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April 1, 2013

The Honorable Tom Harkin, Chairman
The Honorable Lamar Alexander, Ranking Member
Senate Committee on Health, Education, Labor and Pensions
428 Senate Dirksen Office Building
Washington, DC 20510

Re: Federal Policy Briefing on Racial Differences in Public School Discipline Rates.

Dear Senators Harkin and Alexander:

The Center for Civil Rights and Remedies has announced that it will present a Federal Policy Briefing styled “Closing the School Discipline Gap: Research to Policy” at the Senate Dirksen Office Building on April 8, 2013. The announcement suggests that the briefing will be before the Senate Committee on Health, Education, Labor and Pensions.

The purpose of this letter is to explain to the Committee a misperception underlying much of the research and commentary, as well as federal enforcement policy, concerning racial and ethnic differences in public school discipline rates. There exists a near universal perception that stringent discipline standards lead to larger relative (percentage) differences in discipline rates than less stringent standards. There was much discussion to that effect following the Department of Education’s March 2012 release of data showing severalfold racial and ethnic differences in rates of suspension and expulsion at public schools throughout the country, with many calls for relaxing discipline standards to reduce those difference. In fact, however, stringent discipline standards tend to yield smaller relative differences in discipline rates than more lenient ones.

Inherent in the shapes of other than highly irregular distributions of factors associated with experiencing an outcome is a pattern whereby the rarer an outcome the greater tends to be relative differences in experiencing it and the smaller tends to be relative differences in avoiding it. The pattern can be illustrated with virtually any data showing points on a continuum of factors associated with experiencing an outcome. Hypothetical test score data showing the effects of lowering a cutoff is particularly useful for illustrating the pattern, in part because the

perception that lowering cutoffs reduces the disparate impact of employment tests may influence perceptions about the effects of relaxing discipline standards.

Table 1 presents a simplified illustration of the effects of lowering a test cutoff on relative differences in pass and fail rates in a situation where normal test score distributions of an advantaged group (AG) and a disadvantaged group (DG) differ by approximately half a standard deviation. The table shows that at a cutoff, where 80% of AG and 63% of DG pass the test (with corresponding failure rates of 20% and 37%), the ratio of AG's pass rate to DG's pass rate is 1.27 and the ratio of DG's fail rate to AG's fail rate is 1.85.¹ When the cutoff is lowered to the point where the pass rates are 95% for AG and 87% for DG, the ratio of AG's pass rate to DG's pass rate is reduced to 1.09. It is because lowering cutoffs tends to reduce relative differences in pass rates that lowering cutoffs is universally regarded as reducing the disparate impact of employment and other tests. But, as shown in the final column, lowering the cutoff increases the relative difference in failure rates, causing the ratio of DG's failure rate to AG's failure rate to increase from 1.85 to 2.60. The table thus illustrates that, while lowering cutoffs tends to reduce relative differences in pass rates, it tends to increase relative differences in failure rates

