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Race and Representative Bureaucracy in American Policing: New Data, New Opportunities

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In 2014, a series of African American civilian deaths at the hands of police officers thrust race relations between police and civilians into the public eye. These incidents sparked a public discourse on the effects of racial representation in policing, an issue that has interested researchers across the social sciences for decades. Existing research on racial representation reveals, for example, that the underrepresentation of minorities is a common reality for many local police departments across the country (Cayer and Sigelman, 1980; Stokes and Scott, 1996) and that this underrepresentation is related to a variety of economic, organizational, demographic, and political factors (Warner, Steel and Lovrich, 1989). Despite the laudable contributions of existing research to understanding the causes and consequences of racial representation in policing, data constraints have restricted most analyses to case studies of a limited number of jurisdictions. This makes it difficult to estimate broader trends across America’s thousands of local police departments at a given point in time, let alone changes across these units over time.

Our book, *Race and Representative Bureaucracy in American Policing* (Kennedy et al., 2017), aims to fill

this gap. The backbone of the book, and one of its most important contributions to social science research on racial representation in government institutions, is a new dataset of police officer demographics. The dataset consists of two parts. First, we compile data on officer race for approximately 1,500 counties across all fifty states. Importantly, and in contrast to most publicly available data that are limited to one snapshot in time, these data cover a 15-year time period, with yearly observations in 1993, 2000, 2003, and 2007. The panel dataset contains more than 6,000 county-year observations. The dataset provides researchers with the means to track broad trends in police representation over time, across geography, and for different racial groups, as well as to conduct county-level analyses on the effects of representative policing. Second, the dataset provides detailed information on police departments serving America's 100 largest cities for the years 1993, 2000, 2003, 2007, and 2013. By limiting our geographic scope to these municipalities, we are able to assemble more complete covariates for analyses related to both the causes and effects of racial representation.

The geographic scope of our data — about 1,500 counties in any given year — constitutes one of the primary strengths of our dataset. Perhaps even more important, however, are the opportunities for analysis that the panel structure provides. One of the main challenges when comparing across cases is that cities (or counties) are simply not equivalent to one another. For example, there are many social, political, and demographic differences between Los Angeles County, CA and Dekalb County, GA. This means that there are many potential confounding variables that researchers might need to consider when analyzing the effects of police demographics on policing outcomes. One way to address these differences across policing jurisdictions is to control for covariates in multivariate models, but this solution is limited by researchers' abilities to identify relevant covariates and the existence of data on those covariates. Important statistics like unemployment are often unavailable for small geographical units like cities and counties, while other variables, like metropolitan culture, are nearly impossible to quantify. Thanks to repeated observations over a 15-20 year time span, our data allow researchers to hold constant any location-specific confounds when exploring the causes and effects of changes in officer demographics, both over time and within a particular location.

We offer this new dataset as a public good for researchers interested in examining racial representation in local law enforcement and hope that other scholars will use it to conduct their own analyses, contributing to a more complete understanding of the way that race impacts policing and citizens' well-being across the United States.¹

I. Empirical Analyses of Racial Representation: Strengths and Limitations of Existing Studies

Considering the salience of race and policing in American society, surprisingly little research addresses the descriptive variation in the representation of minorities across local police forces. One exception is Cayer and Sigelman (1980), who examine representation across federal, state, and local agencies from 1973-1975. While minority representation grew in police departments across the years examined, broad patterns of underrepresentation persist across the U.S. More recently, Stokes and Scott (1996) examine the extent of minority representation among nineteen municipal police departments. Looking specifically at Hispanic and Asian employment, Stokes and Scott (1996) find that in 1990, only the force in Buffalo, NY had Hispanic representation proportionate to its population. No cities represented Asians proportionally to their population share.

A parallel literature seeks to identify the causes of variation in representation among groups across public agencies. These studies point to a variety of economic, organizational, demographic, and political factors that may influence the extent to which police departments and other public agencies are demographically representative of the civilian populations they serve. Warner, Steel and Lovrich (1989), for instance, argue that economic downturns — following the old maxim of “last hired, first fired” — likely lead to a disproportionate number of females and minorities being let go. General municipal fiscal strength is also an important factor in hiring and retaining minority officers. Given this prior literature, we expect agency growth and the overall unemployment rate to influence the ratio of minorities in law enforcement positions.

