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February 14, 2018

ELECTRONICALLY TRANSMITTED

Anna Shepherd, Chair of the Board of Education
Shawn Joseph, Director of Schools
Members of the Board of Education
Metro Nashville Public Schools
2601 Branford Avenue
Nashville, TN 37204

Dear Chair Shepherd, Director Joseph, and members of the Board of Education:

Recent reportage concerning racial disparities in discipline rates in Metro Nashville Public Schools, including a January 24, 2018 *Nashville Tennessean* article titled "Community leaders: Nashville public schools' budget must focus on discipline disparities,"[1] suggest that, as is commonplace in school districts across the country, Metro Nashville school leadership is operating under the belief that generally reducing adverse discipline outcomes will tend to reduce (a) relative racial differences in rates of experiencing the outcomes and (b) the proportion African Americans make up of students experiencing the outcomes. In fact, exactly the opposite is the case.

Attached to this letter are my July 17, 2017 letter to the United States Departments of Education, Justice, and Health and Human Services and my December 8, 2017 written testimony for the United States Commission on Civil Rights explaining that generally reducing adverse school discipline outcomes tends to increase, not reduce, (a) and (b) as to the outcomes.

The key statistical patterns are explained fairly succinctly in my "Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies," *Amstat News* (Dec. 2012), "The Paradox of Lowering Standards," *Baltimore Sun* (Aug. 5, 2013), and "Things government doesn't know about racial disparities," *The Hill* (Jan. 28, 2014). Fuller discussions of pertinent statistical patterns may be found in my "Race and Mortality Revisited," *Society* (July/Aug.

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[1] To facilitate consideration of issues raised in documents such as this I include links to referenced materials in electronic copies of the documents. Such copies are available by means of the Measurement Letters page of jpscanlan.com.

2014), and Comments for the Commission on Evidence-Based Policymaking (Nov. 14, 2016). See also "Innumeracy at the Department of Education and the Congressional Committees Overseeing It," Federalist Society Blog (Aug. 24, 2017), which explains the various ways the failure to understand patterns by which measures of demographic differences tend to be affected by the prevalence of an outcome undermines many Department of Education activities concerning interpretation of data demographic differences in school outcomes.

Page 8 of the July 17, 2017 letter to the three federal agencies discusses situations where general reductions in public school discipline rates have in fact been accompanied by increased relative racial differences in discipline rates. In light of Director Joseph's prior experience with Maryland public schools, including in Montgomery County, Maryland, I call your particular attention to the Maryland Disparities and Montgomery County, MD Disparities subpages of the Discipline Disparities page of jpscanlan.com, which discuss such situations in those jurisdictions.[2] Often such situations involve reportage of disparities issues that reflects the mistaken understanding that general reductions in discipline rates should reduce or eliminate, rather than increase, the measures of racial disparity commonly employed by the federal government. See also the letters to public school districts among the letters collected on the Measurement Letters page of jpscanlan.com.

See my "The Misunderstood Relationship Between Racial Differences in Conduct and Racial Differences in School Discipline and Criminal Justice Outcomes," Federalist Society Blog (Dec. 20, 2017), and "The Pernicious Misunderstanding of Effects or Policies on Racial Differences in Criminal Justice Outcomes," Federalist Society Blog (Oct. 12, 2017), regarding adverse consequences of leading people to believe that policies will tend to reduce measures of racial disparity when in fact the policies will tend to increase those measures.

The July 17, 2017 letter urges the recipient agencies to explain to the public and school administrators that the agencies' prior guidance regarding the effects of generally reducing discipline rates on measures of racial disparity was incorrect. In my oral testimony at a December 8, 2017 hearing before the Commission on Civil Right at which the attached written statement was presented, I suggested to the Commission that, in light of uncertainty as to whether or when the recipients of the July 17, 2017 letter would come to understand this issue, the Commission should assume responsibility for informing the public and school administrators regarding the actual effects of generally reducing discipline rates on the measures of racial disparity typically employed.

I remain uncertain as to whether or when either the recipients of the July 17 letter or the Commission on Civil Rights will come to understand this issue and recognize a responsibility to inform the public and schools administrators regarding the issue. But I am sure members of your

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[2] See the following subpages: California Disparities, Colorado Disparities, Connecticut Disparities, Florida Disparities, Minnesota Disparities, Oregon Disparities, Rhode Island Disparities, Utah Disparities, Beaverton, OR Disparities, Denver Disparities, Henrico County, VA Disparities, Kern County (CA) Disparities, Milwaukee Disparities, Los Angeles SWPBS, Loudoun County (VA) Disparities, Minneapolis Disparities, Portland, OR Disparities, St. Paul Disparities, South Bend Disparities.

academic staff, when acquainted with the attached materials and the materials they reference, as well as other references mentioned above, can provide sound guidance on the matter.

Sincerely,

/s/ **James P. Scanlan**

James P. Scanlan

Attachments

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July 17, 2017

The Honorable Betsy DeVos
Secretary of Education
United States Department of Education
400 Maryland Avenue, SW
Washington, DC 20202

The Honorable Thomas E. Price, M.D.
Secretary of Health and Human Services
United States Department of Health and Human Services
200 Independence Avenue, SW
Washington, DC 20201

The Honorable Jeff Sessions
Attorney General
United States Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530-0001

> Re: Obligations of the Departments of Education, Health and Human Services, and Justice to Correct Their Erroneous Guidance Suggesting That Relaxing Discipline Standards Tends to Reduce, Rather Than Increase, (a) Relative Demographic Differences in Discipline Rates and (b) the Proportions Groups More Susceptible to Adverse Discipline Outcomes Make Up of Persons Experiencing the Outcomes

Dear Secretary DeVos, Secretary Price, and Attorney General Sessions:

The purpose of this letter to advise the Departments of Education (DOE), Health and Human Services (HHS), and Justice (DOJ) of an obligation to correct erroneous guidance the three agencies have been providing the public, policymakers, and school administrators regarding the relationship between the stringency of school discipline standards and racial and other demographic differences in discipline outcomes. At least since the early years of this decade DOE and DOJ have been promoting the belief that relaxing standards and otherwise reducing rates of suspension and other adverse discipline outcomes will tend to reduce (a) relative (percentage) racial and other demographic differences in rates of experiencing the outcomes and (b) the proportions more susceptible groups make up of persons experiencing the outcomes. In

December 2014, the Secretary of HHS, in a document titled "Policy Statement on Expulsion and Suspension Policies in Early Childhood Settings" (Policy Statement) and an associated Dear Colleague Letter, joined the Secretary of Education in promoting the belief that generally reducing adverse discipline outcomes would tend to reduce (a) and (b).

