

Unwarranted Racial Disparity in U.S. Foster Care Placement*

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Abstract

In the U.S., Black children are twice as likely as white children to spend time in foster care. Such racial disparities raise concerns of discrimination but might also reflect differences in the underlying need for intervention. This paper estimates *unwarranted disparities* (UDs)—racial differences in placement rates for children with the same potential for future maltreatment—in national data. Our estimates use non-parametric bounds on the potential for future child maltreatment that rely on weak and transparent assumptions. Nationwide, we find that Black children are placed into foster care at higher rates than white children with identical potential to experience subsequent maltreatment; this UD is 42% larger than conventional estimates that control for observables. UD is five times larger among children with potential of subsequent maltreatment than among children without, varies across states, and declined from 2008 to 2020—primarily due to a decline in the placement rate of Black children with potential for subsequent maltreatment. The concentration of UD within cases with potential for subsequent maltreatment may suggest an “underplacement” of white children, with declining racial gaps over time potentially elevating the risk of maltreatment for Black children.

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1 INTRODUCTION

Racial disparities in child protective services (CPS) involvement are well-documented in the U.S. Nationwide, 10% of Black children are placed in foster care at some point before adulthood relative to 5% of white children (Wildeman and Emanuel, 2014). In 33 states the likelihood of ever experiencing foster care for Black children is more than twice as large as the likelihood faced by white children (Yi et al., 2023). Such disparities have contributed to widespread concern about racial discrimination in CPS (White and Persson, 2022; Kelly, 2022).

Raw comparisons of foster care placement rates do not account for an important factor, however: a child’s potential to experience subsequent maltreatment in the home. Since the risk of subsequent maltreatment may vary across groups, a more accurate measure of *unwarranted* disparity in foster care placement would compare children with similar levels of maltreatment risk. Furthermore, distinguishing between high- and low-risk cases could be important for policy-relevant interpretation of racial disparities, since preventing subsequent maltreatment is a priority for child welfare workers (USDHHS, 2022). If disparities are concentrated in low-risk cases and Black children are disproportionately more likely to be removed from safe homes, there is a disproportionate burden on Black families. If, however, racial disparities are found to be concentrated among high-risk cases, the interpretation is more nuanced. In this case, higher placement rates for Black children may be protective and suggest that white children are disproportionately left in homes where they are likely to experience future abuse or neglect.

Accounting for subsequent maltreatment risk in disparity analyses is fundamentally challenging, however, because of a missing data problem: it is impossible to observe the counterfactual of whether children placed in foster care would have experienced future maltreatment had they instead been left at home. A large body of important work that estimates racial disparities in CPS has accounted for differences in observable traits that may correlate with subsequent maltreatment risk, such as poverty, benefit receipt, family composition and other characteristics (Paxson and Waldfogel, 1999, 2002; Putnam-Hornstein et al., 2013; Shaw et al., 2008; Wulczyn et al., 2013; Billingsley and Giovannoni, 1972; Chibnall et al., 2003; Font et al., 2012; Courtney et al., 1996; Drake et al., 2011; Maguire-Jack et al., 2020).

The prior work is clear that such estimates rely on strong assumptions, and highlights two potential sources of bias. First, the literature notes that there may be omitted variable bias since the observable traits are imperfect proxies for maltreatment risk. If unobservably higher-risk children are more likely

to be placed into foster care and more likely to be white (or Black), conventional analyses will tend to understate (or overstate) unwarranted racial disparity. Second, analyses that control for observational differences may suffer from included variable bias when the included controls mediate discrimination in foster care placement (Ayres, 2010; Jung et al., 2018; Arnold et al., 2022). If, for example, poverty is correlated with race and low-income families face greater scrutiny that causes disproportionate placement into foster care, then adjusting for poverty may understate racial inequity.

This paper uses a new approach to account for the risk of future maltreatment when studying racial disparity in foster care placement nationwide. We estimate unwarranted racial disparities (UDs)—racial gaps in placement rates that persist when adjusting for differences in potential to experience subsequent maltreatment. Our method generates non-parametric bounds on race-specific maltreatment rates, which we construct by varying the assumptions about what would have happened to the children placed in foster care had they been left at home. We estimate an upper bound by assuming that all children placed in foster care would have experienced subsequent maltreatment. We estimate a lower bound by assuming that all children placed in foster care would have experienced the same level of maltreatment at home as those who were not placed in foster care. This lower bound reflects the plausible assumption that those placed in foster care are at higher risk than those who remain at home. This methodology was developed in work focusing on estimating UD in foster care placement in Michigan (Baron et al., 2024) and works particularly well in the CPS context, since placement rates tend to be low—yielding narrow and informative bounds. This paper builds on earlier work in three key ways: first, it considers heterogeneity in UD across states. Second, it focuses on UD separately in cases where the child has potential to experience subsequent maltreatment if left at home and cases where the child does not. Finally, we explore trends in UD over time, which yield important policy implications.

We measure the risk of subsequent maltreatment as re-investigation within six months of an initial investigation, but also consider other proxies such as a substantiated maltreatment investigation and placement in foster care within six months of the focal investigation. We apply this approach to estimate UD nationally and at the state level, and we examine differences across states and over time.

Our analysis yields three key findings: First, we find evidence of significant UD nationwide. Black children are placed in foster care at higher rates than white children with the same maltreatment potential. Moreover, failure to account for underlying potential for subsequent maltreatment underes-

timates the racial gap. Our estimates of UD are 42% larger than conventional estimates that control for observables.

Second, we find that this UD is concentrated among children who are likely to experience subsequent maltreatment if left at home. UD among children with potential for subsequent maltreatment is over five times larger than among children without potential for subsequent maltreatment. This is true not only at a national level, but also for the majority of individual states. There is substantial geographic heterogeneity in the magnitude of UDs, and the only state-level attribute that significantly explains a high UD is the share of Black population.

Finally, we find that UD declined from 2008 to 2020. The racial gap in placement rates among children without potential for subsequent maltreatment nearly disappears by the end of the sample, although measurable UD remains children who have potential for subsequent maltreatment. A key driver of the shrinking gap is a decrease in foster care placement among Black children with potential for subsequent maltreatment at home.

These findings have important policy implications. Given that maltreatment is associated with reduced well-being and diminished economic outcomes, if placement in foster care reduces the chance of maltreatment particularly for those with potential for subsequent maltreatment, then one might worry about under-placing white children. Additionally, recent policy efforts have endeavored to reduce racial gaps in placement rates by reducing the number of Black children placed in foster care. Our results, which suggest that the UD arises from greater placement of Black children who are likely to experience subsequent maltreatment than white children with the same potential, suggest that these efforts could have decreased the safety of Black children.

2 MEASURING UNWARRANTED DISPARITIES

2.1 Definition of Unwarranted Disparities

We define unwarranted racial disparities (UDs) as the difference in placement rates among Black and white children who face equal likelihood of maltreatment if left at home. Formally, we consider children i of race $R_i \in \{b, w\}$ (either Black or white), whose foster care placement is indicated by $D_i \in \{0, 1\}$ and whose likelihood of experiencing subsequent maltreatment if left at home is indicated

by $Y^* \in \{0, 1\}$. We then define potential-specific UD, for each $y \in \{0, 1\}$, as:

$$\Delta_y \equiv E[D_i | R_i = b, Y_i^* = y] - E[D_i | R_i = w, Y_i^* = y]$$

A finding of $\Delta_y \neq 0$ indicates that unwarranted racial disparity exists among children with $Y_i^* = y$. We estimate UDs for both cases with potential for subsequent maltreatment ($y = 1$) and cases without potential ($y = 0$). We then calculate overall UD in the foster care system by averaging these two disparities, weighting by the overall likelihood of subsequent maltreatment $\bar{\mu} = E[Y_i^*]$:

$$\Delta = \Delta_0(1 - \bar{\mu}) + \Delta_1\bar{\mu} \tag{1}$$

We take this definition to the data with various proxies for subsequent maltreatment, discussed below.

The challenge in estimating Δ_0 , Δ_1 , and Δ is that children placed in foster care are not at home, making their subsequent maltreatment rate at home an unknown counterfactual. We overcome this challenge by bounding the subsequent at-home maltreatment rates of Black and white cases, $\mu_b = E[Y_i^* | R_i = b]$ and $\mu_w = E[Y_i^* | R_i = w]$, for all investigated children. This approach makes various assumptions about the counterfactual in order to estimate the UD in the spirit of Manski (1990)'s varying assumptions to bound a treatment effect.

2.2 Bounding Assumptions

We make two assumptions to arrive at upper and lower bounds on the subsequent maltreatment that would have been experienced by children who are placed in foster care (Figure 1). If we assume the children placed in foster care would have experienced subsequent maltreatment at the same rate as the children left at home, we obtain a lower bound for possible subsequent maltreatment in this population:

$$\mu_r^L \equiv E[Y_i^* | D_i = 0, R_i = r] \leq E[Y_i^* | R_i = r].$$

Put another way, we can write the overall rate of potential maltreatment (for a given race) as $\Pr(Y^*) = \Pr(\text{potential maltreatment}) = \Pr(\text{potential maltreatment} | \text{placed})\Pr(\text{placed}) + \Pr(\text{potential maltreatment} | \text{not placed})\Pr(\text{not placed})$. For our lower bound we set $\Pr(\text{potential maltreatment} | \text{placed}) = \Pr(\text{potential maltreatment} | \text{not placed})$, where the latter term is observed in the data. This is akin to assuming that case-workers place children in foster care at random.

Conversely, if we assume all of the children placed in foster care would have experienced subsequent maltreatment had they stayed at home, we obtain an upper bound for possible subsequent maltreatment in this population.

$$\mu_r^U \equiv 1 - E[(1 - D_i)(1 - Y_i^*) | R_i = r] \geq 1 - E[1 - Y_i^* | R_i = r] = E[Y_i^* | R_i = r]$$

Again put in terms of the law of total probability, $\Pr(\text{no potential maltreatment}) = \Pr(\text{no potential maltreatment} | \text{placed})\Pr(\text{placed}) + \Pr(\text{no potential maltreatment} | \text{not placed})\Pr(\text{not placed})$. Our upper bound sets $\Pr(\text{no potential maltreatment} | \text{placed}) = 0$, yielding $\Pr(\text{potential maltreatment}) = 1 - \Pr(\text{no potential maltreatment}) = 1 - \Pr(\text{no potential maltreatment} | \text{not placed})\Pr(\text{not placed})$. This is akin to assuming that case-workers are perfect at placing in foster care only children who have potential for subsequent maltreatment if left at home (though some children with potential for subsequent maltreatment are not placed in foster care).

