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ELECTRONICALLY TRANSMITED

Melissa Sickmund, Ph.D., Director
Members of the Board of Fellows
National Center for Juvenile Justice
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Subj: Obligation of the National Center for Juvenile Justice to Advise the
United States Department of Justice That Generally Reducing Adverse Criminal
Justice Outcome Tends to Increase, Not Reduce, Relative Racial and Other
Demographic Differences in Rates of Experiencing the Outcomes

Dear Director Sickmund and Members of the Board of Fellows:

This letter is prompted by a recent review of the [National Disproportionate Minority Contact Databook](#),¹ which appears on the website of the United States Department of Justice and which was developed, and is maintained, by the National Center for Juvenile Justice (NCJJ).

The letter has two purposes. One purpose is to explain to NCJJ leadership that, contrary to the belief underlying federal civil rights enforcement policies involving criminal justice and many other matters, generally reducing adverse criminal justice and other outcomes tends to increase relative (percentage) racial and other demographic differences in rates of experiencing the outcomes. A second purpose is to advise NCJJ of its obligation, as a recipient of federal funds, to explain the matter to the Department of Justice.

In quite a few places since 1987 I have explained that generally reducing an outcome by restricting it to those most susceptible to it, while tending to reduce relative differences in rates of experiencing the corresponding opposite outcome, will tend to increase relative differences in the outcome itself. By way a very simple example, and as illustrated in Table 1 my April 13, 2017 [letter](#) to the Department of Justice (Attachment A hereto), lowering a test cutoff (and hence

¹ To facilitate consideration of issues raised in documents such as this by the addressees and others 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. If the online version of the letter is amended, such fact will be noted on the first page of that version.

generally reducing failure rates and generally increasing pass rates), while tending to reduce relative differences between the pass rates of higher- and lower-scoring groups, tends to increase relative differences between the groups' failure rates. Tables 2 and 3 of the April 13, 2017 letter similarly show, in unequivocal terms, that lowering income and credit score requirements, while tending to reduce relative racial differences in meeting the requirements, tends to increase relative racial differences in failure to meet the requirements. Other tabular and graphical illustrations of these and other patterns by which measures of differences between favorable or adverse outcome rates tend to be affected by the prevalence of an outcome may be found in my [Comments for Commission on Evidence-Based Policymaking](#) (Nov. 14, 2016), "[The Mismeasure of Health Disparities](#)," *Journal of Public Health Management and Practice* (July/Aug. 2016), "[Race and Mortality Revisited](#)," *Society* (July/Aug. 2014), and workshops on the measurement of demographic differences I have given in recent years at American educational institutions, including [University of Massachusetts Medical School](#) (2015), [University of California, Irvine](#) (2015), [George Mason University](#) (2014), [University of Maryland](#) (2014), [University of Minnesota](#) (2014), [University of Kansas School of Law](#) (2013), [Harvard University](#) (2012), and [American University](#) (2012). These references also explain why relative differences between favorable or adverse outcomes (and the rate ratios used to illustrate the relative differences) are unsound and misleading measures of the strength of an association and cannot be used to draw inferences about underlying processes without consideration of the ways the measures tend to be affected by the prevalence of an outcome.

Fairly brief discussions of why, contrary to the belief of the Department of Justice, generally reducing adverse criminal justice outcomes will tend to increase relative racial differences in rates of experiencing the outcomes (and the proportion African Americans make up of persons experiencing the outcomes) may be found in my "[The misunderstood effects of the Baltimore police consent decree](#)," *The Daily Record* (Feb. 15, 2018), and "[Things DoJ doesn't know about racial disparities in Ferguson](#)," *The Hill* (Feb. 22, 2016). Fuller discussions of the pattern and implications of the failure to understand it with regard to criminal justice outcomes may be found in my "[United States Exports Its Most Profound Ignorance About Racial Disparities to the United Kingdom](#)," Federalist Society Blog (Nov. 2, 2017), "[The Pernicious Misunderstanding of Effects or Policies on Racial Differences in Criminal Justice Outcomes](#)," Federalist Society Blog (Oct. 12, 2017), "[The Government's Uncertain Path to Numeracy](#)," Federalist Society Blog (July 21, 2017), "[Racial Impact Statement Laws in New Jersey and Elsewhere](#)," Federalist Society Blog (Mar. 20, 2017), "[Compliance Nightmare Looms for Baltimore Police Department](#)," Federalist Society Blog (Feb. 8, 2017), "[Will Trump Have the First Numerate Administration?](#)" Federalist Society Blog (Jan. 4, 2017), "[Misunderstanding of Statistics Confounds Analyses of Criminal Justice Issues in Baltimore and Voter ID Issues in Texas and North Carolina](#)," Federalist Society Blog (Oct. 3, 2016), "[Things the President Doesn't Know About Racial Disparities](#)," Federalist Society Blog (Aug. 5, 2016), and "[Mired in Numbers](#)," *Legal Times* (Oct. 12, 1996).

These references also discuss some of the adverse consequences of the promotion of the incorrect belief that generally reducing an adverse criminal justice outcome will tend to reduce

relative racial differences in rates of experiencing the outcomes. These include the fact that when actions that are supposed to reduce measures of racial disparity in fact increase those measures, persons who believe that racial bias plays a substantial role in the disparities will believe that bias must be increasing. And persons uncertain as to the cause of the disparities will tend to believe that, whatever the forces causing the disparities, the strength of such forces must be increasing. The adverse consequences also include the difficulties facing decisionmakers who implement policies that tend to increase measures of racial disparity while the decisionmakers, and the individuals and entities overseeing and judging their actions, believe that the policies should reduce those measures.

I also attach as Attachment B my July 17, 2017 [letter](#) to the Departments of Education, Health and Human Services, and Justice addressing the recipient agencies' obligations to explain to Congress, public school administrators, and the public that generally reducing adverse school discipline outcomes tends to increase, not reduce, relative demographic differences in rates of experiencing those outcomes.² I call your particular attention to the discussion at pages 2 to 4 of the letter regarding reasons the agencies should halt all funding of research into demographic differences, or guidance on the measurement of such differences, that fails to understand or consider the ways the measures employed in such measurement tend to be affected by the prevalence of an outcome. See also the fourth recommendation (at pages 46-47) of the November 14, 2016 Comments for the Commission on Evidence-Based Policymaking.

The NDMCD recommends that demographic differences in criminal justice outcomes be measured in terms of a ratio it terms the "relative risk index" (RRI), a ratio that is also known as the "relative risk," "risk ratio," and "rate ratio," with the disadvantaged group's rate used as the numerator of the ratio. The relative difference is the $RRI - 1$ where the RRI is above 1 (as is commonly the case with regard to adverse outcomes) and $1 - RRI$ where RRI is below 1 (as is commonly the case with regard to favorable outcomes if the disadvantaged group's rate is used as the numerator of the ratio).³ I am not sufficiently familiar with activities and publications of

² The mistaken belief of the federal government and others that relaxing discipline standards will tend to reduce relative demographic differences in adverse discipline outcomes, which is also addressed in the aforementioned "Race and Mortality Revisited" and Comments for the Commission on Evidence-Based Policymaking and which is closely related to the subject of this letter, is most comprehensively addressed in my June 26, 2018 [letter](#) to the Maryland State Department of Education and its attachments. The attachments include my December 8, 2017 testimony explaining the issue to the U.S. Commission on Civil Rights, the above-mentioned (and attached) July 17, 2017 letter explaining the issue to the U.S. Departments of Education, Health and Human Services, and Justice, and a handout I used to explain the issue to U.S. Department of Education staff at a March 22, 2018 meeting. Since NCJJ is located in Pittsburgh, Pennsylvania, I add that not mentioned in the Maryland State Department of Education letter or its attachments is a recently-created web page on jpscanlan.com titled "[Allegheny County \(PA\) Disparities](#)." The page discusses an August 2018 University of Pittsburgh study showing that recent reductions in suspensions in the Pittsburgh area were accompanied by increased relative racial differences in suspensions (though the study implies or states otherwise).

³ See note 3 at page 5 of the April 13, 2017 to the Department of Justice regarding my preference for using the larger figure in the numerator for the rate ratio for both favorable and adverse outcomes, as in Tables 1 to 3 of that letter, and the fact that choice of numerator does not affect the directions of changes in relative differences.

NCJJ to know the extent to which NCJJ explicitly promotes the incorrect belief that generally reducing adverse criminal justice outcomes will tend to reduce the RRI and associated relative difference for the outcome.⁴

But whether or not the NDMCD or other documents or activities of NCJJ explicitly promote the incorrect belief that generally reducing adverse criminal justice outcomes tends to reduce relative racial differences in rates of experiencing the outcomes, NCJJ provides measurement guidance in a context where the Department of Justice and virtually all other actors premise their actions on that belief. Thus, NCJJ's actions at least impliedly contribute to the mistaken belief on the part of the Department of Justice and others. And even if NCJJ actions did not contribute to that mistaken belief, NCJJ would have a fiduciary obligation to explain the misunderstanding to the Department of Justice or any other entity providing funding to the NCJJ regarding the measurement of demographic differences. While such obligation should be evident to all, I suggest that it should be especially evident to the Members of the Board of Fellows who are judges. And certainly NCJJ would itself expect any entity NCJJ compensates to provide the organization guidance on the measurement of demographic differences and ways in which data may inform policy to explain ways in which the organization's understanding of the effects of policies on measures of demographic differences is incorrect.

The fact that the I have repeatedly brought this matter to the attention of the Department of Justice does not obviate the obligation of an entity like NCJJ. On the contrary, the continuing failure of the Department of Justice officials and staff to understand the matter is but further reason why an entity retained for its presumptive expertise is obliged to explain to the contracting agency things that the agency's official and employees may have difficulty understanding.

Further, NCJJ promotes the view that RRI and the relative difference it reflects are sound measure of association and can be used to identify "improve[ments] in racial and ethnic fairness at the local-level" (from the [Racial/Ethnic Fairness](https://www.ncjj.org/racial-ethnic-fairness) page of ncjj.org). But, for reasons explained in the references listed on page 2 (see especially discussion regarding Table 5 or "Race and Mortality Revisited"), whether employed with respect to an adverse outcome or the corresponding favorable outcome, the RRI and relative difference manifestly are not sound measures of association. And they could not possibly provide sound guidance regarding whether a process has become more or less fair, or regarding the comparative fairness of the process in different areas, without consideration of the ways the measures have been affected by changes in the prevalence of an outcome or by the differing prevalence of the outcome in the different areas.

