

# **The Mismeasure of Discrimination**

**Methods Workshop**

**Center for Demographic and Social Analysis**

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Workshop presentation will be available, with operative links, on Conference Presentations subpage of Measuring Disparities page of [jpscanlan.com](http://jpscanlan.com)

# Personal background

- Lawyer in Washington, DC
- *EEOC v. Sears, Roebuck and Co.* (nationwide gender discrimination case tried over a ten-month period in 1984-85)
  - Milkman “[Women’s History and the Sears Case](#),” *Feminist Studies* (1986)
  - [Sears Case](#) page of jpscanlan.com
  - [Sears Case Illustration](#) subpage of Scanlan’s Rule page
- AT&T Consent Decree (affirmative action program 1973-79)
  - See [AT&T Consent Decree](#) page

# Two Subjects

(tracking Amicus Curiae [Brief](#) in TDHCD\*)

- Measurement Issues (Section I.A and I.B)
  - Strength of an association reflected by pair of outcome rate
  - Differences between circumstances of two groups reflected by their outcome rates
  - Strength of the forces causing the outcome rates to differ
  - Size of a disparity between advantaged and disadvantaged groups
- Partial Picture Issues (Section 1.C)

*\* Texas Department of Housing and Community Development, et al. v. The Inclusive Communities Project, Inc., Supreme Court No. 13-1371*

# Measurement References

- “[Race and Mortality Revisited](#),” *Society* (July/Aug 2012) (15,000 words)
- “[The Perverse Enforcement of Fair Lending Laws](#),” Mortgage Banking (May 2014) (3000)
- “[The Mismeasure of Discrimination](#),” Univ. Kansas School of Law Faculty Workshop (Sept. 2013) (21,000)
- “[Can We Actually Measure Health Disparities?](#),” *Chance* (Spring 2006)
- “[Race and Mortality](#),” *Society* (2000)
- “[Divining Difference](#),” *Chance* (1994)
- “[The Perils of Provocative Statistics](#),” *Public Interest* (1991)

## Some other extended treatments

- [“Measuring Health and Healthcare Disparities,”](#) Federal Committee on Statistical Methodology 2013 Research Conference. PowerPoint [presentation](#) is succinct and well annotated (17k words, health disparities)
- [Letter to Harvard University re Measurement at Harvard](#) (2012) (25k words, health disparities, especially Harvard research)
- [“The Misinterpretation of Health Inequalities in the United Kingdom,”](#) Brit. Soc. for Pop. Studies (BSPS) 2006 Conference (8k words, health disparities in UK)

# Succinct treatments

- [“Things government doesn’t know about racial disparities,”](#) The Hill (Jan. 28, 2014) (750 words)
- [“The Paradox of Lowering Standards,”](#) Baltimore Sun (Aug. 5, 2013) (749 words)
- [“Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies,”](#) Amstat News (Dec. 2012) (1186 words)
- [“Goodbye to the Rate Ratio,”](#) BMJ (Feb. 5, 2013) (850 words)

# Partial Picture References

- "[Illusions of Job Segregation](#)," *Public Interest* (Fall 1988)
- "[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)
- "[Perils of Using Statistics to Show Presence or Absence of Loan Bias](#)," *American Banker* (Jan. 3, 1997)
- Kansas Law 2013 and Mortgage Banking 2014 papers



# Measurement pages of [jpscanlan.com](http://jpscanlan.com)

- [Measuring Health Disparities](#) (MHD)
- [Scanlan's Rule](#) (SR)
- [Immunization Disparities](#)
- [Mortality and Survival](#)
- [Immunization Disparities](#)
- [Educational Disparities](#)
- [Disparate Impact](#)
- [Discipline Disparities](#)
  - [Los Angeles SWPBS](#)
  - [California Disparities](#)
- [Lending Disparities](#)
- [Employment Discrimination](#)
- [Feminization of Poverty](#)

# Institutional Correspondence

- [Wisc Council on Families and Children's Race to Equity Project](#) (Dec. 23, 2014)
- [Gov Accountability Office, Fin Mkts and Comm Inv Program](#) (Sept. 9, 2014)
- [Education Law Center](#) (Aug. 14, 2014)
- [IDEA Data Center](#) (Aug. 11, 2014) [see Table 11 *infra*]
- [Institute of Medicine II](#) (May 28, 2014)
- [Annie E. Casey Foundation](#) (May 13, 2014) \*
- [Education Trust](#) (April 30, 2014)\*
- [Investig and Oversight Subcomm of House Fin Serv Comm](#) (Dec. 4, 2013)
- [Mailman School of Public Health of Columbia University](#) (May 24, 2013)
- [Senate Committee on Health, Education, Labor and Pensions](#) (Apr. 1, 2013)
- [Federal Reserve Board](#) (March 4, 2013)
- [Harvard University , Mass General Hospital, et al.](#) (Oct. 26, 2012)
- [Harvard University](#) (Oct. 9, 2012) [see Society 2014 at 16-18]
- [United States Department of Justice](#) (Apr. 23, 2012)
- [United States Department of Education](#) (Apr. 18, 2012)
- [The Commonwealth Fund](#) (June 1, 2010)
- [Institute of Medicine](#) (June 1, 2010)
- [National Quality Forum](#) (Oct. 22, 2009)
- [Robert Wood Johnson Foundation](#) (Apr. 8, 2009)

