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Racial Disproportionality in Reported and Substantiated Child Abuse and Neglect: An Examination of Systematic Bias

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Using data from Minnesota for 2000, we show that measures of discrimination in maltreatment substantiation are inflated by a failure to disaggregate counties with large minority populations from those with small minority populations. Racial disparities in substantiation rates, conditional upon reports to child protective service workers, are not huge. Nonetheless, measures of discrimination—once one accounts for characteristics of victims, offenders, reporters, counties and types of maltreatment—are non-trivial. For African Americans, they are higher in the state as a whole than in the counties that have the largest share of minority children. Although the discrimination measures do not vanish when disaggregated analysis is performed, our findings suggest that caution should be displayed when reporting disproportionality statistics that include data from widely dispersed geographical areas.

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Minnesota leads the nation in racial disproportionality in child maltreatment. In 1996, for example, African American children were 7.4 times as likely to be in the population of maltreated children reported to the Minnesota child protective services as in the general population. Hispanic children were 3.2 times and American Indian children 4.4 times as likely to be in the population of maltreated children reported to authorities as in the general population.[1]

The neglect statistics show an even larger disproportionality. Whereas nationally in 1996 the neglect disproportionality rates for African American, Hispanic, American Indian and Asian Pacific Islander children were 2.3, 0.78, 1.41, and 0.23, in Minnesota the rates were 8.82, 3.49, 5.76, and 0.72, respectively.[2]

This paper explores three aspects of the racial disproportionality problem using recent Minnesota data. First, we compare disproportionality measures at two different points in the process. We find greater disproportionality at the pre-assessment stage than later in the process. Second, we consider the problem of aggregation bias. We investigate whether the uneven geographic distribution of children of color in a few Minnesota counties creates the appearance of disproportionality when there is none. Moreover, it may appear that children of color are disproportionately counted in the child maltreatment data because they disproportionately live in areas of high substantiation of child maltreatment. Finally, we perform a statistical test of racial bias in the substantiation of child maltreatment cases, which permits us to control for factors that could explain racial differences in child maltreatment substantiation rates and to isolate and measure unexplained racial differences attributable to unequal treatment.

Using data from Minnesota for 2000, we show that measures of discrimination in maltreatment substantiation are inflated by a failure to disaggregate counties with large minority populations from those with small minority populations. Racial disparities in substantiation rates, conditional upon reports to child protective service workers, are not huge. Nonetheless, measures of discrimination—once one accounts for characteristics of victims, offenders, reporters, counties, and types of maltreatment—are non trivial. They are often higher in the state as a whole than in the counties that have the largest share of minority children. Although the discrimina-

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[1] Data come from the National Child Abuse and Neglect Data System (NCANDS) published by U.S. Department of Health and Human Services. See Tables 2-5 *in Child Maltreatment 1996* http://www.acf.hhs.gov/programs/cb/publications/ncands96/index.htm

[2] Ibid.

tion measures do not vanish when disaggregated analysis is performed, our findings suggest that caution should be displayed when reporting disproportionality statistics that include data from widely dispersed geographical areas.

Definition of Terms

Minnesota law places responsibility for providing social services, including child protection services, with the eighty-seven counties in the state. To enable consistency in data collection, analysis, and interpretation, Minnesota initiated the Social Service Information System (SSIS), which captures data from all the counties into a single data system that can track officially reported cases of child maltreatment. In 2000, SSIS became the mandatory system for sharing data with the Minnesota Department of Human Services (DHS).

SSIS data starts with an official receipt of a report of child maltreatment accepted for assessment A *report* occurs when an individual or agency contacts a county Child Protective Service (CPS) office about possible maltreatment of children. *Assessment* is the process of determining (*substantiating*) whether a reported incident meets the state's definition of child maltreatment. Some reports of child maltreatment are not accepted for assessment by the county child protection services. SSIS data include primarily those reports that have been accepted.

In most counties, data from reports are entered into SSIS after being originally captured on paper forms. In a few counties, the SSIS system serves as the primary filing system and data are entered there initially. At intervals the entire SSIS dataset from a given county is uploaded into the statewide system for integration with data from other counties. After the end of the calendar year, DHS staff review the data, check for completeness and "cleanliness" of data, and produce mandatory reports for the federal and state government.