In fact, generally reducing any outcome tends to increase both (a) and (b) as to the outcome. Thus, the agencies have been leading a wide range of persons and entities to believe something about an important matter that is the opposite of reality. In any situation where government agencies have provided misleading guidance to the public the agencies have an obligation to correct the misleading guidance. The obligation is heightened where, as here, the agencies represent themselves to have, or are assumed by the public to have, expertise in the matter.

I briefly explain below the pertinent statistical point, which I have recently also explained in an April 13, 2017 letter[1] to Attorney General Jeff Sessions and Acting Assistant Attorney General T. E. Wheeler, III (Sessions letter) and in other communications to DOJ attorneys. Before doing so, however, I make certain preliminary points regarding the relationship of the principal subject of this letter to larger subjects the agencies must address if they are to fulfill their missions in a responsible manner.

Preliminary points regarding the instant subject and the larger subjects the agencies must address

This letter focuses on a discrete matter that agency officials, once having focused on a statistical pattern recognized more than a decade ago by the National Center for Health Statistics, should understand both to be undebatable and to involve agency actions that are the antithesis of responsible government. Further, the matter is something the three agencies can immediately begin to address at least by a Dear Colleague Letter explaining that express or implied guidance in prior such letters was incorrect. The matter also is quite pressing because thousands of school administrators across the county are continually endeavoring to implement policies promoted by the government (or incorporated into agreements with the government) while relying on the government's mistaken guidance as to the effects of those policies on the measures of demographic differences that the government employs.[2] Numerous state and local governmental authorities have already taken actions based on the government's erroneous guidance and others are considering like actions.

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[1] To facilitate consideration of issues raised in documents such as this I include links to referenced materials in electronic copies of the documents, in some cases, for the reader's convenience, providing the links more than once. Such copies are available by means of the Measurement Letters page of jpscanlan.com. If the online version of the letter is amended, such fact will be noted on the first page.

[2] The matters is particularly pressing in the case of the school districts acting pursuant to agreements with DOE where the agency's failure of understanding has created situations in which the more the school districts (or parts thereof) endeavor to comply with the agreement the more likely it is that DOE will regard them to have violated the agreement. See my September 20, 2016 letter to Oklahoma City School District.

But the agencies should recognize that the failure of understanding of elementary statistics that has led the agencies to provide the aforementioned mistaken guidance is part of a larger failure of understanding on the part of the agencies regarding the ways measures commonly employed in the analyses of demographic differences tend to be affected by the prevalence of an outcome. As a result of the larger failure of understanding, virtually nothing the agencies have themselves done, or that has been done pursuant to grants and contracts awarded by the agencies, regarding the analyses of demographic differences involving outcome rates has been statistically sound. See, *e.g.*, my Comments for Commission on Evidence-Based Policymaking (Nov. 14, 2016) (first CEBP comments), "The Mismeasure of Health Disparities," *Journal of Public Health Management and Practice* (July/Aug. 2016), "Race and Mortality Revisited," *Society* (July/Aug. 2014), and "Measuring Health and Healthcare Disparities," Proceedings of Federal Committee on Statistical Methodology 2013 Research Conference (March 2014). See also my "Will Trump Have the First Numerate Administration?" Federalist Society Blog (Jan. 4, 2017), regarding prospects that the current administration will be able understand things about analyses of demographic differences that other administrations have failed to understand.

In the case of DOE, the larger failure of understanding has prevented the agency from conducting any useful analyses of whether racial differences in educational outcomes like retention in grade, graduation, proficiency, assignment to disabled status, and various other matters have increased or decreased over time. See the Educational Disparities page of jpscanlan.com and its subpages, my August 24, 2015 letter to the HHS Secretary Sylvia M. Burwell and DOE Secretary Arne Duncan (at 9-11), and my April 18, 2012 letter to DOE Secretary Arne Duncan and Assistant Secretary of Education for Civil Rights Russlyn Ali (at 4). For example, as proficiency rates generally improve, relative demographic differences in rates of achieving proficiency tend to decrease while relative differences in rates of failing to achieve proficiency tend to increase; as proficiency rates generally improve, absolute demographic differences between rates of achieving basic proficiency (where rates are often well above 50 percent) tend to decrease, while absolute differences between rates of achieving advanced proficiency (where rates usually are well below 50 percent) tend to increase.[3] To my knowledge, nothing DOE or any entity assisting it has done regarding analyses of demographic differences involving outcome rates has reflected an awareness of these patterns. Thus, DOE should undertake a complete review of the soundness of the methods by which it has analyzed demographic differences and of the soundness of the guidance it has provided on this subject. The agency should also institute a moratorium on grants and contracts (and activities pursuant to grants and contracts already awarded) to which these measurement issues pertain.[4]

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[3] Examples of these patterns may be found in the Education Trust Glass Ceiling Study subpage of the Educational Disparities page of jpscanlan.com.

[4] A minimum requirement of federally-funded research on demographic differences in outcome rates should be a commitment of the researchers to attempt to address the implications of the effects of the frequency of an outcome on the measures employed in the research. See fourth recommendation of the first CEBP comments (at 47). But the measurement issues addressed in those comment are pertinent both to activities involving analyses of demographic differences and activities that, while not necessarily involving analyses of such differences, are based on mistaken understandings regarding effects of policies on measures of demographic differences. The latter include, for example, activities that are based on the mistaken belief that positive behavioral intervention and support programs will tend to reduce relative racial differences in discipline rates, as in the case of the $1 million grant discussed in

In the case of HHS, as discussed in the references at the top of page 3, the larger failure of understanding has led to the expenditure of many billions of dollars in research into demographic differences in health and healthcare outcome that has yielded very little of value even when it has not been patently misleading. One of the many situations exemplary of the failures of understanding on the part of HHS and its arms is the following.   The National Center for Health Statistics (NCHS) more than a decade ago recognized that, as health and healthcare improve relative differences in favorable health and healthcare outcomes and relative differences in the corresponding adverse outcomes tend to change systematically in opposite directions as the prevalence of an outcome changes; yet, so far as the published record reveals, no other arm of HHS has recognized that it is even possible for relative differences in a favorable health and healthcare outcome and relative differences in the corresponding adverse outcome to change in opposite directions as the prevalence of an outcome changes. To my knowledge, no health or healthcare disparities research conducted or funded by arms of HHS has considered whether an observed pattern of changes in a measure employed in the research was anything other than a function of the change in the prevalence of the outcome.   See the first four references at the top of page 3 and my "The Mismeasure of Health Disparities in Massachusetts and Less Affluent Places," Quantitative Methods Seminar, Department of Quantitative Health Sciences, University of Massachusetts Medical School (Nov. 18, 2015). The points in the last two sentences of the prior paragraph regarding DOE apply equally to HHS.