# Extended Graphical and Tabular Illustrations

- [“The Mismeasure of Group Differences in the Law and the Social and Medical Sciences,”](#)  
Harvard Institute for Quantitative Social Science (Oct. 2012)
- [“Rethinking the Measurement of Demographic Differences in Outcome Rates,”](#)  
Maryland Population Research Center of the University of Maryland (Oct. 2014)

# Measurement Issue 1

## (TDHCD Brief, Sec. I.A.1 )

- Unsoundness of standard measures of differences between outcome rate for quantifying a disparity because each measure tends to be affected by the frequency of an outcome
  - Relative differences in favorable outcomes
  - Relative difference in adverse outcome
  - Absolute difference between rates
  - Odds ratios

# Measurement Issue 2

## (TDHCD Brief, Sec. I.A.2 )

- An approach to measuring the strength of the forces causing a pair of outcome rate to differ that is unaffected by the frequency of an outcome
- Derives from a pair of outcome rates the difference between means of the underlying distributions (in terms of percentage of a standard deviation)
- EES for Estimated Effect Size (Probit)

# Measurement Issue 3

## (TDHCD Brief, Sec. I.A.3)

- Whether lowering a standard increases or decreases the disparate impact of the standard
- E.g., does lowering a credit score requirement (thus reducing the relative difference in meeting it while increasing the relative difference in failing to meet it) increase or decrease the disparate impact of the requirement?

## **Measurement Issue 4 (TDHCD Brief, Sec. I.B)**

- Impossibility of quantifying the strength of the forces causing outcome rates to differ based on the proportion a group comprises of persons potentially experiencing an outcome (the pool) and the proportion it comprises of persons experiencing the outcome (e.g., disadvantaged group is 20% of pool and 40% of persons experiencing an adverse outcome)

# Partial Picture Issue (TDHCD Brief, Sec. I.C)

- The invalidity of internal comparisons for proving (or disproving discrimination)
  - Wards Cove v. Atonio
  - Stender v. Lucky Stores
  - Butler v. Home Depot
  - US v. Countrywide Financial
  - US v. Wells Fargo Bank
  - The Gary Becker thesis/Sears defense



# Measurement Issue 1

Unsoundness of standard measure of differences between outcome rates

**Interpretive Rule 1 (IR1):  
The Two Relative Differences  
(aka Heuristic Rule X (HRX), Scanlan's Rule)**

The rarer an outcome

(a) the greater tends to be the relative difference in experiencing it and

(b) the smaller tends to be the relative difference in avoiding it.

# Absolute Differences/Odds Ratios

- Absolute differences and differences measured by odds ratios are unaffected by whether one examines the favorable or the adverse outcome.
- But for a measure to effectively quantify the strength of the forces causing outcome rates to differ it must remain constant when there occurs a change in overall prevalence akin to that effected by lowering a test cutoff.
- Absolute differences and odds ratios tend also to be affected by the prevalence of an outcome, but in a more complicate way than the two relative differences.

## Interpretive Rule 2(IR 2): Absolute Differences/Odds Ratios

- As an outcome goes from being rare to being nearly universal, absolute differences between rates tend to:
  - (a) increase to the point where the first group's rate reaches 50%;
  - (b) behave inconsistently until the second group's rate reaches 50%;
  - (c) then decline.
- As the prevalence of an outcome changes, differences measured by odds ratios tend to change in the opposite direction of absolute differences.\*

# Relationship of the Absolute Difference to the Two Relative Differences (1)

- As the prevalence of an outcome changes, the absolute difference tends to change in the same direction as the smaller relative difference.
- Since observers commonly focus on the larger relative difference, there is a systematic tendency for the absolute difference and the reported relative difference to change in opposite directions.

**Table 1(a). Explanation of Terms with Respect to Four Measures of Differences Between Favorable or Adverse Outcome Rates of Advantaged Group (AG) and Disadvantaged Group (DG)**

(a) AG Fav Rt	(b) DG Fav Rt		(1) AG/DG Ratio Fav	
90%	80%		1.125	

In this presentation, the larger figure is always used as the numerator in the rate ratio (RR); hence the relative difference is always  $RR - 1$

(1) AG/DG Ratio Fav =  $a/b$  (1.125; relative difference is 12.5%) - BLUE

**Table 1(b). Explanation of Terms with Respect to Four Measures of Differences Between Favorable or Adverse Outcome Rates of Advantaged Group (AG) and Disadvantaged Group (DG)**

(a) AG Fav Rt	(b) DG Fav Rt	(c) AG Adv Rt	(d) DG Adv Rt	(1) AG/DG Ratio Fav	(2) DG/AG Ratio Adv	
90%	80%	10%	20%	1.125	2.00	

In this presentation, the larger figure is always used as the numerator in the rate ratio (RR); hence the relative difference is always  $RR - 1$