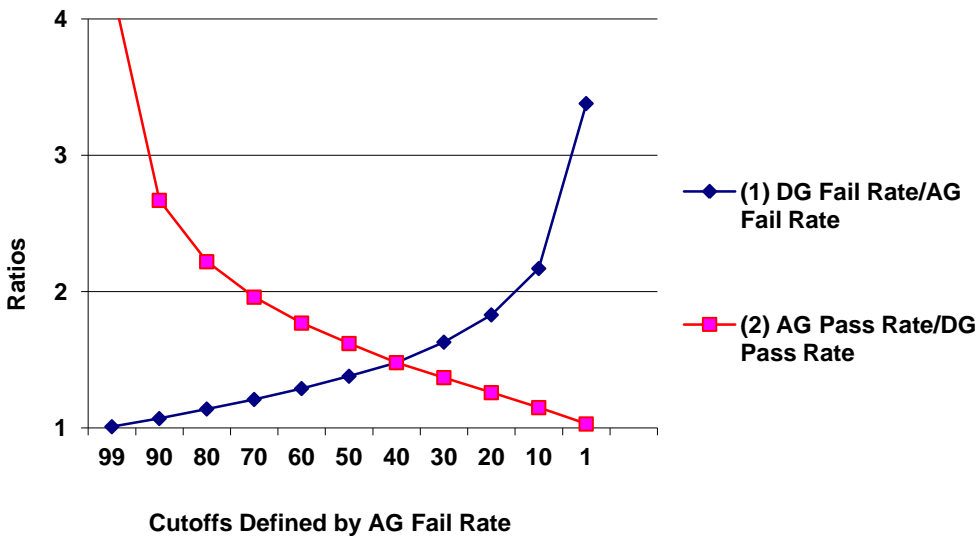
Table 1. Illustration of effects on relative differences in pass and fail rates of lowering a cutoff from a point where 80% of the advantaged (higher-scoring) group passes to a point where 95% of the advantaged group passes (when mean scores differ by approximately half a standard deviation)

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

Figure 1 below illustrates the same pattern across a range of pass and fail rates. The numbers along the bottom are fail rates of DG, which are used as benchmarks for overall failure rates. The figures shows that lowering a cutoff from a point where almost every fails to a point where almost everyone passes – thus reducing overall failure rates and increasing overall pass rates – increases relative differences in failure rates as it reduces relative differences in pass rates. The same pattern would be observed if the cutoffs are left unchanged but test performance is improved such as to enable everyone falling between two cutoffs points to reach the higher point.

¹ The relative difference (RD) is the rate ratio (RR) – 1 where the RR is above 1 and 1 – RR where RR is less than 1. It is more common practice to use the disadvantaged group's rate in the numerator for both the RR for the favorable outcome and the RR for the adverse outcome, in which case the former RR is below 1 (and the larger the RR the smaller the RD) and the latter RD is above 1 (and the larger the RR the larger the RD). For a number of reasons I prefer to use the higher rate as the numerator for both RRs and thus the higher the RR the larger the RD for both the favorable and the adverse outcome. Choice of numerator affects the size of RD (e.g., 80 is 20% less than 100 while 100 is 25% greater than 80), but not in a way that is pertinent to issues addressed here.

Figure 1. Ratios of (1) DG fail rate to AG fail rate and (2) AG pass rate to DG pass rate at various cutoffs defined by AG fail rate.



Similar illustrations of the pattern by which the rarer an outcome the greater tends to be the relative difference in experiencing and the smaller tends to be the relative difference in avoiding it are found in a wide range of published data. Income data show how lowering poverty will tend to increase relative differences in poverty rates while reducing relative differences in rates of avoiding poverty. Credit score data show how lowering a credit score requirement will tend to increase relative differences in failing to meet it while reducing relative differences in meeting it. National Health and Nutrition Survey data show how generally reducing systolic blood pressure will tend to increase relative differences in hypertension while reducing relative differences in rates of avoiding hypertension or generally improving folate levels will tend to increase relative differences in low folate while reducing relative differences in adequate folate. Life tables show that the lower the age (and hence the smaller are rates of failing to survive to it), the larger tend to be relative differences in failing to survive to the age while the smaller tend to be relative differences in surviving to the age. The tables similarly show that relative differences in mortality tend to be greater at lower ages than higher ages while relative differences in survival tend to be greater at higher ages than lower ages.

Many graphical and tabular illustrations of this pattern and related patterns by which standard measures of differences between outcome rates tend to be affected by the prevalence of an outcome are available online by means of the [Collected Illustrations](#)² subpage of the [Scanlan's](#)

² To facilitate consideration of the issues raised in letters such as this I make available electronic copies of the letters on the Institutional Correspondence subpage of the Measuring Health Disparities page of jpscanlan.com.