A number of demographic factors might also influence minority representation. Plausible candidates include the size of the minority population, minority education levels, city size, and region (Dye and Renick,

¹The dataset and supporting documentation are available for download at <http://m.nanes.org>.

1981; Meier, 1993; Warner, Steel and Lovrich, 1989). The size of the minority population can have varied effects. On the one hand, cities need to reach a threshold in order to expect the minority population to influence employment levels (Dye and Renick, 1981). On the other hand, there may be a point of diminishing returns where cities with large minority populations fail to attain parity in minority hiring. Increased minority education levels may lead to increased representation as the minority population becomes more competitive for employment opportunities. Finally, Warner, Steel and Lovrich (1989) argue that larger cities have a greater acceptance of affirmative action programs and therefore should have higher numbers of minority officers. Similarly, regional variation may occur due to regional differences in social and cultural acceptance of affirmative action policies.

Police departments were less representative of the populations they served in 2013 than they were decades ago. [...] The data suggests that the change is caused not by a decrease in the proportion of minority police officers. Rather, the issue is that police departments are failing to recruit new minority officers at the same rate as the country is diversifying demographically.

Organizational factors influencing demographic representation include agency size, union presence, and residency requirements (Kim and Mengistu, 1994; Cornwell and Kellough, 1994; Stein, 1985; Mladenka, 1989). Agency size may have a negative relationship to minority representation. This stems from a similar logic to the diminishing returns hypothesis discussed previously. For larger agencies, each new minority hire makes a smaller contribution to the overall representation of minorities, making it harder for larger organizations to maximize representation. The presence of collective bargaining has long been considered a hindrance for minority employment in police forces, as unions have been thought to successfully block the implementation of affirmative action policies.

Scholars disagree on the expected effects of residency requirements on minority employment. On the

one hand, some argue that residency requirements enhance minority representation by forcing agencies to hire from the immediate community population. Conversely, others argue that requirements may decrease minority hires by placing artificial limits on the hiring pool, encouraging potential nepotism or political favoritism to operate above merit considerations (Kim and Mengistu, 1994).

According to Warner, Steel and Lovrich (1989), minorities in elected positions may directly oversee the increased hiring of minorities, or they may indirectly play a role by shaping generally inclusive attitudes across local agencies, encouraging more minority hires. Thus, increasing minorities in elected positions in local offices, such as mayors, is expected to positively influence minority employment on local police forces.

While the causes of descriptive representation are important in their own right, we also seek to understand how changes in representation affect outcomes like administrative procedures, policing practices, and the treatment of citizens. Recent studies in the field of representative bureaucracy focus primarily on the extent to which demographic representation translates into responsive public policy outputs. While a rich line of research focuses on the effects of representation on policy in other service-oriented institutions, especially public education (Meier and Stewart Jr, 1992), applications to police departments are relatively recent. Wilkins and Williams (2008) examine whether increasing the number of minorities on police forces decreases racial profiling in routine traffic stops. In counterintuitive fashion, their study finds that increasing Black police officer presence increases racial disparity in vehicle stops. They argue that socialization into White dominant organizational culture within police departments may account for this unexpected finding by hindering the translation of passive representation into more equal protection. Nicholson-Crotty, Nicholson-Crotty and Fernandez (2017) report that increasing Black police presence increases police-involved homicides, at least until a critical mass of minority composition is reached, at which point greater racial representation lowers the frequency of police-involved homicides.

Our book builds upon these and other studies by examining the effect of descriptive representation on outcomes like excessive force complaints and police-involved fatalities.

II. Constructing Meaningful Data on Racial Representation

To construct a dataset capable of providing meaningful insights on racial representation, we collect, organize, and synthesize a wide range of data. We begin with department-level data from the publicly-available Law Enforcement Management and Administrative Statistics (LEMAS) dataset, a census of law enforcement agencies conducted periodically by the U.S. Bureau of Justice Statistics (BJS). We use data from the last five waves of this census (1993, 2000, 2003, 2007, and 2013). All police departments are supposed to respond to the census. In practice, though, a number of departments — particularly smaller ones — enter and exit the dataset from one year to the next. As we note, however, “there is little reason to believe that this selection is systematically related to officer demographics, as officer race is only one of the many variables that are reported in LEMAS. In other words, missing departments should not prevent us from using the LEMAS data to draw inferences about the trends, causes, and consequences of racial representation” (Kennedy et al., 2017, 41).