In the case of DOJ, the consequences of the larger failure of understanding are summarized to a degree in the Sessions letter and include many situations where the more an entity complies with DOJ guidance (or obligations imposed by decrees in suits brought by the DOJ) the more likely the entity is to be sued by DOJ (or found not to comply with decree-imposed obligations).   See my "Compliance Nightmare Looms for Baltimore Police Department," Federalist Society Blog (Feb. 8, 2017), "Things DoJ doesn't know about racial disparities in Ferguson," *The Hill* (Feb. 22, 2016), "Things government doesn't know about racial disparities," *The Hill* (Jan. 28, 2014), "Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies," *Amstat News* (Dec. 2012. See also my Comments on the Selection of Monitor of the Baltimore Police Consent Decree (June 26, 2017) regarding the unlikelihood that the experts identified in the monitor proposals for the consent decree covering Baltimore Police practices understand the effects of reducing adverse criminal justice on measures of demographic differences any better than the government does.

Thus, each of the agencies has a responsibility to examine the problems in the analyses of demographic differences that it conducts or funds with an aim toward ensuring that future analyses are sound and that no further research, even on existing grants and contracts, continues to employ unsound methods. I may contact the agencies again regarding such matters. But there is no need for the agencies to await such contacts before examining the extent to which their failures to understand the ways measures tend to be affected by the prevalence of an outcome have undermined their activities.

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my Letter to the Pyramid Equity Project (Nov. 28, 2016) and Section B of my Comments for the Commission on Evidence-Based Policymaking (Nov. 28, 2016).

Further, Section 5 of the Evidence-Policymaking Commission Act of 2016 imposes on each of the heads of DOE, HHS, and DOJ a responsibility to advise and consult with the Commission on Evidence-Based Policymaking regarding matters within the agency heads' areas of responsibility. Thus, the aforementioned reviews by DOE and HHS (and like actions suggested in the Sessions letter) should be conducted in a sufficiently timely fashion for the agencies to fulfill their responsibility to the Commission on Evidence-Based Policymaking before the Commission issues its report to Congress and the President this fall. I suggest that my comments for the Commission dated November 14, 2016, and November 28, 2016, provide the agencies a useful guide for advising the Commission as to the ways the agencies' missions have so far been undermined by the failure to understand the statistical patterns described in the comments.

Attention to these larger subjects, however, should not interfere with the agencies' fulfilling their responsibilities to immediately correct their guidance regarding the effects of relaxing discipline standards on measures of difference in school discipline outcomes.

Patterns by which restricting adverse outcomes to those most susceptible to them tends to increase measures of demographic differences as to the outcomes

For reasons related to the shapes of underlying distributions of factors associated with experiencing an outcome or its opposite, all standard measures of differences between outcome rates (*i.e.*, the proportions of demographic groups experiencing a binary outcome) tend to be affected by the frequency of an outcome. The pattern most pertinent here is that whereby the rarer an outcome, the greater tends to be the relative difference in experiencing it and the smaller tends to be the relative difference in avoiding it (*i.e.*, experiencing the opposite outcome). A corollary to this pattern is a pattern whereby the rarer an outcome, the greater tend to be the proportions groups most susceptible to the outcome make up of both persons who experience the outcome and persons who avoid the outcome.

The patterns can be easily illustrated with normally distributed test score data. Table 1 below, which is also Table 1 of the Sessions letter, shows the pass and fail rates of an advantaged group (AG) and a disadvantaged group (DG) at two cutoff points in a situation where the groups have normally distributed test scores with means that differ by half a standard deviation (a situation where approximately 31 percent of DG's scores are above the AG mean) and both distributions have the same standard deviation. The table also shows (in columns 5 through 8) measures that might be used to appraise differences in test outcomes of AG and DG.

Column 5, which presents the ratio of AG's pass rate to DG's pass rate,[5] shows that at the higher cutoff, where pass rates are 80 percent for AG and 63 percent for DG, AG's pass rate is 1.27

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[5] While I commonly refer to patterns of relative differences in this letter, the table actually presents rate ratios (also termed risk ratios or relative risks). The relative difference is the rate ratio minus 1 where the rate ratio is above 1 and 1 minus the rate ratio where the rate ratio is below one. In the former case, the larger the rate ratio, the larger the relative difference; in the latter case, the smaller the rate ratio, the larger the relative difference.   It is more common to employ the disadvantaged group's rate as the numerator for the favorable as well as the adverse outcome, which is the approach as to favorable outcomes of the "four-fifths" or "80 percent" rule for identifying

times (27 percent greater than) DG's pass rate. If the cutoff is lowered to the point where AG's pass rate is 95 percent, DG's pass rate would be about 87 percent. At the lower cutoff, AG's pass rate is only 1.09 times (9 percent greater than) DG's pass rate.

Table 1. Illustration of effects of lowering a test cutoff on measures of differences in test outcomes

Row	(1) AG Pass Rate	(2) DG Pass Rate	(3) AG Fail Rate	(4) DG Fail Rate	(5) AG/DG Pass Ratio	(6) DG/AG Fail Ratio	(7) DG Prop of Pass	(8) DG Prop of Fail
1	80%	63%	20%	37%	1.27	1.85	44%	65%
2	95%	87%	5%	13%	1.09	2.60	48%	72%

That lowering a cutoff tends to reduce relative differences in pass rates is well understood and underlies the widespread view that lowering a cutoff tends to reduce the disparate impact of tests on which some groups outperform others.

But, whereas lowering a cutoff tends to reduce relative differences in pass rates, it tends to increase relative differences in failure rates. As shown in column 6, initially DG's failure rate was 1.85 times (85 percent greater than) AG's failure rate. With the lower cutoff, DG's failure rate is 2.6 times (160 percent greater than) AG's failure rate.

Columns 7 and 8 show the proportions DG makes up of persons who pass and fail the test at each cutoff in a situation where DG makes up 50 percent of persons taking the test. Column 7 shows that lowering the cutoff increases the proportion DG makes up of persons who pass from 44 percent to 48 percent (hence, *reducing* all measures of difference between the proportions DG makes up of persons who took the test and persons who passed the test). Column 8 shows that lowering the cutoff increases the proportion DG makes up persons who fail the test from 65 percent to 72 percent (hence, *increasing* all measures of difference between the proportions DG makes up of persons who took the test and persons who failed the test).