In the SSIS data system, a report of child maltreatment may include multiple children named as victims, multiple adults named as alleged offenders, and multiple individual allegations or occurrences of maltreatment on the same date. Each individual allegation of specific maltreatment of a particular child by a particular offender is called an *event*, while each report (which may contain multiple *events*) is referred to as an *incident*. In this paper, we will use *report* rather than *incident* to mean a set of one or more allegations of maltreatment (*events*). The distinction is critical, be-

cause the individual events are the units that are *substantiated* (that is, have been determined to have actually occurred). Thus, a given report may contain more than one event, some or all of which may be substantiated by the assessment.

The SSIS data system contains 29,013 child-event pairs for the year 2000. These include several thousand cases in which the same child was alleged to be involved in more than one event. The final unduplicated number of children alleged to be involved in at least one event in the year 2000 was 21,560.[3]

The current study of child maltreatment focuses on the three metropolitan counties with the highest numbers of children of color in the state. These *study counties* are Hennepin, Ramsey, and Dakota. The remaining eighty-four Minnesota counties are called the *non-study counties*. "Children of color" is defined as all categories of children who are not white.

The official reporting of child maltreatment is the end result of a process that begins with maltreatment of a child by a parent or caretaker. Let A^* be the actual number of child maltreatment occurrences, a measure that is generally unknown. Indicate the actual child population by P.[4] Then the child maltreatment rate is $\frac{A^*}{P} = a^*$. For the *kth* and *jth* racial groups, the child maltreatment rates are given by; $\left(\frac{A^*}{P}\right)^k = a^{*k}$ and $\left(\frac{A^*}{P}\right)^j = a^{*j}$. Let an official report of child maltreatment be designated by R and let the official substantiation of child maltreatment be equal to S.[5] Then the ratio of substantiated reports to the child population is $\frac{S}{P} = \sigma$ and the propor-

[3] Unduplicated records for children with multiple events were identified in the following way: We first chose the latest report involving the child for that year. Next, we chose the event in that report with the most severe presenting problem (sexual abuse was ranked most severe, followed by physical abuse, neglect and emotional injury). If there were several events with identical dates and severity, we randomly chose one to represent that child. These cases include only those with full age, race, and ethnicity data.

[4] Actual maltreatment may or may not become known to individuals or agencies in the community. Some calls to child protection services concern events that are not actual maltreatment. Because A* is unknown, the ratio can only be estimated.

[5] Contacts with CPS do not always result in the opening of a case for assessment. Some calls are referred to other agencies or not investigated for other reasons (e.g., lack of necessary details). For the purpose of this article, only contacts with CPS that result in a case being opened are called reports.

tion of reports that are substantiated is $\frac{S}{R} = s$. For concreteness, we refer to σ as the substantiation-to-population ratio and s as the substantiation rate. These can be further defined for races k and j. It is clear from Equation 1 that the substantiation-to-population ratio depends on the substantiation rate as well as upon the actual child maltreatment rate via the ratio of reports to actual maltreatment.

Equation 1

$$\frac{S}{P} = \frac{A^*}{P} \cdot \frac{R}{A^*} \cdot \frac{S}{R}$$

or

$$\sigma = a^* \cdot s \cdot \left(\frac{R}{A^*}\right)$$

Although A^*, the number of maltreated cases, and a^*, the maltreatment rate, are unknown, the substantiation-to-population ratio can be rewritten as a function of observables alone:

Equation 2

$$\sigma = s \cdot \rho$$

where

$$\rho = \left(\frac{R}{P}\right) = \frac{A^*}{P} \cdot \frac{R}{A^*}$$

We can interpret ρ to be the *report-to-population* ratio. The significance of Equation 2 is that the two terms R and $P$are reported regularly in official statistics.[6] From these statistics, one can compute alternative measures of disproportionality.

Let $\delta^k(\rho)$ be the disproportionality between the *kth* group's representation in the reported population and the *kth* group's representation in the child population. It is defined as the *report disproportionality.* Then:

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[6] See, for example, U.S. Department of Health and Human Services, Administration on Children, Youth and Families. (2002). *Child Maltreatment 2000.* Washington: U.S. Government Printing Office.