The $[\mu_r^L, \mu_r^U]$ bounds can be directly estimated since Y_i^* is observed whenever $D_i = 0$. That is, we render the lower and upper bounds in terms of $\Pr(\text{not placed})$, $\Pr(\text{no maltreatment} | \text{not placed})$ and $\Pr(\text{maltreatment} | \text{not placed})$ only.

We use the race-specific bounds on subsequent in-home maltreatment rates μ_r to bound both Δ_1 , an estimate of UD among cases where there is maltreatment potential, and Δ_0 , an estimate of UD among cases where there is no maltreatment potential. To do so, we rewrite the components of each Δ_y in terms of the μ_r and other objects we can directly estimate:

$$E[D_i | R_i = r, Y_i^* = 1] = 1 - \frac{E[(1 - D_i)Y_i^* | R_i = r]}{E[Y_i^* | R_i = r]}$$

$$E[D_i | R_i = r, Y_i^* = 0] = 1 - \frac{E[(1 - D_i)(1 - Y_i^*) | R_i = r]}{1 - E[Y_i^* | R_i = r]}$$

2.3 Summarizing of Unwarranted Disparity Bounds

Calculating race-specific bounds on subsequent maltreatment yields a grid of possible UD measures. These can be represented in a contour graph showing for each possible rate of subsequent maltreatment for Black and white children, what the implied level of UD would be (Figure 2a). We summarise this contour graph by taking the UD estimate at each point and taking a uniform average over all estimates. This summary measure can be seen as the solution to a point decision problem, where a decision-

maker seeks to estimate UD from the bounds with convex loss (Song, 2014). We use 500 bootstraps to establish 95% confidence intervals for our UD estimates (Stoye, 2009). We generate UD estimates for the nation as a whole and for each state, for the whole time period and for each year.

Our non-parametric approach generates informative bounds on UD because foster care placement is relatively rare: nationwide, only 6.2% of children who are investigated by CPS are placed in foster care. The share of children with uncertain counterfactual maltreatment outcomes is thus small, making bounds on overall maltreatment rates narrow. The narrowness of these bounds in turn implies narrow bounds on both UD for cases with and without potential for subsequent maltreatment, and on their average.

We confirm the validity of our approach by comparing the UD estimates for Michigan with findings that use richer administrative data, and quasi-random assignment of decision-makers to cases to form more precise bounds and point estimates (Baron et al., 2024). Results are very similar when aligning the sample periods in these two studies.

Our estimates can encompass discrimination on the part of CPS decision-makers—whether intentional or unintentional—as well as possible geographic sorting of families into CPS systems with more or less discriminatory practices. This is consistent with comparisons noted in policy discussions. Baron et al. (2024) estimates the gaps due solely to CPS decision-makers, tracing out discrimination as it progresses through the screening and investigation stages of the state’s child protection system. The approach put forth in this paper is agnostic about the source of the UD.

2.4 Robustness to Measuring Subsequent Maltreatment

Our main estimates measure subsequent maltreatment, Y_i^* , by a subsequent CPS investigation within six months of the initial investigation. This measure of “re-abuse” is common in the literature and is salient to child protection authorities as a common performance measure (Antle et al., 2009; Putnam-Hornstein and Needell, 2011; Casanueva et al., 2015; Putnam-Hornstein et al., 2015, 2021; Baron et al., 2024). One concern about this measure is that subsequent investigations could be partially driven by racial biases in the *reporting* of child maltreatment (Lane et al., 2002). If Black children at the same potential as white children are more likely to experience a CPS report, estimates of UD based on this measure are likely to understate the true unwarranted disparity because the biased reporting would artificially increase the risk of a subsequent investigation for Black children left at home (Arnold et al., 2022). We therefore conduct all our analyses using two additional proxies for

subsequent maltreatment: a substantiated investigation and a placement in foster care, each within the six months following the focal investigation. The three measures are helpful to consider a gradation of maltreatment measures and to explore whether the UD estimates are confined to a particular form of child protection involvement or are found more generally.

3 DATA

We use data from the National Child Abuse and Neglect Data System Child files (NCANDS; NCANDS (2023)), which are housed at the National Data Archive on Child Abuse and Neglect at Cornell University. Our data span 2008-2021 and consist of child-level information for all investigated maltreatment reports from the majority of states. While states are not obligated to report their statistics, most do report; our data thus capture the vast majority of children who have experienced maltreatment investigations.

For most states, NCANDS data are available for the entire 2008-2021 sample period. The exceptions are Georgia (with availability only in 2011-2020), North Carolina (2017-2020), North Dakota (2009-2020), Oregon (2011-2020), and Pennsylvania (2014-2020). Further, New York never reports foster care placement and is thus excluded for our analysis. We include the states with incomplete data in state-level descriptions, such as maps and supplementary tables. However, for national analyses or analyses where the reader cannot visually exclude these states themselves, such as regression analyses, the states with incomplete data are excluded, and the analyses are completed on a balanced panel. This approach is consistent with other researchers who have used the NCANDS data (Maguire-Jack et al., 2020; Kim and Drake, 2018).

Key variables for our analysis include the child’s self-identified or assigned race, whether or not the child was placed into foster care during or as a result of the investigation, and a unique child identifier that we use to link a child’s cases and construct subsequent maltreatment outcomes. Importantly, we do not use any variables that have been subject to some concern about data quality—such as the FCPUBLIC variable indicating whether a child is on public assistance (Drake et al., 2023).

We use the unique child identifiers provided by NCANDS and the foster care placement identifier to identify unique children. We drop children who have multiple cases but implausible jumps in age between the cases, which suggest data entry error or the re-use of the same identifier for different children. Dropped cases constitute less than 1% of the sample.

We categorize a child as Black if the data report they are Black, regardless of what other category may also be checked; implicitly this means we include Hispanic Black, non-Hispanic Black, and multiracial Black children in this categorization. We consider a child to be (non-Hispanic) white if only White is marked. We use the reported race in each case, which we allow to vary across multiple cases. This decision reflects the imperfect nature of documenting racial categorizations. It also allows the placement decisions to correspond to the race that was considered at the time of the investigation: the person who conducts the investigation is likely the person who documents the race of the child and is therefore internally consistent within a case, even if not consistent across a child's lifetime.

Our placement rate considers the share of individuals who have been investigated for child maltreatment and are placed in foster care during or as a result of that investigation. While this is a very common measure in the literature and a natural one (since it is difficult to be placed in foster care without an investigation), it differs from some popular writing that cites the number of individuals in foster care relative to the total number of children in the population. Notably, our metric also differs from cumulative risk estimates (Wildeman and Emanuel, 2014; Yi et al., 2023), which estimate the likelihood of experiencing child maltreatment over an entire childhood. The placement rate is the natural estimate in this context since it reflects the actions of CPS decision-makers at a given point in time.

We include cases reported between January 2008 and December 2020. The premature truncation of our observation period (2020) before the end of our data (2021) allows us to see subsequent re-investigations in the six months following a focal investigation. However, since there are data lags in reporting, some cases that were initially reported in 2021 will be included in 2022 or 2023 data extracts based on the date at which CPS responded to those reports, later years' data may slightly undercount the likelihood of a subsequent re-investigation.

Our set of focal cases include those that happen to children under the age of 17. This ensures that the data would capture any subsequent re-investigation that occurred before age 18. The cases that we study focus on cases more than six months apart so that a given case is only ever a focal case or a follow-up case that determines subsequent maltreatment in the focal case.

We augment our data with state- and county-level data from the American Community Survey, as compiled by IPUMS (Ruggles et al., 2018). We include data on proportion of individuals in the state who are Black or white, the log average income, share unemployed, share with a college degree, and share who live in a metropolitan area.

We further include information on political inclinations based on the state’s presidential selection in 2008, 2012, 2016, and 2020 from the MIT Election Data and Science Lab (2017, 2018). For non-election years, we include the most recent election results.

We can benchmark our results against those found in work that uses richer state-specific administrative data and alternative estimation methods in Michigan (Baron et al., 2024). We find similar results, with both foster care placements and UD concentrated among cases with potential for subsequent maltreatment.

4 DESCRIPTIVE STATISTICS

We use all cases reported to the Administration for Children and Families from 2008-2021 (NCANDS, 2023). Our sample covers 45 states and consists of 23 million investigations—8 million of which pertain to Black children (Table 1). Just under 50% of the cases include female children. The average age at investigation is 7 years old and children had experienced a prior investigation in about 35% of cases.

Black children are significantly more likely to be placed into foster care than white children (Table 2). Nationwide, Black children have a 19% higher foster care placement rate after an investigation compared to white children (6.9% vs 5.8%). Over 164,000 cases involving white children would result in a foster care placement if white children were placed at the same rate as Black children.

This gap may reflect both unwarranted disparities and differences in potential for subsequent maltreatment. Following the prior literature and controlling for observable characteristics such as the child’s age, sex, the nature of the allegation and alleged perpetrator, and the child’s prior CPS involvement shrinks the gap to 0.86 percentage points (14.8% of the white placement rate). These conventional adjustments may or may not give more accurate estimates of unwarranted disparity because of the potential for omitted and included variable biases.

White children are more likely than Black children to experience maltreatment after the investigation if left at home (Table 1; Figure S1). That is, Black children are placed in foster care at higher rates, even though white children are “riskier” insofar as they are more likely to experience subsequent maltreatment when left at home. While 17.0% of white children are re-investigated within six months, 15.3% of Black children are.

5 RESULTS

5.1 Unwarranted Disparity

We find that nationwide UD is positive and significant, meaning that Black children are more likely to be placed in foster care than white children who face equal potential for subsequent re-investigation if they were left at home.

