offenses				
Zero	0.96 (0.01)	0.98 (0.01)	-1.11	-0.09
One	0.02 (0.01)	0.01 (0.01)	0.91	0.07
Two or more	0.02 (0.01)	0.01 (0.01)	0.64	0.05
Number of Misd. Charges at Originating Event				
One	0.97 (0.01)	0.97 (0.01)	-0.22	-0.02
Two	0.02 (0.01)	0.02 (0.01)	--	--
Three or more	0.01 (0.01)	0.01 (0.01)	0.38	0.03
Race / Sex				
Black male	0.43 (0.03)	0.36 (0.03)	1.69	0.13
Black female	0.27 (0.02)	0.26 (0.02)	0.36	0.03
White male	0.09 (0.02)	0.10 (0.02)	-0.13	-0.01
White female	0.08 (0.02)	0.12 (0.02)	-1.44	-0.11
Hispanic male	0.08 (0.02)	0.09 (0.02)	-0.14	-0.01
Hispanic female	0.03 (0.01)	0.06 (0.01)	-1.33	-0.10
Other race male	0.00 (0.00)	0.00 (0.00)	--	--
Other race female	0.01 (0.00)	0.02 (0.01)	-1.68	-0.13
Arrest Location in Durham City	0.89 (0.02)	0.93 (0.01)	-2.05 *	-0.16
Age				
Age 16	0.51 (0.03)	0.52 (0.03)	-0.24	-0.02
Age 17	0.49 (0.03)	0.48 (0.03)	0.24	0.02
Outcomes				
New arrest within 2 years	0.51 (0.03)	0.32 (0.03)	4.87 ***	0.38
New arrest with conviction within 2 years	0.17 (0.02)	0.09 (0.02)	2.82 **	0.22
New arrest with jail sentence within 2 years	0.16 (0.02)	0.07 (0.01)	3.64 ***	0.29

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE D.5

Descriptive Statistics and Group Balance for 18-to-21-Year-Olds, Six-Month Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	275	275	--	--
Prior Low-Level Offenses				
Zero	0.96 (0.01)	0.95 (0.01)	0.61	0.05
One	0.01 (0.01)	0.03 (0.01)	-0.91	-0.08
Two or more	0.03 (0.01)	0.03 (0.01)	--	--
Number of Misd. Charges at Originating Event				
One	0.96 (0.01)	0.97 (0.01)	-0.67	-0.06
Two	0.04 (0.01)	0.03 (0.01)	0.48	0.04
Three or more	0.01 (0.01)	0.00 (0.00)	0.58	0.05
Race / Sex				
Black male	0.21 (0.02)	0.21 (0.02)	0.10	0.01
Black female	0.40 (0.03)	0.33 (0.03)	1.77	0.15
White male	0.09 (0.02)	0.11 (0.02)	-0.86	-0.07
White female	0.16 (0.02)	0.19 (0.02)	-1.01	-0.09
Hispanic male	0.04 (0.01)	0.04 (0.01)	-0.21	-0.02
Hispanic female	0.04 (0.01)	0.05 (0.01)	-0.59	-0.05
Other race male	0.03 (0.01)	0.05 (0.01)	-1.06	-0.09
Other race female	0.03 (0.01)	0.02 (0.01)	0.84	0.07
Arrest Location in Durham City	0.76 (0.03)	0.79 (0.02)	-0.81	-0.07
Age				
Age 18	0.50 (0.03)	0.52 (0.03)	-0.43	-0.04
Age 19	0.24 (0.03)	0.27 (0.03)	-0.59	-0.05
Age 20	0.18 (0.02)	0.15 (0.02)	1.04	0.09
Age 21	0.08 (0.02)	0.07 (0.02)	0.33	0.03
Outcomes				
New arrest within 6 months	0.20 (0.02)	0.07 (0.02)	4.58 ***	0.39
New arrest with conviction within 6 months	0.03 (0.01)	0.01 (0.01)	1.68	0.14
New arrest with jail sentence within 6 months	0.02 (0.01)	0.01 (0.01)	1.42	0.12

