UNITED STATES DISTRICT COURT EASTERN DISTRICT OF LOUISIANA

JOHN R. STELLY, II,

* CIVIL ACTION NO. 2:23-cv-00772

Plaintiff, *

* JUDGE GREG G. GUIDRY

Versus *

*

STATE OF LOUISIANA, THROUGH, * MAGISTRATE JUDGE DEPARTMENT OF PUBLIC SAFETY * JANIS VAN MEERVELD

AND CORRECTIONS, OFFICE OF STATE POLICE,

MOTION IN LIMINE TO STRIKE DEFENDANT'S EXPERT WITNESS AND TO EXCLUDE HER EXPERT REPORT

COMES NOW Plaintiff John R. Stelly, II ("Stelly"), by and through his undersigned counsel, and hereby moves this Honorable Court for an order *in limine* to strike Defendant's Expert Witness Melissa Kovacs, and to exclude her expert report. Kovacs's opinions do not meet the standard required under Federal Rule of Evidence 702 and should be excluded to prevent the introduction of unreliable evidence at trial. Also, her testimony is based upon insufficient facts or data, is the product of unreliable principles and methods, and she has applied the principles and methods unreliably to the facts of the case. The memorandum further supports the striking of the expert witness and the exclusion of her report.

WHEREFORE, Lt. Stelly respectfully requests that this Court grant the motion in limine to strike Melissa Kovacs as an expert witness and to exclude her expert report.

Respectfully Submitted,

/s/Victor R. Farrugia
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Labor Law Specialist and Employment Law Specialist Certified by the Louisiana Board of Legal Specialization

CERTIFICATE OF SERVICE

I hereby certify that I have on this 18th day of June 2024, a copy of the above and foregoing pleading has been served upon counsel of record for all parties via CM/ECF transmission through the United States District Court for the Eastern District of Louisiana.

/s/Victor R. Farrugia

UNITED STATES DISTRICT COURT EASTERN DISTRICT OF LOUISIANA

JOHN R. STELLY, II, * CIVIL ACTION NO. 2:23-cv-00772

Plaintiff, *

JUDGE GREG G. GUIDRY

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STATE OF LOUISIANA, THROUGH, * MAGISTRATE JUDGE DEPARTMENT OF PUBLIC SAFETY * JANIS VAN MEERVELD

AND CORRECTIONS, OFFICE OF STATE POLICE,

MOTION IN LIMINE TO STRIKE DEFENDANT'S EXPERT WITNESS AND TO EXCLUDE HER EXPERT REPORT

COMES NOW Plaintiff John R. Stelly, II ("Stelly"), by and through his undersigned counsel, and hereby moves this Honorable Court for an order *in limine* to strike Defendant's Expert Witness Dr. Melissa Kovacs, and to exclude her expert report, and in support thereof, states as follows:

INTRODUCTION

The Plaintiff respectfully moves this Court for an order in limine to exclude the testimony of expert witness Dr. Kovacs on the grounds that her opinions do not meet the standard required under Federal Rule of Evidence 702 and should be excluded to prevent the introduction of unreliable evidence at trial.

STATEMENT OF FACTS

On February 20, 2024, Dr. Kovacs was designated as an expert witness by Defendant. She intends to testify regarding the racial differences in promotion to captain in personnel data between September 26, 2017, through January 25, 2022, from the State of Louisiana Department of Public Safety and Corrections.

LEGAL ARGUMENT

Standard for Admissibility of Expert Testimony.

Federal Rule of Evidence 702 governs the admissibility of expert testimony. This rule provides: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." As shown below Dr. Kovacs fails to meet the standards in all three areas.

Effective December 1, 2000, Rule 702 was amended to incorporate the principles first articulated by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). *See*FED. R. EVID. 702, Adv. Comm. Notes (2000). Under *Daubert*, expert testimony is admissible only if the proponent demonstrates that: (1) the expert is qualified; (2) the evidence is relevant to the suit; and (3) the evidence is reliable. *See Watkins v. Telsmith, Inc.*, 121 F.3d 984, 988-89 (5th Cir. 1997).