Figure 2a shows the contour plot. The horizontal axis shows that white children face a risk of subsequent maltreatment that ranges from 0.15 to 0.2, while maltreatment risk for Black children ranges from 0.13 to 0.19. The contour plot shows that the resulting UD estimates range from 0.17 percentage points (standard error=0.012) to 1.66 percentage points (standard error=0.013). This suggests that—even under the most conservative assumptions—Black children are more likely to be placed in foster care than white children who face equal potential for future re-investigation if they were left at home.

Summarizing the contour plot, we estimate a UD of 1.22 percentage points (21% of the white placement rate; dashed line in Figure 2b). This is 42% larger than the gap measured by conventional regression methods. Notably, we also find substantial and positive UDs when we use alternative measures of subsequent maltreatment (Table S2).

5.2 UD By Maltreatment Potential

One advantage of our methodology is that it can provide insight into whether foster care placements tend to be concentrated among children who are likely to experience maltreatment if left at home—in which case foster care may offer protection to children—as opposed to among children who are likely safe if left at home—in which case foster care may unnecessarily remove a child from their family. Across both Black and white children, we find that children are more likely to be placed into foster care when they are likely to experience maltreatment at home. Among cases with potential for subsequent maltreatment, 18.2% of children are placed in foster care, compared to 3.2% among cases without potential for subsequent maltreatment (Figure 3a). Even more extreme differences are found among other proxies for subsequent maltreatment (Table S2). Foster care placements' concentration among cases with potential for subsequent maltreatment suggests that the bulk of placements seem to be offering protection to children.

UD is concentrated in cases with a potential for subsequent maltreatment (Figure 3b). Among

cases with potential for subsequent maltreatment, UD is 3.6 percentage points; among cases without maltreatment potential, it is 0.69 percentage points. Thus the UD in cases with maltreatment potential is over 5 times larger than that of cases without potential for subsequent maltreatment. Alternative proxies of subsequent maltreatment yield even starker contrasts: the UD for cases with potential is over 10 times larger than for cases without (Table S2).

The finding of relatively low UD among cases without maltreatment potential reduces concerns that Black children are disproportionately removed from safe homes. However, the finding of large unwarranted disparities among cases with maltreatment potential carries a more nuanced interpretation. Its welfare implications depend on the effects of foster care on children’s well-being: if foster care improves child outcomes relative to staying in a home where future maltreatment is likely, then higher placement rates may disproportionately benefit Black children. Indeed, this finding suggests a possibility of disproportionate “under-placement” of white children from risky home environments. Of course, foster care placement may be less conducive to child well-being than remaining in a home with potential for subsequent maltreatment, if for example family-preservation services improve family functioning and offer an alternative form of child protective services; in this case, one might worry about the disproportionate “over-placement” of Black children.

If subsequent maltreatment is the primary measure of child well-being for child welfare policy, then foster care is likely protective. Administrative data suggest that children are very unlikely to experience maltreatment while in foster care (USDHHS, 2018). If child welfare is measured more broadly—say, by longer-term outcomes such as educational attainment, criminal involvement, or earnings—then the existing literature documents considerable heterogeneity among children on the margin of placement depending on location and time period (Jonson-Reid and Barth, 2000; Lawrence et al., 2006; Doyle, 2007, 2008; Berger et al., 2009; Bald et al., 2022a; Roberts, 2019; Barth et al., 2020; Bald et al., 2022b; Baron and Gross, 2022; Grimon, 2023; Gross and Baron, 2022; Helénsdotter, 2024).

5.3 Geographic Heterogeneity

The nationwide estimate of UD masks considerable heterogeneity across states (Figure 4a; Table S1). Of the states for which we have full data, 37 states have positive UD estimates. Only eight states—Alaska, Alabama, Florida, Iowa, Kentucky, Louisiana, Missouri, and Mississippi—have negative UD estimates. The other proxies of risk show similar heterogeneity (Figure S2).

To understand the variation in UD over time and space, we describe the local features that are

associated with higher UD. For this analysis, we estimate year-specific UDs for each state. We find that high UD is associated with a smaller share of the Black population in the state. We find no statistically significant relationship with the state’s log income, college-educated, Democratic-voting, or living in a metropolitan area (Figure 4b). This is the case no matter the measure of subsequent maltreatment risk that we use.

For most states, UD is also concentrated among cases with maltreatment potential. Among all states for which we have complete data, all but five — Alaska, Alabama, Arizona, Missouri and the District of Columbia — have greater UD among cases with maltreatment potential than among cases without (Figure 5; Table S3).

5.4 Declining UD over Time

Finally, we consider how UD has changed over time. Over the years studied, system-wide UD has decreased by 60% (Figure 6a). In 2008, UD was 1.9 percentage points (34.3% relative to the white placement rate of 5.6%) while in 2020, it was 0.76 (13.7% percentage points relative to the white placement rate of 5.53%). Conventional estimates would have suggested a larger decline of 69%. This suggests our methodology is a more important corrective in recent years.

While there has been a decrease in UDs in both cases with and without potential for subsequent maltreatment, the decrease is driven by cases with maltreatment potential, in which UD has dropped from 6.2 percentage points in 2008 to 3.3 in 2020. In contrast, the UD among cases without subsequent maltreatment potential went from 0.99 to 0.22 percentage points. Similar declines are present in other measures of subsequent maltreatment risk (Figure S4). These declines—and their concentration among cases with potential for subsequent maltreatment—are not driven by any specific state (Figure S5).

The decline in UD reflects a decrease in placing Black children in foster care rather than an increase in placing white children in care (Figure 6b). Foster care placement rates for Black children declined from 7.4% in 2008 to 6.2% in 2020, while placement rates for white children have remained relatively constant (5.6% in 2008; 5.5% in 2020).

6 DISCUSSION

This paper estimates unwarranted disparities in foster care placement—disparities in placement among Black and white children with the same potential for subsequent maltreatment. Avoiding both omitted

and included variable biases, we find disparities that are 42% larger than those found by conventional methods. We find that UD is concentrated among cases with potential for subsequent maltreatment, rather than cases without. Due to a decrease in UD among cases with maltreatment potential, overall UD has been decreasing over time.

These findings have important policy implications. While a decline in UD may on its face seem like good news, our analysis that distinguishes between disparities among cases with and without potential for subsequent maltreatment adds nuance to this interpretation. Since most placements originate in cases where there is potential for subsequent maltreatment, and since the decline is driven by a decrease in the Black placement rate, it is possible that the decline in UD reflects a decrease in the relatively higher protection afforded to Black children from subsequent maltreatment. These findings underscore the need to accompany foster-care prevention efforts with services that reduce the risk of subsequent maltreatment for children left at home.

This paper contributes to the broader agenda of studying disparities by race and other protected characteristics in high-stakes settings like child protection. We show how informative non-parametric bounds on unwarranted disparities can be constructed to account for the underlying risk of key outcomes from such decisions, such as subsequent maltreatment in the home. This methodology could enhance our understanding of racial gaps in other domains, such as healthcare, lending, hiring, or criminal justice. Our analysis has focused on comparing placement rates among white and Black children since much of the policy debate has focused upon this disparity. However, our approach could be extended to study other racial/ethnic comparisons as well as other groups such as disparities by gender or socio-economic status.

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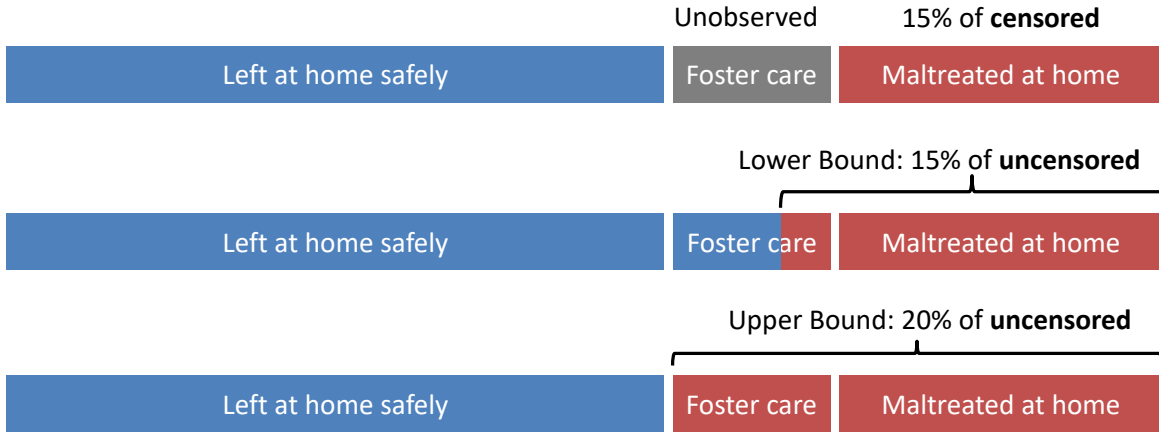
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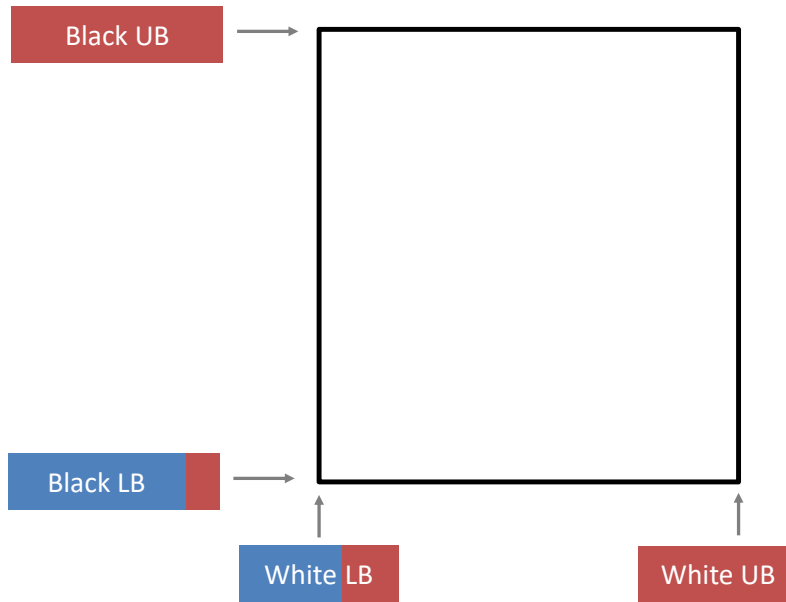
7 FIGURES AND TABLES