(1) AG/DG Ratio Fav =  $a/b$  (1.125; relative difference is 12.5%) - BLUE

(2) DG/AG Ratio Adv =  $d/c$  (2.00; relative difference is 100%) - RED

**Table 1(c). Explanation of Terms with Respect to Four Measures of Differences Between Favorable or Adverse Outcome Rates of Advantaged Group (AG) and Disadvantaged Group (DG)**

(a) AG Fav Rt	(b) DG Fav Rt	(c) AG Adv Rt	(d) DG Adv Rt	(1) AG/DG Ratio Fav	(2) DG/AG Ratio Adv	(3) Abs Df (pp)	
90%	80%	10%	20%	1.125	2.00	10	

In this presentation, the larger figure is always used as the numerator in the rate ratio (RR); hence the relative difference is always  $RR - 1$

(1) AG/DG Ratio Fav =  $a/b$  (1.125; relative difference is 12.5%) - BLUE

(2) DG/AG Ratio Adv =  $d/c$  (2.00; relative difference is 100%) - RED

(3) Abs Df (pp) =  $a-b$  (10 percentage points) - GREEN

[see [Percentage Points](#) subpage of Vignettes page]



**Table 1(d). Explanation of Terms with Respect to Four Measures of Differences Between Favorable or Adverse Outcome Rates of Advantaged Group (AG) and Disadvantaged Group (DG)**

(a) AG Fav Rt	(b) DG Fav Rt	(c) AG Adv Rt	(d) DG Adv Rt	(1) AG/DG Ratio Fav	(2) DG/AG Ratio Adv	(3) Abs Df (pp)	(4) Odds Ratio
90%	80%	10%	20%	1.125	2.00	10	2.25

In this presentation, the larger figure is always used as the numerator in the rate ratio (RR); hence the relative difference is always  $RR - 1$

(1) AG/DG Ratio Fav =  $a/b$  (1.125; relative difference is 12.5%) - BLUE

(2) DG/AG Ratio Adv =  $d/c$  (2.00; relative difference is 100%) - RED

(3) Abs Df (pp) =  $a - b$  (10 percentage points) - GREEN  
 [see [Percentage Points](#) subpage of Vignettes page]

(4) Odd Ratio =  $(a/c)/(d/b)$  (2.25)

**Table 2(a): Simplified Illustration of Effects  
of Lowering Test Cutoff on Relative Difference Between Pass  
Rates and Relative Difference Between Failure Rates**

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

As a result of lowering the cutoff:

- (a) Rate ratio for passing decreased from 1.27 to 1.09 (i.e., relative difference between pass rates decreased from 27% to 9%)

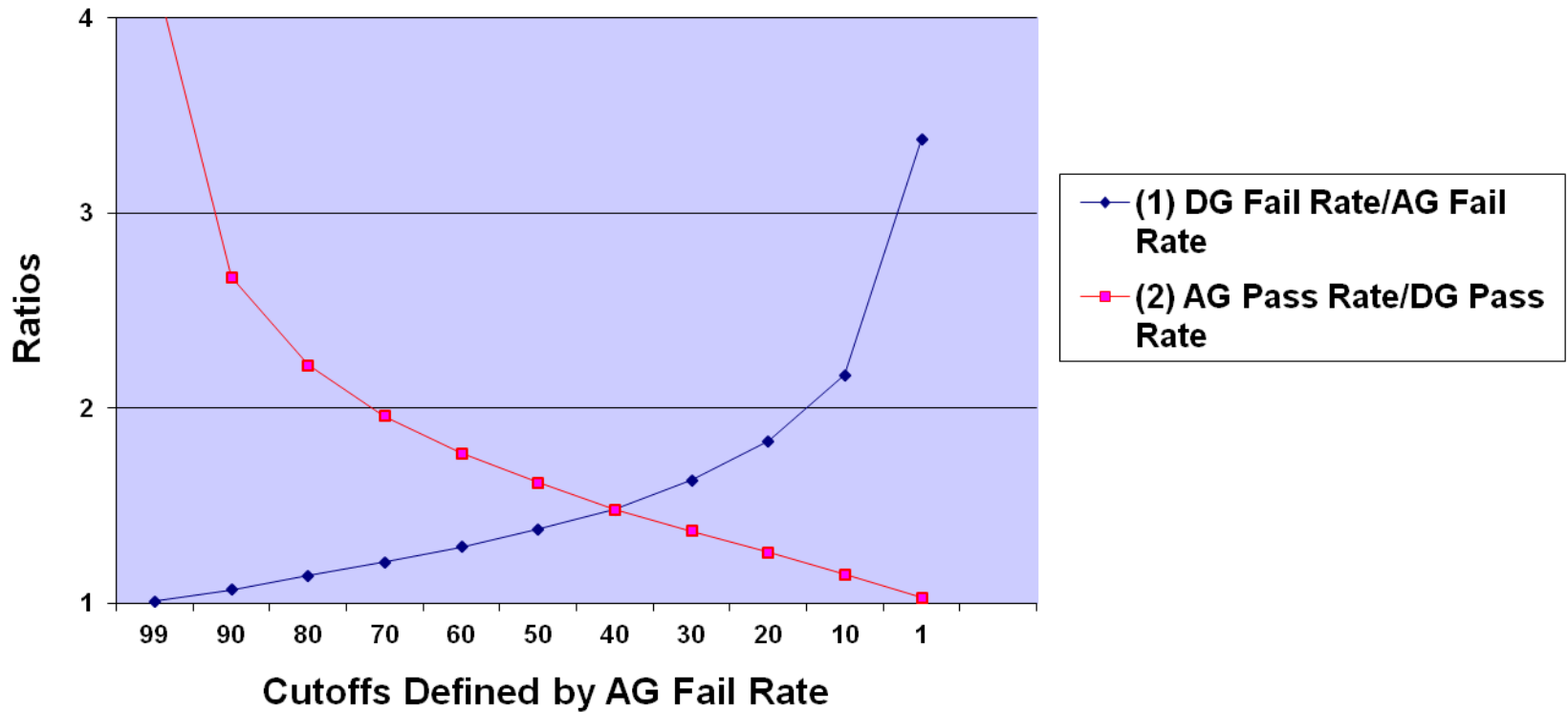
**Table 2(b): Simplified Illustration of Effects  
of Lowering Test Cutoff on Relative Difference Between Pass  
Rates and Relative Difference Between Failure Rates**