Equation 3

$$\delta^k(\rho) = \frac{\rho^k}{\rho} = \frac{R^k/P^k}{R/P} = \frac{R^k/R}{P^k/P}$$

The disproportionalities between the *kth* group's representation in the substantiated and the child population vs the *kth* group's representation in the reported population are given by:

Equation 4

$$\delta^k(\sigma) = \frac{\sigma^k}{\sigma}$$

and

Equation 5

$$\delta^k(s) = \frac{s^k}{s}$$

Equation 4 defines the *substantiation disproportionality*, while Equation 5 defines the *substantiation-to-report disproportionality*. These varying measures of disproportionality ratios are computed for Minnesota in the next section of this article.

Disproportionality in Minnesota

The basic statistics from the SSIS system in Minnesota and from reports to the National Child Abuse and Neglect Data System (NCANDS) show a persistent racial disproportionality in child maltreatment.[7] Table 1 reports the disproportionality between substantiations and representation in the child population, $\delta^k(\sigma)$, in Minnesota for the years 1993 to 2000. The figures reveal that this disproportionality with respect to African Americans (referred to as "Black" in the tables) has been largely stable over the decade. For brevity in the tables, Native Americans are noted as "Indian"; Asian and Pacific-Islanders as "Asian"; and all Hispanics of any race as "Hispanic."

[7] Data for 2000 come from the SSIS data file. Data for previous years come from the NCANDS reports for those years published by U. S. Department of Health and Human Services.

The ratios range from 0.49:1 for Asians in 1995 to 6.3:1 for blacks in 1997. These results suggest that Asians are underrepresented among substantiated maltreatment cases while African American children are over 6 times more likely to be found among substantiated cases as they are to be found in the child population. Across the decade, the ratios are surprisingly stable. Even the apparent dip in the black ratio in 2000 (based on SSIS data rather than the NCANDS data used in earlier years) shows higher rates of disproportionality among African Americans than any other racial group.

Table 1
Disproportionality Between Substantiations and Child Population in Minnesota: $\delta^k(\sigma)$
All Substantiated Maltreatment by Race and Ethnicity, 1993–2000

	1993	1994	1995	1996	1997	1998	1999	2000
Black	6.0070	6.0116	5.5248	5.8194	6.2829	6.1106	6.0308	4.9448
Indian	4.4843	4.1978	4.4075	3.9167	4.0877	3.9697	4.9885	4.9295
Asian	0.5339	0.5047	0.4924	0.6436	0.6411	0.6642	0.8826	0.9225
White	0.7011	0.6746	0.6745	0.6681	0.7005	0.6981	0.6562	0.6647
Hispanic	1.7815	2.6790	2.6598	2.5995	2.6424	2.4841	2.3474	1.8245

Table 2 reports measures of disproportionality in reports, $\delta^k(\rho)$, computed in two ways. In the first column, the measure is based on child-event report pairs. That is, it captures reported maltreatment events, which may include the same child on more than one occasion. In the second column, the report disproportionality measure is computed using unduplicated children. This is done for all counties and then for the study counties and non-study counties.[8] The second column shows the same ratio using the number of unduplicated individuals in the numerator. There is little change in the report disproportionality when account is taken of the duplication of children. Whether one computes $\delta^k(\rho)$ using duplicated or unduplicated cases, one finds that the report disproportionality is greater in the non-study counties than the study counties for African Americans and Hispanics. For blacks, Asians and Hispanics, the overall report disproportionality in the state is larger than the disproportionality within the three counties where the largest number of children of color reside.

[8] Data from SSIS data file, Minnesota Department of Human Services, 2001.

However, for American Indians, the reverse is true; the report disproportionality is larger in the three-county metropolitan area than in the non-study counties or in the state as a whole.