The raw LEMAS data is difficult to analyze for two reasons. First, variables which measure the same information are often coded and named differently from one year to the next. This means that researchers interested in over-time analysis must tediously reconcile the different LEMAS datasets. Second, important outcome variables of interest like crime rates, police brutality, and socioeconomic changes are often measured at a different level from a police department’s jurisdiction. Overlapping jurisdictions between departments compound this problem.

Counterintuitively, we find that county-years in which police officer demographics more closely match those of the civilian population have a *higher* probability of police-involved citizen fatalities.

Our dataset solves the first problem by standardizing and recoding key variables so that they are comparable across years. We address the second problem by creating two aggregated versions of the dataset — one at the county level for all counties with data, and a second at the city level for the 100 largest cities in the U.S. by population size as of July 1st, 2014. For cities, we code

two versions of officer variables, one for all departments with jurisdiction in the city (excluding state and federal agencies) and one for only those officers from the city’s primary municipal police department. We add to both datasets various demographic and political covariates, descriptions of which are available in Chapter 3 of our book.

Quantifying demographic representation is not a trivial task. Our theoretical arguments on both the causes and consequences of representation deal with the extent to which police officer demographics deviate from civilian demographics. To operationalize this concept, we construct the *Disproportionality Index*, which is a continuous variable that indicates the cumulative degree of misrepresentation for five racial groups: Whites, Blacks, Hispanics, Asians, and Native Americans. We calculate this variable using the same formula as Gallagher’s (1991) ‘least squares index’ of legislative representation, but with racial groups substituted for political parties, and police officer positions substituted for legislative seats. The exact formula is

$$D = \sqrt{\frac{1}{2} \sum_{i=1}^{\infty} (p_i + c_i)^2}, \quad (1)$$

where D is the *Disproportionality Index*, p is the group’s proportion of police officers, and c is the group’s proportion of the civilian population for each racial group i . The index has a theoretical minimum of 0, which would indicate that every group has exactly the same proportion of police officers as its share of the civilian population, and a theoretical maximum approaching 1, which would indicate complete divergence between officer and civilian demographics. Our dataset includes a disproportionality score for each city-year and county-year for which data is available.

For researchers interested in the representation of specific racial groups, we also calculate proportionality scores for Whites, Blacks, Hispanics, Asians, and Native Americans by subtracting each group’s share of police officers from its share of the population. A group is overrepresented if the score is greater than 0, and underrepresented if the score is less than 0. Finally, to allow comparisons across groups of different sizes, we provide a second set of proportionality scores that are standardized by each group’s population share.

It bears repeating that the appropriate measure of representation depends on the theoretical concept in which researchers are interested. Researchers interested in officer diversity might use the formula for *Ethno-Linguistic Fractionalization* (ELF), which calculates the probability that any two randomly-selected officers will come from different groups. Other cross-jurisdictional analyses use the proportion of non-White officers (Donohue III and Levitt, 2001), the ratio of percent Black officers to percent Black citizens (Smith, 2003), and the squared percentage of Black officers (Nicholson-Crotty, Nicholson-Crotty and Fernandez, 2017). Scholars should be mindful to select measures that reflect the theoretical construct they seek to test. In particular, they should take care to distinguish between statistics that provide an absolute measure of officer diversity and those that compare officer demographics with civilian demographics, as well as those that support the presence of multiple groups versus those that allow only for two all-encompassing groups.

III. Trends and Changes, 1993-2013

Three striking findings emerge from our analysis of descriptive trends in representation over time across counties and cities. First, racial representation varies substantially across local law enforcement agencies. Figure 1 shows the average *Disproportionality Index* scores associated with local law enforcement agencies by county in 2007. Figure 1 clearly illustrates the geographic variation in the racial disproportionality of local law enforcement agencies across the country.

Second, the degree of racial representation is decreasing over time. Figure 2 shows the distribution of counties creeping slowly but steadily to the right side of the racial disproportionality scale, indicating an increasing number of agencies becoming more disproportionate with each passing year. This trend extends to the 100 largest cities as well; police departments were less representative of the populations they served in 2013 than they were decades ago. This finding is surprising in light of the increasing prevalence of race-conscious policies intended to promote descriptive representation (Gilens, 1991). Interestingly, the data suggests that the change is caused not by a decrease in the proportion of minority police officers. Rather, the issue is that police departments are failing to recruit new minority officers at the same rate as the country is diversifying demographically.