Figure 1: Schematic of Bounding Methodology

(a) Assumptions for Bounding Subsequent Maltreatment

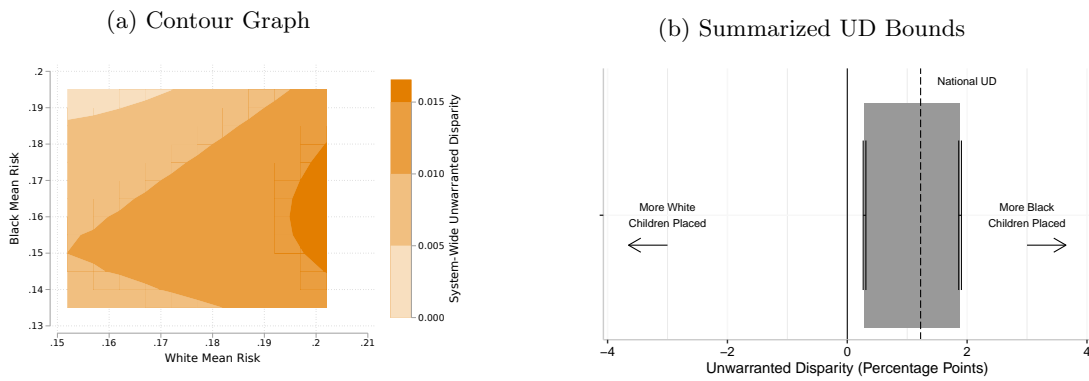


(b) Contour Plot Combining Race-Specific Bounds



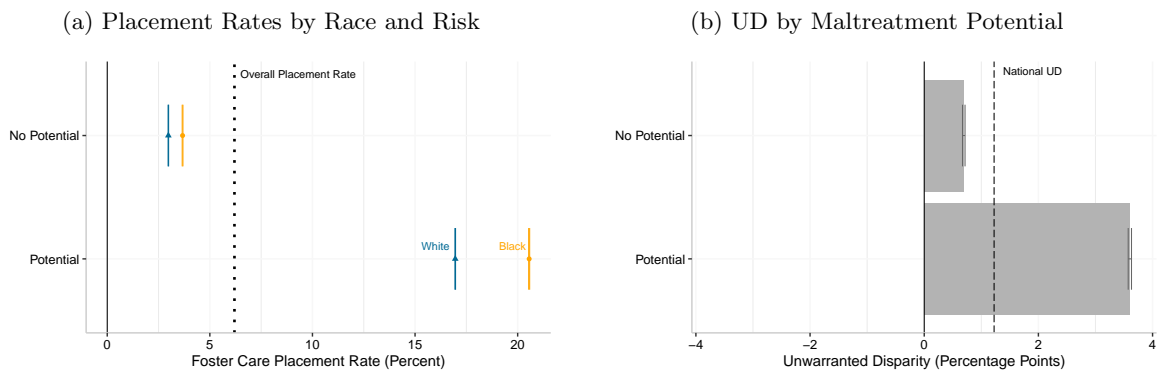
Note: This figure shows the various assumptions underlying the bounds placed on subsequent maltreatment. In Panel (a) the first row shows subsequent maltreatment observed among those children left at home, where 95% of children are left at home in this example. For those 5% placed in foster care—the grey bar in the first row—one cannot observe subsequent maltreatment experienced in the home. We obtain a lower bound on subsequent maltreatment by assuming that those placed in foster care would have faced the same risk as the general population had they been left at home (row two). An upper bound can be obtained by assuming that all those placed in foster care—5% of the total in this example—would have been maltreated had they been left at home (row three). Panel (b) shows how the race-specific bounds can be combined to create a contour plot.

Figure 2: Unwarranted Disparity Estimates for US, 2008-2020



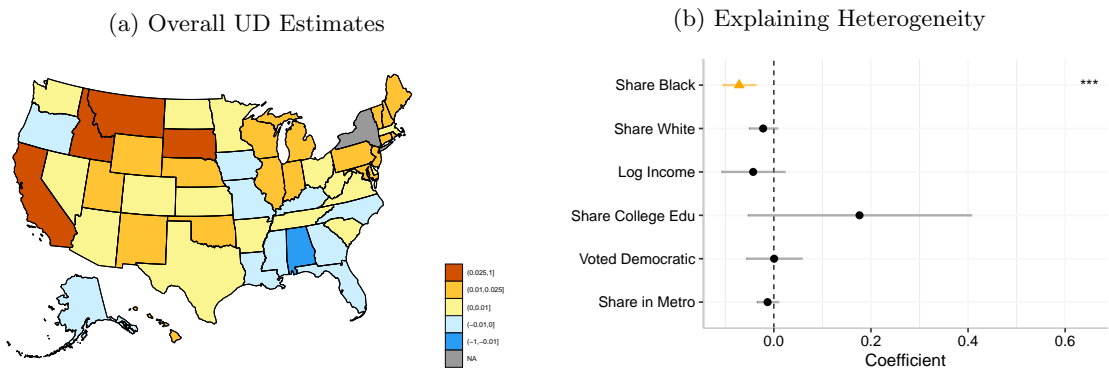
Note: This figure shows the bounded estimates of unwarranted disparity in foster care placement. Panel (a) shows how UD estimates for the whole U.S. vary under different estimates of Black and white mean placement risk. The statistics are calculated across all cases in the NCANDS data from 2008-2020. Panel (b) summarises the bounds. The dashed vertical line shows the mean estimate of overall UD. Whiskers in all panels show 95% confidence intervals.

Figure 3: Placement Rates and Unwarranted Disparity Estimates for Cases with and without Maltreatment Potential



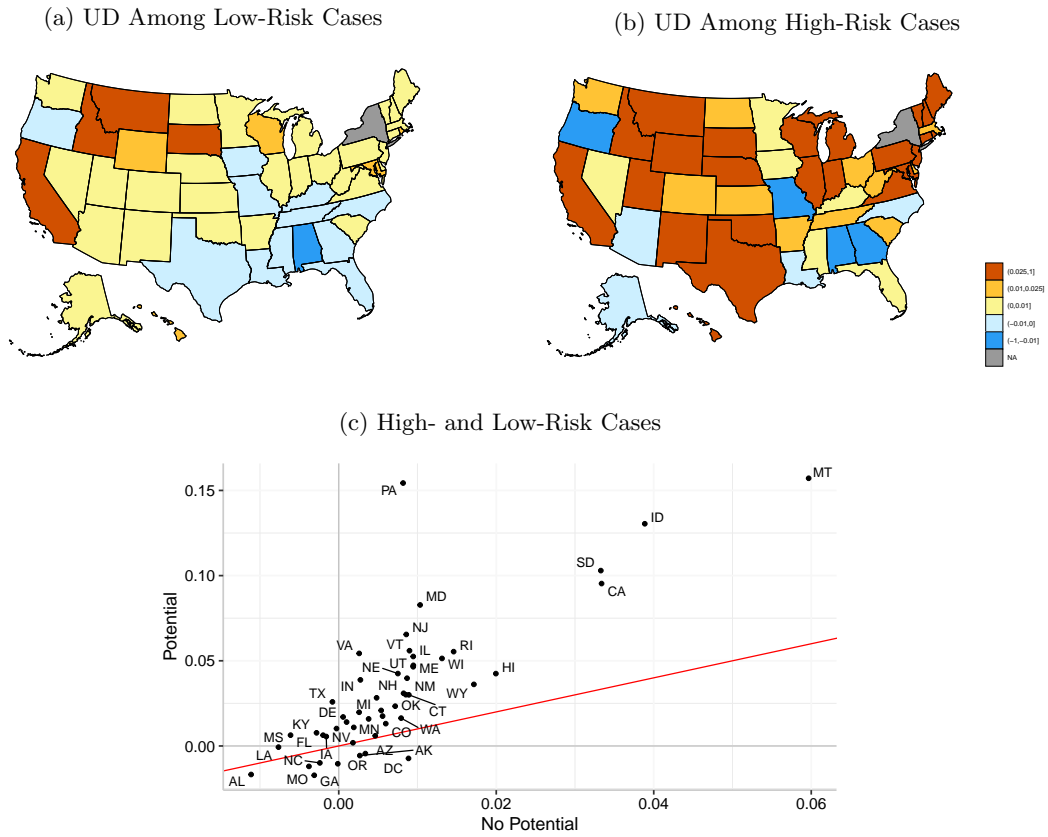
Note: Panel (a) shows race-specific foster care placement rates for children with and without maltreatment potential. The dotted vertical line shows the nation-wide placement rate across all types of cases. Panel (b) shows UD estimates for cases with and without maltreatment potential. The dashed vertical line shows the mean estimate of overall UD across all types of cases.

Figure 4: Unwarranted Disparity Estimates



Note: Panel (a) shows the overall UD for each state in the US. Panel (b) shows coefficients from a regression of each state and year's UD on local traits with year fixed effects included. A positive UD indicates placing Black children at higher rates than white children with identical rates of subsequent maltreatment. The grey bar shows 95% confidence intervals and stars on the right show significance: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors are clustered at the state level. Figure S2 shows maps with alternate measures of subsequent maltreatment.