Table 2
Racial Disproportionality Ratios, Minnesota, 2000

	$\delta^k(\rho)$, Duplicated Reports	$\delta^k(\rho)$, Unduplicated Reports	$\delta^k(s)$, Substantiated Reports
State	*n*=31,973	*n*=21,594	*N*=9,736
White	0.63	0.70	0.94
Black	4.47	4.45	1.11
Hispanic	1.57	1.58	1.06
American Indian	4.65	4.53	1.07
Asian/Pacific Islander	0.79	0.76	1.22
Other	3.14	3.32	0.98
Study Counties	*n*=17,449	*n*=11,304	*N*=5,317
White	0.51	0.51	0.93
Black	3.37	3.42	1.06
Hispanic	1.12	1.14	1.07
American Indian	6.54	6.10	1.10
Asian/Pacific Islander	0.65	0.65	1.13
Other	3.44	3.31	0.92
Non-Study Counties	*n*=14,458	*n*=10,290	*N*=4,419
White	0.91	0.91	0.97
Black	4.09	4.27	1.19
Hispanic	2.09	2.09	1.03
American Indian	4.17	4.17	1.07
Asian/Pacific Islander	0.50	0.53	1.38
Other	2.35	2.10	1.10

Nonetheless, our measures of report disproportionality for African Americans, Hispanics and American Indians do not disappear when one disaggregates by study vs non-study counties. Moving to the third column, $\delta^k(s)$ of Table 2, however, reveals that substantiation-to-report disproportionalities are considerably smaller than report-to-population disproportionalities for blacks, Hispanic, and American Indian children. Although the substantiation-to-report disproportionality appears small, it is nonetheless significantly different from one for all groups. From Equation 5, it is easy to see that the underlying source of substantiation-to-report disproportionality ratios that exceed one is *substantiation rates that differ between groups.* What is less obvious, however, is *why* substantiation rates,

s, differ between racial groups. In the next section, we develop a methodology for decomposing the racial disparity in substantiation rates.

Decomposing The Racial Disparity

Racial disparities in substantiation rates can be explained by such factors as location, characteristics of the child, characteristics of the parent/caretaker, type of maltreatment, and source of report. The most convenient way to isolate the effect of race on substantiation rates is to perform a logistic regression analysis, using substantiation as the (dichotomous) dependent variable and controlling for other factors. Then, one controls for race. The exponential of the estimated coefficient on race is the multiple by which the odds ratio for the reference group must be changed in order to yield the odds ratio for the given racial group. This is often called simply the *odds ratio* for race. When this value is greater than one (controlling for other factors in the model), a racial disparity remains in substantiation odds. Given the monotonic nature of the odds-transformation, this means that a racial disparity also remains in the substantiation rates. When this value converges to 1, or becomes statistically insignificant, it means that the racial disparity is "explained" by the other factors in the model. Equation 6 provides the relationship between race and substantiation rates:

Equation 6

$$s = \frac{1}{1 + \exp\left\{-\left(\sum \beta_i x_i + race\right)\right\}}$$

Of course, factors like location may interact with race. To take account of possible interaction effects, one can re-specify the equations and estimate them separately by race. An important advantage of doing so is that one can then calculate which portions of the disparity can be explained and which remain unexplained, by the variables in the model. The unexplained portion is frequently called the *racial residual* or the portion of the gap attributed to racial differences in treatment.

Consider the following two logistic substantiation equations estimated separately for blacks, *b*, and whites, *w*:

Equation 7

$$s^b = \frac{1}{1+\exp(-\sum \beta_i^b x_i^b)}$$

and

$$s^w = \frac{1}{1+\exp\left(-\sum \beta_i^w x_i^w\right)}$$

If there were no difference in the effects of the independent variables on the substantiation rates of blacks and whites, then one would observe only those differences in substantiation rates that are fully explained by differences in the independent variables between blacks and whites. Thus, one could compute a value of the substantiation rate for blacks when the effects of *x's* on black substantiation are identical to the effects of *x's* on white substantiation. This value amounts to an *equal treatment* substantiation rate:

Equation 8

$$\tilde{s}^b = \frac{1}{1+\exp(-\sum \hat{\beta}_i^w x_i^b)}$$

The difference between the equal treatment substantiation rate and the actual substantiation rate for blacks is termed the "unexplained portion" of the racial gap in substantiation rates. Put differently, if blacks and whites were treated the same—or the coefficients were identical in the black regression and the white regression—all of the racial gap in substantiation rates would be explained.

The percentage of the observed gap in the substantiation rates that is unexplained can be computed as

Equation 9

$$\frac{\tilde{s}^b - s^b}{s^w - s^b}.$$

The Data

Our analysis uses Minnesota data on 21,560 reported and assessed maltreatment cases in the year 2000.[9] The dependent variable is *substantiation*, that is, whether a reported incident is determined to have been actual maltreatment. Of 21,560 reports, 9,709 were substantiated as official maltreatment.