The patterns reflected in Table 1 are not peculiar to test score data or the numbers I used to illustrate them. Rather, the patterns can be found in virtually any setting where two groups have different, more or less normal, distributions of factors associated with experiencing some outcome. Income and credit score date, for example, show how lowering an income or credit score requirement, while tending to reduce relative racial differences in meeting the requirement, will tend to increase relative racial differences in failing to meet the requirement. See Tables 2 and 3 of the Sessions letter. The information in the tables necessarily also means that lowering the requirements increases the proportions African Americans make up of persons who meet the

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disparate impact under the Uniform Guideline for Employee Selection Procedures. I have sometimes employed this approach, as in "Can We Actually Measure Health Disparities?," *Chance* (Spring 2006). More recently, however, I have usually used the larger figure as the numerator for both rate ratios, in which case, as to both favorable and adverse outcomes, the larger the ratio, the larger the relative difference. Choice of numerator in the rate ratio, however, has no bearing on the patterns by which as the frequency of an outcome changes, the two relative differences tend to change in opposite directions.

requirement and persons who fail to meet the requirement. Many other examples may be found
in the longer references listed at the top of page 3, the scores of web pages on jpscanlan.com
devoted to measurement issues, and the university methods workshops and conference
presentations listed under the Conference Presentations subpage of the Publications page of
jpscanlan.com.

The patterns are also evident in many types of data on school discipline outcomes, including data
in DOE publications. Tables 2 through 5 below are based on data from a March 2014 DOE
publication titled "Data Snapshot: School Discipline." The document provided information on
the proportions demographic groups made up of K-12 and preschool students suspended one
time and suspended multiple times. From the information provided in the report, one can then
determine the proportions the groups made up of persons suspended (a) one or more times and
(b) more than one time. Tables 2 and 3 present that information for black and male K-12
students and Tables 4 and 5 present the information for black and male preschool students.[6]

The tables illustrate the effects of relaxing standards in a way that would cause all students to
receive a reprimand rather than what would otherwise be their first suspension. Such a
modification would cause the proportion the indicated groups makes up of students with one or
more suspensions to change from that in the first row to that in the second row. Thus, for
example, as shown in Table 2, relaxing the standard in the manner indicated would cause the
proportion African American students make up of K-12 students suspended one or more times to
increase from 37 percent to 42 percent.

**Table 2. Illustration of effect of giving all persons a reprimand instead of their first
suspension on proportion black students make up of K-12 students suspended one or more
times**

Outcome	Black Proportion of K-12 Students Experiencing the Outcome
One or more suspensions	37%
Two or more suspensions	42%

Tables 3 shows a like pattern for male K-12 students, and Tables 4 and 5 shows like patterns for
black and male preschool students.

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[6] Demographic differences in rates of experiencing things like single suspensions cannot be effectively analyzed,
just as differences in rates of receiving grades of C or experiencing fair health cannot be effectively analyzed. See
the Intermediate Outcomes subpage of the Scanlan's Rule page of jpscanlan.com. It is possible that DOE has come
to appreciate aspects of this issue. In DOE's 2016 publication on school discipline titled "2013-2014 Civil Rights
Data Collection – A First Look," the agency no longer presented data on single suspensions but included
information on single suspensions within the category of "one or more suspensions."

Table 3. Illustration of effect of giving all persons a reprimand instead of their first suspension on proportion male students make up of K-12 students suspended one or more times

Outcome	Male Proportion of K-12 Students Experiencing the Outcome
One or more suspensions	70%
Two or more suspensions	72%

Table 4. Illustration of effect of giving all persons a reprimand instead of their first suspension on proportion black preschool students make up of preschool students suspended one or more times

Outcome	Black Proportion of Preschool Students Experiencing the Outcome
One or more suspensions	44%
Two or more suspensions	48%

Table 5. Illustration of effect of giving all persons a reprimand instead of their first suspension on proportion male preschool students make up of preschool students suspended one or more times

Outcome	Black Proportion of Preschool Students Experiencing the Outcome
One or more suspensions	80%
Two or more suspensions	82%

If standards were further relaxed such that all persons were given reprimands for what would otherwise be their first two suspensions, the figures for the proportion black and male students make up of persons experiencing one or more suspensions would almost certainly rise still further. Rarely will one fail to observe such a pattern in circumstances where there are large numbers of observations.

In the school discipline context, in point of fact, one observes that all across the country recent reductions in discipline rates have been accompanied by increased relative racial/ethnic differences in discipline rates.   See the following web pages discussing such patterns with respect to the jurisdictions indicated in the page titles: California Disparities, Colorado Disparities, Connecticut Disparities, Florida Disparities, Maryland Disparities, Minnesota Disparities, Oregon Disparities, Rhode Island Disparities, Utah Disparities, Beaverton, OR Disparities, Denver Disparities, Henrico County, VA Disparities, Los Angeles SWPBS, Minneapolis Disparities, Montgomery County, MD Disparities, Portland, OR Disparities, St. Paul Disparities, South Bend Disparities.[7] These patterns are occurring notwithstanding that

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[7] These situations usually caught my attention as a result of press reportage of the fact that discipline rates had generally declined but racial disparities had increased, often while reflecting the mistaken belief that the general declines in discipline rates should have resulted in reductions in the racial disparity. Reportage that general declines in discipline rates were accompanied by decreased racial differences in discipline generally involves situations where the observers are measuring discipline disparities in terms of absolute differences between rates.

school districts may well be doing many things beyond relaxing standards in attempting to reduce racial/ethnic differences in discipline rates.

See also (a) the DOE Equity Report subpage of the Discipline Disparities page of jpscanlan.com (regarding data in a November 2012 DOE Office of Civil Rights document titled "Helping to Ensure Equal Access to Education: Report to the President and Secretary" showing that, contrary to the agency's attribution of large relative differences in adverse discipline outcomes to zero tolerance policies, relative racial differences in expulsions are smaller in districts with zero tolerance policies than in districts without such policies) and (b) Table 8 of "Race and Mortality Revisited" (showing that relative differences in multiple suspensions are larger, though relative differences in avoiding multiple suspensions are smaller, in the setting where multiple suspensions are less common (preschool) than in the setting where multiple suspensions are more common (K-12)).

These patterns, of course, will not be observed in every case, since other factors will be at work. But that does not alter the fact that general reductions in discipline rates will tend to affect measures of demographic difference in ways that are the exact opposite of what the government has been leading school administrators and others to believe. Further, the effects of the misunderstanding promoted by the government are substantial, as teachers and administrators must struggle to explain to supervisors, oversight authorities, and the public (and, in the case of agreements with the DOE, to the DOE itself) why relaxing of standards are accompanied by effects on measures of disparity in adverse discipline outcome that are the opposite of what DOE and other government agencies have led them to expect.