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

As a result of lowering the cutoff:

- (a) Rate ratio for passing decreased from 1.27 to 1.09 (i.e., relative difference between pass rates **decreased** from 27% to 9%);
- (b) Rate ratio for failure increased from 1.85 to 2.60 (i.e., relative difference between pass rates **increased** from 85 percent to 160%).

**Fig. 1. Ratios of (1) DG Fail Rate to AG Fail Rate and (2) AG Pass Rate to DG Pass Rate at Various Cutoff Points Defined by AG Fail Rate**



# Notes on Lowering Standards

- For years, federal agencies have been encouraging mortgage lenders and public schools to relax lending and discipline criteria under the mistaken belief that doing so will reduce relative (racial/ethnic) differences in adverse borrower/discipline outcomes.
- Federal agencies continue to monitor fairness of practices on the basis of relative differences in adverse outcomes.
- By responding to federal encouragements to relax standards, lenders and public schools increase the chances that the federal government will accuse them of discrimination.
- No agency of government is aware, in any institutional sense, that lowering a test cutoff tends to increase relative differences in failure rates (save, to a degree, National Center for Health Statistics). Same holds for Congress and GAO.

# Less Discriminatory Alternatives

- Most of the time when a disparate impact is measured in terms of the relative difference in adverse outcomes, what would commonly be the most obvious less discriminatory alternative (typically, relaxing some standard) will tend to increase the disparity.
- **Whether relaxing a standard in fact reduces or increases a disparate impact (soundly measured) is a complex issue. See Section E of [Kansas Law workshop](#).**

# IR1 Implications – General

- As mortality and poverty decline, relative differences in experiencing those outcomes tend to increase while relative differences in avoiding them tend to decrease.
- As procedures like immunization and cancer screening become more common, relative differences in receipt of those procedures tend to decrease while relative differences in failing to receive them tend to increase.
- More survivable cancers tend to show larger relative differences in mortality, but smaller relative differences in survival than less survivable cancers. [Mortality and Survival](#) page and Table 17 *infra*.
- Generally reducing blood pressure (or improving folate levels) tends to increase relative differences in hypertension (or low folate) while reducing relative differences in normal blood pressure (or adequate folate). [NHANES Illustrations](#) subpage of SR.
- Relaxing mortgage lending , employment, or public school discipline standards tends to increase relative differences in failing to meet the standards while reducing relative differences in meeting the standards.

## With Comparatively Advantaged Subpopulations

- Racial diff in infant health outcomes among highly-educated or low risk groups ([“Race and Mortality”](#))
- Occupational diff in mortality among British Civil Servants ([Whitehall Studies](#))
- Racial, gender, and SES diff in mortality among young ([Life Tables Illustrations](#))
- Racial diff in loan rejection among high-income applicants ([Disp – High Income](#)) \*
- Racial diff in completion/non-completion rates at elite universities ([“Race and Mortality”](#))
- Suburban discipline disparities ([Suburban Disparities](#))
- Racial and SES diff in mortality in Norway and Sweden (or Minnesota and Massachusetts)



**Table 3: Simplified Illustration of Effects of Patterns of the Two Relative Differences in Advantaged and Disadvantaged Setting**