Independent variables include age, race, gender, family conditions (including the presence of domestic violence, alcohol, or drug abuse), relationship of the child to the alleged offender, type of maltreatment, and characteristics of the county (including whether the county has high poverty rates and/or high maltreatment report rates).

To save space, details of the construction of all variables are provided in an appendix table available from the corresponding author.[10] In comparing the means of the variables for substantiated and unsubstantiated cases, we find that there are higher shares of blacks, Asians, American Indians, and Hispanics among substantiated cases than among unsubstantiated cases. This is true both for victims and for offenders. The share of substantiated cases in the study counties is higher than unsubstantiated cases, which suggests the possibility of confounding influences of race and place. Thus, there is a potential for aggregation bias in our data.

Results

Table 3 reports the results of t-tests for differences in means between the substantiation rates for each race in study counties compared to non-study counties. It also provides t-test results for comparison of nonwhite means to the white mean within each group of counties. The data reveal the complexity of the aggregation problem. In the three study counties, the majority of cases—68 to 69 percent—are nonwhite. In the state as a whole, only 47 to 48 percent of the cases are nonwhite, while in the non-study counties, about 24 percent of the cases are nonwhite. Thus, it is entirely possible for any statewide disparities in substantiation rates to be clouded by the uneven distribution of children of color within the state.

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[9] These figures and all following analyses use the unduplicated data set with only one record per child. See discussion, footnote 3. The total number of cases reported here is slightly lower than the total in Table 2. Some unduplicated cases lacked the necessary data for one or more regression variables and could not be included in the full analysis.

[10] http://www.hhh.umn.edu/centers/wilkins/pubs.htm

The table shows that even this simple explanation of aggregation is not sufficient. White substantiation rates are nearly identical in the study and non-study counties: 43.2 percent for study counties and 41.7 percent in non-study counties. The difference is statistically insignificant.
Black substantiation rates are slightly lower in the study counties than they are in the non-study counties. The difference is not statistically significant. Blacks represent 37 percent of the cases in the study counties but only 5 percent in the non-study counties. Thus, in the portion of the state where blacks are most heavily represented, black substantiation rates are no higher than they are in other parts of the state.

This is not true for Hispanic cases. Their substantiation rates are higher in the study counties than they are in the non-study counties. Hispanics represent about 7 percent of cases in both study and non-study counties.

Table 3
Substantiation Rates for Maltreatment Cases by Race of Victim T-Tests between Races and Counties

Race of Victim	State Total	Study County	Non-Study County	(*p*-value) Study vs Non-study
White	0.422	0.432	0.417	(0.1153)
[*p*-value vs White]				
{% of cases}	{53.01}	{31.78}	{76.3}	
Black	0.499	0.498	0.511	(0.5943)
[*p*-value vs White]	[<.0001]	[<.0001]	[<.0001]	
{% of cases}	{21.25}	{36.89}	{4.65}	
Asian-Pacific	0.536	0.529	0.593	(0.2788)
[*p*-value vs White]	[<.0001]	[<.0001]	[.0014]	
{% of cases}	{3.21}	{5.42}	{0.79}	
Indian	0.488	0.526	0.457	(0.0103)
[*p*-value vs White]	[<.0001]	[<.0001]	[.0341]	
{% of cases}	{6.35}	{5.43}	{7.37}	
Other Race	0.429	0.416	0.480	(.0234)
[*p*-value vs White]	[0.5287]	[0.2888]	[.0134]	
{% of cases}	{9.01}	{13.73}	{3.83}	
Hispanic	0.477	0.511	0.441	(.0078)
[*p*-value vs White]	[<.0001]	[<.0001]	[.2111]	
{% of cases}	{6.74}	{6.65}	{6.84}	
Non-White	0.483	0.487	0.470	(.1375)
[*p*-value vs White]	[<.0001]	[<.0001]	[<.0001]	
{% of cases}	{46.99}	{68.22}	{23.7}	

The Hispanic substantiation rate is 51 percent in the study counties but only 44 percent in the non-study counties. This difference is statistically significant.