⁴ By contrast, any documents or activities of NCJJ that promote the belief that increasing favorable outcomes tends to reduce relative differences in rates of experiencing those outcomes would not be promoting incorrect beliefs. As discussed *infra*, however, the suggestion that the relative differences in the favorable outcome is a sound measures of association, or that changes in it could provide useful information about changes in underlying processes without consideration of the effects of changes in the overall prevalence of the outcome, would be incorrect.

Very likely, NCJJ has given no thought to this issue whatever and its researchers and analysts are unaware that it even possible for the relative difference in a favorable outcome and the relative difference for the corresponding adverse outcome to change in opposite directions as the prevalence of an outcome changes.⁵ Thus, now informed of the issue, the organization, at a minimum, must reconsider the utility of its guidance it currently provides and how it can improve that guidance going forward. It must also inform all funding entities of such reconsideration.

At page 6 of the April 3, 2017 letter to the Department of Justice, I make the point with respect to the test score illustration in the letter's Table 1 that the situation is not one where the government has reasoned that, while the above-described pattern 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.

Probably this situation also exists among researchers and data analysts at NCJJ. In any case, ensuring that NCJJ staff understand the simple pattern reflected in test score data and that they consider its implications as to other matters would be an important first step toward causing the organization to recognize the potentially myriad ways the guidance it provides to, and on behalf of, the Department of Justice has been unsound or misleading, as well as the need to bring the problems in such guidance to the attention of Department of Justice officials. It would also be an important first step toward transforming NCJJ into an organization that promotes understanding, rather than misunderstanding, regarding the quantification of demographic differences.

Finally, I attach as Attachments C and D an August 25, 2017 [letter](#) to the American Institutes for Research and a November 2016 [letter](#) to the Pyramid Equity Project. Both discuss the ethical obligations of a recipient of federal funds to address with the funding agencies situations where grants or contract are premised on an incorrect understanding of the effects of

⁵ The aforementioned "Race and Mortality Revisited" and "The Mismeasure of Health Disparities" both discuss that more than decade ago the National Center for Health Statistics recognized that as health and healthcare improved, relative differences in the increasing (favorable) health and healthcare outcomes tended to increase while relative differences in the corresponding decreasing (adverse) health and healthcare outcomes tended to decrease. No other arm of the federal government has recognized that it is even possible for the relative differences in a favorable outcome and the relative difference in the corresponding adverse outcome to change in opposite directions as the prevalence of an outcome changes. And data analysts at most agencies, especially those involved in civil rights enforcement, believe that generally reducing an adverse outcome should reduce relative differences in rates of experiencing it, which belief is the opposite of the conclusion reached by the National Center for Health Statistics. Presumably, similar failures of understanding on the part of entities retained by the federal government to provide expert guidance on measurement issues substantially contributes to the failure of understanding on the part of government agencies.

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policies on measures of demographic difference or where federally-funded research or activities are otherwise unsound for failure to consider the ways the measures employed tend to be affected by the prevalence of an outcome.

Sincerely,

/s/ James P. Scanlan

James P. Scanlan

Attachments:

- A - Letter to Department of Justice (Apr. 13, 2017) (16 pages)
- B - Letter to Departments of Education, Health and Human Services, and Justice (July 17, 2017) (9 pages)
- C - Letter to American Institutes for Research (Aug. 25, 2017) (without attachments) (8 pages)
- D - Letter to the Pyramid Equity Project (Nov. 28, 2016) (5 pages)

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April 13, 2017

The Honorable Jeff Sessions
Attorney General
T. E. Wheeler, II
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United States Department of Justice
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Re: Misunderstandings of Statistics Relating to the Department of Justice's
Enforcement of Civil Rights Laws

Dear Attorney General Sessions and Acting Assistant Attorney General Wheeler:

Introduction

This letter has two purposes. The first purpose, addressed in Section A, is to explain to the Department of Justice (DOJ) that many federal civil rights enforcement policies have long been based on an understanding of statistics that is the exact opposite of reality and to urge the agency to take certain steps to remedy the consequences of its actions based on that understanding. A second purpose, addressed in Section B, is to explain to the agency that, even apart from consequences of the aforementioned mistaken understanding, almost all law enforcement activities involving statistical analyses of discrimination issues have been statistically unsound and to urge the agency to form a committee to study the soundness of such analyses.

By way of summary as to the letter's first purpose, many civil rights enforcement policies of DOJ and other agencies regarding matters including criminal justice, lending, school discipline, voter qualification, and employment have been based on the belief that relaxing standards and otherwise reducing the frequency of some adverse outcome will tend to reduce (a) relative (percentage) demographic differences in rates of experiencing the outcome and (b) the proportions groups more susceptible to the outcome make up of persons experiencing it. Further, DOJ, alone or in conjunction with other agencies, has been leading entities covered by civil rights laws, the courts, and the public also to believe that actions that generally reduce adverse outcomes will tend to reduce (a) and (b) as to the outcomes.

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In fact, generally reducing any outcome will tend to increase, not reduce, both (a) and (b) as to the outcome. Moreover, while such fact is little known even among persons deemed expert in the analyses of demographic differences, it is by no means debatable. By way of simple examples as to which there exists no plausible basis for disagreement (and which will be illustrated in Tables 1 to 3 *infra*), (1) test score data show that lowering a test cutoff, while tending to reduce relative differences between the pass rates of higher- and lower scoring-groups, will tend to increase relative differences between the failure rates of such groups; and (2) income and credit score data on African Americans and whites show that lowering an income or credit score requirement to secure some desired borrowing or other outcome, while tending to reduce relative racial differences between rates of meeting the requirement, will tend to increase relative racial differences between rates of failing to meet the requirement.

Further, more than a decade ago the National Center for Health Statistics recognized that improvements in health and healthcare, while tending to reduce relative differences in favorable health and healthcare outcomes (the increasing outcomes), tend to increase relative differences in the corresponding adverse health and healthcare outcomes (the decreasing outcomes). No other arm of the federal government, however, has yet shown a recognition that it is even possible for the relative difference in a favorable outcome and the relative difference in the corresponding adverse outcome to change in opposite directions as the frequency of an outcome changes, much less that such pattern tends to occur systematically.

Once understanding this issue, I suggest, DOJ has an obligation to review all of its activities that may be based on the aforementioned mistaken understanding with a view toward taking appropriate corrective action. Such actions should include advising all entities that DOJ may have misled with respect to this matter that the agency's understanding was incorrect. And such actions should be taken immediately, especially with respect to alerting the court in *United States v. Baltimore Police Department et al.*, Civ. No. JKB-17-99 (D. Md.), that contrary to a central premise of the consent decree the court entered on April 7, 2017, actions required by the decree are more likely to increase than decrease relative racial and other demographic differences in adverse criminal justice outcomes and the proportions African Americans and other more susceptible groups make up of persons experiencing those outcomes.

By way of summary as to the second purpose of the letter, the misunderstanding regarding the effects of relaxing standards and otherwise reducing the frequency of adverse outcomes on measures of demographic differences regarding such outcomes is but part of a larger failure of the DOJ and other arms of the federal government, as well as the nongovernmental social and medical science research communities, to recognize the ways all measures commonly employed in analyses of demographic differences involving binary outcomes tend to be affected by the frequency of an outcome. That failure, along with a failure to understand certain other matters, has long undermined civil rights enforcement by DOJ and other agencies. But resolving these issues will require concerted action from the agency and other arms of the government whose missions have been similarly compromised by the inadequate understanding of statistics. Thus, I suggest that DOJ should form a committee to address this subject thoroughly, preferably in conjunction with other agencies whose activities involve the interpretation of data on

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demographic differences. While doing so, the agency should limit enforcement activities involving statistical evidence to those where agency attorneys and consultants, while fully informed of the issues raised in this letter and materials it references, are confident that the agency is proceeding with an adequate understanding of the statistical issues involved in the matter.

The second subject of this letter is as important as the first. But this letter principally addresses the first subject because, with respect to matters in Baltimore, Maryland and other places, in consequence of the mistaken understanding described at the outset, law enforcement agencies, and individual within those agencies, are placed in untenable positions. For they are being required to take actions that will tend to increase (a) relative demographic differences in rates of experiencing certain outcomes and (b) the proportions groups more susceptible to the outcomes make up of persons experiencing them, at the same time that high values for (a) and (b) are being regarded as evidence of noncompliance with decrees or agreements and discrimination on the part of agencies and individuals within agencies. Moreover, public perceptions about racial disparities in adverse outcomes, which are commonly based on provocative but misunderstood statistics, will grow even more distorted as actions aimed at reducing certain measures of disparities in fact increase them.

Further, decisions now being made within DOJ regarding actions to take in light of the entry of the decree in Baltimore over the agency's objections should be informed by an understanding of the fallacy of a central premise of the decree. Similarly, the review of consent decrees and other activities involving state and local law enforcement agencies pursuant to the Attorney General's Memorandum of March 31, 2017, ought to be informed by a complete understanding of the extent to which premises of those activities are incorrect.

Recent treatments of these issues as they bear on situations in Baltimore (or Ferguson, Missouri and Chicago, Illinois) may be found in "[Things DOJ doesn't know about racial disparities in Ferguson](#)," *The Hill* (Feb. 22, 2016),¹ "[Misunderstanding of Statistics Confounds Analyses of Criminal Justice Issues in Baltimore and Voter ID Issues in Texas and North Carolina](#)," Federalist Society Blog (Oct. 3, 2016), "[Will Trump Have the First Numerate Administration?](#)" Federalist Society Blog (Jan. 4, 2017), "[Compliance Nightmare Looms for Baltimore Police Department](#)," Federalist Society Blog (Feb. 8, 2017), and "[Racial Impact Statement Laws in New Jersey and Elsewhere](#)," Federalist Society Blog (Mar. 20, 2017).