Thomas v. Deloitte Consulting LP, No. 3-02-CV-0343-M, at *2 (N.D. Tex. Sep. 2, 2004)

Reliability of Methodology:

Kouvac's proposed statistical methodology is unreliable because it fails to account for relevant factors, and it is not widely accepted in the scientific community. Kovacs' report is not based upon sufficient facts or data. Also, Kovacs has failed to reliably apply the proposed statistical methods to the facts of this case.

A review of Kovacs' Report of Opinion on Promotion to Captain by Race dated February 20, 2024 (Report) shows a glaring error in the pool of data she used. Exhibit A. She states that she is examining whether there is a difference in the proportion of white people who are promoted compared to black people who are promoted and the proportion of white people who are promoted compared to non-white people who were promoted. Report, p. 3. This examination is not limited only to promotions to captain. However, Kovacs concludes that there is no difference between the proportions of white and black personnel who are promoted to captain and no difference between the proportions of white and non-white personnel who are promoted to captain. Report, p. 7. A conclusion cannot be drawn on discrimination by race in promotions to captain if the study includes the pool of applicants that is much greater than just the applicants for promotion to captain.

The Fifth Circuit jurisprudence indicates that an expert witness must draw her data from the relevant pool of applicants.

"Where plaintiffs use statistical evidence to challenge an employer's hiring practices, that evidence, to be probative of discriminatory intent, must compare the relevant portion of the employer's work force with the qualified population in the relevant labor market." Anderson, 26 F.3d at 1286 (quoting EEOC v. Olson's Dairy Queens, Inc., 989 F.2d 165, 168 (5th Cir. 1993)); Carter, 33 F.3d at 456 (statistical analysis must compare presence or absence of minority employees to relevant labor pool). In determining the composition of the relevant labor market or labor pool, "[a]ctual applicant flow figures are the preferred method by which to measure an *15 employer's hiring practices and performance." Anderson, 26 F.3d at 1287; see also Scott v. Univ. of Miss., 148 F.3d 493, 510 (5th Cir. 1998)."

The specifics of the errors of Kovacs that renders her report unreliable are the following:

- (1) Kovacs did not explain how she pooled all the promotion data together other than "deduplicating on personnel name." (De-duplication is the process of retaining only one copy of records which are defined to be identical per a pre-determined set of fields and irrespective of values in other fields.) For example, Kovacs does not specify if a person competed for captain more than once, which record would she retain. Or, if a person was promoted to lieutenant and then attempted to be promoted to captain, Kovacs still does not specify which record she retained. Therefore, the data that Kovacs actually analyzed is ambiguous.
- (2) Kovacs analyzed data for promotional panels that occurred from 09-26-17 through 01-25-22. However, on 10-05-21, Stelly requested retirement and subsequently retired on 12-17-21. His 10-05-21 request was irrevocable. Therefore, any retirement panels that occurred from 10-05-21 onward were irrelevant to Stelly's claim of racially discriminatory panels during the period that he was applying for promotion to captain.
- (3) Kovac's methodology is unreliable. The candidate counts she analyzed were not correct. Accounting for all black and white candidates, Kovacs analyzed 703 candidates; and accounting for all non-white and white candidates, Kovacs analyzed 712 candidates. Because Kovacs de-duplicated on personnel name, these counts ostensibly reference distinct individuals. However, these counts are approximately three times even the total number of applications of persons whom LSP and the LSP Commission approved to compete for a captain position. In actuality, the correct count of applications of persons whom LSP and the LSP Commission approved to compete for a captain position from 09-26-17 through 01-25-22 was 252 and was only 222 from 09-26-17 through 10-04-21. Regardless, these applications belonged to 78 and 73 distinct individuals, respectively.