American Indians also have higher substantiation rates in the study counties than in the non-study counties. The difference is statistically significant. American Indians are more highly represented in non-study counties as opposed to study counties (7.4 percent versus 5.4 percent).

To complicate matters further, Asian Americans who have higher-than-average substantiation rates (about 54 percent) and who are almost exclusively found in the study counties (5.4 percent versus .8 percent) have slightly lower substantiation rates in the study counties than the non-study counties, although these differences are not statistically significant.

Still, each non-white group has substantiation rates higher than whites. This is true in the study counties, in the non-study counties and in the state as a whole. The descriptive evidence, therefore, does not bear out the aggregation hypothesis in any obvious or unambiguous manner.

The regression analysis is designed to uncover the possibility of aggregation bias in measuring discrimination. Our goal is to estimate the determinants of the substantiation rates and to decompose the racial gaps into explained and unexplained portions. We have done this in a variety of ways, the results of which are detailed in tables available from the authors.

We first estimated a substantiation equation for all reported cases, controlling for race, study or non-study county, characteristics of the victim, offender, reporter, county, and type of maltreatment. We then partitioned the data from study and non-study counties and estimated the impacts of race (and other variables) and compared the effects across the two partitions. We also partitioned the data by race and estimated the differential impacts of county and other variables.

Table 4
Summary of Race Effects: Estimated Odds-Ratios for Racial Groups in Minnesota (Year 2000 Cases)

Victim's Race	Study Counties	Non-study Counties
Black	**1.2387**	1.175
Asian-Pacific Isl.	**1.5258**	**2.062**
American Indian	**1.3241**	0.907
Other	1.0383	1.088
Hispanic	**1.2923**	1.01

Source: Calculated from estimated coefficients in Appendix Table 2, not included due to space limitations. Available at http://www.hhh.umn.edu/centers/wilkins/pubs.htm
Note: Bold values indicate statistically significant results.

Before examining the measures of discrimination or the "unexplained gaps" in substantiation, it is worth considering the summary effects of race in the single logistic regression equation as presented in Equation 6. Table 4 reports the estimated odds ratios associated with race, controlling for other factors. Clearly there is a nontrivial race effect in the study counties when one appropriately controls for various independent factors that might influence substantiation in the case of blacks, Hispanics and American Indians. Among Asian-Pacific Islanders there is a race effect in both the study counties and the non-study counties. Table 4 also shows that, with the exception of Asians and other races, the race effects are larger in the study counties than in the non-study counties. Indeed, when one accounts for other factors, the American Indian effect reverses in the non-study counties, producing an odds ratio of less than 1, although this effect is not statistically significant.

We have estimated Equations 7 and 8 in order to compute the values in Equation 9. For lack of space, we report here the final computations from Equation 9. Full details of underlying the regressions are available from the corresponding author.

Table 5
Unexplained Portion of Gap in Substantiation Rates vs. Whites
Minnesota, Unduplicated Cases, 2000

Race	Statewide %	Study Counties %	Non-study Counties %
Black	67.79	54.56	32.80
Asian-Pacific Isl.	99.73	99.12	96.12
American Indian	19.23	51.76	-64.43
Hispanic	49.77	66.11	0.69
Non-White	63.68	65.62	7.41

Table 5 reports *discriminatory residuals* or the relative measure of the difference between *equal treatment* and actual substantiation rates for each race. Large values of the residual difference relative to the actual racial gap in substantiation rates suggest greater discriminatory treatment of affected groups.

Table 5 reveals that the discriminatory residual is larger for blacks in the state than it is for blacks in the study counties or the non-study counties. The discriminatory residual is 68 percent for the state but 55 percent in the study counties and only 33 percent in the non-study counties. In the non-study counties characteristics of the victim, the offender, the reporter,

and the type of maltreatment explain two-thirds of the racial gap in substantiation rates between black and white cases. In the study counties, however, less than half of the gap is explained by these factors.

Among Asian Pacific Islanders, the unexplained residual is nearly 100 percent in both the study and non-study counties. Among Hispanic cases, almost all of the gap in substantiation rates in the non-study counties can be explained by differences in characteristics between Hispanics and whites. Such is not true in the study counties, where two-thirds of the gap is unexplained.