A recent, extended treatment of the larger issues, which issues are also touched upon in the January 4, 2017 Federalist Society Blog post, may be found in my [Comments for the Commission on Evidence-Based Policymaking](#) (Nov. 14, 2016) (CEBP comments). Other extended treatments in recent years include my [letter](#) to American Statistical Association (Oct. 8,

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.

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2015) (ASA letter), amicus curiae [brief](#) in *Texas Department of Housing and Community Development, et al. v. The Inclusive Communities Project, Inc.*, Sup. Ct. No. 13-1731 (Nov. 17, 2014) (TDHCA brief), “[Race and Mortality Revisited](#),” *Society* (July/Aug. 2014), “[The Perverse Enforcement of Fair Lending Laws](#),” *Mortgage Banking* (May 2014), and “[The Mismeasure of Discrimination](#),” Faculty Workshop, University of Kansas School of Law (Sept. 20, 2013) (Kansas Law paper).

Prior explanations of these issues to DOJ itself may be found in my April 23, 2012 [letter](#) to the agency and my March 9, 2015 [letter](#) to the agency and the City of Ferguson, Missouri.

Some of the above materials contain graphical or tabular illustrations of the pertinent statistical patterns and situations where the patterns are misunderstood. More extensive graphical and tabular illustrations may be found in methods workshops I have given since 2012 at the following American educational institutions: [University of Massachusetts Medical School](#) (2015), [University of California, Irvine](#) (2015), [George Mason University](#) (2014), [University of Maryland](#) (2014), [University of Minnesota](#) (2014), [Harvard University](#) (2012), [American University](#) (2012).²

A. The Department of Justice’s Mistaken Belief That Relaxing Standards and Otherwise Reducing the Frequency of an Adverse Outcome Will Tend to Reduce (a) Relative Differences in Rates of Experiencing the Outcome and (b) the Proportion Groups Most Susceptible to the Outcome Make up of Persons Experiencing the Outcome

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 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

² The workshops are similar in content, though with some variation as to focus or emphasis. The workshop most pertinent to the subject of this letter is that titled “[The Mismeasure of Discrimination](#),” given at the Center for Demographic and Social Analysis of the University of California, Irvine. Shorter PowerPoint presentations with a similar focus include “[The Mismeasure of Disparate Impact](#),” Federalist Society Fourth Annual Executive Branch Review Conference (May 17, 2016), and a presentation titled “[The Mismeasure of Discrimination](#)” that was delivered in conjunction with the September 20, 2013 Kansas Law paper of the same title.

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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,³ 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 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

³ 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 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 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.

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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).

Inasmuch as the pattern by which the proportions more susceptible groups make up of persons experiencing and avoiding an outcome tend to be affected by the frequency of an outcome is a corollary to the pattern by which the two relative differences tend to be affected by the frequency of the outcome, in the discussion that follows I limit discussion of those proportions to situations where that matter is pertinent.

It is important to understand that DOJ and other entities analyzing racial and other disparities issues have not reasoned as follows: It is true that lowering test cutoffs will tend to increase relative differences in test failure rates. But there are reasons why, in other settings, one will in fact find that relaxing standards and otherwise reducing the frequency of adverse outcomes will tend to reduce relative differences in adverse outcome rates.

Rather, it simply has never occurred to these entities that lowering test cutoffs would increase relative differences in failure rates. Presumably, they assumed (to the extent they gave it thought) that if lowering a cutoff reduced relative differences in pass rates, it would also reduce relative differences in failure rates.⁴ And I interject here that as to all matters where less discriminatory alternatives are at issue, neither the DOJ nor any other entity has recognized that

⁴ Some have regarded the pattern whereby reducing the frequency of an outcome (a) tends to increase relative differences between rates of experiencing the outcome at the same time that it (b) tends to reduce relative differences between rates of avoiding the outcome as counterintuitive or surprising. In fact, however, (b) is implied in (a), if in fact (b) is not exactly the same thing as (a). For if reducing the frequency of an outcome tends to increase relative differences in rates of experiencing the outcome, it necessarily follows that increasing the frequency of an outcome tends to reduce relative differences in rates of experiencing the outcome. And if one outcome declines in frequency (hence, tending to increase relative differences as to that outcome), it necessarily follows that the opposite outcome increases in frequency (hence, tending to reduce relative differences as to that outcome).

The same point can be made with regard to the pattern whereby reducing the frequency of an outcome tends to cause the group (of two groups) more susceptible to an outcome to make up a larger proportion of persons experiencing the outcome and a larger proportion of persons experiencing the opposite outcome. For if a reduction in the frequency of an outcome tends to cause the group more susceptible to the outcome to make up a larger proportion of persons experiencing the outcome, it follows that an increase in the frequency of an outcome tends to cause the group more susceptible to the outcome to make up a smaller proportion of persons experiencing it. Thus, if an outcome increases in frequency (hence, tending to increase the proportion the more susceptible group makes up of persons experiencing the outcome), the opposite outcome necessarily decreases in frequency (hence, tending to decrease the proportion the group more susceptible to that outcome makes up of persons experiencing it). See the ASA letter (at 10 note 14) with respect to the same point regarding the corollary pattern (not addressed here) whereby as an outcome changes in frequency, the group with the lower baseline rate for the outcome tends to experience a larger proportionate change in its rate of experiencing the outcome than the other group, while the other group tends to experience a larger proportionate change in its rate of experiencing the opposite outcome than the first group.

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lowering a test cutoff or otherwise relaxing a standard as a means of reducing the discriminatory impact of any requirement, while tending to reduce the relative difference for the favorable outcome, tends to increase the relative difference for the corresponding adverse outcome.⁵ See my [“Is the Disparate Impact Doctrine Unconstitutionally Vague?”](#) Federalist Society Blog (May 6, 2016) (available as a PDF [here](#)), and [“Is HUD’s Disparate Impact Rule Unconstitutionally Vague?”](#) *American Banker* (Nov. 10, 2014).

In any case, the pattern of relative differences described above is by no means limited to test score data. It 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 data, 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.

Such pattern is illustrated in Tables 2 and 3 below, which are abbreviated versions of Tables 1 and 2 of the [Income and Credit Score Examples](#) subpage of the [Lending Disparities](#) page of [jpscanlan.com](#), which also explains the origins of the data. It follows the format of Table 1 above (without the last two columns), while presenting, in place of the AG and DG pass and fail rates, the white and black rates of falling above and below various income levels or credit scores. Movement down the five rows of the tables illustrates the effects of lowering the income or credit score requirements on the two relative differences, revealing the patterns just described. That is, the lower the requirement, and thus the greater the overall rates of meeting the requirement and the smaller the overall rates of failing to meet the requirement, the smaller is the relative difference in meeting the requirement (column 5) and the larger is the relative difference in failing to meet the requirement (column 6). One will observe the same pattern for all 16 rows of Table 1 and all 14 rows of Table 2 on the referenced webpage.⁶

⁵ That no agencies have recognized this or related patterns does not mean that no individuals within agencies have recognized them. For the patterns are quite evident in many types of data and I have described them in many places over many years and have brought them to the attention of many individuals within agencies. Further, as of 1995 (and several years earlier), I was the Assistant General Counsel for Expert Services of the Equal Employment Opportunity Commission (EEOC) and had been describing the patterns in various publications since 1987. As of that time, it might be said that, to a degree, EEOC understood the patterns in an institutional sense.

⁶ Usually I use the phrase “tends to” in order to preclude (or at least make more difficult) efforts to dispute my descriptions of patterns by which measures tend to be affected by the prevalence of an outcome on the basis that the patterns will not always be observed. The discussion above does not use the phrase because the discussion pertains to what the tables in fact show. We know from the tables that in actual situations, lowering standards will tend to have effects described above (and will almost always do so in cases where standards are substantially lowered). But that does not mean that the patterns will be observed in every case. That the patterns may not always be observed in no way lessens the necessity of seeking to understand the effects of the frequency on outcome on the measures employed in analyses of demographic differences, either generally or in the situations where one must interpret data on a demographic difference for a particular purpose.

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Table 2. Illustration of effects of lowering an income requirement on relative differences in meeting the requirement and relative differences in failing to meet the requirement

Income	(1) Perc of Wh Abv	(2) Perc of Bl Abv	(3) Perc of Wh Bel	(4) Perc of Bl Bel	(5) Wh/Bl Abv Ratio	(6) Bl/Wh Bel Ratio
\$100,000	27.0%	12.1%	73.0%	87.9%	2.23	1.20
\$85,000	34.6%	17.3%	65.4%	82.7%	2.00	1.26
\$75,000	41.1%	22.7%	58.9%	77.3%	1.81	1.31
\$60,000	52.5%	31.3%	47.5%	68.7%	1.68	1.45
\$50,000	61.0%	39.2%	39.0%	60.8%	1.56	1.56

Table 3. Illustration of effects of lowering a credit score requirement on relative differences in meeting the requirement and relative differences in failing to meet the requirement

Score	(1) Perc of Wh Abv	(2) Perc of Bl Abv	(3) Perc of Wh Bel	(4) Perc of Bl Bel	(5) W/B Abv Ratio	(6) B/W Bel Ratio
740	46.80%	19.50%	53.20%	80.50%	2.40	1.51
720	57.77%	27.01%	42.23%	72.99%	2.14	1.73
700	67.83%	35.67%	32.17%	64.33%	1.90	2.00
680	76.73%	45.42%	23.27%	54.58%	1.69	2.35
660	83.90%	55.70%	16.10%	44.30%	1.51	2.75

Notwithstanding that data like that in Tables 2 and 3 should make it abundantly clear that relaxing income and credit requirements for securing a loan product will tend to increase relative racial differences in failing to meet the requirements, since at least 1994 the DOJ and other agencies enforcing fair lending laws have been encouraging lenders to relax standards in order to reduce relative differences in adverse borrower outcomes. And because those agencies have continued to monitor the fairness of practices on the basis of relative differences in adverse borrower outcomes, lenders that acceded to government encouragements or pressures to relax standards increased the chances that the government (or others) will sue them for discrimination.