In these circumstances, the obligation of the agencies to correct the misunderstandings it has promoted, and to do so as soon as possible, should be evident.[8]

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Sincerely,

/s/ James P. Scanlan

James P. Scanlan

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[8] One closely related matter that also requires early attention from DOE involves the agency's perceptions about the implications of the fact that students with disabilities make up a high proportion of persons subject to physical restraints. See the Restraint Disparities subpage of the Discipline Disparities page of jpscanlan.com regarding the agency's singling out of states based on the proportion students with disabilities make up of students physically restrained where the states the agency singles out favorably are those least likely to adhere to DOE guidance to employ physical restraints as a last resort, while the states the agency singles out unfavorably are those most likely to adhere to DOE guidance on the matter.

Measuring Discipline Disparities
James P. Scanlan
(Statement Prepared for U.S. Commission on Civil Rights Briefing "The School to Prison
Pipeline: The Intersection of Students of Color with Disabilities" (Dec. 8, 2017)

Federal government policy regarding racial differences in school discipline outcomes has been consistently based on the belief that relaxing discipline standards and otherwise reducing adverse discipline outcomes will tend to reduce (a) relative (percentage) racial differences in rates of experiencing the outcomes and (b) the proportions African Americans and other racial minorities make up of persons experiencing the outcomes. In fact, exactly the opposite is the case.

By way of clarification, if the minority suspension rate is 15% and the white rate is 5%, the ratio of the minority rate to the white rate would be 3.0. That is, the minority rate is 200% greater than the white rate. The 200% figure is the relative, or percentage, difference. In the same situation, assuming minorities are 20% of students, they would be 43% of suspended students.

Federal policy has been based on the belief that activities that generally reduce suspensions (like Positive Behavioral Interventions & Support (PBIS) programs) will tend to reduce the 3.0 ratio and the 43% proportion figures. In fact, such activities will tend to increase those figures.

Test Score Illustration

Table 1 provides a simple illustration of why this is the case. The table is based on hypothetical test scores of higher- and lower- scoring groups (which are denominated AG for advantaged group and DG for disadvantaged group).

The first row of the table shows the pass rates for the two groups at a particular cutoff. The pass rates are 80% for AG and 63% for DG. Thus, AG's pass rate is 1.27 times (27% greater than) DG's pass rate.[1]

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[1] While I commonly refer to patterns of relative differences in this statement, the table actually presents rate ratios (also termed risk ratios or relative risks). The relative difference is the rate ratio minus 1 where the rate ratio is above 1 and 1 minus the rate ratio where the rate ratio is below one. In the former case, the larger the rate ratio, the larger the relative difference; in the latter case, the smaller the rate ratio, the larger the relative difference. It is more common to employ the disadvantaged group's rate as the numerator for the favorable as well as the adverse outcome, which is the approach as to favorable outcomes of the "four-fifths" or "80 percent" rule for identifying disparate impact under the Uniform Guideline for Employee Selection Procedures. I have sometimes employed this approach, as in "Can We Actually Measure Health Disparities?," *Chance* (Spring 2006) (http://www.jpscanlan.com/images/Can_We_Actually_Measure_Health_Disparities.pdf). More recently, however, I have usually used the larger figure as the numerator for both rate ratios, in which case, as to both favorable and adverse outcomes, the larger the rate ratio, the larger the relative difference. Choice of numerator in the rate ratio, however, has no bearing the patterns described here whereby measures tend to be affected by the prevalence of an outcome.

Table 1. Illustration of effect of lowering test cutoff on relative difference between pass rates of advantaged group (AG) and disadvantaged group (DG)

Cutoff	AG Pass Rate	DG Pass Rate	AG/DG Pass Ratio
1 High	80%	63%	1.27
2 Low	95%	87%	1.09

The second row shows what would happen if the cutoff is lowered to the point where AG's pass rate is 95%. Assuming normal test score distributions, DG's pass rate would be about 87%. With the lower cutoff AG's pass rate would be only 1.09 times (9% greater than) DG's pass rate. The fact that lowering a cutoff tends to reduce relative differences in pass rates is the reason why lowering a test cutoff is universally regarded as reducing the disparate impact of tests on which some groups outperform others.

At this point it may seem that I have contradicted my point at the outset. But, whereas lowering a cutoff tends to reduce relative differences in pass rates, it tends to increase relative differences in failure rates. This pattern is illustrated in Table 2. The table presents the same information as Table 1, but with the failure rates of the two groups added, along with the ratio of DG's failure rate to AG's failure rate (in the final column). The column with the rate ratios for test passage is highlighted in blue and the column with the rate ratios for test failure is highlighted in red.

Table 2. Illustration of effect of lowering test cutoff on (a) relative difference between pass rates and (b) relative difference between failure rates of advantaged group (AG) and disadvantaged group (DG)

Cutoff	AG Pass Rate	DG Pass Rate	AG Fail Rate	DG Fail Rate	AG/DG Pass Ratio	DG/AG Fail Ratio
1 High	80%	63%	20%	37%	1.27	1.85
2 Low	95%	87%	5%	13%	1.09	2.60

The final (red highlighted) column shows that with the initial cutoff DG's failure rate was only 1.85 times (85% greater than) AG's pass rate. With the lower cutoff, DG's failure rate is 2.60 times (160% greater than) AG's failure rate.

That is, as the prevalence of test passage and test failure generally changed as a result of lowering the cutoff, the relative difference in the increasing side of the dichotomy (test passage) decreased and the relative difference in the decreasing side of the dichotomy (test failure) increased.

As suggested at the outset, appraisals of discipline disparities issue sometimes focus on the proportions racial minorities make up of persons disciplined (compared with the proportions such groups make up of students). Patterns of changes in the proportions groups make up of persons experiencing either of the two outcomes as the prevalence of the outcomes changes are corollaries to the patterns shown in Table 2.

Table 3 is the same as Table 2, but with two more columns added on the right. These columns show the proportions DG makes up of persons who pass the test (highlighted in blue) and persons who fail the test (highlighted in red) in circumstances where DG makes up 50% of persons who take the test.