- (See documents labeled SPC000001 000727 and Supplemental SPC000001 000130.) Therefore, somewhere between 2/3 and 9/10 of Kovacs' candidate data pool refers to people who did not even apply for captain during the time in question.
- (4) Assuming Kovacs' de-duplication efforts were correct, even her counts of promotions to captain were wildly inaccurate. Accounting for all black and white captain promotees, Kovacs analyzed 239 promotees; and accounting for all non-white and white captain promotees, Kovacs analyzed 241 promotees. However, LSP's own data shows that it made exactly 37 captain promotions from 09-26-17 through 01-25-22 and only 32 captain promotions from 09-26-17 through 10-04-21. (See documents labeled SPC000001 000727 and Supplemental SPC000001 000130.) Therefore, more than 4/5 of Kovacs' promotee data pool refers to people who were promoted to something other than captain during the time in question.
- (5) Kovacs states that she reviewed the *PanelComps* worksheet of the workbook she was provided from which she used the promotional certificate number, candidate name, candidate race, and whether the candidate was promoted relative to that promotional certificate number. Kovacs wrote that she also used the *Certs* worksheet to determine the date of each promotion. In fact, the *PanelComps* worksheet contains candidate application data for candidates applying for all ranks, including sergeant, lieutenant, captain, major, technician, deputy command technician, command technician, technical support officer, and technical supervisor. However, Kovacs made no mention of using the *Certs* worksheet to determine the rank of the position to which each candidate was applying. Therefore, Kovacs' analysis of the 703 and 712 distinct candidates from above (assuming these values were correct) actually included <u>all</u> candidates whom LSP and the

LSP Commission approved to compete for promotion to any rank, not just captain. (See documents labeled SPC000001 – 000727 and Supplemental SPC000001 – 000130.)

Kovacs' failure to separate out captain candidates and promotions from all other candidates and promotions is a critical flaw given that the captain promotions accounted for about 10% of all promotions and that captain applications likewise accounted for about 10% of all applications.

(6) Kovacs intentionally included in her candidate pool those candidates who were only on panels all of whose candidates were of only one race. When such an inclusion happened, that race was always white. The effect of such an inclusion artificially increased the rate of white promotions and similarly artificially decreased the rate of promotions of other demographics. Granted, the overall rates under such an inclusion protocol were in fact mathematically correct. However, those artificial rates masked what was actually happening on panels where LSP had a choice whether to promote in a racially discriminatory manner.

In his expert report, Exhibit B, Tyler Broadway points out three problems with the Kovacs report. Broadway Report, p. 7. The first problem that Broadway points out is that Kovacs did not isolate her analysis to the captain rank and yet she made conclusions on the captain rank. Broadway also points out that Kovacs' process of pooling data resulted in losing data. The example given by Broadway is that multiple individual officers were promoted more than once through the data. And finally, Broadway points out that the method that Kovacs used in including panels for promotion that only had candidates of one race resulted in unreliable calculation of racially discriminatory promotion decisions.

Broadway provides a comparison of using Kovacs' technique. Under Kovacs'

reasoning, if one wanted to study ovarian cancer rates, one should include in his sample pool both men and even women whose ovaries had been removed. Obviously, the inclusion of these two groups in the sample pool would artificially and wrongfully necessarily reduce ovarian cancer rates. Kovacs' inclusion of candidates who were only on panels all of whose candidates were white would have a similar effect of promotion rates of different demographics. Broadway R eport, p. 7.

This consideration would be minor if only 5% of the captain panels fell into the single-race category; however, more than 40% (14 of 32) of captain panels had only white candidates. (See Broadway's and Stelly's expert reports and documents labeled SPC000001 – 000727 and Supplemental SPC000001 – 000130.) Therefore, in effect, Kovacs inappropriately gave LSP substantial credit for making non-discriminatory promotions when it could not possibly have done otherwise.

(7) Even assuming Kovacs' de-duplication procedure and counts therefrom were correct, she analyzed promotional demographics under all ranks combined into a single category. More importantly, Kovacs did absolutely no analysis specifically on promotions to captain. Nevertheless, Kovacs somehow inferred from her all-rank inclusive analyses that there was no difference between the proportions of white / black lieutenants promoted to captain and no difference between the proportions of white / non-white lieutenants promoted to captain. Such conclusions are especially troublesome given that the pools of captain candidates and promotees were much smaller than the pools of some of the other ranks, for example sergeant and lieutenant.