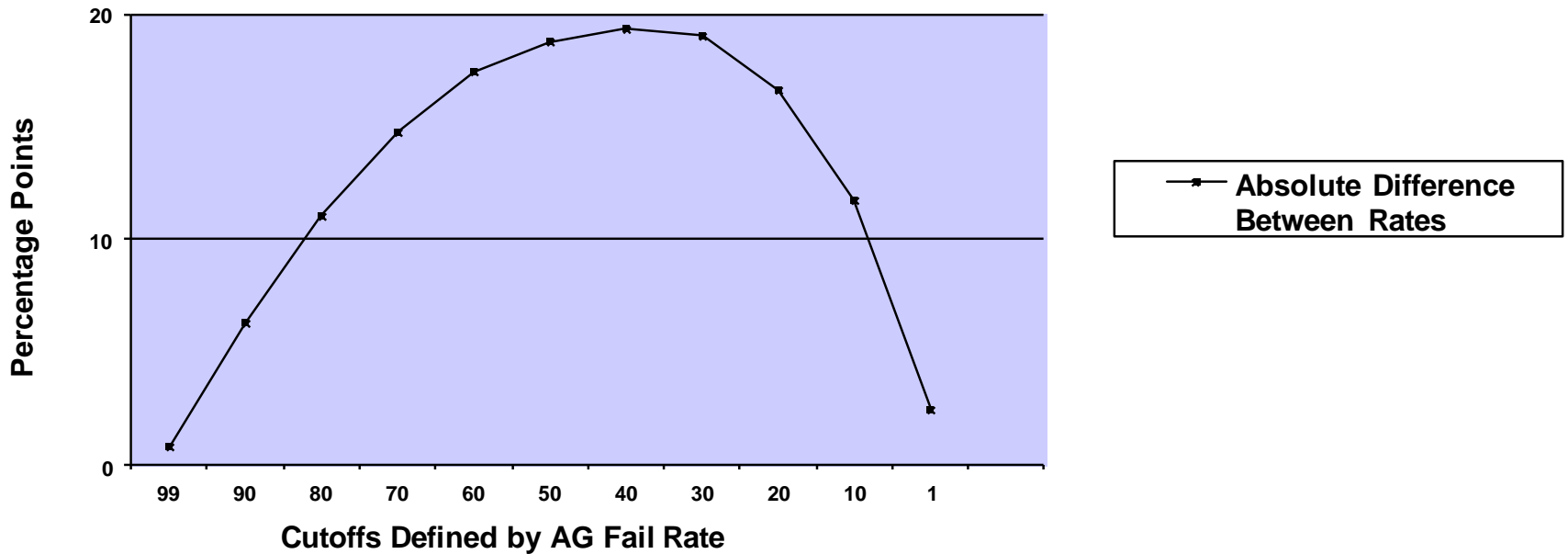
Setting	AG Pass	DG Pass	AG Fail	DG Pass	DG/AG Ratio Pass	DG/AG Ratio Fail
Disadvantaged (e.g., inner city, low SES, inc, educ)	80%	63%	20%	37%	1.27	1.85
Advantaged (e.g., suburbs, high SES, inc, educ )	95%	87%	5%	13%	1.09	2.60

Advantaged setting has larger difference in failure rates but smaller difference in pass rates.

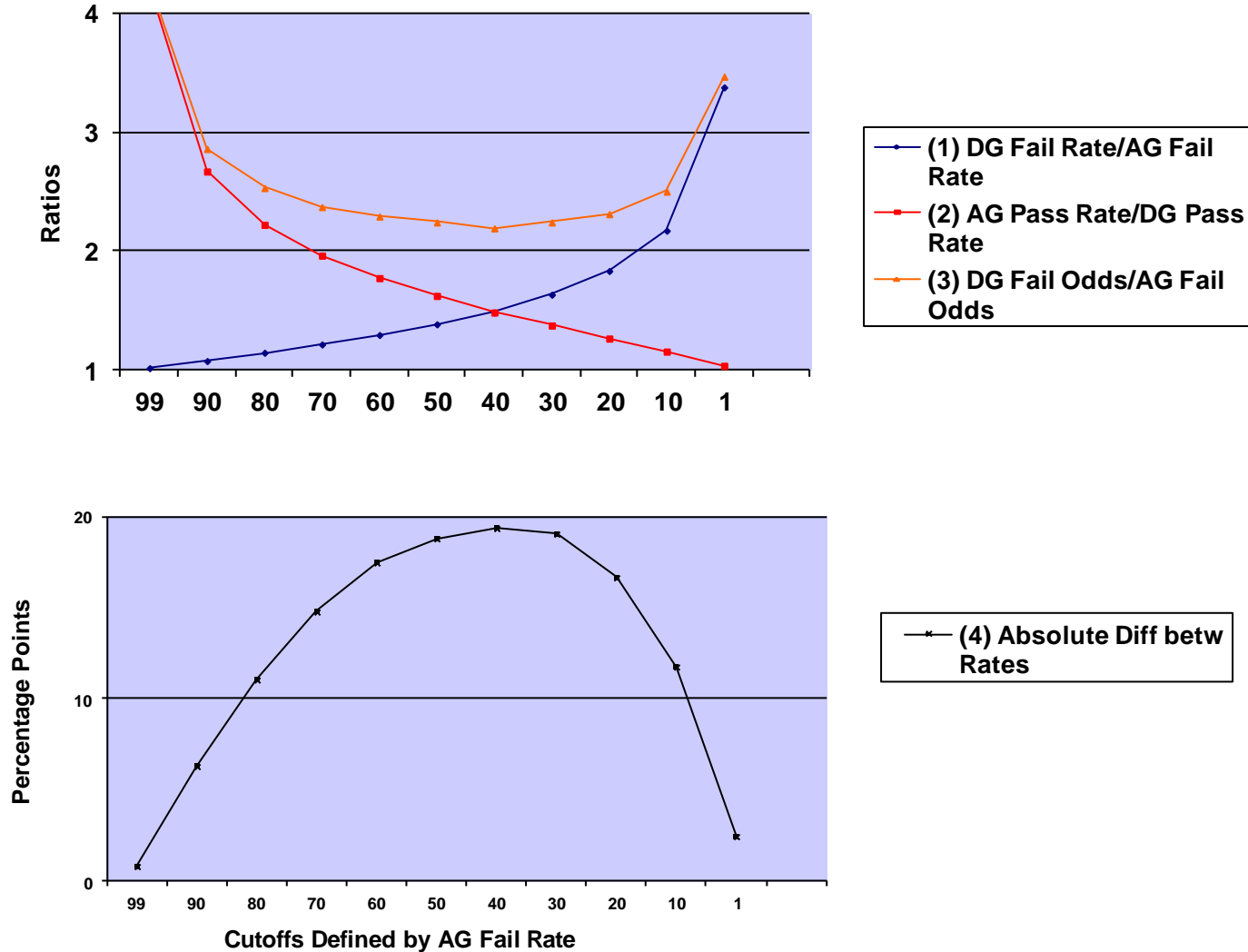
**Table 4: Simplified Illustration of Effects of Lowering Test Cutoff on Relative Difference Between Pass Rates and Relative Difference Between Failure Rates (with absolute differences and odds ratios)**