See my "[Bias Data Can Make the Good Look Bad](#)," *American Banker* (Apr. 27, 1992), and "[Getting it Straight When Statistics Can Lie](#)," *Legal Times* (June 23, 1993), explaining this issue before the government (by the 1994 [Interagency Policy Statement on Discrimination in Lending](#)) formally began encouraging the relaxing of standards to reduce relative racial/ethnic differences in mortgage rejection rates. The government, however, was already targeting lenders on the basis of the size of relative racial differences in mortgage rejection rates without understanding that lenders with more lenient standards would tend to have larger differences in mortgage

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rejection rates than lenders with less lenient standards. See my [“When Statistics Lie,”](#) *Legal Times* (Jan. 1 1996), regarding a putative private class action based on a study that found the defendant to have the largest relative racial difference in mortgage rejection rates in the Washington, DC area.

See my [“The Perverse Enforcement of Fair Lending Laws,”](#) *Mortgage Banking* (May 2014), [“Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies,”](#) *Amstat News* (Dec. 2012), [“‘Disparate Impact’: Regulators Need a Lesson in Statistics”](#) (*American Banker*, June 5, 2012), and [“The Lending Industry’s Conundrum,”](#) *National Law Journal* (Apr. 2, 2012) regarding the pertinence of this issue to the suits involving the disproportionate assignment of minority loans to subprime status in which DOJ secured settlements totaling more than half a billion dollars from Countrywide Financial Services and Wells Fargo Bank earlier this decade.⁷

As noted, the pattern whereby reducing the frequency of an outcome tends to increase the proportions more susceptible groups make up of persons experiencing the outcome – an increasing focus of analyses of school discipline disparities and possibly the predominant focus of analyses of criminal justice disparities – is simply a corollary to the pattern by which reducing the frequency of an outcome tends to increase the relative difference in experiencing the outcome. An easy to understand illustration of the effects of relaxing a standard on the proportion the most susceptible group makes up of persons experiencing an adverse outcome may be found in a Department of Education (DOE) March 1, 2014 [Issue Brief](#) on school discipline. A chart on page 7 indicates that black children made up 42 percent of preschool students suspended once and 48 percent of preschool students suspended multiple times. In conjunction with numbers of suspensions shown in a note (5,000 for single suspensions and 2,500 for multiple suspensions), one can divine that black children made up 44 percent of children suspended one or more times. Thus, if all students suspended had been given a lesser punishment instead of their first suspension, the 44 percent figure would be 48 percent.

With respect to the seemingly huge racial disparities in suspensions among preschool students cited in the report and that received much attention in the press when the report was released, see Table 8 (at 342) of “Race and Mortality Revisited” for an illustration the way that relative racial differences in multiple suspensions were larger, while relative differences in rates of avoiding multiple suspension were smaller, in preschool, where multiple suspensions are rare, than in K-12, where multiple suspensions are far more common.⁸

Similarly, a DOE Office of Civil Rights November 2012 document titled [“Helping to Ensure Equal Access to Education: Report to the President and Secretary”](#) notes (at 28) that among all

⁷ As discussed in the *Mortgage Banking* article, DOJ analyses in these cases also suffered from the failure to examine the entire universe of persons subject to the challenged process. This issue is discussed further in Section B.

⁸ See my August 14, 2015 [letter](#) to the Department of Health and Human Services and the Department of Education (at 4 note 6) regarding the fact that a substantial proportion of school districts with preschool programs, and an even more substantial proportion of individual programs within districts, had no preschool suspensions.

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school district in the report's sample with at least one expulsion, African Americans made up 18 percent of students and 39 percent of students expelled, and that in sampled districts with at least one expulsion under zero tolerance policies, African Americans made up 19 percent of students and 33 percent of students expelled. That is, though African Americans made up approximately equal proportion of students in districts with and without zero tolerance policies, they made up a larger proportion of expelled students in districts without such policies.⁹

See my November 15, 2015 [letter](#) to the Boston Lawyers' Committee for Civil Rights and Economic Justice (regarding data showing that Massachusetts, which had lower suspension rates than the national average, had larger relative differences in suspension rates (by race and disability status), but smaller relative differences in rates of avoiding suspensions, than the national average) and the [Suburban Disparities](#) subpage of the [Discipline Disparities](#) page of [jpscanlan.com](#) (regarding the larger relative racial differences suspension rate in the suburbs of Philadelphia than in the city itself).¹⁰

Nevertheless, at least since 2014, the Departments of Justice and Education (and more recently the Department Health and Human Services) have been attributing large relative racial/ethnic differences in school discipline rates or high proportions racial minorities make up of students disciplined to stringent discipline policies and have encouraged or pressured school district to relax standards in order to reduce those relative differences and proportions. And across the country state and local jurisdictions that have relaxed standards, presumably in many cases relying on the expertise of the federal government in this area, have generally found those differences and proportions to increase. See the subpages to the Discipline Disparities page

⁹ See the [DOE Equity Report](#) subpage of the [Discipline Disparities](#) page of [jpscanlan.com](#) regarding certain calculation issues.

¹⁰ One of the most profoundly misunderstood commonplace patterns is that where comparatively advantaged geographic areas (or subgroups) tend to have comparatively large relative socioeconomic and racial differences in adverse outcomes. Observers remarking on such pattern (or intensely studying it) have invariably failed to see the connection to the rarity of the adverse outcome in the comparatively advantaged area or subgroup or to note the comparatively small relative differences in the corresponding favorable outcome. See "Race and Mortality Revisited" (at 339-341) and the [abstract](#) to the University of Massachusetts Medical School seminar titled "[The Mismeasure of Health Disparities in Massachusetts and Less Affluent Places](#)." See also my "[It's easy to misunderstand gaps and mistake good fortune for a crisis](#)," *Minneapolis Star Tribune* (Feb. 8, 2014), "[Race and Mortality](#)," *Society* (Jan./Feb. 2000), and "[The Perils of Provocative Statistics](#)," *Public Interest* (Winter 1991). See "[The Perverse Enforcement of Fair Lending Laws](#)," *Mortgage Banking* (May 2014), and "[Statistical Quirks Confound Lending Bias Claims](#)," *American Banker* (Aug. 14, 2012), regarding the mistaken significance attributed by DOJ and others to comparatively large relative differences in adverse borrower outcomes among high income groups, which can be compared with the mistaken significance attributed to comparatively small relative differences in favorable borrower outcomes discussed in "Race and Mortality Revisited" at 340-341. See "[The 'Feminization of Poverty' is Misunderstood](#)," *Plain Dealer* (Nov 11, 1987), regarding the fact that, even though female-headed families make up a far higher proportion of black families in the comparatively poor state of Mississippi than they make up of white families in the comparatively wealthy state of Massachusetts, female-headed families make up a substantially higher proportion of poor white families in Massachusetts than they make up of poor black families in Mississippi.

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discussing this situation with regard to the jurisdictions indicated in the titles of the subpages: [California Disparities](#), [Colorado Disparities](#), [Connecticut Disparities](#), [Maryland Disparities](#), [Minnesota Disparities](#), [Oregon 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](#).¹¹ This has occurred, moreover, notwithstanding that teachers and administrators are likely doing many things apart from relaxing standards in order to reduce racial differences in discipline rates.

See my September 20, 2016 [letter](#) to the Oklahoma City School District and the [Oakland Agreement](#) subpage of the Discipline Disparities page regarding some of the problems facing school districts operating under agreements with the DOE where the latter believes that modifications to practices under the agreement will tend to reduce relative racial differences in suspensions and the proportions racial minorities make up of persons suspended.

Turning to criminal justice disparities issues, such as those that have been the addressed in DOJ investigations of police departments in Ferguson, Baltimore, and Chicago, one of the more striking figures cited in the DOJ report on Ferguson police and court practices was the 97 percent African Americans made up of persons involved in traffic stops who were arrested solely for having an outstanding warrant. And one of Ferguson's court procedures the report regarded as especially harsh was that whereby a single missed court appearance triggered issuance of an arrest warrant. The 97 percent figure is not the same as the proportion African Americans made up of persons against whom warrants were issued for one or more missed court appearances, though one can assume that the latter proportion is also very high. Yet, if one understands the patterns described above, one can also assume with virtual certainty that if the court policy were changed to one whereby only a second missed court appearance triggers issuance of a warrant, the proportion would increase. And as suggested at page 6 of the March 9, 2015 [letter](#) to DOJ and the City of Ferguson (in the discussion of an interpretive issue arising from the failure to understand issues addressed in this letter and its references), if in Ferguson African American drivers tended to exceed the speed limit more often than white drivers, increasing the number of miles per hour above a posted limit as the threshold for stopping a driver for speeding would tend to increase the proportion African Americans make up of persons stopped for speeding.

Similarly, in the case of the very high proportion African Americans made up of persons against whom force was used in Chicago cited in the report on the city's police practices issued by DOJ on January 13, 2017, the restrictions on the use of force that the same report suggested were appropriate would almost certainly increase that proportion. See the March 20, 2017 Federalist Society Blog [post](#) regarding figures cited in the report on Chicago.

¹¹ Reportage of situations where general reductions in discipline rates have been accompanied by reduced racial differences in discipline rates have generally pertained to studies that measured disparities in terms of absolute differences between rates. As discussed in my September 12, 2016 [letter](#) to the Antioch (CA) Unified School District, absolute differences between rates tend to decline when outcomes in the rate ranges commonly observed for adverse school discipline outcomes generally decline.

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Increases in relative differences in adverse outcomes or the proportions more susceptible groups make up of persons experiencing those outcomes do not have always to occur as a result of modifications to practices ordained by the Baltimore decree or like decrees in other jurisdictions. Limiting arrests for particular types of crimes or reducing police presence or aggressiveness of enforcement in particular neighborhoods could affect measures of difference in a variety of ways. And, of course, to the extent that any observed disparity is a result of racial bias, and modifications to practices reduce that bias, all measures of racial differences will be reduced.