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[Rule](#) page of [jpscanlan.com](#), as well as the two *Chance* articles in note 3 *infra* and the conference presentation or symposia made available in [Section B](#) of the [Measuring Health Disparities](#) page of [jpscanlan.com](#) (MHD), the most recent and most comprehensive of which is an October 17, 2012 Applied Statistics Workshop at Harvard University's Institute for Quantitative Social Science, "[The Mismeasure of Group Differences in the Law and the Social and Medical Sciences.](#)"

Yet, despite the many types of data demonstrating that reducing the frequency of an outcome tends to increase relative differences in experiencing it, such pattern remains little known even among persons and institutions whose activities are principally devoted to interpreting data on demographic differences. The Departments of Education and Justice have yet to show any understanding of the pattern and have for some time been encouraging schools to relax discipline standards and otherwise to reduce the frequency of suspensions and expulsions in order to reduce relative difference in discipline rates. As with any outcome, however, while generally reducing discipline rates will tend to decrease relative differences in rates of avoiding discipline, it will tend to increase relative differences in discipline rates. Unaware of such fact, the agencies continue to monitor the fairness of discipline policies on the basis of relative differences in discipline rates. The situation is essentially the same as one where the government would pressure or encourage employers to lower test cutoffs and then single out for litigation employers who lower their cutoffs the most.

The matter is succinctly explained in my "[Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies](#)," which appeared in the December 2012 issue of *Amstat News*, the membership magazine of the American Statistical Association. The article discusses the above-described statistical pattern in the context of the federal monitoring of racial differences in public school discipline rates that is the principal subject of this letter, as well as the enforcement of fair lending laws, where the federal government similarly encourages entities to engage in conduct that makes it more likely that the government will sue them for discrimination. Other articles specifically discussing the bearing of the above-described statistical pattern on federal monitoring of discipline disparities in public schools include "[Racial Differences in School Discipline Rates](#)" (*Recorder*, June 22, 2012), "Race and Mortality Revisited" (*Society*, ____ 2013 (in press)), and "The Mismeasure of Discrimination" (*Washington Lawyer*, ____ 2013 (in press)).

Other published articles discussing the underlying patterns and the implications of failure to understand them with respect to interpretations of data on group differences in a range of contexts in the law and the social and medical sciences are made available by means of the

Underlinings in this letter reflect links to the underlined material in such a copy of the letter. If the letter is corrected after it is first posted on the website, such fact will be noted on the final page of the letter.

[Lending Disparities](#) page of jpscanlan.com and [Section A](#) of MHD. A number of key articles are listed in the margin.³

The implications of the failure to understand these patterns with respect to law enforcement policies involving school discipline and other matters are also explained in an [April 18, 2012 letter](#) to Secretary of Education Arne Duncan and Assistant Secretary for Civil Rights Russlynn H. Ali, an [April 23, 2012 letter](#) to Attorney General Eric H. Holder, Jr. and Assistant Attorney General for Civil Rights Thomas E. Perez, and a [March 4, 2013 letter](#) to the Board of Governors of the Federal Reserve System. The most comprehensive discussion of the statistical patterns in one place may be found in an [October 9, 2012 letter](#) to Harvard University. While the letter to Harvard principally addresses the pertinence of failure to understand the patterns by which measures of differences between outcome rates are affected the prevalence of an outcome to health and healthcare disparities research at Harvard Medical School and Harvard School of Public Health, the discussion is equally relevant to the interpretation of data on racial differences in discipline rates.

Even though the pattern by which the relative differences in experiencing an outcome and relative differences in avoiding the outcome tend to change systematically in opposite directions as the prevalence of an outcome changes is not widely known, its existence is hardly debatable. In 2005, the National Center for Health Statistics (NCHS) recognized this pattern in explaining that determinations of whether health and healthcare disparities are deemed to be increasing or decreasing will commonly turn on whether one examines relative differences in favorable outcomes or relative differences in adverse outcome.⁴ Discussion of the extent of scholarly agreement with my descriptions of the way standard measures of differences between outcome rates tend to be affected by the prevalence of an outcome may be found in [Section E.7](#) of MHD.