Cutoff	AG Pass	DG Pass	DG/AG Ratio Pass	DG/AG Ratio Fail	Abs Df (pp)	Odds Ratio
High	80%	63%	1.27	1.85	17	2.35
Low	95%	87%	1.09	2.60	8	2.84

# Fig. 2: Absolute Difference Between Rates at Various Cutoffs Defined by AG Fail Rate



**Fig. 3 Ratios of (1) DG Fail Rate to AG Fail Rate, (2) AG Pass Rate to DG Pass Rate, (3) DG Failure Odds to AG Failure Odds; and (4) Absolute Difference Between Rates**



# Case Study in Table 5

(also Table 5 of “Race and Mortality Revisited”  
and Table 2 of TDHCD Brief)

- Issues is ranking 4 employees/settings to determine:
  - Extent of biased decision-making
  - Likelihood of biased decisions-making
  - Size of the disparate impact of the process

**Table 5(a) : Varying Appraisals of the Comparative Degree of Employer Bias Using Different Measures of Disparities in Selection/Rejection Rates**

Employer/ Setting	AG Sel Rate	DG Sel Rate	(1) AG/DG Ratio Selection
A	20.0%	9.0%	2.22 (1)
B	40.1%	22.7%	1.77 (2)
C	59.9%	40.5%	1.48 (3)
D	90.0%	78.2%	1.15 (4)

Approach 1 (relative favorable) (BLUE):      A,B,C,D

**Table 5(b) : Varying Appraisals of the Comparative Degree of Employer Bias Using Different Measures of Disparities in Selection/Rejection Rates**

Employer/ Setting	AG Sel Rate	DG Sel Rate	(1) AG/DG Ratio Selection	(2) DG/AG Ratio Rejection
A	20.0%	9.0%	2.22 (1)	1.14 (4)
B	40.1%	22.7%	1.77 (2)	1.29 (3)
C	59.9%	40.5%	1.48 (3)	1.48 (2)
D	90.0%	78.2%	1.15 (4)	2.18 (1)

Approach 1 (relative fav) (BLUE): A,B,C,D

Approach 2 (relative adv) (RED): D,C,B,A (opposite of App 1)

**Table 5(c) : Varying Appraisals of the Comparative Degree of Employer Bias Using Different Measures of Disparities in Selection/Rejection Rates**

Employer/ Setting	AG Sel Rate	DG Sel Rate	(1) AG/DG Ratio Selection	(2) DG/AG Ratio Rejection	(3) Abs Diff (pp)
A	20.0%	9.0%	2.22 (1)	1.14 (4)	11 (4)
B	40.1%	22.7%	1.77 (2)	1.29 (3)	17(2)
C	59.9%	40.5%	1.48 (3)	1.48 (2)	19 (1)
D	90.0%	78.2%	1.15 (4)	2.18 (1)	12 (3)

Approach 1 (relative fav) (BLUE): A,B,C,D

Approach 2 (relative adv) (RED): D,C,B,A (opposite of App 1)

Approach 3 (absolute diff) (GREEN): C,B,D,A



**Table 5(d) : Varying Appraisals of the Comparative Degree of Employer Bias Using Different Measures of Disparities in Selection/Rejection Rates**

Employer/ Setting	AG Sel Rate	DG Sel Rate	(1) AG/DG Ratio Selection	(2) DG/AG Ratio Rejection	(3) Abs Diff (pp)	(4) Odds Ratio
A	20.0%	9.0%	2.22 (1)	1.14 (4)	11 (4)	2.53 (1)
B	40.1%	22.7%	1.77 (2)	1.29 (3)	17(2)	2.29 (3)
C	59.9%	40.5%	1.48 (3)	1.48 (2)	19 (1)	2.19 (4)
D	90.0%	78.2%	1.15 (4)	2.18 (1)	12 (3)	2.50 (2)

Approach 1 (relative fav) (BLUE): A,B,C,D

Approach 2 (relative adv) (RED): D,C,B,A (opposite of App 1)

Approach 3 (absolute diff) (GREEN): C,B,D,A

Approach 4 (odds ratio) (ORANGE): A,D,B,C (opposite of App 3)

- Is one employer more biased as to selection while another more biased as to rejection?
- Is one more biased in relative terms and another more biased in absolute terms?
- There can be only one reality as to the comparative ranking.

