

BUFFALO LAW REVIEW

VOLUME 63

JANUARY 2015

NUMBER 1

Weakness in Numbers: A Brief Introduction

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As modern science and mathematics penetrate the legal world, statistical analysis has found approval as a source of evidence and sometimes even truth itself. Whether due to efficiency, faith, or perhaps even lack of genuine interest, society seems willing to accept numerical representations of data as true without any curiosity as to their creation. Though statistics may seem like hard facts, the legal community should be thoughtful and wary in consuming these representations.

The use of statistics differs from traditional evidence in two main ways. First, statistics are aggregations of underlying facts, and this aggregation process can conceal drastic mistakes and personal biases—hiding forever what might otherwise inspire lively debate. Second, while traditional evidence illustrates the world as it actually exists, statistics often fail—or perhaps even attempt—to incorporate obvious truths about the real world. The first two Articles we present in this first issue of Volume 63 offer examples of when reliance on statistics—whether due to a zealous search for scarce evidence or a religious trust in information purportedly possessing the cold calculation of science—has led the legal community astray.

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In *Free Expression, In-Group Bias, and the Court's Conservatives*, Todd E. Pettys analyzes a highly publicized study of the Supreme Court by Lee Epstein, Jeffrey Segal, and Christopher Parker. Pettys illustrates how the aggregation of large amounts of data can conceal blunders and biases in the statistical process that clearly affect what purports to be rigorous statistical analysis.¹ While it may be true that small mistakes do not affect a larger outcome, is the law ever ready to knowingly accept such clear errors? If so, at what point do such errors become intolerable? We would argue that known biases or mistakes have no place in the realm of the law and the search for truth. But if bias is an inherent part of human nature, can there ever be a statistical study rigorous enough to indict the most reverend construct of our legal system?

In *P-Values, Priors, and Procedure in Antidiscrimination Law*, Jason R. Bent calls for a “Bayesian revolution” in the use of statistics in antidiscrimination lawsuits and an end to the blind faith in a statistic used to prove the value of other statistics—the “*p*-value.”² A Bayesian system would help expose the follies like the one in the following example: if a coin is flipped ten times, what are the chances that every flip would produce a heads? But what if the coin has been tampered with and has a head on both sides? The coin is inherently biased in favor of heads, and not knowing this would produce drastically inaccurate calculations. Incorporating more information—information about what really exists in the world—into one’s statistics can make a highly unlikely event inevitable.

To relate this concept to Pettys’s piece, how does bias in the judgment of the statistician’s observation protocol affect the final values he calculates? When coding a close call, is the statistician flipping a double-headed coin? A Bayesian system would incorporate known truths about the world into statistical predictions, thereby at least attempting to bend

1. See Todd E. Pettys, *Free Expression, In-Group Bias, and the Court's Conservatives: A Critique of the Epstein-Parker-Segal Study*, 63 BUFF. L. REV. 1 (2015).

2. See Jason R. Bent, *P-Values, Priors, and Procedure in Antidiscrimination Law*, 63 BUFF. L. REV. 85 (2015).

them to the world rather than induce the study's consumers to bend the world to the statistics.

In addition to Pettys's Article in this January issue of Volume 63, the *Buffalo Law Review* is pleased to host a set of four Responses in our subsequent April issue. Christina L. Boyd,³ Timothy M. Hagle,⁴ Carolyn Shapiro,⁵ and Edward Whelan⁶ comment on the state of empirical legal studies and the divide between Pettys and Epstein, showcasing the opinions of leading scholars in the area to round out our discussion of this salient topic.

Legal advocates and scholars are, by nature, hungry for information. Statistics promise to feed that hunger with infallibility, simplicity, and impartiality. But that information is sometimes only empty calories, and a confident statistician may wind up practicing alchemy.⁷ The practice of law—with life, liberty, and property on the line—should not settle for mere mirages or fool's gold. At a time when so many already believe the game is fixed, why are we increasing our reliance on tools that make even more efficient mistakes and conceal even more biases? We must seek the truth in the world directly, lest we find the scales of justice replaced with loaded dice. Who would care to risk one's job or life on the flip of a two-headed coin?

3. Christina L. Boyd, *In Defense of Empirical Legal Studies*, 63 BUFF. L. REV. (forthcoming Apr. 2015).

4. Timothy M. Hagle, *Two Worlds, Neither Perfect: A Comment on the Tension Between Legal and Empirical Studies*, 63 BUFF. L. REV. (forthcoming Apr. 2015).

5. Carolyn Shapiro, *Numbers, Motivated Reasoning, and Empirical Legal Scholarship*, 63 BUFF. L. REV. (forthcoming Apr. 2015).

6. Edward Whelan, *A Bad Proposal*, 63 BUFF. L. REV. (forthcoming Apr. 2015).

7. See Michael J. Saks, *Do We Really Know Anything About the Behavior of the Tort Litigation System—And Why Not?*, 140 U. PA. L. REV. 1147 (1992).