But typically reducing the frequency of an outcome will tend to affect measures of disparity in accordance with the patterns described above, especially with respect to actions that involve limiting the adverse outcomes in the way that relaxing a standard does (which, with regard to police or court practices, means raising the standard for imposition of the adverse outcome). See my “[Mired in Numbers](#),” *Legal Times* (Oct. 12, 1996), regarding the fact that changing a three-strikes rule to a four strikes rule will almost certainly increase the proportion African Americans make up of persons who are sentenced pursuant to such a rule.¹² But regardless of how often one may find departures from these patterns, the government cannot effectively enforce civil rights laws without understanding the patterns, and it certainly cannot rationally monitor consent decrees while mistakenly believing that generally reducing adverse outcomes will tend to reduce relative racial differences in rates of experiencing the outcomes.

In fact, to rationally monitor decrees or effectively enforce civil rights generally, one must understand that, in a situation where the two rows of Table 1 reflect favorable and adverse outcome rates of members of the public interacting with two police officers, there is no basis for distinguishing between the officers as to the likelihood that they engaged in biased policing. One must also know that, all else being equal, officers who try hardest to limit adverse interactions with the public will tend to show patterns more like those in row 2 than in row 1, while other officers will tend to show patterns more like those in row 1 than in row 2.

Otherwise, I refer you to the description of the compliance difficulties facing the Baltimore Police Department and its officers under the proposed (now entered) consent decree covering Baltimore police practices in the February 8, 2017 Federalist Society Blog post titled “[Compliance Nightmare Looms for Baltimore Police Department](#),” (a PDF of which is available [here](#)), on which my March 7, 2017 [Comments](#) to the court are primarily based. As to the compliance difficulties facing the Ferguson Police Department under a consent decree entered in the Eastern District of Missouri in April 2016 in *United States v. City of Ferguson*, No. 4:16-cv-180-CDP, I refer you to my April 11, 2016 [Submission](#) in that case.

¹² See my “[An Issue of Numbers](#),” *National Law Journal* (Mar. 5, 1990), and [The Perils of Provocative Statistics](#),” *Public Interest* (Winter 1991) regarding the fact that the high proportion African Americans make up of persons disqualified from intercollegiate athletics by the NCAA’s Proposition 48 was a reflection of the leniency rather than the stringency of the standard. And as with the modification of a three strikes rule, relaxing the NCAA standard would almost certainly increase the proportion African Americans make up of persons experiencing the adverse outcome. But these things are no better understood today than they were when these articles were written.

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Regarding other matters where the misunderstanding discussed in this section is pertinent, I refer you to the discussion in January 4, 2017 Federalist Society Blog post titled “[Will Trump Have the First Numerate Administration?](#)” concerning the emphasis in the DOJ’s November 28, 2016 brief in *Abbott v. Veasey*, Sup Ct. No. 16-393,¹³ on difficulties in securing an acceptable ID and the large percentage differences between rates at which whites and African Americans failed to secure one. But the greater the difficulty in securing an ID, the smaller (not larger) will tend to be relative racial/ethnic differences in failing to do so. With regard to the effects of sentencing reform on measures of racial/ethnic differences in incarceration, I refer you to the Federalist Society Blog posts of August 5, 2016 titled “[Things the President Doesn’t Know About Racial Disparities](#),” and March 20, 2017 titled “[Racial Impact Statement Laws in New Jersey and Elsewhere](#).” The latter item emphasizes the guidance DOJ can give to states on measures aimed at reducing racial differences in incarceration rates, but only after DOJ comes to understand issues better than it now understands them.

Other matters where the misunderstanding that is the principal subject of this section is pertinent are discussed my April 23, 2012 [letter](#) to the agency and many more such subjects are discussed in “[Race and Mortality Revisited](#),” *Society* (July/Aug. 2014) and the materials it references.¹⁴

In the introduction to this letter, I suggested some things DOJ would be obligated to do upon coming to recognize that its understanding of this matter (an understanding the agency has imparted to so many other entities) is manifestly incorrect. To take two simple examples, having for so long led lenders and public schools to believe that relaxing standards will tend to reduce relative racial/ethnic differences in adverse borrowing and adverse school discipline outcomes, the government can hardly justify failing to inform such entities that its views on these subjects were mistaken. I suggest, however, that there may be many areas that I have not considered where there exist similar obligations to take corrective action.

B. Problems in Standard Statistical Analyses of Discrimination Issues

Almost all analyses of demographic differences involving rates of experiencing adverse or favorable outcomes, whether involving discrimination issues or any other matter, have been undermined by a failure to understand and address patterns by which the measures employed (including measures other than the relative measures discussed above) tend to be affected by the frequency of an outcome. This subject is treated at length in “[Race and Mortality Revisited](#),” the ASA [letter](#), and the CEBP [comments](#), and the materials referenced in those items. Recommendation 4 (at 45-46) of the CEBP comments discusses an approach that may somewhat

¹³ The post erroneously refers to the brief as an *amicus curiae* brief. It was a brief in opposition. The government is a party in the case.

¹⁴ “[Getting it Straight When Statistics Can Lie](#),” *Legal Times* (June 23, 1993), previously mentioned for its discussions of lending disparities issues, also discusses several employment issues with regard to the failure of observers (or a court) to understand that making it easier for all employees to keep their jobs will tend to increase relative demographic differences in rates of failing to keep the jobs.

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address this issue with regard to some types of government-funded research. Whether or not that recommendation satisfactorily addresses the matter as to government-funded research, it does not satisfactorily address the matter with regarding to analyses of discrimination issues for civil rights law enforcement purposes. In addition, many analyses of discrimination issues, whether involving binary or continuous outcomes, examine data solely on persons who accepted some outcome or situation. These analyses are fundamentally unsound because they fail to examine data on all persons subject to the processes at issue.

With regard to the former subject, if one has the actual rates at which two groups experience some outcome, one may be able to quantify the strength of association reflected by those rates (something I have also described as the strength of the forces causing the rates to differ or the difference in the circumstances of the groups reflected by their favorable or adverse outcome rates). A method for doing so that is theoretically unaffected by the frequency of an outcome is given substantial attention in "Race and Mortality Revisited," the Kansas Law [paper](#), the TDHCA [brief](#), and many other recent materials, including the methods workshops listed at the end of the Introduction. For instant purposes, it is unnecessary to discuss whether the suggested approach is the best method or is even a satisfactory method for quantifying the strength of an association for law enforcement or any other purpose. But it is crucial to understand that one must have the actual rates at which groups experience a particular outcome in order to quantify the effects of being in a particular demographic group¹⁵ or to draw sound inferences about processes or the likelihood of discrimination in particular settings.

Thus, it is also necessary to understand that one cannot analyze a discrimination issue based solely on the information regarding the proportion a group makes up of persons potentially experiencing an outcome and the proportion it makes up of persons actually experiencing the outcome, though this is quite common way of analyzing many discrimination issues. This subject is discussed in the Section C (at 23-26) of the Kansas Law paper, Section I.B (at 23-27) of the TDHCA brief, and Section I.C (at 39-41) of the CEBP comments.

A particular problem in analyses of racial differences in criminal justice outcomes, which are very often analyzed in terms of differences between the referenced proportions, is that sometimes it is quite difficult to identify the appropriate numerator and denominator in order calculate the rates at which members of the groups being compared experience an outcome. See the Addendum to the [Ferguson, Missouri Arrest Disparities](#) subpage of the Discipline Disparities page of [jpscanlan.com](#) regarding my uncertainty as to how that issue can be addressed.

The problem with analyses of discrimination issues that examine data solely on persons who accepted some outcome or situation is addressed in Section F (at 32-35) of the Kansas Law paper, Section I.C (at 27-30) of the TDHCA brief, and Part II (at 41-43) of the CEBP comments. This problem has been present in almost all race or gender discrimination suits that have yielded recoveries in excess of \$50 million dollars. With regard to the so-called job segregation or

¹⁵ It is important to understand that the strength of an association reflected by a pair of rates involves a different issue from that of whether any observed difference is statistically significant. See Section D (at 26-27) regarding the way preoccupation with statistical significance issues has long undermined analyses of many discrimination issues.

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assignment discrimination cases that were prominent in the late 1980s and the 1990s, see my [“Illusions of Job Segregation,”](#) *Public Interest* (Fall 1988), [“Are Bias Statistics Nonsense?”](#) *Legal Times* (Apr. 17, 1989), [“Unlucky Stores: Are They All Guilty of Discrimination?”](#) *San Francisco Daily Journal* (Jan. 29, 1993), [“Multimillion-Dollar Settlements May Cause Employers to Avoid Hiring Women and Minorities for Less Desirable Jobs to Improve the Statistical Picture,”](#) *National Law Journal* (Mar. 27, 1995). With regard to the large monetary settlements DOJ secured from Countrywide Financial Services and Wells Fargo Bank based on claims involving assignment of loans to subprime status or other loan cost issues, see my [“The Perverse Enforcement of Fair Lending Laws,”](#) *Mortgage Banking* (May 2014), and [“Fair Lending Studies Paint Incomplete Picture,”](#) *American Banker* (April 24, 2013).

A recent treatment of this subject with regard to a private putative class action regarding pay equity at a prominent New York law firm, and which mentions the \$54 million settlement DOJ secured against JP Morgan Chase Bank on January 18, 2017, may be found in my [“Partial Picture Issue Undermines Chadbourne Pay Equity Case,”](#) *Law360* (Jan. 25, 2017). The points discussed in that item would apply as well to the pay equity claims in an administrative complaint that the Department of Labor filed the same day against JP Morgan Chase Bank.

The issues addressed in this section are quite complicated. As I suggested in the Introduction, the DOJ should form a committee to address these issues and should include on such committee representatives of other agencies whose activities involve the interpretation of data on demographic differences. In that regard, I note that I mentioned at the outset that more than a decade ago the National Center for Health Statistics recognized that improvements in health and healthcare, while tending to reduce relative differences in favorable health and healthcare outcomes, will tend to increase relative differences in adverse health and healthcare outcomes. As discussed in “Race and Mortality Revisited,” however, the NCHS’s actions based on the understanding were not sensible ones, and other agencies involved in health and healthcare research have yet even to shown an awareness that NCHS came to recognition. See also my [“The Mismeasure of Health Disparities,”](#) *Journal of Public Health Management and Practice* (July/Aug. 2016) and [“Measuring Health and Healthcare Disparities,”](#) Proceedings of Federal Committee on Statistical Methodology 2013 Research Conference (March 2014). In my view, nothing the federal government has so far produced regarding health and healthcare disparities can be regarded as statistically sound or useful for informing policy. Thus, there are many parts of the federal government that would benefit from an effort to reform the analyses of demographic differences by a committee in which I suggest that DOJ should take a lead.