- Which is the correct ranking?
- As all rows are based on the same specifications as Table 2 and Figures 1 to 3 (EES = .5), there is no rational basis for distinguishing among them.
- **Any measure that does distinguish among them is an unsound measure.**

**Table 6. Appraisals of the Differences in Outcome Disparities for AG and DG Applicants with Low and High Qualifications**

Row #	Applicant Qualification	AG Sel Rate	DG Sel Rate	AG/DG Ratio Selection	DG/AG Ratio Rejection	Abs Diff (pp)	Odds Ratio
1	Very Low	20%	9.0%	2.22	1.14	11	2.53
2	Low	40%	22.7%	1.77	1.29	17	2.29
3	High	59%	40.5%	1.48	1.48	19	2.19
4	Very High	90%	78.2%	1.15	2.18	12	2.50

*Note: Some observers would read the smaller relative difference in selection rates (BLUE) among the highly qualified applicants (rows 3 and 4) as evidence that employers are less likely to rely on stereotypes when there are objective indicators of qualifications.*

# Measurement Issue 2

A sound measure of the strength of the forces causing a pair of outcome rates to differ

# EES/Probit

- Derive from a pair of rates the difference between means of the underlying distributions in terms of percentage of a standard deviation
- EES for “estimated effect size”/probit
- Above examples based on EES of .5, which means approximately 31% of the disadvantaged group is above the mean for the advantaged group

# Table 7. Illustrations of Meaning of EES vis a vis Four-Fifths Rule

EES	DG Pass Rat	AG Pass Rate	RR Pass	RR Fail	%DG>AGMean
0.1	2.87%	3.59%	.80/1.25	1.01	46.41%
0.2	28.43%	35.57%	.80/1.25	1.11	42.47%
0.3	46.41%	57.93%	.80/1.25	1.27	38.59%
0.4	58.32%	72.91%	.80/1.25	1.54	34.83%
0.5	64.80%	81.06%	.80/1.25	1.86	31.21%
0.6	69.15%	86.43%	.80/1.25	2.27	27.76%
0.7	71.91%	89.97%	.80/1.25	2.80	24.51%
0.8	73.89%	92.51%	.80/1.25	3.48	21.48%
0.9	75.49%	94.41%	.80/1.25	4.38	18.67%
1	76.42%	95.73%	.80/1.25	5.52	16.11%

An explanation of Table 5 appears on the following page.

**Table 8. Illustration of Contrasting Interpretations of Effects of Convictions on Callback Rates of Applicants by Race (based on Pager 2003)**

Race	No Conviction (AG) CB Rt	Conviction (DG) CB Rt	AG/DG Ratio CB	DG/AG Ratio No CB	EES
White	34%	17%	2.00	1.26	0.54
Black	14%	5%	2.80	1.10	0.56

*Note: This table reflect the alternative perspective (comparison of a factor's effects on different groups). Author drew inferences based on comparative size of relative differences in favorable outcomes (blue field). See the [Criminal Record Effects](#) subpage of SR for racial differences among those with and without criminal records and a later study with rather different results.*



**Table 9. White and Black Rates of Multiple Suspensions in Preschool and K-12, with Measures of Difference**

Level	White Mult Susp Rate	Black Mult Susp Rate	B/W Ratio Susp	W/B Ratio No Susp	Abs Df (pp)	EES
Preschool	0.15%	0.67%	1.01	4.41	0.52	.49
K-12	2.23%	6.72%	1.05	3.01	4.49	.51

See Society 2014 at 15 re its Table 8 and [Preschool Disparities](#) subpage of Discipline Disparities page.

# Measurement Issue 3

Does relaxing a requirement increase or decrease the disparate impact of the requirement?

# Summary re Implications of Relaxing a Requirement on the Disparate Impact of the Requirement

- If a requirement entirely dictates the outcome (bar exam, teacher competency test, minimum performance standard to retain job), there is no rational basis for maintaining that the stringency of the requirement affects the disparate impact.
- Issue is more complicated when persons meeting the requirement compete further in the process. See Section I.A.3 of TDHCD [brief](#); Section E of the Kansas Law paper.

# Measurement Issue 4

- Impossibility of appraising the strength of the forces causing outcome rates to differ base on proportion group comprises of pool and the proportion it comprises of persons experiencing a favorable or adverse outcome

# Key issue

- One cannot derive from the two proportions the underlying outcome rates.
- One needs the underlying outcome rates in order to derive the EES

Table 10. Illustration of Problematic Nature of Representational Comparisons

DG Proportion of Pool	DG Proportion of Selections	AG/DG Ratio Selection
20%	10%	2.25
30%	20%	1.71
50%	30%	2.33
10%	5%	2.11
50%	25%	3.00

We cannot appraise the comparative likelihood that bias was involved because we cannot determine the actual selection rates. We need those to derive the EES.