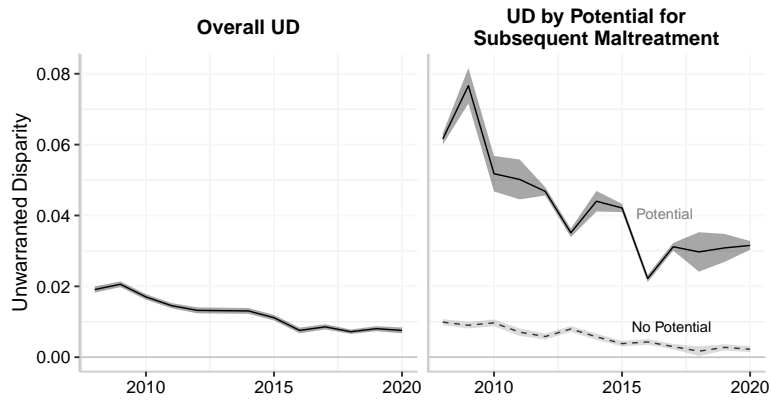
Figure 5: Unwarranted Disparity Estimates for Cases with and Without Maltreatment Potential by State



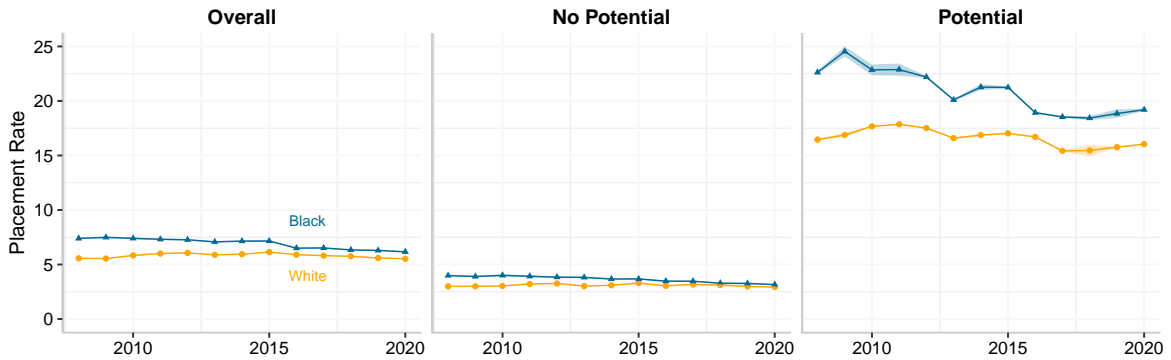
Note: Panel (a) shows the mean UD estimates among cases without potential for subsequent maltreatment and Panel (b) among cases with potential for subsequent maltreatment. A positive UD indicates placing Black children at higher rates than white children with identical potential for subsequent maltreatment. The statistics are calculated across all cases in the NCANDS data from 2008-2020. Panel (c) shows the UD for each state in cases without maltreatment potential (x-axis) and cases with potential for subsequent maltreatment (y-axis). The red diagonal indicates the 45-degree line in which there is equal UD in both types of cases. Figure S2 shows maps by maltreatment potential for alternate measures of subsequent maltreatment.

Figure 6: Unwarranted Disparity and Placement Trends Over Time

(a) Unwarranted Disparities



(b) Placement Rates by Race



Note: The left panel in Panel (a) shows the overall decline in unwarranted disparities in placement rates over our time period. The right panel shows UD among children in homes with and without potential for subsequent maltreatment. Positive estimates indicate Black children are placed at higher rates than white children, conditional on underlying maltreatment potential. The shaded ribbons indicate 95% confidence intervals based on 500 bootstraps. Panel (b) shows race-specific foster care placement rates for the whole population and for cases with and without maltreatment potential. Data show national-level estimates using a balanced panel of states. The shaded ribbons indicate 95% confidence intervals.

Table 1: Summary Statistics by Race, 2008-2020

	All Children	Black Children	White Children
Female	.497	.495	.498
Age at investigation	7.288	7.057	7.414
Child had previous investigation	.363	.361	.361
Num. previous investigations	.936	.9	.944
Foster care placement rate	.062	.069	.058
Reinvestigation within			
2 months	.058	.053	.061
3 months	.09	.082	.093
4 months	.117	.108	.122
5 months	.14	.13	.145
6 months	.164	.153	.17
# cases	23,530,592	8,327,378	15,203,213
# states	45	45	45

Note: This table summarises the analysis sample. The sample consists of maltreatment investigations in all states that report for the whole of 2008-2021 to NCANDS.

Table 2: Conventional Estimates of Racial Gaps in Foster Care Placement

	FC Placement		
	(1)	(2)	(3)
Black	1.080*** (0.013)	0.944*** (0.013)	0.859*** (0.011)
Female			0.429*** (0.041)
Prior Victim			5.009*** (0.015)
Sexual Abuse Allegation			1.754*** (0.020)
Physical Abuse Allegation			0.265*** (0.012)
Neglect Allegation			0.838*** (0.011)
Alleged Perpetrator includes Parent			5.941*** (0.034)
Alleged Perpetrator includes Female Person			16.720*** (0.039)
Alleged Perpetrator includes Black Person			5.647*** (0.044)
Alleged Perpetrator includes Prior Perp.			-0.076*** (0.011)
Constant	5.817*** (0.007)		
Year FEs		✓	✓
Age Dummies			✓
# States	45	45	45
# Years	13	13	13
R ²	0.0005	0.015	0.146

Note: This table reports racial gaps in foster care placements, controlling for various traits. The table shows OLS regression estimates of regressions relating whether a child was placed in foster care to observed traits about the child and case. The regressions are estimated on the sample described in Table 1. Standard errors, clustered at the child level, are reported in parentheses.

Table 3: Correlates of High Unwarranted Disparities

	Re-Investigation				(5)	Substantiation	FC Placement
	(1)	(2)	(3)	(4)		(6)	(7)
Share Black	-0.072*** (0.021)	-0.072*** (0.020)	-0.076*** (0.018)	-0.068*** (0.020)	-0.071*** (0.017)	-0.064*** (0.014)	-0.054*** (0.012)
Share White	-0.008 (0.015)	-0.008 (0.013)	-0.004 (0.013)	-0.017 (0.014)	-0.022 (0.015)	-0.018 (0.012)	-0.020* (0.011)
Log Income		0.0004 (0.014)			-0.043 (0.033)	-0.028 (0.025)	-0.030 (0.022)
Share College Edu			0.049 (0.048)		0.176 (0.117)	0.090 (0.091)	0.121 (0.080)
Voted Democratic			0.004 (0.024)		0.001 (0.029)	0.012 (0.021)	0.005 (0.019)
Share in Metro				-0.011 (0.012)	-0.013 (0.011)	-0.009 (0.009)	-0.010 (0.008)
Year FEs	✓	✓	✓	✓	✓	✓	✓
# States	45	45	45	45	45	45	45
# Years	13	13	13	13	13	13	13
R ²	0.175	0.175	0.189	0.186	0.233	0.236	0.236

Note: This table shows how state UD's relate to observable characteristics. The first six columns show the relationships to UD's, when subsequent maltreatment potential is measured in re-investigation within 6 months; column seven shows the relationship to UD's in cases with potential for subsequent maltreatment; column eight to UD's when maltreatment is measured in substantiation within 6 months; column nine to UD's when maltreatment is measured in subsequent foster care placement within 6 months. Fixed effects for the year are included. Standard errors are clustered at the state level. *p<0.1; **p<0.05; ***p<0.01.

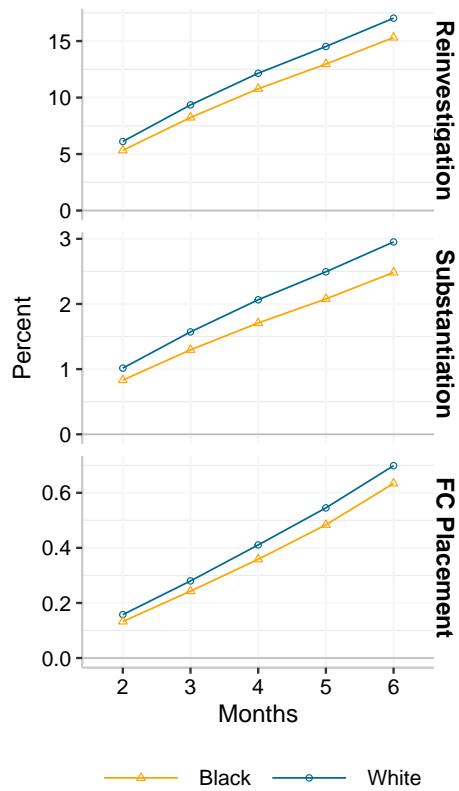
Unwarranted Racial Disparity in U.S. Foster Care Placement

E. Jason Baron · Joseph J. Doyle, Jr. · Natalia Emanuel · Peter Hull

Online Supplement

A SUPPLEMENTARY FIGURES AND TABLES

Figure S1: Subsequent Maltreatment If Not Placed in Foster Care By Race



Note: This figure shows the evolution of re-investigations, substantiated re-investigations, and placements in foster care by race in the six months after the studied investigation for those who are not placed in foster care. Data are for 2008-2020.

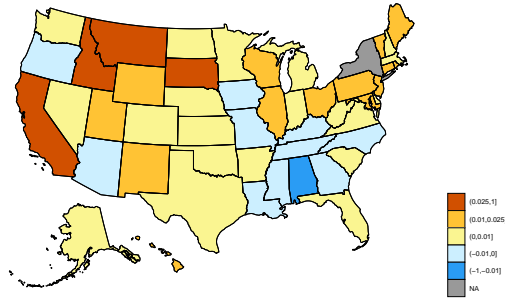
Table S1: Raw Disparities and Unwarranted Disparities by State (2008-2020)