The mission of the committee will have to be carefully specified. Otherwise, guidance produced by the committee, like virtually all guidance on measurement of demographic differences in outcome rates so far produced, not only will fail to address the crucial issues, but will give the false impression that no such issues exist. See “Race and Mortality Revisited” (at 343-344) and “The Mismeasure of Health Disparities” (at 419).

Many of these issues were raised in my comments to the Commission on Evidence-Based Policymaking, and the Commission is scheduled to provide a report to the legislative and

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executive branches at the end of the summer. Possibly the Commission will provide something useful regarding these issues. I do not, however, hold strong hopes in that regard. In any case, I suggest that, given the challenges the DOJ and other agencies involved with discrimination issues face on a daily basis, DOJ should not defer action while awaiting a report of the Commission.

Further, the complexity of the larger issues is not a reason to delay at all the actions warranted to correct the consequences of the DOJ's longstanding misunderstanding of the effects of reducing the frequency of an outcome on relative differences in rates of experiencing the outcome and the proportions groups most susceptible to the outcome make up of persons experiencing it. The agency should address that matter immediately in Baltimore and elsewhere.

Sincerely,

/s/ James P. Scanlan

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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

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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 country 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.

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.

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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

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

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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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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

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

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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 data, 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

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.

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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.

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.”

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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

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.

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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

Sincerely,

/s/ James P. Scanlan

James P. Scanlan

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.

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August 25, 2017

HAND DELIVERED

David Myers, President and CEO
Patricia Y. Gurin, Chair of the Board of Directors
American Institutes for Research
1000 Thomas Jefferson Place
Washington, DC 20007

Re: Problems in AIR Analyses of Demographic Differences Involving
Outcome Rates Resulting From Failure to Recognize Patterns by Which
Measures Tend to Be Affected by the Prevalence of an Outcome

Dear Dr. Myers and Professor Gurin:

This letter has three purposes. The first purpose is to explain to the American Institutes for Research (AIR) the ways that its analyses of demographic differences involving favorable and adverse outcomes are undermined by a failure to understand the ways the measures employed in such analyses tend to be affected by the prevalence of an outcome. A second purpose is to alert AIR of the extent to which its funding by the Department of Education and other agencies of the federal government is in jeopardy as a result that failure of understanding. A third purpose is to advise AIR of its responsibilities to explain to the Department of Education and other agencies with which it has contracts of the ways the activities of those agencies and their contractors and grantees are undermined as a result of that failure of understanding.

Attached is a July 17, 2017 letter to heads of the U.S. Departments of Education (DOE), Health and Human Services (HHS), and Justice (DOJ). The letter is also available [online](#),¹ as are earlier letters to DOE or DOE and HHS dated [August 24, 2015](#), and [April 18, 2012](#), and earlier letters to DOJ or DOJ and the City of Ferguson, Missouri dated [April 13, 2017](#), [March 9, 2015](#), and [April 23, 2012](#). The July 17, 2017 letter is discussed in my "[Innumeracy at the Department of Education and the Congressional Committees Overseeing It](#)," Federalist Society Blog (Aug. 24,

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.

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2017), and it and the April 13, 2017 letter to DOJ are discussed in my [“The Government’s Uncertain Path to Numeracy,”](#) Federalist Society Blog (July 21, 2017).

The principal subject of the July 17 letter involves the fact the three recipient agencies, like many social scientists and research institutes, have for some time led the public and school administrators to believe that generally reducing discipline rates will tend to reduce both (a) relative (percentage) racial and other differences in discipline rates and (b) and the proportions racial minorities and other more susceptible groups make up of disciplined students. The letter explains that, in fact, generally reducing discipline rates tends to increase, not reduce, both (a) and (b). That is, while generally reducing discipline rates will tend to reduce relative differences in rates of avoiding discipline, it will tend to increase relative differences in discipline rates; while generally reducing discipline rates will tend to increase the proportions groups more susceptible to discipline make up of students avoiding discipline, it also will tend to increase the proportions such groups make up of students who are disciplined.

The letter (at 9 n.8) references the [Restraint Disparities](#) subpage of the [Discipline Disparities](#) page of [jpscanlan.com](#), which discusses the failure of DOE to understand that the more school administrators follow DOE guidance to limit the physical restraint of students, the greater will tend to be the proportion students with disabilities make up of restrained students. That page references a 2015 DOE-funded AIR study titled [“Addressing the Root Causes of School Discipline – An Educator’s Action Planning Guide,”](#) which I will discuss further below.

The letter to the three agency heads urges them at least to explain to school administrators that the agencies’ prior guidance regarding the effects of relaxing standards and otherwise generally reducing discipline rates on measures of demographic differences in discipline outcomes was incorrect.

But the letter also discusses that essentially all federally-funded research into demographic differences in outcome rates, including that conducted by federal agencies themselves and that conducted by recipients of federal funds, has been undermined by a failure to recognize patterns by which measures of differences between outcome rates tend to be affected by the prevalence of an outcome. These patterns include 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, which the National Center for Health Statistics recognized more than a decade ago. They also include the more complicated patterns by which the absolute difference between rates and the difference measured by the odds ratio tend to be affected by the prevalence of an outcome.²

² Roughly, as an outcome goes from being rare to being fairly common, absolute differences tend to increase; as the outcome goes from being fairly common to being even more common, absolute differences tend to decrease. As the prevalence of an outcome changes, the difference measured by the odds ratio tends to change in the opposite direction of the absolute difference. While all measures may change in the same direction, anytime a relative difference and the absolute difference change in opposite directions, the other relative difference will necessarily have changed in the opposite direction of the first relative difference the same direction as the absolute difference.

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The letter therefore recommended that the agencies undertake a complete review of the soundness of the methods by which they have analyze demographic differences and of the soundness of the guidance they have provided on such analyses. It also recommends that the agencies institute moratoriums on grants and contracts (and activities pursuant to grants and contracts already awarded) to which the measurement issues discussed in the letter pertain. See especially the discussion at page 3 of the letter regarding DOE funding.

I am not familiar with all AIR research on demographic differences, even that funded solely by the Department of Education. But my familiarity with some of the organization's DOE-funded research is such that I believe that the measurement issues discussed in the July 17 letter likely pertain to all DOE-funded AIR research on demographic differences involving educational outcomes. Such issues also pertain to the organization's DOE-funded research involving school environments, which commonly is premised on a mistaken belief as to the effects of generally reducing discipline rates on the measures of demographic differences involving discipline that DOE principally employs. Presumably, the issues addressed in the letter also pertain to most or all AIR research into demographic differences funded by other federal agencies, including that pertaining to health and healthcare disparities.

The key elements of the mistaken understanding of the effects of generally reducing discipline rates on standard measures of discipline disparities are illustrated in the tables of the attached letter. They are also treated fairly succinctly in my "[Things government doesn't know about racial disparities](#)," *The Hill* (Jan. 28, 2014), "[The Paradox of Lowering Standards](#)," *Baltimore Sun* (Aug. 5, 2013), and "[Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies](#)," *Amstat News* (Dec. 2012).

A more extended treatment of this mistaken understanding and the broader problems with analyses of demographic differences that fail to consider the ways the measures employed in the analyses tend to be affected by the prevalence of an outcome may be found in my "[Race and Mortality Revisited](#)," *Society* (July/Aug. 2014). That article shows that the failures of understanding that I attribute to AIR research above or below are essentially universal among persons analyzing demographic differences in the law and the social and medical sciences.

Other extended treatments may be found in my "[The Mismeasure of Health Disparities](#)," *Journal of Public Health Management and Practice* (July/Aug. 2016), [Comments for the Commission on Evidence-Based Policymaking](#) (Nov. 14, 2016),³ [Letter to Population Association of America and Association of Population Centers](#) (Mar. 29, 2016), [Letter to American Statistical](#)

³ See especially the recommendations at pages 47-48 regarding the funding issues addressed in this letter. Pages 3-4 of follow-up [comments](#) dated November 28, 2016, address funding issues with regard to the mistaken belief that Positive Behavioral Interventions and Support programs will tend to reduce relative differences in discipline rates and the proportions groups more susceptible to discipline make up of disciplined students..

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[Association](#) (Oct. 8, 2015), “[Measuring Health and Healthcare Disparities](#),” Proceedings of the Federal Committee on Statistical Methodology 2013 Research Conference (Mar. 2014), “[The Mismeasure of Discrimination](#),” Faculty Workshop, University of Kansas School of Law (Sept. 20, 2013), [Letter to Harvard University](#) (Oct. 9, 2012), “[Can We Actually Measure Health Disparities?](#),” *Chance* (Spring 2006), and “[Race and Mortality](#),” *Society* (Jan./Feb. 2000).

Most of the items listed in the paragraph above provide some graphical or tabular illustrations of the pertinent statistical patterns and implications of the failures to understand them. Many more such illustrations may be found in the following methods workshops at American educational institutions: “[The Mismeasure of Health Disparities in Massachusetts and Less Affluent Places](#),” Department of Quantitative Health Sciences, University of Massachusetts Medical School (Nov. 18, 2015); “[The Mismeasure of Discrimination](#),” Center for Demographic and Social Analysis, University of California, Irvine (Jan. 20, 2015); “[The Mismeasure of Demographic Differences in Outcome Rates](#)” Public Sociology Association of George Mason University (Oct. 18, 2014); “[Rethinking the Measurement of Demographic Differences in Outcome Rates](#),” Maryland Population Research Center of the University of Maryland (Oct. 10, 2014); “[The Mismeasure of Association: The Unsoundness of the Rate Ratio and Other Measures That Are Affected by the Prevalence of an Outcome](#),” Minnesota Population Center and Division of Epidemiology and Community Health of the School of Public Health of the University of Minnesota (Sept. 5, 2014); “[The Mismeasure of Group Differences in the Law and the Social and Medical Sciences](#),” Institute for Quantitative Social Science at Harvard University (Oct. 17, 2012); “[The Mismeasure of Group Differences in the Law and the Social and Medical Sciences](#),” Department of Mathematics and Statistics of American University (Sept. 25, 2012). Conference presentations employing similar illustrations, sometimes based on data pertaining to the country where the conference took place, may be found [here](#).