# Disproportionality in Special Education Assignment or Discipline

- IDEA Data Center (IDC) Disproportionality Guide's Four Measures (see [IDEA Data Center Disproportionality Guide](#) subpage of Discipline Disparities page)
  - Rate comparisons
    - (a) relative differences in assignment rates
    - (b) absolute differences in assignment rates
      - Representational comparisons
    - (c) relative difference between proportion DG comprises of pool and proportion DG comprises of those assigned
    - (d) absolute difference between proportion DG comprises of pool and proportion DG comprises of those assigned

Table 11(a). Effects of Prevalence of Outcome on Measures from IDC Guide for Identifying “Significant Disproportionality” in Special Education

(1) DG Prop Pool	AG Adv Rate	DG Adv Rate	(a) DG/AG Ratio Adv Rate
20%	20%	36.7%	1.83
20%	10%	21.8%	2.18
20%	3%	8.4%	2.79
70%	20%	36.7%	1.83
70%	10%	21.8%	2.18
70%	3%	8.4%	2.79

See [IDEA Data Center Disproportionality Guide](#) subpage of Discipline Disparities page.

Implications of circumspection and review.



Table 11(b). Effects of Prevalence of Outcome on Measures from IDC Guide for Identifying “Significant Disproportionality” in Special Education

(1) <i>DG Prop Pool</i>	AG Adv Rate	DG Adv Rate	(a) DG/AG Ratio Adv Rate	(b) Abs Df Btw Rates (pp)
20%	20%	36.7%	1.83	16.7
20%	10%	21.8%	2.18	11.8
20%	3%	8.4%	2.79	5.4
70%	20%	36.7%	1.83	16.7
70%	10%	21.8%	2.18	11.8
70%	3%	8.4%	2.79	5.4

Table 11(c). Effects of Prevalence of Outcome on Measures from IDC Guide for Identifying “Significant Disproportionality” in Special Education (b5618a1)

(1) <i>DG Prop Pool</i>	AG Adv Rate	DG Adv Rate	(a) DG/AG Ratio Adv Rate	(b) Abs Df Btw Rates (pp)	(2) <i>DG Prop of Adv</i>
20%	20%	36.7%	1.83	16.7	31.4%
20%	10%	21.8%	2.18	11.8	35.2%
20%	3%	8.4%	2.79	5.4	41.1%
70%	20%	36.7%	1.83	16.7	81.1%
70%	10%	21.8%	2.18	11.8	83.6%
70%	3%	8.4%	2.79	5.4	86.7%

See [IDEA Data Center Disproportionality Guide](#) subpage of Discipline Disparities page.

Table 11(d). Effects of Prevalence of Outcome on Measures from IDC Guide for Identifying “Significant Disproportionality” in Special Education

(1) DG Prop Pool	AG Adv Rate	DG Adv Rate	(a) DG/AG Ratio Adv Rate	(b) Abs Df Btw Rates (pp)	(2) DG Prop of Adv	(c) Rel Df Bwt (1) and (2)	(d) Abs Df Btw (1) and (2)
20%	20%	36.7%	1.83	16.7	31.4%	57.2%	11.4
20%	10%	21.8%	2.18	11.8	35.2%	76.2%	15.2
20%	3%	8.4%	2.79	5.4	41.1%	105.6%	21.1
70%	20%	36.7%	1.83	16.7	81.1%	15.8%	11.1
70%	10%	21.8%	2.18	11.8	83.6%	19.4%	13.6
70%	3%	8.4%	2.79	5.4	86.7%	23.9%	16.7

See [IDEA Data Center Disproportionality Guide](#) subpage of Discipline Disparities page.

# Partial Picture Issue

- One cannot prove or disprove the existence of discrimination by analyzing information solely on persons who accepted some outcome of condition.
- A sound statistical analysis of a process must analyze information on all persons subject to the process.

- *Washington Post* quotation of EEOC Commissioner's Decision underlying the Sears case (Feb. 25, 1979): "in retail stores women hold 77 percent of the lower paying, noncommission sales jobs and only 23 percent of the desirable commission sales positions ..."
- "[Illusions of Job Segregation](#)," *Public Interest* (1988)
- "[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)
- "[The Mismeasure of Discrimination](#)," Univ Kansas School of Law Faculty Workshop (2013) (Section F)
- "[The Perverse Enforcement of Fair Lending Laws](#)," *Mortgage Banking* (2014)
- [Employment Discrimination](#) page of [jpscanlan.com](http://jpscanlan.com) (Section A)

- *Wards Cover v. Atonio* (1989)
- *Stender v. Lucky Stores* – \$107.3 (\$80) million (1993)
- *Butler v. Home Depot* – \$87.5 million (1998)
- *US v. Countrywide* – \$335 million (2012)
- *US v. Wells Fargo* – \$175 million (2013)

# Becker Thesis/Sears Defense

- Table IV of "[Illusions of Job Segregation](#)," *Public Interest* (1988)
- [Perils of Using Statistics to Show Presence or Absence of Loan Bias](#)," *American Banker* (Jan. 3, 1997),
- "[Both Sides Misuse Data in the Credit Discrimination Debate](#)," *American Banker* (July 22, 1998).