³ [“Disparate Impact’: Regulators Need a Lesson in Statistics”](#) (*American Banker*, June 5, 2012) [“The Lending Industry’s Conundrum,”](#) (*National Law Journal*, Apr. 2, 2012), [“Can We Actually Measure Health Disparities?”](#) (*Chance*, Spring 2006), [“Race and Mortality”](#) (*Society*, Jan.-Feb. 2000, reprinted in *Current*, Feb. 2000), [“Mired in Numbers”](#) (*Legal Times*, Oct. 12, 1996), [“When Statistics Lie”](#) (*Legal Times*, Jan. 1 1996), [“Divining Difference”](#) (*Chance*, Fall 1994), [“Getting it Straight When Statistics Can Lie,”](#) *Legal Times* (June 23, 1993), [“The Perils of Provocative Statistics”](#) (*Public Interest*, Winter 1991), [“An Issue of Numbers”](#) (*The National Law Journal*, Mar. 5, 1990), [“The ‘Feminization of Poverty’ is Misunderstood”](#) (*Plain Dealer*, Nov 11, 1987, reprinted in *Current*, May 1988, and *Annual Editions: Social Problems 1988/89*: Dushkin1988).

⁴ The NCHS recognition of this pattern (in Keppel K., Pamuk E., Lynch J., *et al.* 2005. [Methodological Issues in Measuring Health Disparities](#). *Vital Health Stat* 2005;2 (141)) was based on my 2000 *Society* article “Race and Mortality” mentioned in note 3. But rather than regard the pattern by which relative differences in a favorable outcome and relative differences in the corresponding adverse outcome tend to change in opposite directions as the prevalence of an outcome changes as a basis for questioning the utility of either measure for appraising whether the forces underlying a disparity have increased or decreased without taking the effects of changes in prevalence into account, NCHS merely recommended that henceforth all health and healthcare disparities should be measured in terms of relative differences in adverse outcomes. The deleterious consequences of the NCHS action are discussed at pages 28 to 32 of the October 9, 2012 letter to Harvard University discussed *supra*.

While I do not believe that many persons within the Department of Education and Department of Justice yet understand these issues,⁵ one or more persons at the Federal Reserve Board have given substantial attention to the online materials referenced in the letter to the Board of March 4, 2013. Thus, there may well be persons at the Federal Reserve Board who are in a position to provide views as to the essential correctness of my descriptions of the patterns by which measures of differences between outcome tend to be affected by the prevalence of an outcome and the implications of such patterns with respect to interpreting data on group differences. In any case, once one recognizes that lowering a test cutoff will tend to increase relative difference in failure rates while reducing relative differences in pass rates – something that, on thinking the matter through, no statistician or mathematician would dispute – one should readily see reasons to expect that relaxing discipline standards, while tending to reduce relative differences in rates of avoiding discipline, will tend to increase relative differences in discipline rates.

The above points should not be read to suggest that statistical analyses of differences in public school discipline rates are more flawed than statistical analyses of group differences in outcome rates in other areas. As reflected in the letters to the Department of Justice, the Federal Reserve Board, and Harvard University, the failure to recognize the ways standard measures of differences between outcome rates tend to be affected by the prevalence of an outcome has undermined a vast array of efforts to interpret data on group differences in the law and the social and medical sciences. That includes other matters within the purview of the Committee on Health, Education, Labor and Pensions, especially health and healthcare disparities research. But the government's pressuring or encouraging of public schools to relax discipline standards while continuing to monitor the fairness of discipline policies on the basis of relative differences in discipline rates is an unusually perverse law enforcement policy and one that creates an extremely difficult situation for public school administrators seeking to comply with federal laws. Thus, the Committee should be fully aware of relevant statistical issues when considering the matters to be addressed at the policy briefing of April 8, 2013.