In his expert opinion, Stelly provided an apt comparison of Kovacs' technique. Under Kovacs' reasoning, after finding that the overall tendency of corporate America is to not pollute the environment, one would conclude that no industry is more likely to pollute the environment than any other. Such a conclusion is obviously critically flawed. Similarly, Kovacs impermissibly inferred a lack of evidence of racially discriminatory promotional practices at the captain level from her holistic analyses of racially discriminatory promotional practices at all levels once combined.

The first flaw discussed above casts a specter of ambiguity on Kovacs data sets that she analyzed. The next five flaws in Kovacs' analyses all point to the undeniable conclusion that Kovacs analyzed the incorrect data sets. The last flaw points out that Kovacs drew impermissible conclusions from her incorrect data sets. The above analysis is from Lt. Stelly's Amended Expert Report (Exhibit C), p. 13-15.

The Defendant Louisiana State Police is the proponent of Kovacs' expert testimony and report and it bears the burden of establishing its admissibility by a preponderance of the evidence. The Defendant cannot do this.

CONCLUSION

For the foregoing reasons, Lt. Stelly respectfully requests that this Court grant the motion *in limine* to strike Melissa Kovacs as an expert witness and to exclude her expert report.

Respectfully Submitted,

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Labor Law Specialist and Employment Law Specialist Certified by the Louisiana Board of Legal Specialization

CERTIFICATE OF SERVICE

I hereby certify that I have on this 18th day of June 2024, a copy of the above and foregoing pleading has been served upon counsel of record for all parties via CM/ECF transmission through the United States District Court for the Eastern District of Louisiana.

/s/Victor R. Farrugia

John R. Stelly, II v. State of Louisiana

Report of Opinion on Promotion to Captain by Race

Melissa Kovacs, Ph.D., PStat

February 20, 2024

Qualifications

I, Melissa Kovacs, have a Ph.D. in public policy and econometrics from the University of Maryland and am the principal and founder of FirstEval, LLC, a statistical consulting firm. My client work includes statistical consulting for governments, foundations, and physicians; data analytic work for marketing firms; program evaluations for nonprofit organizations; and statistical litigation support and consulting for attorneys. I am currently an Associate Professor of Trauma Research at Chandler Regional Hospital, Arizona.

I hold the PStat certification from the American Statistical Association, indicating Professional Statistician status. This is the highest certification afforded by the American Statistical Association.

I have held faculty positions at Arizona State University in the Schools of Public Affairs and Sustainability; Allegheny College in the Department of Political Science; and a Fulbright professorship at the Universität Duisburg-Essen in Germany.

I am the previous Associate Director for Research for Arizona State University's Morrison Institute for Public Policy, and I am the previous Research Director for Maricopa County's (AZ) Justice System Planning and Information department.

I previously held a position with, and previously consulted for Cisco Systems in Corporate Affairs, researching the effectiveness of Corporate Social Responsibility programs and analyzing program data.

I previously managed the Arizona Violent Death Reporting System at Arizona State University's Center for Violence Prevention and Community Safety, working towards a uniform system of cataloging violent death data.

My curriculum vitae, including publications, accompanies this report as Attachment A.

EXHIBIT A

Previous Experience

I have provided statistical consulting and advice for legal matters related to racial/ethnic housing discrimination; racial/ethnic discrimination in police traffic stops; access to healthcare in prisons; homelessness and housing discrimination; bank failures, bank fraud, and audit fraud; a rare injury; and a homeowners' association dispute.

Previous Testimony

I have testified in one trial in the last four years:

Commonwealth vs. Pedro Ruiz, Trial Court of Massachusetts, Lowell District Court, May 5, 2023.

Previous Depositions

I have not been deposed outside of trial within the last four years.

Named Expert with Expert Reports Filed

I have been a named expert and filed expert reports in the following matters:

Commonwealth of Massachusetts vs. Desmond Leslie. Lowell District Court, MA. 2022 – 2023. Retained by the Defendant.

Jill Mendygral vs. Mayor and City Council of Ocean City and 85 N Sunny, LLC. U.S. District Court for the District of Maryland, Northern Division. 2022. Retained by the Defendant.