Table 3. Illustration of effect of lowering test cutoff on (a) relative difference between pass rates and (b) relative difference between failure rates of advantaged group (AG) and disadvantaged group (DG) and proportion DG makes up of (c) persons who pass the test and (d) persons who fail the test (where DG makes up 50% of test takers)

Cutoff	AG Pass Rate	DG Pass Rate	AG Fail Rate	DG Fail Rate	AG/DG Pass Ratio	DG/AG Fail Ratio	DG Prop of Pass	DG Prop of Fail
1 High	80%	63%	20%	37%	1.27	1.85	44%	65%
2 Low	95%	87%	5%	13%	1.09	2.60	48%	72%

The penultimate column shows that lowering the cutoff causes the proportion DG makes up of persons who pass the test to increase from 44% to 48%. That would reduce the difference between the proportion DG makes up of persons who take the test and the proportion it makes up of persons who pass the test.

But the final column shows that lowering the cutoff also increased the proportion DG makes up of persons who fail the test, from 65% to 72%. That would increase the difference between the proportion DG makes up of persons who take the test and the proportion DG makes up of persons who fail the test.

These patterns are not peculiar to test score data or the numbers I used to illustrate them. Rather, changing the frequencies of virtually any outcome and its opposite tends to cause the relative difference in the increasing outcome to decrease and the relative difference in the decreasing outcome to increase (with related effects on the proportions groups more susceptible to the outcomes make up of persons who experience the increasing outcome and the decreasing outcome).

This will not invariably happen with the consistency that will be observed with hypothetical test score data. For many factors are at work. But it will typically happen, especially when the changes in the prevalence of an outcome are substantial. In the school discipline context in particular, generally reducing discipline rates, while tending to reduce relative racial differences in rates of avoiding discipline (analogous to test passage), will tend to increase relative racial differences in rates of being disciplined (analogous to test failure). And in fact that is being observed all across the country as school districts have been generally reducing discipline rates while mistakenly believing that doing so should reduce relative racial differences in discipline rates (or the proportions racial minorities make up of student who are disciplined).[2]

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[2] See page 8 of my July 17, 2017 letter to the Departments of Education, Health and Human Services, and Justice. http://www.jpscanlan.com/images/Letter_to_Departments_of_Education,_HHS,_and_Justice_July_17,_2017_.pdf

It is important to recognize that the situation is not one where the government has reasoned that, while the above-described patterns will be found in test score data, there are reasons why the patterns will not ordinarily be found in other situations. Rather, despite dealing with issues about demographic differences in test outcomes for half a century, the government has failed even to understand that lowering a test cutoff tends to increase relative differences in failure rates.

It is also important to understand that an increase in the relative difference in the adverse outcome does not mean that a disparity has increased in some meaningful sense any more than the reduction in the relative difference in the favorable outcome means that a disparity has decreased in a meaningful sense. Rather, the problem is that neither relative difference is a useful indicator of the strength of the forces causing the outcome rates of two groups to differ (or, as we might otherwise put it, the size of the difference in the circumstances of two groups reflected by their outcome rates). That is quite important to recognize as we endeavor to understand the causes of disparities and determine whether they are growing larger or smaller over time or are larger in one setting than another.

Still focusing on either Table 2 or Table 3 (though the former is somewhat simpler), one may think of the pass and fail rates as reflecting any favorable and adverse outcome rates that result from decisions of individual decision-makers. In the school discipline context, consider the failure rates as if they are the suspension rates of minorities and whites and the pass rates as if they are the groups' rates of rates of avoiding suspension. To the extent that bias on the part or decision-makers contributes to the differences between rates, any actions that reduce that bias will tend to reduce all measures of racial differences between favorable or adverse outcomes.

At the same time, however, simple reductions in adverse discipline outcomes, such as those resulting from PBIS programs, will tend to change the measures of difference in the manner reflected in the tables. Thus, in consequence of general reductions in discipline rates, a school district that substantially reduces suspension rates will tend to show a pattern of changing measures of differences in outcome rates akin to that found in movement from the first row to the second row of the two tables.

In circumstances where decision-makers, including teachers and administrators, are being encouraged to generally reduce suspension rates, all other things being equal, the results for decision-makers who do not try very hard to reduce suspension rates will tend to look more like the first row than the second row. The results for decision-makers who try very hard to reduce suspension rates will tend to look more like the second row than the first row.

Thus, consider a situation where the two rows reflect the results of actions of two different decision-makers and an effort is made to determine which decision-maker is more likely to have made racially biased decisions. One would reach opposite conclusions depending on whether one examined relative differences in the favorable outcome or relative differences in the adverse outcome. In fact, however, there is no rational basis for distinguishing between the two rows with regard to the question of which is more likely to reflect the results of biased decisions.

It should be evident that it is essential for school administrators endeavoring to address discipline disparities issues, and those monitoring those efforts and otherwise attempting to ensure equal

treatment for all groups, to understand these patterns. Yet the situation is not simply that virtually no one involved in such efforts understands these patterns; rather, virtually everyone involved in such efforts proceeds on a belief about the effects of generally reducing discipline rates on the measures most commonly employed in quantifying racial and other demographic disparities that is the opposite of reality.

Illustration of the Effects of Substituting a Reprimand for What Would Otherwise Be a First Suspension on Proportions More Susceptible Groups Make up of Persons Suspended

Data made available in Department of Education reports provide other simple illustrations of the effects of generally reducing adverse discipline outcomes rates on measures of racial or other demographic differences in discipline outcomes.

Tables 4 and 5 are based on data from a March 21, 2014 Department of Education report titled "Data Snapshot: School Discipline."[3] The data in the report enable one to determine the proportions demographic groups make up of K-12 and preschool students who are suspended (a) one or more times and (b) two or more times.[4]

Table 4. Illustration of effect of giving all students a reprimand instead of their first suspension on proportion African Americans make up of K-12 and preschool students receiving one or more suspensions

Setting	Number of Suspensions	AA Proportion of Students Experiencing the Outcome
K-12	One or more	37%
K-12	Two or more	43%
Preschool	One or more	44%
Preschool	Two or more	48%

Table 4 provides that information with regard to African American students in K-12 and preschool. The first row of the first set of two rows shows the proportion African Americans make up of K-12 students suspended one or more times (37%) and the second of those rows shows the proportion they make up of K-12 students suspended two or more times (43%). Suppose, then, that in every situation that otherwise would have resulted in a first suspension, the students were given a reprimand rather than a suspension. In such case, the figure in the second row would tend to become the figure for one or more suspensions. Thus, the 37% figure for the proportion African Americans make up of K-12 students suspended one or more times would tend to rise to 43%.

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[3] https://www2.ed.gov/about/offices/list/ocr/docs/crdc-discipline-snapshot.pdf

[4] The document provided information on the proportions demographic groups made up of K-12 and preschool students suspended one time and suspended multiple times. From the information provided in the report, one can then determine the proportions the groups made up of persons suspended (a) one or more times and (b) two or more times.