See also the scores of web pages on [jpscanlan.com](#) addressing these issues, of which the most pertinent to AIR federally-funded research are the [Discipline Disparities](#), [Educational Disparities](#), [Measuring Health Disparities](#), [Immunization Disparities](#), and [Mortality and Survival](#) pages and the subpages to the first three of these pages. Many of the letters collected on the [Measurement Letters](#) page explain issues pertaining to the recipients’ activities that would apply as well to the activities of AIR.

With regard to the importance of AIR researchers’ understanding the issues addressed in the above materials, I call your particular attention to the discussion of Table 2 of “Race and Mortality Revisited” (at 329-330,343) concerning whether there can be justification for devoting resources to studying the role of particular policies with respect to an observed change in any measure of racial differences in poverty (or its avoidance) without consideration of the implications of the way the measures examined tend to be affected by general changes in the level of poverty. But I urge you also to consider the same point with regard to the patterns shown in each of the tables in the article.

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Further, Table 2 of "Race and Mortality Revisited" shows how general reductions in poverty will tend to increase relative racial differences in poverty rates while reducing relative racial differences in rates of avoiding poverty. It also shows that, given the rates at which whites and African Americans in the United States commonly experience poverty, a decline in poverty will tend to reduce absolute differences between the two groups' poverty rates. The rate ranges at issue for public school suspensions are commonly such that general reductions in discipline rates will tend to result in changes on measures of racial disparity similar to those observed in the case of a general reduction in poverty. That is, relative differences in suspension rates will tend to increase while relative differences in rates of avoiding suspensions will tend to decrease (a pattern that will typically be observed regardless of the rate ranges at issue), and absolute differences between rates will tend to decrease (a pattern contingent on the rate ranges at issue).

The aforementioned 2015 AIR document titled "[Addressing the Root Causes of School Discipline – An Educator's Action Planning Guide](#)," while frequently mentioning "overrepresentation" of certain groups among students disciplined and "disproportionality" (or some variation on the word) in discipline, discusses (at 34-35) measurement of discipline disparities in terms of both relative differences between discipline rates and absolute differences between discipline rates. And it does mention the possibility that the relative difference and the absolute difference can change in different directions. But the document contains no suggestion of an understanding of the reasons to expect this to occur systematically, or that the proportion an overrepresented group makes up of students experiencing an outcome (which is associated with the relative difference for the outcome⁴) will tend to increase when the absolute difference decreases. The document also contains no suggestion of an understanding of the way general reductions in suspension rates will tend to affect each measure of disparity, including that such reductions will tend to increase overrepresentation and disproportionality (as these terms are most commonly used). Most important, given the document's emphasis on understanding causes of discipline disparities, the document provides no guidance for divining what light changes in

⁴ While I often describe the pattern whereby the rarer an outcome the greater tends to be the proportion the more susceptible group makes up of persons experiencing the outcome as a corollary to the pattern whereby the rarer an outcome the greater tends to be the relative difference in experiencing it (or vice-versa) (see, *e.g.*, page 9 of the October 8, 2016 letter to the American Statistical Association), the correlation is exact only when there are just two groups. Commonly, issues are discussed in terms of the proportion a group makes up of all persons experiencing an outcome (which is related to the relative difference between the rate at which the group experiences and the rate at which all other persons experience the outcome.) Thus, for example, when suspension rates decline, even when the relative difference between rates for whites and the rates for each disadvantaged racial/ethnic minority increases, the proportion some such groups make up of all persons suspended may decline. And often, even though a disadvantaged racial/ethnic minority may have a higher suspension rate than whites, the group may be deemed to be underrepresented among persons suspended. These are among the many reasons that a disparities issue can never be soundly analyzed in terms of the difference between the proportion a group makes up of persons potentially experiencing an outcome the proportion it makes up of persons actually experiencing the outcome. See the [IDEA Data Center Disproportionality Guide](#) subpage of the [Discipline Disparities](#) page of [jpscanlan.com](#), Section C of the Kansas Law paper titled "The Mismeasure of Discrimination" and Section C of the November 14, 2016 comments for the Commission on Evidence-Based Policymaking.

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measures shed on whether the factors causing the rates of advantaged and disadvantaged groups to differ are growing stronger or weaker over time.⁵

More broadly with respect to the importance that AIR address with its researchers the issues addressed in the references above, the organization should consider the following:

1. Probably no AIR document has reflected an understanding that measures tend to change solely because the prevalence of an outcome changes.
2. Possibly no researcher at AIR is aware that it is even possible for the relative difference in a favorable outcome and the relative difference in the corresponding adverse outcome to change in opposite directions as the prevalence of an outcome changes, much less that more than a decade ago the National Center for Health Statistics recognized that such pattern tends to occur systematically.
3. Probably most and possibly all AIR researchers believe that reducing adverse school discipline outcomes or other adverse outcomes should tend to reduce relative differences in rates of experiencing the outcomes.

As previously suggested, and as reflected in materials referenced above,⁶ these failures of understanding on the part of AIR researchers are no different from the failures of understanding of persons analyzing demographic differences at other research institutions, including those commonly deemed the most prestigious in the world. But that is not justification for AIR to fail to ensure that its researchers understand these issues or justification for AIR's securing funding from the government or other entities to produce research that fails to reflect an understanding of the issues. And, as suggested in the recent posts cited at the outset (see also my "[Will Trump Have the First Numerate Administration?](#)," Federalist Society Blog (Jan. 4, 2017)), there is some prospect, if still an uncertain one, that the government may soon recognize the wastefulness of research into demographic differences that fails to understand implications of the patterns by which measures tend to be affected by the prevalence of an outcome. Thus, AIR should want to

⁵ See the discussion in "Race and Mortality Revisited" of its Table 5. See also the discussion at page 12 of the April 13, 2017 [letter](#) to DOJ regarding the absence of any basis for distinguishing between the two rows of the letter's Table 1 (which is also Table 1 of the attached July 17, 2017 letter to the three agencies) with regard to the likelihood that the patterns result from discrimination. See also the September 20, 2016 [letter](#) to Oklahoma City School District regarding the difficulties of complying with an agreement with the Department of Education that envisions both general reduction in discipline rates and reduction in the proportions African Americans make up of disciplined students. See also the September 12, 2016 [letter](#) to Antioch Unified School District regarding the problems facing that district as a result of the failure to understand the effects of modifications of practices on different measures of disparity. See generally aforementioned Kansas Law paper titled "[The Mismeasure of Discrimination](#)" regarding the impossibility of appraising the likelihood that a difference between rates indicates bias without understand the way the measure employed tends to be affected by the prevalence of an outcome.

⁶ See letters to institutions and organizations collected in the [Measurement Letters](#) page of [jpscanlan.com](#).

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ensure that its current and future research can be fully defended. AIR should also want to be in position to assist the government in addressing the longstanding failures of understanding in government-conducted or government-funded analyses of demographic differences involving outcome rates.

Turning to the third purpose of this letter, I note that at pages 4-5 of the November 14, 2016 [comments](#) for the Commission on Evidence-Based Policymaking, I discuss the reasons proffered by the American Statistical Association (ASA) and the Population Association of America (PAA) for refusing my requests (a) that they form committees to address problems in standard analyses of demographic differences and (b) that they advise the government of its mistaken understanding regarding the effects of reducing the frequency of adverse outcomes on standard measures of racial and other demographic differences regarding the outcomes. I suggest that the refusals do not reflect responsible actions of scientific organizations, particularly when the organizations commonly write to Congress to support funding of the research into demographic differences.

But whether or not the refusals of ASA and PAA can be justified, AIR is in a position that is substantially different from that of ASA or PAA. For AIR receives substantial funds from DOE and other agencies for the purpose of promoting the soundness of statistical analyses pertaining to the activities of such agencies. Acceptance of such funds imposes an obligation on the organization to advise the agencies of ways in which statistical analyses pertaining to their activities are unsound, including the ways AIR's own federally-funded research has been unsound. An obligation to explain to the agencies that their understandings of the effects of reducing adverse outcomes on measures of demographic difference regarding the outcomes is the opposite of reality is but one element of the larger obligation. But, given the many perverse consequences of policies based on that understanding (as explained in the three short items mentioned at page 3 above and the letter to Oklahoma City School District discussed in note 5⁷), it is a pressing element of the obligation. Thus, it is a matter to which AIR should give attention as soon as possible.

This item is addressed only to AIR President and COE David Myers and AIR Board Chair Patricia Y. Gurin. But I am circulating it by email to other members of AIR leadership and certain staff members for whom I could find email addresses. And I urge you to circulate it widely within the organization as well. For, even if AIR leadership were of the view that the issues I raise merely involve a difference of scientific opinion from that underlying AIR

⁷ See also "[The Perverse Enforcement of Fair Lending Laws](#)," *Mortgage Banking* (May 2014) and my *amicus curiae* [brief](#) in *Texas Department of Housing and Community Development, et al. v. The Inclusive Communities Project, Inc.*, Supreme Court No. 13-1731 (Nov. 17, 2014). See Tables 2 and 3 of the April 13, 2017 [letter](#) to DOJ for illustrations of the way that lowering income or credit score requirements to secure loans or other favorable outcomes, while tending to reduce relative racial differences in meeting the requirements, will tend to increase relative racial differences in failing to meet the requirements.

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research,⁸ AIR researchers deserve to be made aware of the issues. They also deserve to be made aware that the commonplace or nearly universal belief that reducing the prevalence of outcome will tend to reduce relative differences in rates of experiencing the outcome is incorrect.

Sincerely

/s/ James P. Scanlan

James P. Scanlan

Attachment

⁸ See "Race and Mortality Revisited" at 344 regarding the reasons proffered by Harvard Medical School and Massachusetts General Hospital for refusing to withdraw a healthcare disparities measurement guide that failed to show any understanding of patterns by which the measures it discussed tended to be affected by the prevalence of an outcome. See my October 26, 2012 [letter](#) to the entities responsible for the guide.