	Removal Rate		Raw Disparity		UD Reinvest		UD Subst		UD Placement	
AK	8.58	(0.140)	0.33	(0.326)	-0.03	(0.302)	0.12	(0.268)	-0.07	(0.244)
AL	11.19	(0.053)	-2.39	(0.102)	-1.39	(0.079)	-1.39	(0.092)	-1.34	(0.102)
AR	4.77	(0.027)	0.19	(0.059)	0.49	(0.058)	0.32	(0.062)	0.10	(0.059)
AZ	8.86	(0.043)	0.39	(0.098)	0.06	(0.095)	-0.05	(0.076)	-0.10	(0.080)
CA	14.09	(0.027)	5.98	(0.054)	4.80	(0.056)	3.94	(0.057)	3.30	(0.071)
CO	4.13	(0.036)	0.84	(0.094)	0.69	(0.081)	0.39	(0.079)	0.32	(0.096)
CT	5.29	(0.049)	1.33	(0.095)	1.25	(0.081)	1.14	(0.085)	0.65	(0.088)
DC	5.14	(0.078)	1.50	(0.631)	0.65	(0.749)	0.42	(0.637)	0.53	(0.325)
DE	1.47	(0.032)	0.28	(0.060)	0.30	(0.060)	0.25	(0.059)	0.14	(0.060)
FL	5.06	(0.013)	-0.25	(0.027)	-0.04	(0.027)	0.06	(0.029)	-0.02	(0.028)
GA	3.11	(0.016)	-0.85	(0.032)	-0.59	(0.032)	-0.38	(0.047)	-0.38	(0.037)
HI	21.76	(0.352)	3.36	(0.889)	1.71	(0.651)	1.72	(0.578)	1.43	(0.551)
IA	6.49	(0.043)	-0.24	(0.108)	-0.05	(0.110)	-0.09	(0.095)	-0.30	(0.111)
ID	6.23	(0.072)	7.31	(0.840)	5.77	(0.700)	3.83	(0.540)	3.54	(0.533)
IL	4.73	(0.018)	1.57	(0.035)	1.74	(0.031)	1.35	(0.044)	0.93	(0.036)
IN	5.43	(0.019)	0.92	(0.044)	1.14	(0.042)	0.81	(0.045)	0.41	(0.055)
KS	4.72	(0.040)	0.77	(0.104)	0.76	(0.097)	0.40	(0.104)	0.42	(0.102)
KY	3.63	(0.022)	-0.34	(0.056)	-0.10	(0.058)	-0.21	(0.057)	-0.26	(0.056)
LA	8.61	(0.045)	-1.25	(0.088)	-0.68	(0.085)	-0.59	(0.081)	-0.49	(0.089)
MA	9.78	(0.043)	0.99	(0.092)	0.82	(0.092)	0.68	(0.093)	0.42	(0.094)
MD	4.93	(0.040)	1.61	(0.079)	1.88	(0.059)	1.57	(0.072)	1.05	(0.079)
ME	6.97	(0.079)	1.54	(0.345)	1.59	(0.330)	1.27	(0.283)	0.52	(0.229)
MI	2.93	(0.013)	0.95	(0.026)	1.03	(0.023)	0.88	(0.030)	0.50	(0.067)
MN	9.04	(0.054)	0.96	(0.110)	0.41	(0.096)	0.19	(0.087)	0.32	(0.091)
MO	4.91	(0.024)	-0.95	(0.054)	-0.60	(0.056)	-0.59	(0.056)	-0.61	(0.057)
MS	6.72	(0.040)	-0.95	(0.077)	-0.39	(0.074)	-0.32	(0.070)	-0.40	(0.078)
MT	11.08	(0.097)	10.91	(0.739)	8.03	(0.604)	5.98	(0.459)	5.42	(0.469)
NC	2.27	(0.024)	-0.48	(0.046)	-0.35	(0.046)	-0.30	(0.042)	-0.42	(0.087)
ND	4.84	(0.100)	0.32	(0.279)	0.18	(0.255)	0.17	(0.226)	-0.32	(0.208)
NE	7.81	(0.058)	1.68	(0.150)	1.52	(0.140)	0.85	(0.128)	0.82	(0.109)
NH	3.55	(0.052)	1.28	(0.241)	1.18	(0.228)	0.80	(0.177)	0.51	(0.163)
NJ	5.80	(0.031)	1.98	(0.062)	2.01	(0.059)	1.43	(0.064)	1.24	(0.063)
NM	5.46	(0.077)	1.87	(0.238)	1.46	(0.217)	1.10	(0.195)	1.02	(0.162)
NV	12.04	(0.072)	0.75	(0.144)	0.15	(0.117)	0.34	(0.124)	0.51	(0.124)
OH	7.27	(0.025)	1.17	(0.051)	0.99	(0.050)	1.19	(0.053)	0.68	(0.058)
OK	5.35	(0.034)	1.56	(0.077)	1.16	(0.076)	0.97	(0.078)	0.79	(0.079)
OR	7.87	(0.052)	0.05	(0.170)	-0.37	(0.159)	-0.29	(0.147)	-0.24	(0.136)
PA	1.57	(0.028)	1.64	(0.068)	1.49	(0.070)	1.23	(0.065)	0.97	(0.071)
RI	8.59	(0.104)	2.56	(0.238)	2.22	(0.219)	1.75	(0.194)	1.47	(0.191)
SC	4.07	(0.025)	0.14	(0.048)	0.34	(0.048)	0.24	(0.045)	-0.02	(0.069)
SD	12.11	(0.187)	6.16	(0.627)	4.03	(0.490)	3.09	(0.427)	2.90	(0.413)
TN	5.72	(0.028)	-0.09	(0.062)	0.14	(0.059)	-0.03	(0.058)	-0.19	(0.062)
TX	5.31	(0.017)	0.11	(0.033)	0.26	(0.031)	0.25	(0.035)	0.11	(0.034)
UT	3.33	(0.036)	1.91	(0.189)	1.49	(0.167)	1.31	(0.160)	0.68	(0.130)
VA	4.25	(0.026)	0.42	(0.054)	0.75	(0.056)	0.49	(0.063)	0.44	(0.079)
VT	5.06	(0.099)	2.05	(0.742)	1.55	(0.655)	1.05	(0.548)	0.77	(0.450)
WA	6.34	(0.040)	1.34	(0.112)	0.90	(0.106)	0.51	(0.106)	0.54	(0.099)
WI	9.51	(0.052)	2.41	(0.109)	1.99	(0.111)	1.73	(0.087)	1.39	(0.088)
WV	4.29	(0.029)	0.59	(0.105)	0.42	(0.088)	0.23	(0.105)	0.13	(0.104)
WY	9.92	(0.132)	2.99	(0.781)	1.88	(0.669)	1.27	(0.550)	0.92	(0.534)

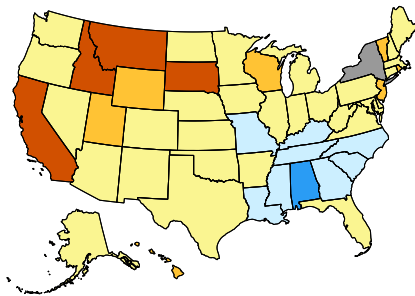
Note: This table contains the overall foster care removal rate, unwarranted disparity mean estimates using three measures of subsequent maltreatment: a re-investigation, a substantiated re-investigation by CPS, and placement in foster care within six months of an investigation. Standard errors from 500 bootstrapped samples are shown in parentheses.