The second two rows of the table provide a similar illustration for preschool. In this setting, giving students a reprimand instead of their first suspension would tend to cause the proportion African Americans make up of students suspended one or more times to increase from 44% to 48%.

Table 5 presents the same type of information for boys, who commonly have higher suspension rates than girls and thus commonly make up a larger proportion of suspended students than the approximately 50% that they make up of all students. Here, too, the Department of Education data show that in both K-12 and preschool, giving students a reprimand rather than what would otherwise be their first suspension would tend to increase the proportion boys (the group more susceptible to suspension) make up of students suspended one or more times.

Table 5. Illustration of effect of giving all persons a reprimand instead of their first suspension on proportion boys make up of K-12 and preschool students receiving one or more suspensions

Setting	Number of Suspensions	Male Proportion of Students Experiencing the Outcome
K-12	One or more	70%
K-12	Two or more	72%
Preschool	One or more	80%
Preschool	Two or more	82%

Illustration of Effects of the Prevalence of Adverse Discipline Outcomes in Different Settings on Measures of Racial Disparity in Those Settings

I often describe the statistical pattern at work in the discipline context (and essentially every other context where disparities are quantified in terms of relative differences or measures that are functions of relative differences) as that whereby the rarer and outcome, the greater tends to be the relative difference in experiencing it and the smaller tends to be the relative differences in avoiding it. One important, though universally misunderstood, manifestation of that pattern is that in settings (or among subpopulations) where adverse discipline outcomes are comparatively uncommon, relative racial differences in rates of experiencing those outcomes will tend to be larger, while relative differences in the corresponding favorable outcome will tend to be smaller, than in settings where the outcomes are comparatively common.

Tables 6 and 7 are based on data from the Massachusetts and Loudoun County, Virginia. Both are areas where policymakers or others have expressed concern that, though the areas have comparatively low suspension rates, relative racial differences or other measures of racial differences in suspensions are comparatively high.

The two tables may be compared to Table 2 above (save that they do not show the rates at which the two groups avoid suspension, the equivalent of test passage) with columns reordered to be more consistent with the way the issues are commonly discussed (and with the same color-coding for the rate ratios for the adverse and favorable outcomes). But I have added an additional column at the end termed EES, for estimated effect size. This column presents a measure of the strength of the forces causing outcome rates of two groups to differ that is theoretically unaffected by the prevalence of an outcome. I describe it (and its strength and weaknesses) in my "Race and Mortality Revisited," *Society* (July/Aug. 2014)[5] and various other places.

Table 6: Out-of-school suspension rates for African American and white students in Massachusetts and nationally in 2012-2013, with measures of difference

Area	AA Rate	White Rate	AA/White Ratio-Susp	White/AA Ratio - No Susp	EES
Massachusetts	10.0%	2.7%	3.70	1.08	0.65
National	16.4%	4.6%	3.57	1.14	0.71

Table 6 shows the common patterns whereby the setting with comparatively low suspension rates (Massachusetts compared with national figures) shows larger relative differences in suspension rates, but smaller relative differences in rates of avoiding suspension, than are found nationally. The EES figures – .65 in Massachusetts and .71 nationally – indicate that the forces causing suspension rates of African American and white students to differ (whatever those forces may be) are weaker in Massachusetts than nationally.[6]

Table 7 presents similar information from schools in Loudoun, County Virginia (an affluent suburb of Washington, DC), where suspension rates are very low. In this case, the concern about large racial disparities was prompted by the comparatively high ratio of the proportion African Americans made up of suspended students to the proportion they made up of students.[7]

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[5] http://jpscanlan.com/images/Race_and_Mortality_Revisited.pdf

[6] These data and similar data relating to students with disabilities are discussed more fully in my November 12, 2017 letter to the Boston Lawyers' Committee for Civil Rights and Economic Justice. http://jpscanlan.com/images/Letter_to_Boston_Lawyers_Committee_Nov._12,_2015_.pdf

[7] That areas with low African American representation among students tend to have higher such ratios than other areas even when the areas have same suspension rates for African American students and for other students is among a number of reasons beyond the statistical patterns addressed here that comparisons of the proportion a group makes up of persons potentially experiencing an outcome and the proportion the group makes up of persons actually experiencing the outcome cannot effectively quantify the forces causing outcome rates of advantaged and disadvantaged groups to differ. See references in the succeeding note. See also the IDEA Data Center Disproportionality Guide subpage of the Discipline Disparities page of jpscanlan.com. http://jpscanlan.com/disciplinedisparities/ideadatacenterguide.html

The ratio African American suspension rate to the white suspension rate is actually slightly lower in Loudoun County than nationally, while the relative difference in rates of avoiding suspension is much lower in Loudoun County than nationally. The EES figures – .55 in Loudoun County and .71 nationally – indicate that the forces causing suspension rates of African American and white students to differ are considerably weaker in Loudoun County than nationally.[8]

Table 7: Out-of-school suspension rates for African American and white students in Loudon County (VA) Public Schools and nationally in 2012-2013, with measures of difference

Area	AA Rate	White Rate	AA/White Ratio-Susp	White/AA Ratio - No Susp	EES
LCPS	4.65%	1.3%	3.54	1.04	0.55
National	16.4%	4.6%	3.57	1.14	0.71

Neither Massachusetts nor Loudoun County has any idea that to the extent that racial disparities in school discipline can be effectively measured, their disparities are smaller, not larger, than nationally. Nor do they have any idea that the actions to generally reduce discipline rates that they see as means of reducing the measures of racial disparity that are causing them concern will in fact tend to increase those measures.

Table 8, which is based on Table 8 of the aforementioned "Race and Mortality Revisited," is similar to Tables 6 and 7. But rather than comparing figures from a particular geographic area with national figures, Table 8 compares figures in preschool (where suspensions are comparatively rare) with figures from K12 (where suspensions are much more common). The table presents figures on multiple suspensions, which is the outcome respecting which racial disparities received the greatest attention when racial disparities in preschool suspensions first received substantial attention in 2014.[9]

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[8] These data are discussed more fully in the Loudoun County (VA) Disparities subpage of the Discipline Disparities page of jpscanlan.com (http://jpscanlan.com/disciplinedisparities/loudounctydisparities.html). That subpage also discusses data showing that between the 2009-2010 and the 2013-2014 school years general reductions in suspension rates were accompanied by an increase in the relative differences between African American and white suspension rates and a decrease in the relative difference between African American and white rates of avoiding suspension, with negligible change in the EES. See also my September 5, 2017 letter explaining this issue to the Loudoun County School Board.
http://jpscanlan.com/images/Letter_to_Loudoun_County_Public_Schools_Sept._5,_2017_.pdf