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November 28, 2016

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Re: Mistaken Premise of the Pyramid Equity Project That Generally Reducing
Preschool Discipline Rates Will Tend to Reduce Relative Demographic
Differences in Discipline Rates and the Proportions More Susceptible
Groups Comprise of Persons Disciplined

Dear staff and consultants of the Pyramid Equity Project:

According to an August 15, 2016 [press release](#)¹ of the Department of Education (DOE), that agency and the Department of Health and Human Services (HHS) are providing a \$1 million grant to the Technical Assistance Center on Positive Behavioral Interventions and Supports (PBIS) to implement the Pyramid Equity Project. A document released by the Pyramid Equity Project in September 2016 titled “[The Pyramid Equity Project: Promoting Social Emotional Competence and Addressing Disproportionate Discipline in Early Childhood Programs](#)” (PEP fact sheet) reflects the belief, which has previously been expressed by DOE, HHS, and many other public and private entities, that generally reducing preschool discipline rates will tend to reduce (a) relative differences between the discipline rates of groups with higher discipline rates and groups with lower discipline rates and (b) the proportions groups with higher discipline rates comprise of persons who are disciplined.

¹ To facilitate consideration of issues raised in documents such as this I include links to referenced materials in electronic copies of the documents. An electronic copy of this document is available by means of the Measurement Letters page of jpscanlan.com.

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This letter has two purposes. One purpose is to explain to Pyramid Equity Project principal staff and consultants that the referenced belief is the opposite of reality. Generally reducing discipline rates will tend to increase both (a) and (b). A second purpose is to urge Pyramid Equity Project leadership to explain to DOE and HHS that a central premise underlying the referenced grant is mistaken and determine whether, in light of recognition that generally reducing discipline rates will tend to increase, rather than decrease, both (a) and (b), the agencies wish to reconsider the grant.

For reasons related to the shapes of underlying risk distributions, generally reducing any outcome, while tending to reduce relative differences in avoiding the outcome, tends to increase relative differences in experiencing the outcome. For example, lowering a test cutoff, while tending to reduce relative differences in pass rates, tends to increase relative differences in failure rates. A corollary to the above-described pattern of relative differences is a pattern whereby generally reducing an outcome will tend to increase the proportions groups most susceptible to the outcome comprise of persons avoiding the outcome and persons experiencing the outcome.

I explain the pattern of relative differences fairly succinctly with respect to mistaken understandings regarding the relationship between the stringency of public school discipline standards and the size of those differences in [“Things government doesn’t know about racial disparities,”](#) *The Hill* (Jan. 28, 2014), [“The Paradox of Lowering Standards,”](#) *Baltimore Sun* (Aug. 5, 2013), and [“Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies,”](#) *Amstat News* (Dec. 2012). I explain the pattern regarding the proportions groups most susceptible to the outcome make up of persons avoiding the outcome and experiencing the outcome fairly succinctly in [“Things DoJ doesn’t know about racial disparities in Ferguson,”](#) *The Hill* (Feb. 22, 2016).

A highly pertinent explanation of these patterns that specifically addresses the mistaken understandings in the DOE and HHS policy statement discussed on page 1 of the PEP fact sheet ([“Policy Statement on Expulsion and Suspension Policies in Early Childhood Settings”](#) (Dec. 14, 2014)) may be found in my August 24, 2015 [letter](#) to DOE and HHS. In addition to explaining that generally reducing discipline rates will tend to increase, rather than decrease, relative differences in discipline rates and the proportions the most susceptible groups comprise of persons disciplined, the letter explains that the seemingly huge racial disparities in preschool suspensions are substantially a function of the rarity of suspensions in preschool. See the [Preschool Disparities](#) subpage of the [Discipline Disparities](#) page of [jpscanlan.com](#) and Table 8 (at 342) of [“Race and Mortality Revisited,”](#) *Society* (July/Aug. 2014). The referenced table shows the common pattern whereby relative racial differences in the adverse outcome (multiple suspensions) tend to be larger, while relative differences in the corresponding favorable outcome (avoiding multiple suspensions) tend to be smaller, in the setting where the adverse outcome is less common (preschool) than in the setting where the adverse outcome is more common (K12).

The DOE/HHS letter (at 4 n.6) also explains that a substantial proportion of school districts with preschool programs had no suspensions in the school year discussed in the DOE’s March 2014 [Data Snapshot: Early Childhood Education](#). The 6,700 figure for total suspended

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preschool students in the 2013-14 school year cited at page 1 of the PEP fact sheet suggests, in light of the facts that almost 10,000 school districts had preschool programs and that some of those presumably suspended more than one student, that a majority of school districts may have had no preschool suspensions. Almost certainly a larger majority of school districts suspended no African American preschool students.

Explanations of the mistaken understanding regarding the effects of generally reducing discipline rates on measures of demographic differences in discipline rates to entities or individuals affiliated with the PBIS Network may be found my letters of [July 3](#) and [July 5](#), 2016, to the University of Oregon Institute on Violence and Destructive Behavior and University of Oregon Law School Center for Dispute Resolution. Other letters to entities promoting or acting on that mistaken understanding, or being affected by the mistaken understanding on the part of others, include those to [Oklahoma City School District](#) (Sept. 20, 2016), [Antioch Unified School District](#) (Sept. 9, 2016), [Houston Independent School District](#) (Jan. 5, 2016), [Boston Lawyers' Committee for Civil Rights and Economic Justice](#) (Nov. 12, 2015), [McKinney, Texas Independent School District](#) (Aug. 31, 2015), [Texas Appleseed](#) (Apr. 7, 2015), [Senate Committee on Health, Education, Labor and Pensions](#) (Mar. 20, 2015), [Vermont Senate Committee on Education](#) (Feb. 26, 2015), [Portland, Oregon Board of Education](#) (Feb. 25, 2015), [Education Law Center](#) (Aug. 14, 2014) [United States Department of Justice](#) (Apr. 23, 2012), [United States Department of Education](#) (Apr. 18, 2012).

Situations where, in point of fact, recent reductions in discipline rates were accompanied by increased relative racial/ethnic differences in discipline rates are discussed on the following subpages of the [Discipline Disparities](#) page of [jpscanlan.com](#) (with jurisdictions indicated in the subpage titles and the subpages involving states or jurisdictions within states where principal staff of the Pyramid Equity Project are located denoted with an asterisk): [California Disparities](#), [*Colorado Disparities](#), [Connecticut Disparities](#), [Maryland Disparities](#), [Minnesota Disparities](#), [*Oregon 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](#).

More extended treatments of the pertinent statistical issues may be found in the above-mentioned "[Race and Mortality Revisited](#)," *Society* (July/Aug. 2014), my October 8, 2015 letter to the American Statistical Association, and my November 14, 2016 [Comments for the Commission on Evidence-Based Policymaking](#) (CEBP). All give substantial attention to the mistaken belief among federal civil rights enforcements agencies that generally reducing adverse outcomes will tend to reduce relative demographic differences in rates of experiencing the outcomes and the proportions disadvantaged groups comprise of persons experiencing the outcomes. The CEBP comments (at 46) recommend that the CEBP "recommend that Congress take all steps necessary to ensure that no federal law enforcement actions are based the belief that reducing the frequency of an adverse outcome tends to increase relative demographic differences in rates of experiencing the outcome or the proportion disadvantaged groups make up of persons experiencing those outcomes."

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Follow-up [comments](#) for CEBP, submitted on November 28, 2016, specifically discuss the Pyramid Equity Project grant and provide a link to this letter.

The article "Race and Mortality Revisited" and the CEBP comments both discuss the fact that research regarding demographic differences cannot provide anything of value regarding whether differences between the circumstances of advantaged and disadvantaged groups are increasing or decreasing over time or are otherwise larger in one setting than another (but can provide much that is misleading about such issues) without understanding the ways the measures employed tend to be affected by the prevalence of an outcome. The points made there obviously apply to the part of the Pyramid Equity Project aimed at "us[ing] data systems to understand potential discipline equity issues." Similar considerations apply to programs specifically aimed at achieving certain changes to disparity indicators when actions taken pursuant to the programs are likely to change the indicators in a direction that is the opposite of the intended direction.

The above points hold regardless of the fact that some actions taken pursuant to the Pyramid Equity Project grant might tend to reduce relative differences in discipline rates and the proportions groups most susceptible to adverse discipline outcomes comprise of persons experiencing those outcome. The PEP fact sheet indicates that parts of the program will be aimed at promoting culturally responsive practices. To the extent that observed differences in suspension rates of whites and African Americans are functions of the fact that practices are not culturally responsive, and the program increases the cultural responsiveness of practices, the program may reduce all measures of differences between suspension rates of white and African American preschool students. But any such effect is unlikely to outweigh the usual effect of general reductions in discipline rates on relative racial differences in discipline rates and the proportions African Americans comprise of disciplined students. Further, failure to understand the effects of the prevalence of adverse discipline outcomes on relative racial differences in discipline rates and the proportions African Americans comprise of persons disciplined will make it impossible to identify any effect improvements in the cultural responsiveness of practices may have on differences in outcome rates. In any case, the granting agencies should have the opportunity to reconsider the grant in light of the fact that actions of the type contemplated in the grant are likely to increase both relative racial differences in preschool suspensions and the proportions African Americans make up of suspended preschool students.

The need to address with the granting agencies their misunderstandings underlying the grant exists even if generally improving the ability of students to avoid discipline in preschool might be deemed an important goal in itself. A principal purpose of the grant, as reflected in the PEP fact sheet itself, is, by increasing rates at which preschool students avoid discipline, to reduce racial and gender differences in preschool suspensions and the proportions African Americans and boys make up of suspended preschool students. In light of that purpose, the granting agencies should have the opportunity to reconsider the grant in light of the recognition that a central premise of the grant is incorrect.

In the event leaders of the Pyramid Equity Project or the PBIS Network or other readers of this letter disagree with any of the points made above, a useful place to express the

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disagreement would be in comments to the CEBP. Comments may be submitted by means of the regulations.gov portal through December 14, 2016.

Sincerely,

/s/ James P. Scanlan

James P. Scanlan