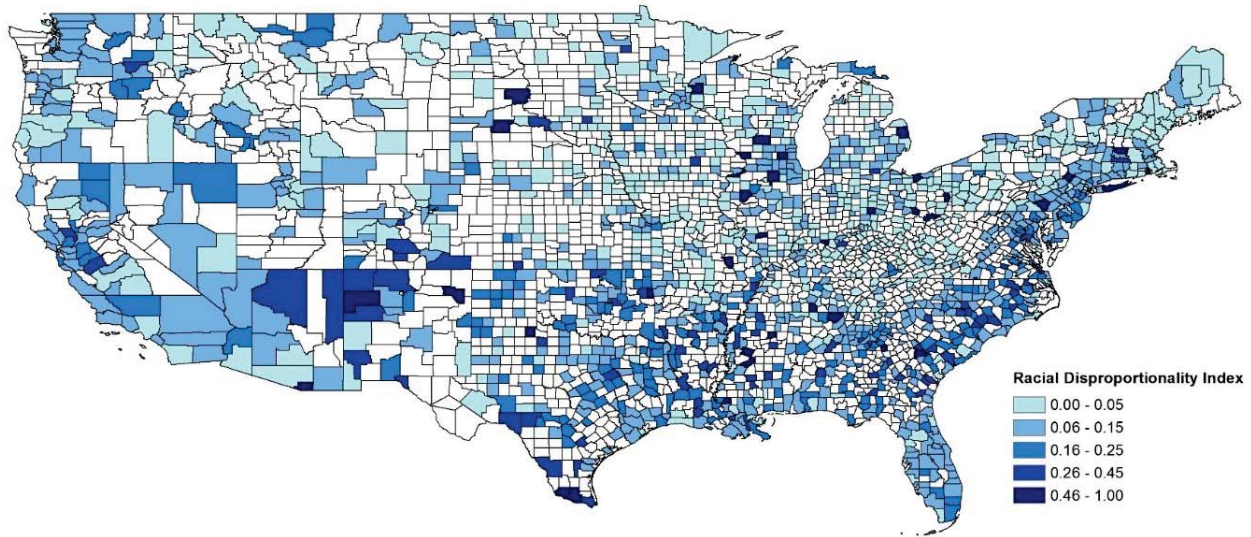
Third, racial representation varies markedly across different racial groups, and the extent of misrepresentation is highly sensitive to the specific measure used. A raw calculation of officer share minus civilian population share suggests that Blacks are far more underrepresented than Hispanics, Asians, or Native Americans. The magnitude of Black underrepresentation is particularly stark in large urban areas. On the other hand, Table 1 shows that when we standardize our measure of racial representation by group size (by dividing by each group's population share), the magnitude of racial underrepresentation is similar across Blacks, Hispanics, and Asians. That different measures lead to different conclusions underscores the notion that there is no single 'right' measure of racial representation. Scholars must be careful to use measures of representation that match their theoretical construct of interest.

IV. Causes and Consequences of Racial Representation

The data presented above demonstrate an important point: There is a great deal of variation in racial representation in cities and counties over time. But is this variation related to incidents of excessive force by police officers? We test the effects of disproportionality on "deaths due to legal intervention," or cases in which a coroner codes law enforcement intervention as a factor in the cause of death, using data compiled by the Centers for Disease Control. Counterintuitively, we find that county-years in which police officer demographics more closely match those of the civilian population have a *higher* probability of police-involved citizen fatalities. We think that this finding reflects the ambiguous nature of fatalities, as we cannot distinguish between those caused by unjustified or excessive force and those in which a police officer acted heroically to save the lives of others by eliminating an active threat. We speculate that the observed positive relationship between racial representation and police-involved fatalities may be caused by increasingly responsive policing rather than by systematic uses of excessive force by officers in more representative counties. More research is needed on this important question.

We reach more definitive findings in two areas. One is that the presence of residency requirements, which mandate that officers live in or near their jurisdiction, correlate with more racially-representative police forces. This finding underscores an important and rarely-discussed benefit of residency requirements

Figure 1: Racial Disproportionality in U.S. Law Enforcement - 2007



Note: Figure 1 shows the average racial disproportionality of local law enforcement agencies by county in 2007. Counties shown in white were not assessed. Darker colors indicate greater racial disproportionality. Racial disproportionality is calculated using the formula shown in Eq. (1).