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE D.6

Descriptive Statistics and Group Balance for 18-to-21-Year-Olds, One-Year Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	236	236	--	--
Prior Low-Level Offenses				
Zero	0.95 (0.01)	0.95 (0.01)	-0.21	-0.02
One	0.02 (0.01)	0.02 (0.01)	0.34	0.03
Two or more	0.03 (0.01)	0.03 (0.01)	--	--
Number of Misd. Charges at Originating Event				
One	0.95 (0.01)	0.97 (0.01)	-0.70	-0.06
Two	0.03 (0.01)	0.03 (0.01)	--	--
Three or more	0.02 (0.01)	0.00 (0.00)	1.35	0.12
Race / Sex				
Black male	0.22 (0.03)	0.22 (0.03)	--	--
Black female	0.37 (0.03)	0.28 (0.03)	1.97 *	0.18
White male	0.09 (0.02)	0.12 (0.02)	-0.9	-0.08
White female	0.17 (0.02)	0.20 (0.03)	-0.94	-0.09
Hispanic male	0.05 (0.01)	0.05 (0.01)	--	--
Hispanic female	0.04 (0.01)	0.06 (0.02)	-1.07	-0.10
Other race male	0.04 (0.01)	0.05 (0.01)	-0.67	-0.06
Other race female	0.03 (0.01)	0.02 (0.01)	0.64	0.06
Arrest Location in Durham City	0.73 (0.03)	0.75 (0.03)	-0.53	-0.05
Age				
Age 18	0.51 (0.03)	0.52 (0.03)	-0.09	-0.01
Age 19	0.26 (0.03)	0.28 (0.03)	-0.52	-0.05
Age 20	0.14 (0.02)	0.14 (0.02)	0.26	0.02
Age 21	0.08 (0.02)	0.07 (0.02)	0.69	0.06
Outcomes				
New arrest within 1 year	0.26 (0.03)	0.13 (0.02)	3.77 ***	0.35
New arrest with conviction within 1 year	0.04 (0.01)	0.01 (0.01)	1.76	0.16
New arrest with jail sentence within 1 year	0.04 (0.01)	0.02 (0.01)	1.41	0.13

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE D.7

Descriptive Statistics and Group Balance for 18-21-Year-Olds, Two-Year Recidivism Time Period

	Non-MDP Mean (SD)	MDP Mean (SD)	*t*	*d*
n	151	151	--	--
Prior Low-Level Offenses				
Zero	0.92 (0.02)	0.94 (0.02)	-0.68	-0.08
One	0.06 (0.02)	0.02 (0.01)	1.77	0.20
Two or more	0.02 (0.01)	0.04 (0.02)	-1.01	-0.12
Number of Misd. Charges at Originating Event				
One	0.95 (0.02)	0.97 (0.01)	-0.59	-0.07
Two	0.03 (0.01)	0.03 (0.01)	--	--
Three or more	0.02 (0.01)	0.01 (0.01)	1.01	0.12
Race / Sex				
Black male	0.21 (0.03)	0.22 (0.03)	-0.14	-0.02
Black female	0.38 (0.04)	0.32 (0.04)	1.09	0.12
White male	0.12 (0.03)	0.13 (0.03)	-0.35	-0.04
White female	0.15 (0.03)	0.19 (0.03)	-0.77	-0.09
Hispanic male	0.05 (0.02)	0.05 (0.02)	--	--
Hispanic female	0.04 (0.02)	0.06 (0.02)	-0.79	-0.09
Other race male	0.03 (0.01)	0.02 (0.01)	0.38	0.04
Other race female	0.02 (0.01)	0.01 (0.01)	0.45	0.05
Arrest Location in Durham City	0.75 (0.04)	0.75 (0.04)	--	--
Age				
Age 18	0.54 (0.04)	0.51 (0.04)	0.57	0.07
Age 19	0.23 (0.03)	0.27 (0.04)	-0.79	-0.09
Age 20	0.14 (0.03)	0.13 (0.03)	0.17	0.02
Age 21	0.09 (0.02)	0.09 (0.02)	--	--
Outcomes				
New arrest within 2 years	0.32 (0.04)	0.21 (0.03)	2.09 *	0.24
New arrest with conviction within 2 years	0.04 (0.02)	0.03 (0.01)	0.64	0.07
New arrest with jail sentence within 2 years	0.04 (0.02)	0.03 (0.01)	0.64	0.07

Notes: MDP = Misdemeanor Diversion Program. * $p < .05$; ** $p < .01$; *** $p < .001$

Appendix E. System-Level Regression Tables

TABLE E.1

Interrupted Time Series Results of System-Level Changes for 16-to-17-Year-Olds

	Arrests		Convictions		Jail Admissions	
	Coef. (SE)	**95% CI**	**Coef. (SE)**	**95% CI**	**Coef. (SE)**	**95% CI**
Trend prior to March, 2014	-0.32 (0.31)	-0.93 | 0.30	-0.20 (0.09) *	-0.37 | -0.02	-0.07 (0.08)	-0.23 | 0.10
Immediate impact following March, 2014	-5.31 (5.88)	-17.00 | 6.39	3.43 (1.63) *	0.19 | 6.67	1.97 (1.38)	-0.78 | 4.71
Trend impact following March, 2014	-0.39 (0.32)	-1.02 | 0.25	0.09 (0.09)	-0.09 | 0.26)	-0.02 (0.08)	-0.18 | 0.15
Constant	108.03 (5.59)***	96.90 | 119.16	12.20 (1.32)***	9.57 | 14.83	8.57 (1.23)***	6.12 | 11.03
Number of Observations	95		95		95	
F	25.53 ***		7.52 ***		5.67 ***	