Figure S2: Unwarranted Disparities with Substantiation and Placement Proxies

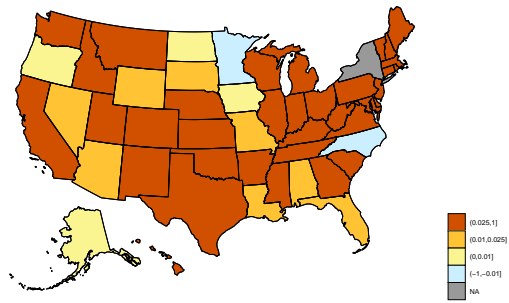
(a) UD by Substantiation



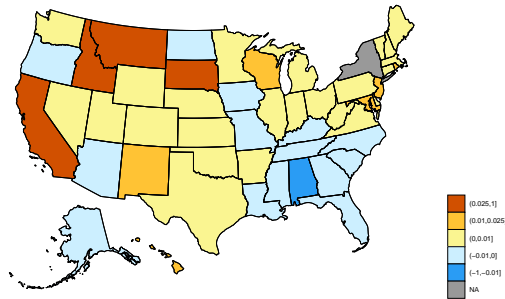
(b) No Potential by Substantiation



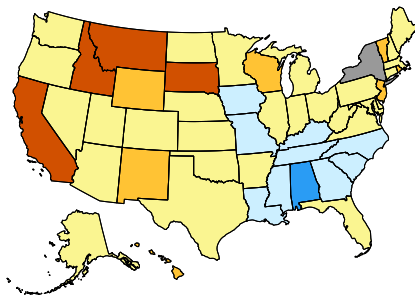
(c) Potential by Substantiation



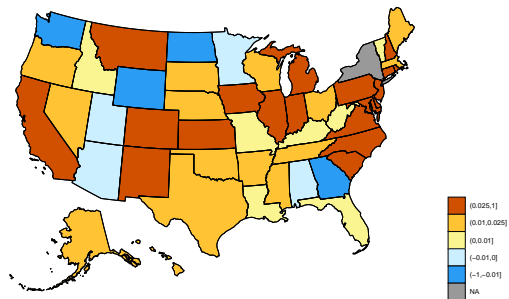
(d) UD by Foster Care Placement



(e) No Potential by Foster Care Placement



(f) Potential by Foster Care Placement



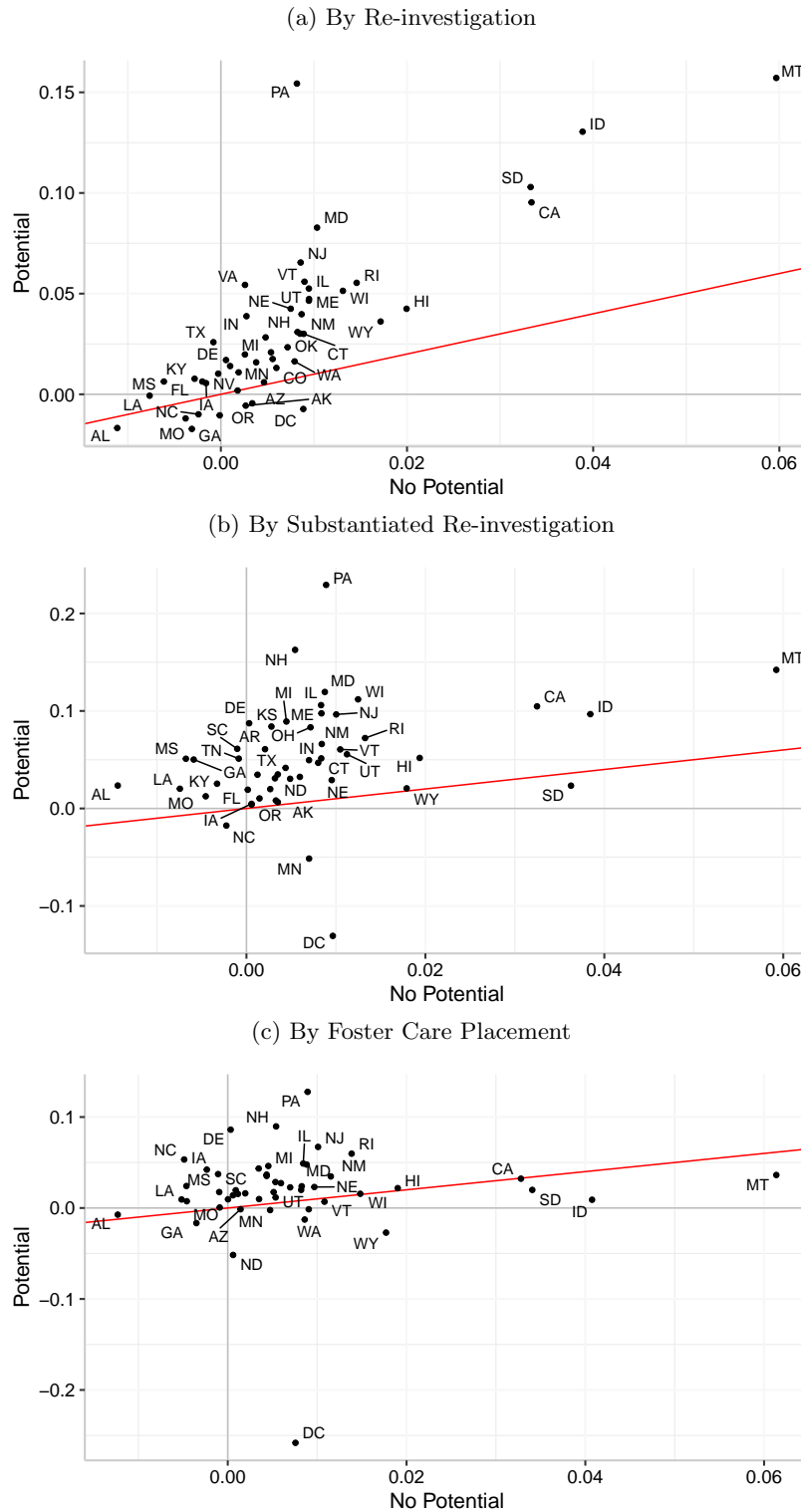
Note: Panels (a)-(c) show UD when we proxy for subsequent maltreatment using the presence of a substantiated investigation by CPS within the six months following an investigation. Panels (d)-(f) show the same when the proxy is placement in foster care within the six months following an investigation. For each proxy, we show overall UD as well as UD among cases where there is or is not potential for subsequent maltreatment. The statistics are calculated across all cases in the NCANDS data from 2008-2020.

Table S2: Placement Rates and Unwarranted Disparities for Three Measures of Subsequent Maltreatment

	Placement Rates		Unwarranted Racial Disparity	
	Black	White	Potential-Specific	Overall
Panel (a): Reinvestigation Potential				
Potential Cases	20.56 (0.01)	16.96 (0.01)	3.60 (0.01)	1.22 (0.01)
No Potential Cases	3.67 (0.01)	2.98 (0.01)	0.69 (0.01)	
Panel (b): Substantiation Potential				
Potential Cases	53.18 (0.07)	45.86 (0.03)	7.32 (0.07)	0.92 (0.01)
No Potential Cases	3.64 (0.01)	3.04 (0.01)	0.61 (0.01)	
Panel (c): Foster Care Placement Potential				
Potential Cases	75.56 (0.06)	71.25 (0.04)	4.30 (0.08)	0.64 (0.01)
No Potential Cases	3.71 (0.01)	3.10 (0.01)	0.60 (0.01)	

Note: This table shows placement rates in foster care and unwarranted disparities. Each panel shows a different measure of subsequent maltreatment. Potential for subsequent maltreatment is calculated based on likelihood of experiencing within six months a re-investigation in Panel (a), a substantiated investigation in Panel (b) and placement in foster care in Panel (c). Within each panel, we show placement rates by subsequent maltreatment potential in the left two columns. The third column shows potential-specific unwarranted disparities (UD), The fourth column shows the overall UD for that measure of subsequent maltreatment. Standard errors from 500 bootstrapped samples are shown in parentheses. The overall foster care placement rate is 5.9%: 6.5% for Black children and 5.5% for white children. The racial gap in foster care placement computed from conventional analyses is 0.76. See Figure S1 for evolution of each outcome in the months after an investigation.

Figure S3: Unwarranted Disparity Estimates by Maltreatment Potential, 2008-2020



Note: This graph shows the UD for each state in cases without potential for subsequent maltreatment (x-axis) and cases with potential for subsequent maltreatment (y-axis). A positive UD indicates placing Black children at higher rates than white children. The red diagonal indicates the 45-degree line in which there is equal UD in both types of cases. Each panel shows our three measures of subsequent maltreatment. Data are for each state, 2008-2020.

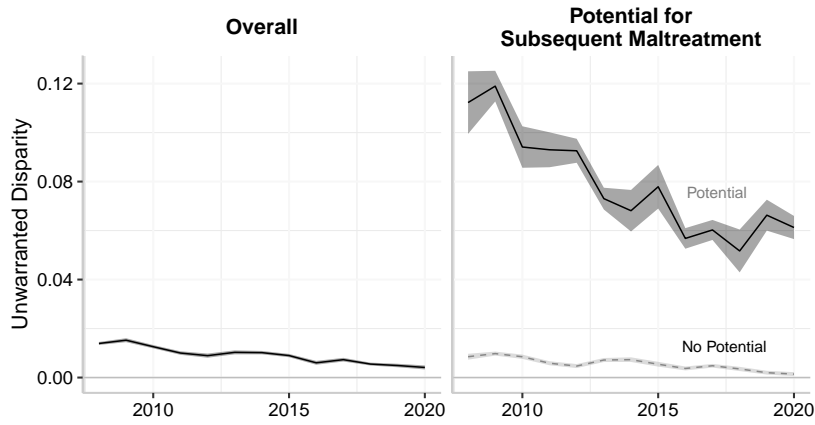
Table S3: UD Estimates by Maltreatment Potential and State (2008-2020)

