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February 26, 2015

**BY ELECTRONIC MAIL**

The Honorable Ann Cummings, Chair  
The Honorable Bill Doyle, Vice-Chair  
Senate Committee on Education  
Vermont General Assembly  
Vermont State House  
115 State Street  
Montpelier, VT 05633-5301

Re: The Mistaken Understanding in Senate Bill No. 67 That Generally Reducing  
Exclusionary Discipline Rates Will Reduce Relative Demographic Differences in  
Discipline Rates

Dear Chair Cummings and Vice-Chair Doyle:

On occasion I write to institutions or organizations whose activities involve the interpretation of data on demographic differences in the law or the social and medical sciences alerting them to ways in which their activities are undermined by the failure to recognize patterns by which standard measures of differences between favorable or adverse outcome rates of advantaged and disadvantaged groups tend to be systematically affected by the overall frequency of an outcome. Other recipients of letters involving issues discussed in this letter include [Robert Wood Johnson Foundation](#) (Apr. 8, 2009),<sup>1</sup> [National Quality Forum](#) (Oct. 22, 2009), [Institute of Medicine](#) (June 1, 2010), [The Commonwealth Fund](#) (June 1, 2010), [United States Department of Education](#) (Apr. 18, 2012), [United States Department of Justice](#) (Apr. 23, 2012), [Board of Governors or the Federal Reserve System](#) (March 4, 2013), [Harvard University](#) (Oct. 9, 2012), [Harvard Medical School and Massachusetts General Hospital](#) (Oct. 26, 2012), [Senate Committee on Health, Education, Labor and Pensions](#) (Apr. 1, 2013), [Mailman School of Public Health of Columbia University](#) (May 24, 2013), [Investigations and Oversight Subcommittee of House Finance Committee](#) (Dec. 4, 2013), [Education Trust](#) (April 30, 2014), [Annie E. Casey Foundation](#) (May 13, 2014), [Institute of Medicine II](#) (May 28, 2014), [IDEA Data Center](#) (Aug. 11, 2014), [Education Law Center](#) (Aug. 14, 2014), [Financial Markets and Community Investment Program, Government Accountability Office](#) (Sept. 9, 2014), [Wisconsin Council on](#)

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<sup>1</sup> To facilitate consideration of issues raised in letters such as this I include links to referenced materials in electronic copies of the letters. All such letters may be found by means of the Institutional Correspondence subpage of the Measuring Health Disparities page of [jpscanlan.com](http://jpscanlan.com).

[Families and Children's Race to Equity Project](#) (Dec. 23, 2014), and [Portland, Oregon Board of Education](#) (Feb. 25, 2015). An [amicus curiae brief](#) I filed on November 17, 2014, in *Texas Department of Housing and Community Development, et al. v. The Inclusive Communities Project, Inc.*, No. 13-1731, might be deemed a similar communication to the United States Supreme Court.

The letter is immediately prompted by a February 34, 2015 posting on vtdigger.org, by Amy Ash Nixon, titled "[Forum Looks at Disparity in Student Discipline](#)," which discussed and provided a link to [Senate Bill No. 67](#). In addition to calling for collection and analysis of data on exclusion, the Bill, in Section 1(4), reflects the view that generally reducing exclusionary discipline rates will tend to reduce relative differences in those rates. While the view that generally reducing discipline rates will tend to reduce relative differences in discipline rates is widespread, it is patently incorrect. Generally reducing an outcome will tend to increase relative differences between rates at which advantaged and disadvantaged groups experience the outcome.

Since 1987 I have created a substantial body of work explaining the patterns by which standard measures of differences between outcome rates tend to be systematically affected by the frequency of an outcome. The pattern most pertinent to appraisals of demographic differences in discipline rates 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 differences in avoiding. Scores of publications explaining this pattern may be found on the [Bibliography](#) subpage of the [Scanlan's Rule](#) page of jpscanlan.com.

The following recent articles explain this pattern fairly succinctly with specific reference to the failure of most persons and entities dealing with demographic differences in public school discipline rates to recognize that lowering discipline standards and otherwise reducing discipline rates, while tending to reduce relative differences in rates of avoiding discipline, will tend to increase relative differences in discipline rates: (1) "[Things government doesn't know about racial disparities](#)," *The Hill* (Jan. 28, 2014), (2) "[The Paradox of Lowering Standards](#)," *Baltimore Sun* (Aug. 5, 2013), (3) "[Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies](#)," *Amstat News* (Dec. 2012). The pertinent statistical issues are more fully explained in "[Race and Mortality Revisited](#)," *Society* (July/Aug. 2014), of which the section titled "Lending and Discipline Disparities" (beginning on the 13<sup>th</sup> page) specifically addresses discipline disparities. That article also explains a method for appraising the difference in the circumstances of an advantaged group and a disadvantage group reflected by a pair of outcome rates that is not affected by the frequency of an outcome.

Table 1 below, which is an abbreviated version Table 1 of the *Society* article and Table 1 of the Supreme Court brief, illustrate the patterns described in items (1) through (3) above whereby lowering a test cutoff, while reducing relative differences in pass rates, will tend to increase relative differences in failure rates.