Notes: Month covariates not included in table. * $p < .05$; ** $p < .01$; *** $p < .001$

TABLE E.2

Negative Binomial Regression Results of System-Level Changes for 16-to-17-Year-Olds

	Arrests		Convictions		Jail Admissions	
	IRR	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**
Pre/Post March, 2014 Intervention Date	0.67 ***	0.62 | 0.74	0.68 ***	0.59 | 0.83	0.74 **	0.60 | 0.89
Constant	37.02 ***	24.37 | 56.24	9.59 ***	6.91 | 13.30	7.76 ***	5.63 | 10.69
Number of Observations	95		95		95	
Number of Groups	95		95		95	
Wald Chi-Squared	91.13 ***		21.96 *		17.31	

Notes: IRR = Incident Rate Ratio. Month covariates not included in table. * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE E.3

Interrupted Time Series Results of System-Level Changes for 18-to-21-Year-Olds

	Arrests		Convictions		Jail Admissions	
	Coef. (SE)	95% CI	Coef. (SE)	95% CI	Coef. (SE)	95% CI
Trend prior to October, 2015	-2.74 (0.32)***	-3.37 | -2.10	-0.83 (0.13)***	-1.09 | -0.56	-0.38 (0.11) **	-0.61 | -0.15
Immediate impact following October, 2015	-9.26 (10.36)	-29.87 | 11.36	2.66 (3.79)	-4.87 | 10.20	-2.38 (2.85)	-8.05 | 3.29
Trend impact following October, 2015	1.19 (0.42) **	0.35 | 2.03	0.37 (0.45) *	0.08 | 0.66	-0.07 (0.13)	-0.31 | 0.18
Constant	443.30 (15.10)***	413.26 | 473.33	76.93 (3.83)***	69.31 | 84.55	53.10 (3.43) ***	46.28 | 59.92
Number of Observations	98		98		98	
F	49.80 ***		27.00 ***		26.16 ***	

Notes: Month covariates not included in table. * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE E.4

Negative Binomial Regression Results of System-Level Changes for 18-to-21-Year-Olds

	Arrests		Convictions		Jail Admissions	
	IRR	95% CI	IRR	95% CI	IRR	95% CI
Pre/Post October, 2015 Intervention Date	0.71 ***	0.68 | 0.75	0.55 ***	0.50 | 0.61	0.51 ***	0.45 | 0.57
Constant	103.84 ***	72.03 | 149.70	77.71 *	1.14 | 5289.06	23.65 ***	14.64 | 38.21
Number of Observations	98		98		98	
Number of Groups	98		98		98	
Wald Chi-Squared	235.75 ***		130.50 ***		138.14 ***	

Notes: IRR = Incident Rate Ratio; Month covariates not included in table. * $p < .05$; ** $p < .01$; *** $p < .001$.

Notes

[1] For the 16-to-17-year-olds, the MDP intervention date was March 2014, and we examined January 2012 to November 2019. For the 18-to-21-year-olds, the MDP intervention date was October 2015, and we examined January 2012 to February 2020.

[2] North Carolina youth did not lose diversion opportunities after Raise the Age legislation was implemented in the state. Other juvenile diversion efforts exist in the state, such as a teen court available in Durham County and other Juvenile Crime Prevention Council programs.

[3] We acknowledge that the higher amount of first-misdemeanor incidents that were observed in 2012 and 2013 may simply be the result of individuals being first identified in those years in our administrative data's time frame but their actual first-misdemeanor incident may have occurred prior to 2010, of which the research team did not have data for. For example, our analyses may have identified the first case of an individual in March 2012 as a misdemeanor incident, and therefore being mark as the first-misdemeanor incident. We would not have marked any follow-up misdemeanor arrests for that individual as a first-time misdemeanor because of the identified March 2012 arrest. However, it is possible that we are missing a first-misdemeanor incident that the individual had if it occurred prior to January 2010. As such, the calculated first-misdemeanor incidents for individuals earlier our data's time period may be inflated simply because we are identifying the first instance of an individual's presence in the data and not their actual first-misdemeanor incident. Nonetheless, our examined time period included two-years prior to 2012, beginning in January 2010, and demographic characteristics of these early first-misdemeanor incidents were not substantially different that those that occurred later. Furthermore, we confirmed with county government staff that the county experienced an overall crime decline during this time period.

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