	Re-investigaton				Substantiation				Placement			
	No Potential UD		Potential UD		No Potential UD		Potential UD		No Potential UD		Potential UD	
AK	0.27	(0.197)	-0.56	(0.829)	0.35	(0.209)	0.65	(1.609)	0.09	(0.205)	1.95	(1.867)
AL	-1.11	(0.096)	-1.67	(0.604)	-1.44	(0.104)	2.35	(0.607)	-1.23	(0.111)	-0.73	(0.338)
AR	0.26	(0.076)	1.98	(0.362)	0.21	(0.061)	6.08	(0.405)	0.20	(0.060)	1.61	(0.567)
AZ	0.34	(0.122)	-0.45	(0.373)	0.15	(0.089)	1.03	(0.626)	0.14	(0.089)	-0.14	(0.610)
CA	3.34	(0.058)	9.53	(0.094)	3.25	(0.059)	10.47	(0.168)	3.28	(0.088)	3.22	(0.239)
CO	0.60	(0.082)	1.31	(0.493)	0.32	(0.085)	3.09	(0.887)	0.35	(0.098)	4.34	(0.858)
CT	0.89	(0.104)	3.00	(0.649)	0.84	(0.114)	5.14	(1.127)	0.60	(0.103)	2.73	(1.032)
DC	0.89	(0.333)	-0.73	(2.545)	0.97	(0.336)	-13.07	(7.283)	0.76	(0.334)	-25.81	(0.724)
DE	0.06	(0.065)	1.70	(0.273)	0.03	(0.067)	8.74	(1.597)	0.03	(0.061)	8.61	(1.678)
FL	-0.20	(0.028)	0.63	(0.032)	0.01	(0.030)	1.92	(0.220)	0.00	(0.028)	0.96	(0.215)
GA	-0.31	(0.035)	-1.72	(0.076)	-0.59	(0.094)	5.02	(1.274)	-0.35	(0.046)	-1.66	(0.705)
HI	2.00	(0.538)	4.25	(1.736)	1.94	(0.545)	5.18	(1.784)	1.90	(0.537)	2.18	(1.719)
IA	-0.16	(0.107)	0.55	(0.165)	0.06	(0.099)	0.48	(0.784)	-0.23	(0.121)	4.22	(0.948)
ID	3.89	(0.475)	13.04	(1.632)	3.84	(0.464)	9.67	(3.080)	4.08	(0.476)	0.91	(2.988)
IL	0.95	(0.102)	5.25	(0.462)	0.83	(0.093)	10.60	(0.829)	0.84	(0.037)	4.89	(0.369)
IN	0.28	(0.114)	3.88	(0.331)	0.70	(0.083)	4.95	(0.799)	0.43	(0.076)	3.67	(0.658)
KS	0.56	(0.088)	1.75	(0.436)	0.28	(0.127)	8.40	(1.484)	0.53	(0.111)	2.85	(1.101)
KY	-0.28	(0.083)	0.77	(0.512)	-0.33	(0.115)	2.54	(1.046)	-0.09	(0.057)	0.06	(0.632)
LA	-0.77	(0.093)	-0.07	(0.433)	-0.74	(0.106)	2.02	(0.689)	-0.52	(0.102)	0.94	(0.596)
MA	0.54	(0.093)	2.09	(0.142)	0.49	(0.093)	3.04	(0.247)	0.51	(0.095)	1.75	(0.402)
MD	1.03	(0.101)	8.28	(0.968)	0.88	(0.096)	11.95	(0.928)	0.88	(0.103)	4.78	(1.318)
ME	0.95	(0.206)	4.73	(1.003)	0.84	(0.220)	9.76	(1.828)	0.82	(0.204)	1.99	(2.028)
MI	0.48	(0.132)	2.83	(0.468)	0.45	(0.075)	8.92	(0.985)	0.45	(0.105)	4.62	(1.527)
MN	0.46	(0.099)	0.60	(0.450)	0.70	(0.115)	-5.15	(0.796)	0.47	(0.101)	-0.23	(0.651)
MO	-0.38	(0.056)	-1.20	(0.065)	-0.46	(0.055)	1.25	(0.482)	-0.46	(0.056)	0.75	(0.497)
MS	-0.61	(0.080)	0.63	(0.281)	-0.68	(0.086)	5.10	(0.761)	-0.46	(0.079)	2.42	(0.489)
MT	5.97	(0.448)	15.71	(1.232)	5.92	(0.435)	14.22	(1.761)	6.14	(0.451)	3.63	(1.740)
NC	-0.24	(0.046)	-0.99	(0.065)	-0.22	(0.076)	-1.76	(1.542)	-0.49	(0.140)	5.33	(3.684)
ND	0.10	(0.170)	1.40	(1.165)	0.33	(0.174)	0.82	(2.152)	0.06	(0.178)	-5.16	(2.581)
NE	0.75	(0.117)	4.25	(0.408)	0.95	(0.125)	2.91	(0.789)	0.97	(0.111)	2.31	(0.902)
NH	0.82	(0.148)	3.09	(0.785)	0.54	(0.153)	16.27	(2.613)	0.54	(0.152)	8.97	(2.727)
NJ	0.86	(0.075)	6.55	(0.295)	1.00	(0.063)	9.65	(0.394)	1.01	(0.063)	6.72	(0.458)
NM	0.87	(0.160)	3.98	(0.589)	0.84	(0.164)	6.61	(1.435)	1.15	(0.154)	3.47	(1.702)
NV	0.18	(0.110)	0.19	(0.521)	0.27	(0.136)	1.98	(0.688)	0.54	(0.131)	1.16	(0.606)
OH	0.72	(0.053)	2.34	(0.128)	0.72	(0.053)	8.32	(0.253)	0.70	(0.070)	2.27	(0.415)
OK	0.85	(0.076)	3.01	(0.196)	0.80	(0.077)	4.68	(0.372)	0.83	(0.079)	2.39	(0.558)
OR	-0.01	(0.133)	-1.04	(0.428)	0.06	(0.130)	0.40	(0.969)	0.06	(0.129)	1.40	(1.076)
PA	0.82	(0.068)	15.43	(0.402)	0.89	(0.117)	22.93	(6.067)	0.89	(0.112)	12.77	(7.783)
RI	1.46	(0.167)	5.54	(0.605)	1.33	(0.158)	7.22	(1.189)	1.39	(0.181)	5.97	(1.168)
SC	0.19	(0.051)	1.09	(0.176)	-0.10	(0.106)	6.12	(1.274)	-0.11	(0.099)	3.73	(1.258)
SD	3.33	(0.369)	10.29	(1.459)	3.63	(0.373)	2.34	(1.918)	3.41	(0.380)	1.99	(1.867)
TN	-0.03	(0.068)	1.02	(0.318)	-0.09	(0.068)	5.11	(0.662)	-0.10	(0.063)	1.75	(0.538)
TX	-0.08	(0.061)	2.59	(0.360)	0.12	(0.034)	3.46	(0.189)	0.11	(0.034)	1.55	(0.266)
UT	0.95	(0.130)	4.65	(0.683)	1.12	(0.141)	5.56	(1.194)	0.91	(0.116)	-0.14	(1.821)
VA	0.26	(0.055)	5.43	(0.138)	0.44	(0.102)	4.16	(1.365)	0.44	(0.104)	3.52	(1.013)
VT	0.90	(0.396)	5.59	(2.229)	1.05	(0.401)	6.05	(4.429)	1.08	(0.402)	0.69	(5.344)
WA	0.79	(0.097)	1.63	(0.291)	0.60	(0.130)	3.24	(1.050)	0.86	(0.114)	-1.27	(0.946)
WI	1.31	(0.112)	5.14	(0.178)	1.25	(0.115)	11.19	(0.825)	1.48	(0.104)	1.56	(0.622)
WV	0.38	(0.077)	1.59	(0.707)	0.35	(0.104)	3.49	(0.837)	0.35	(0.103)	0.98	(0.929)
WY	1.72	(0.436)	3.62	(1.628)	1.79 ³⁴	(0.431)	2.06	(2.980)	1.77	(0.440)	-2.70	(2.923)

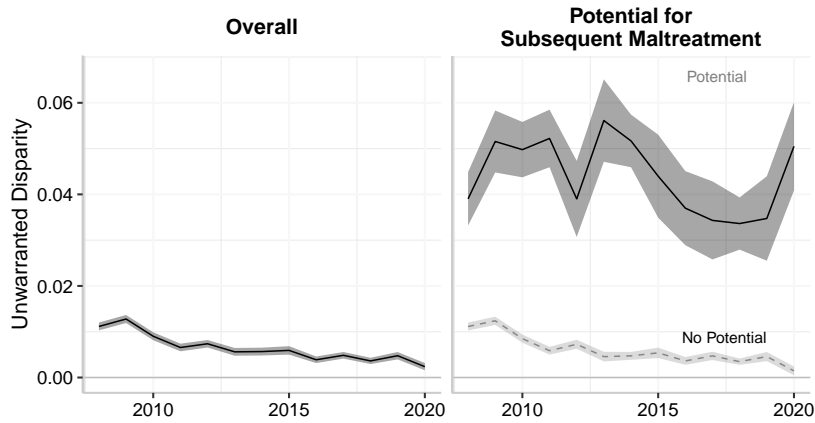
Note: This table shows the mean of the estimated unwarranted disparities in re-investigation in the populations with and without subsequent maltreatment potential as well as the difference, averaging over 2008-2020. Standard errors from 500 bootstrapped samples are shown in parentheses.

Figure S4: UD Trends Over Time with Alternative Maltreatment Potential Measures, 2008-2020

(a) Subsequent Substantiated Investigation



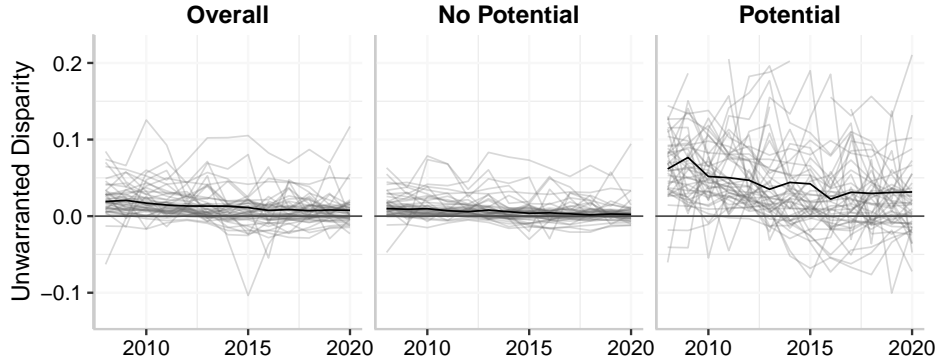
(b) Subsequent Foster Care Placement



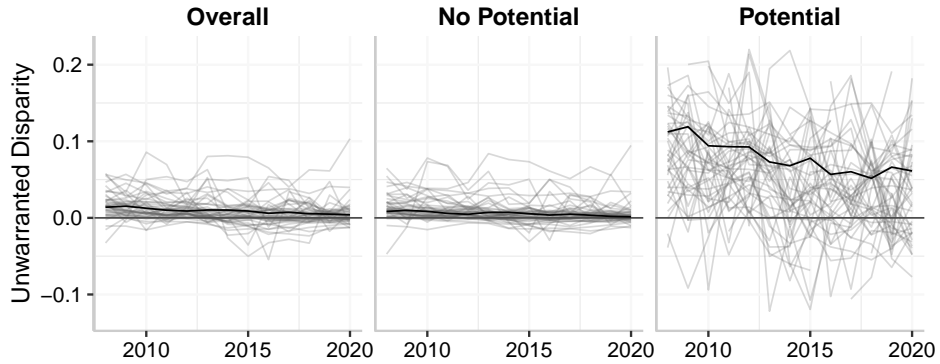
Note: This figure shows the decline in UD using different measures of subsequent maltreatment. Panel (a) shows subsequent maltreatment potential as measured by a substantiated investigation in the six months after investigation. Panel (b) measures with a placement in foster care. Measuring subsequent maltreatment potential via re-investigation is shown in Figure 6a.

Figure S5: UD Trends Over Time, 2008-2020

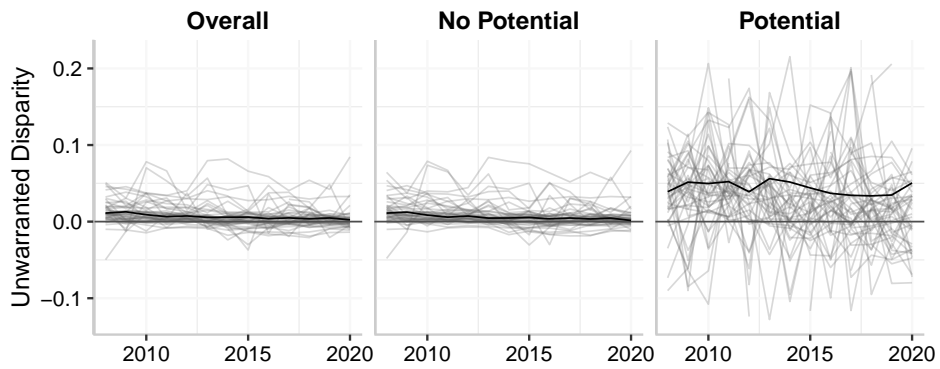
(a) Subsequent Re-investigation



(b) Subsequent Substantiated Investigation



(c) Subsequent Foster Care Placement



Note: This figure shows how each state contributes to the national trend in UD over time. The three panels show three different means of measuring subsequent maltreatment potential. Panel (a) shows a subsequent re-investigation, Panel (b) a substantiated re-investigation, Panel (c) a placement in foster care within six months following the investigation. Within each panel, the leftmost graph shows the overall decline in unwarranted disparities in placement rates over our time period. The middle and right graphs show the same for cases with and without potential for subsequent maltreatment. Each grey line shows an individual state. Black lines show the national average. Positive UD estimates indicate Black children are placed at higher rates than white children.