American Indians have lower substantiation rates in the non-study counties than in the study counties. However, had non-study county American Indians been treated like whites in non-study counties, their substantiation rates would have been *higher.* Paradoxically, the impression from these regressions is that American Indians in the non-study counties are subject to favorable discrimination that works to lower their substantiation rates below what it would be had they been treated like whites. As a result, the computed measures of discrimination assume a negative sign. In the study counties, there is discrimination *against* American Indians. Combining the effects of the study and the non-study counties gives the impression that there is little overall discrimination against American Indians.

In summary, there is limited support for the hypothesis that the measure of racial discrimination (the unexplained residual) in substantiation rates is larger at the statewide level than at the county level, at least for blacks. For other races, this finding of statewide aggregation creating an overestimate of the effects of race does not consistently emerge. For American Indians, for example, the overall level of discrimination is greater in the study counties than it is in the state overall. In the non-study counties, there appears to be discrimination in favor of American Indians.

But, even in the case of blacks, the aggregation problem does not *eliminate* measured discrimination in substantiation rates. As noted, on the state level, the unexplained residual is 68 percent for unduplicated cases, compared to 55 percent and 33 percent for the study and non-study counties, respectively. At best, the aggregation biases the size of the measured discrimination but does not explain it away.

Conclusions

In Minnesota, disparities exist for children of color in the child maltreatment population. We wondered, however, whether these disparities translated into disproportionality in substantiated rates by race. In our analysis of the question, we measured racial disparities in substantiation rates for child maltreatment in Minnesota. We conclude that the measured substantiation rates reveal disparities that are partly unexplained by observed characteristics of victims, offenders, counties, reporters, and the types of alleged maltreatment. These measures of "discrimination" appear to be inflated when one looks at state-level data for African Americans. Aggregating counties that have few blacks with counties that have many overstates the measure of discrimination within each type of county.

We point out, however, that most analysis of racial disproportionality in child maltreatment begins with a different base of comparison. We compare reported cases and substantiated cases. Much smaller disproportionalities are calculated when substantiated cases are used as the base for the analysis. When the more typical comparison, that between the child population and the substantiated population, is made, some of the highest disproportionality indices in the nation appear.

We began with the premise that *aggregation* bias may be at the root of the disproportionate representation of children of color among the determined maltreatment population. We examined substantiated and reported cases within the study counties and within the non-study counties. We found that the separate analyses produced different directions of disproportionality by racial group. Thus, we did not see disproportionality working in any general direction when we separated the data by study and non-study county.

As a practical matter, however, we discover that aggregation bias is far from the most compelling issue behind our numbers. Although we do find that aggregation of African American cases at the state level understates how much our independent variables explain the racial disparity in substantiation rates, we do not find that aggregation completely erases the disparity.

Disparities exist. Disproportionalities exist. Children of color in the child welfare system are treated differently than white children. This difference could not be explained fully by variables such as characteristics of victims, offenders, counties, reporters, and the types of alleged maltreat-

ment. When one treats black children like white children gaping disparities are found.

The implications of these results are significant. Other researchers have examined the impact of neighborhood characteristics and other socioeconomic characteristics of the family on the likelihood that a case of child maltreatment is reported (Coulton, Korbin, & Su, 1999). Although our analysis used county characteristics in predicting individual case determination, our results support the finding of weak effects of geographical characteristics on child welfare agency decisions

One possible concern with our analysis is that we do not include cases that are not reported to the CPS at all. The largest portion of the disproportionality between the share of children of color in the total population and in the reported and substantiated population appears to arise from bias in the various steps that occur before the assessment of maltreatment. However, if our objective is to measure the conditional probability of substantiation, given reports, selection bias is not a problem as long as all reports are included among cases that are investigated.

Our assessment of the findings, then, is that although the racial disproportionality in substantiations is extremely small, there are nontrivial racial disparities in substantiation rates. Characteristics of victims and offenders, type of reporter, and type of maltreatment cannot explain the white/non-white disparities. The unexplained residual in some instances is huge. For African Americans, however, the unexplained residual measured at the statewide level of aggregation is larger than it is in either the study counties or the non-study counties, suggesting that aggregation inflates the size of the discriminatory residual. Still, the discriminatory residual does not disappear. We find discrimination; somebody is discriminating.

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