Figure 2: Racial Disproportionality in U.S. Law Enforcement Over Time



Note: Figure 2 shows the distribution of counties according to the racial disproportionality of their police departments in 1993, 2000, 2003, and 2007. Observations further to the right in each time period indicate higher levels of racial disproportionality. Racial disproportionality is calculated using the formula shown in Eq. (1).

Table 1: County-Level Police Disproportionality by Racial Group, 1993-2007

	1993	2000	2003	2007	Total	Standardized ^a
White	0.068	0.063	0.070	0.069	0.067	0.058
Black	-0.034	-0.030	-0.033	-0.032	-0.033	-0.263
Hispanic	-0.021	-0.020	-0.024	-0.020	-0.021	-0.290
Asian	-0.007	-0.007	-0.009	-0.006	-0.007	-0.229
Native American	-0.006	-0.005	-0.003	-0.008	-0.005	-0.146

^a Reported $\times 10^4$.

Note: Table 1 shows the racial disproportionality with respect to particular groups for local law enforcement agencies by county in 1993, 2000, 2003, and 2007. Racial disproportionality is calculated as the share of officers belong to a particular racial group minus that group's share of the civilian population. Negative scores indicate that a group is underrepresented, while positive scores indicate that a group is overrepresented. 'Total' refers to the average racial disproportionality for the whole time period, and 'Standardized' refers to the 'Total' scores divided by each group's share of the civilian population.

in the face of their declining popularity nationwide. We also find that departments in which hiring is governed by a collective bargaining agreement tend to have less representative police forces. Another is that departments in which the police are more representative from a racial perspective are more likely to have citizen-friendly policies like a formal procedure for handling citizen complaints and the adoption of a civilian review board. In other words, while the effects of representation on officer behavior remain ambiguous, representation has a clear effect on the responsiveness of agency policies and procedures.

V. Conclusion and Avenues for Future Research

Our data provide researchers with an opportunity to test both the causes and effects of police representation on any number of potential outcomes beyond our preliminary analyses. We view our book as the first of hopefully many attempts toward analyzing our extensive dataset on police representation. We pose and test a number of hypotheses about the causes and effects of racial representation in American policing. While we find strong evidence for our expectations in some areas, particularly regarding the relationship between racial representation and police administrative procedures, many of our findings raise more questions than answers. We hope that future research will leverage this

dataset to pursue these questions.

One important question is whether smaller police departments operating within historically exclusive suburban and exurban spatial contexts face unique challenges when it comes to racial diversity recruitment and retention, or whether they have unique organizational and cultural dynamics that shape street-level policing, irrespective of the level of racial representation. One particularly challenging context might involve older suburban areas that are experiencing dramatic demographic shifts caused by the influx of minorities. For instance, the highly racially unrepresentative Ferguson, MO is an inner-ring suburb outside of St. Louis City that only recently became majority-Black in the past few decades, and perhaps local administrative bodies, including and especially the local police department, have not caught up with this demographic shift.

Another potentially fruitful area of inquiry would involve investigating conditional effects related to racial representation and policing outcomes. For instance, we report that the robust dampening effect of racial disproportionality on police-involved fatalities is conditioned on the presence of a large Black population. Racial disproportionality is associated with a much larger decrease in police-involved fatalities when the Black civil-

ian population share is smaller. Future research should explore additional contextual factors that might interact with racial representation, such as income, racial segregation, or political context. The same strategy might be taken with regard to police procedures. For instance, racial representation might have less of an effect on citizen well-being in departments that use implicit bias training or community policing, as these procedures may serve as partial substitutes for descriptive representation.

Future scholarship may also continue to unpack the relationship between demographic representativeness and policy responsiveness. What factors influence successful diversity recruitment and hiring efforts? What contexts are likely to produce administrative responsiveness regarding agency policy adoptions? What mechanisms underlie racial representation and policing outcomes at the street-level? Empirical research linking demographic representation and policy outputs in American policing is growing but lacks theoretical richness. Our study also suffers from this weakness. For example, we find that the race of the mayor is linked with enhanced police force representation but we are unclear as to exactly how or why the presence of minority mayors yields greater racial representation in American police forces. Future research will need to tease out these theoretical complexities.

Finally, our data on the 100 largest cities might be combined with data from smaller municipalities in order to identify distinct patterns and effects across settings that are more or less urban. In a similar vein, researchers may supplement our data with data from state or federal agencies to explore how different levels of government condition the effects of racial representation in law enforcement.

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