**Table 1. Pass and fail rates of an advantaged group (AG) and a disadvantaged group (DG) at two cutoff points, with ratio of AG pass rate to DG pass rate and**

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

Numerous tabular and graphical illustrations of the above-described and related patterns by which measures tend to be affected by the frequency of an outcome may be found in my methods workshops titled "[The Mismeasure of Discrimination](#)," Center for Demographic and Social Analysis at the University of California, Irvine (Jan. 20, 2015) and "[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).

I also call your attention to a number of web pages on [jpscanlan.com](http://jpscanlan.com) pertinent to the interpretation of data on demographic differences in discipline rates. The [Discipline Disparities](#) page discusses the issue generally and describes its 27 subpages. Most pertinent of these regarding the mistaken belief that reducing discipline rates will tend to reduce relative differences in discipline rates are the following subpages that discuss data indicating that recent reductions in discipline rates in the referenced jurisdiction were accompanied by increased relative differences in discipline rates: [California Disparities](#), [Connecticut Disparities](#), [Maryland Disparities](#), [Minnesota Disparities](#), [Rhode Island Disparities](#), [Beaverton, OR Disparities](#), [Denver Disparities](#), [Henrico County, VA Disparities](#), [Los Angeles SWPBS](#), [St. Paul Disparities](#), [Minneapolis Disparities](#), [Montgomery County, MD Disparities](#), [Portland, OR Disparities](#). I also call your particular attention to the [IDEA Data Center Disproportionality Guide](#) and [Disabilities – Public Law 104-446](#) subpages, which discuss problems with guidance on measurement of disproportionality in school discipline that fails to recognize the various ways measures of disproportionality tend to be affected by the frequency of an outcome and by other factors unrelated to the strength of the forces causing outcome rates of advantaged and disadvantaged groups to differ (a subject also addressed in Section I.B of the Supreme Court brief and slides 52 to 59 of the University of California, Irvine workshop), as well as the [Disparate Treatment](#), [Offense Type Issues](#), and [APA Zero Tolerance Study](#) subpages, which address the interpretation of data concerning whether observed differences in outcome rates are the results of bias and concerning the relationship between exclusionary discipline and adverse educational outcomes.

Finally, while this letter is prompted by the misperception reflected in Senate Bill No. 67 that reducing discipline rates will reduce relative demographic differences in discipline rates, I note that understanding the patterns I describe in the *Society* article and elsewhere concerning the ways the two relative differences, as well as absolute differences, are affected by the frequency of an outcome is quite important with respect to the interpretation of data on demographic differences regarding a wide range of favorable and unfavorable educational outcomes. Thus, I

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also call your attention to the [Educational Disparities](#) page of [jpscanlan.com](http://jpscanlan.com) and its various subpages.<sup>2</sup>

Sincerely,

**/s/ James P. Scanlan**

James P. Scanlan

cc: The Honorable Philip Baruth, Committee Member  
The Honorable David Zuckerman, Committee Member  
The Honorable Brian Campion, Committee Member  
The Honorable Dustin Degree, Committee Member  
Ken Bruno, Committee Assistant

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<sup>2</sup> The [Disparities by Subject](#) subpage examines observed patterns of changes in various measures of proficiency disparities for different subjects (where differing proficiency rate ranges have implications regarding the way general changes may affect absolute differences between rates). The [Harvard CRP NCLB Study](#) subpage discusses a 2006 Harvard Civil Rights Project study that compared patterns of proficiency disparities under state tests and under National Assessment of Educational Progress tests, while relying on relative differences in proficiency rates, without recognizing the pattern by which tests with generally high pass rates would tend to show smaller relative differences in pass rates, but larger relative differences in failure rates, than tests with generally low pass rates. The [New York Proficiency Rate Disparities](#) subpage discusses a 2013 study by the organization NYCAN of changes in absolute differences between proficiency rates of demographic groups in New York State during a period of substantial decreases in proficiency rates without consideration of the patterns by which absolute differences tend to change when proficiency rates generally decline. The [Education Trust High Achiever Study](#) subpage discusses a 2014 Education Trust study that examined demographic differences in achieving certain levels of academic success among high achieving students in terms of absolute differences between rates without consideration of the implications of demographic differences in rates of being among high achievers. The [Education Trust Glass Ceiling Study](#) subpage discusses a 2013 Education Trust study that examined demographic differences in absolute changes in rates of (a) falling below the basic reading level and (b) reaching the advanced reading level, during a period of general improvements in proficiency, without recognizing that the rate ranges were such that disadvantaged groups would tend to experience larger absolute decreases in rates of falling below the basic level, but smaller absolute increase in rates of reaching the advanced level, than advantaged groups. The [McKinsey Achievement Gap Study](#) subpage discusses a 2009 McKinsey & Company study of achievement disparities that analyzed demographic differences between rates of (a) falling below the basic reading level in terms of relative differences in the adverse outcome and (b) reaching the advanced reading level in terms of relative differences in the favorable outcome. The approach would thus tend to reach opposite conclusions from those reached in the 2013 Education Trust Glass Ceiling study. The [Annie E. Casey 2014 Proficiency Disparities Study](#) subpage discusses a 2014 Annie E. Casey Foundation study of demographic differences in proficiency rates that, in part, relied on absolute differences between rates without recognizing the way absolute differences tend to change as proficiency rates generally improve.