A variety of issues concerning perceptions about differences in discipline rates by race/ethnicity, gender, or disability status are also discussed at some length on the [Discipline Disparities](#) page of [jpscanlan.com](#) and its subpages. The main page generally discusses the mistaken perception that

⁵ The letter to the Department of Education mentions the [Educational Disparities](#) page of [jpscanlan.com](#), which discusses such things as the fact that general improvements in student proficiency will tend to reduce relative (race/ethnic) differences in proficiency rates while increasing relative differences in rates of failing to achieve proficiency. It is doubtful that the Department of Education yet understands this pattern or other patterns by which measures of differences in favorable or adverse educational outcomes tend to be systematically affected by the prevalence of an outcome.

stringent discipline standards lead to large relative differences in discipline rates, including discussion of a measure of differences between rates that is unaffected by the prevalence of an outcome.⁶ The page has ten subpages.

The [Los Angeles SWPBS](#) subpage discusses the fact that the Los Angeles Unified School District's implementation of a program to reduce discipline rates led to an increase in racial differences in discipline rates.

The [Suburban Disparities](#) subpage discusses reportage of the fact that relative differences in discipline rates are larger in suburbs of Philadelphia than in Philadelphia itself and explains that such pattern is to be expected because discipline rates tend to be lower in the suburbs than cities.

The [Disabilities – PL 108-446](#) subpage discusses provisions of the Disabilities Education Improvement Act that require responses to observed disability-related differences in discipline rates that would be likely to increase those differences.

The [NEPC Colorado Study](#) subpage discusses a National Education Policy Center study of race/ethnic and gender differences in discipline rates in Colorado that reflects the mistaken view that stringent policies lead to large relative differences in discipline rates and that raises certain other issues.

The [NEPC National Study](#) subpage discusses a National Education Policy Center study of nationwide racial differences in discipline rates showing changes in rates over time. The subpage discusses the way patterns shown in the study are consistent or inconsistent with patterns of correlations between measures and the prevalence of an outcome described in this letter and elsewhere.

The [APA Zero Tolerance Study](#) subpage discusses an American Psychological Association study of effects of zero tolerance discipline policies on various aspect of the school environment and student achievement. The discussion suggests that the reasoning of the study is deficient in a variety of respects and that such reasoning may be colored by the mistaken view that stringent discipline policies lead to larger racial differences in disciplines than more lenient ones.

The [Disparate Treatment](#) subpage discusses issues pertinent to determining the extent to which observed disparities may occur because biased teachers or administrators treat certain groups more harshly than others.

The [Flawed Inferences – Discipline](#) subpage discusses they way observers mistakenly draw inferences based on perception regarding the comparative sizes of a relative difference without understanding the way the comparative sizes of relative differences are influenced by the

⁶ Sections B to D of the Discipline Disparities page discusses some other matters raising similar statistical issues that were subjects or the March 1990 *National Law Journal* article and the June 1993 and October 1996 *Legal Times* articles mentioned in note 3.

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baseline rates in the settings being compared without appreciation that the comparative size of the relative difference in the opposite outcome would commonly support an opposite inference.

The [Oakland Agreement](#) subpage discusses the problematic nature of a September 2012 agreement between the Department of Education and the Oakland, California Unified School District arising from the fact that the agreement is premised on the mistaken view that reducing overall discipline rates will tend to reduce relative differences in discipline rates. The subpage also discusses the provisions in the agreement calling for race/ethnic-specific reductions in discipline rates.

The [Duncan/Ali Letter](#) subpage discusses the above-referenced letter to the Department of Education and the agency's response.

Sincerely,

/s/ James P. Scanlan

James P. Scanlan

cc:

The Honorable Tod Rokita, Chairman
The Honorable Carolyn McCarthy, Ranking Member
Subcommittee on Early Childhood, Elementary and Secondary Education
House Committee on Education and the Workforce