[9] The facts receiving special attention in coverage of the issue were that African Americans were 18% of preschool children but 48% of preschool students receiving multiple suspensions. The figures in Table 8 are the suspension rates that can be derived from data in the previously mentioned Department of Education March 2014 document "Data Snapshot: School Discipline." The 18% and 48% figures were also highlighted in a March 21, 2014 Department of Education report titled "Data Snapshot: Early Childhood Education."
https://www2.ed.gov/about/offices/list/ocr/docs/crdc-early-learning-snapshot.pdf

Table 8. African American and white rates of multiple suspensions in preschool and K-12, with measures of difference

Level	AA Mult Susp Rate	White Mult Susp Rate	AA/Wh Ratio Mult Susp	Wh/AA Ratio No Mult Susp	EES
Preschool	0.67%	0.15%	4.41	1.01	.49
K12	6.72%	2.23%	3.01	1.05	.51

As will commonly be observed, Table 8 shows that in the setting where suspensions are less common (preschool) relative differences in multiple suspension rates are greater, while relative differences in rates of avoiding multiple suspensions are smaller, than in the setting where suspensions are more common (K-12). In this case, however, the EES figures are very similar suggesting that, whatever the forces causing African American and white suspension rates to differ, they are of approximately the same strength in the two settings.

Table 9 is based on data from a 2012 Department of Education report titled "Helping to Ensure Equal Access to Education: Report to the President and Secretary."[10] Data were provided only on the proportion African Americans make of students and expelled students overall and in zero tolerance schools. The actual expulsions rates were not available. But based on the data available, one can present those two proportions in each setting and derive therefrom the relative difference between the African American rate and the rate for all other students.

Table 9: Proportions African Americans make up of students and expelled students overall and in schools with zero tolerance policies, with ratio of the African American expulsion rate to the white expulsion rate

Setting	AA Proportion of Students	AA Proportion of Expulsions	AA/Non-AA Expulsion Ratio
Overall	18%	39%	2.91
Zero Tolerance Schools	19%	33%	2.10

In accordance with the pattern described above, the ratio of the African American expulsion rate to the expulsion rate of other students was higher where expulsions were presumably less common (overall) than in the setting where expulsions were presumably more common (zero tolerance schools). (I do not present an EES figure because one needs the actual expulsion rates to derive such figure.) There nevertheless continues to be a near universal belief that zero tolerance policies lead to larger relative racial differences in adverse disciplines outcomes (and larger African American proportions or persons experiencing those outcomes) than more lenient policies.

An understanding of these patterns is also essential to drawing sound inferences about processes based on the comparative size of disparities. Relative racial differences in suspension rates are commonly greater, while relative differences in rates of avoiding suspension are commonly smaller, among girls (where suspensions are less common) than among boys (where suspensions

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[10] http://www2.ed.gov/about/reports/annual/ocr/report-to-president-2009-12.pdf

are more common). Correspondingly, relative gender differences in suspension are commonly greater, while relative gender differences in rates of avoiding suspension are commonly smaller, among whites (where suspensions are less common) than among African Americans (where suspensions are more common). See the Discipline Disparities page of jpscanlan.com.[11]

Similarly, relative racial differences in suspensions will commonly be greater, while relative differences in avoiding suspensions will commonly be smaller, among students without disabilities (where suspensions are less common) than among students with disabilities (where suspensions are more common). Correspondingly, relative differences between the suspension rates of students with and without disabilities will commonly be greater, while relative differences between rates at which such groups avoid suspension will commonly be smaller, among whites (where suspensions are less common) than among African Americans (where suspensions are more common).

On cannot draw inferences about processes on the basis that one of these disparities is larger than another, or otherwise usefully hypothesize about why any disparity is larger than another, without understanding the above-described and other patterns by which measures tend to be affected by the prevalence of an outcome.

Conclusion

The failure to understand the ways the prevalence of an outcome affects relative differences in rates of experiencing an outcome and relative differences in rates of avoiding the outcome is but part of a larger failure of the government (and the social science and statistical communities) to understand the ways standard measures of differences between outcome rates of advantaged and disadvantaged group tend to be affected by the prevalence of an outcome. For more extensive treatment of that issue with regard to all analyses of demographic differences in outcome rates in the law and the social and medical sciences, see the aforementioned "Race and Mortality Revisited," my November 14, 2016 Comments for Commission on Evidence-Based Policymaking,[12] and my October 8, 2015 letter to the American Statistical Association.[13] With regard to the way the larger failure has undermined Department of Education analyses of demographic differences regarding student outcomes apart from discipline, see my "Innumeracy at the Department of Education and the Congressional Committees Overseeing It," Federalist Society Blog (Aug. 24, 2017).[14] See also the July 17, 2017 letter to the Departments of Education, Health and Human Services, and Justice mentioned in note 2 *supra*, which, in addition to advising the agencies of their obligations to correct prior guidance to school administrators as to the likely effects of generally reducing discipline rates on measures of discipline disparities, suggests that the agencies halt all funding of research into demographic

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[11] http://jpscanlan.com/disciplinedisparities.html

[12] https://www.regulations.gov/document?D=USBC-2016-0003-0135

[13] http://jpscanlan.com/images/Letter_to_American_Statistical_Association_Oct._8,_2015_.pdf

[14] http://www.fed-soc.org/blog/detail/innumeracy-at-the-department-of-education-and-the-congressional-committees-overseeing-it

differences that fails to consider implications of the ways the measures employed tend to be affected by the prevalence of an outcome.

But the mistaken belief that generally reducing an adverse outcome should tend to reduce, rather than increase, relative differences in rates of experiencing the outcome (and the proportions groups more susceptible to the outcome make up of persons experiencing it) – which informs federal civil rights policies regarding criminal justice, lending, employment, and voter qualification, as well as school discipline – is an extreme example of the larger failure of understanding. And it has pernicious consequences. These include the many anomalies where by complying with government encouragements to relax standards and otherwise reduce adverse outcomes, entities covered by civil rights law increase the chances that the government will accuse them of discrimination. Similar anomalies exist in situations where individual actors who comply with their employers' instruction to reduce adverse outcomes increase the chances that their employees will accuse them of discrimination. Further, in contexts where actions that are supposed to be reducing measures of racial disparity are followed by increases in those measures, observers will conclude that the forces causing outcome rates to differ must be growing stronger, often prompting increasing distrust in the fairness of systems.

Such conclusions will not have a sound statistical basis. But so far very few people understand that.