Frances Salazar vs. City of Phoenix, et al. U.S. District Court for the District of Arizona. 2021. Retained by the Plaintiff.

Ancala Homeowners Association vs. Arlan Olivia and others. Superior Court of the State of Arizona. 2018. Retained by the Plaintiff.

Avenue 6E Investments LLC and Saguaro Desert Land Inc. vs. City of Yuma, AZ. U.S. District Court for the District of Arizona. 2011. Retained by the Defendant.

Compensation for Services

My hourly rate for the work in this case including while in deposition or trial is \$400. Neither the amount nor the payment of these fees is in any way dependent on the nature of my findings or on the outcome of this case.

Scope of this Report

This report examines racial differences in promotion to captain in personnel data between September 26, 2017 through January 25, 2022 from the State of Louisiana Department of Public Safety and Corrections.

Summary of Opinion

I opine that there is no difference between the proportions of white and black personnel who were promoted to captain between September 26, 2017 through January 25, 2022 in this matter, and no difference between the proportions of white and non-white personnel who were promoted to captain during this same time period in this matter.

Information Reviewed

To prepare this opinion, I reviewed the following documents and data:

- The "Second Amended Complaint and Jury Demand," dated September 1, 2023;
- Report from Megan D. Higgs, PhD to Mr. Victor Farrugia, dated July 20, 2023;
- "Expert Report" from Andrew Tyler Broadway dated January 19, 2024;
- "Summary of promotional data for LSP promotions to captain (09-26-17 through 10-04-21) and mathematical analysis of the probabilities that LSP used race as a factor in its captain promotions" report from John Ray Stelly II, dated January 19, 2024;
- Letter from John Ray Stelly II to Sirwanda Hall, US Equal Employment Opportunity Commission, dated August 3, 2022;
- MS Excel workbook, "20240119 PromoDataFromDiscovery LSP Commission," multiple tabs.

I also had access to, but did not review, the following document:

• MS Excel workbook, "Copy of MC 240119 (Stelly)."

Background to the Development of my Opinion

In this report I describe my approach to examining whether there is a difference in the proportion of white people who were promoted compared to black people who were promoted, and the proportion of white people who were promoted compared to non-white people who were promoted.

Data Source and Description

I examined data in the MS Excel workbook, "20240119 PromoDataFromDiscovery LSP Commission," the "PanelComps" tab. To the best of my knowledge, this workbook was provided by the plaintiff, after the original data in this tab was provided by the defendant to the plaintiff.

The data in this tab is a list of personnel names with their associated race and whether they were promoted. "CertNum" is provided for each name. I have assumed "CertNum" to be an identifier for the promotion panel associated with that personnel name. "Test Score" and "Test Rank" were also part of this tab, and I did not use those in my analysis.

In this same workbook, I looked at the tab labeled "Certs" to see the date of the data in the workbook.

The rest of the "Certs" tab, and other tabs in this workbook appear to represent workspaces or statistical output, not datasets, and I did not use those tabs in my analysis.

To summarize, I used the following columns (variables) from the "PanelComps" tab in the analysis described in this report:

- CertNum
- Name
- Race
- Promoted (Y/N)

Analysis Approach

I examined whether there is a difference in the proportion of white personnel who are promoted compared to black personnel, and the proportion of white personnel who are promoted compared to non-white personnel.

This approach best addresses an overall look at promotion by race, and not the probability of promotion of one single individual.

I pooled all the promotion data together to compare these proportions. Later in this report I explain why my approach differs from Stelly's or Broadway's approaches.

Findings

I transferred the first four columns of the "PanelComps" Excel data tab into Stata/MP v. 17.0. After de-duplicating on personnel name, I calculated the proportion of white personnel who were promoted as 33.06% and the proportion of black personnel who were promoted as 40.0%. This is shown in Table 1 below.

Table 1. Proportions of Black and White Personnel Promoted

Race	Promoted	Total	Proportion Promoted
Black	38	95	40.00%
White	201	608	33.06%

A z-score test of equality of proportions shows no statistically significant difference between the proportion of white personnel who were promoted compared to the proportion of black personnel who were promoted (Z=1.30, p=.195).

Table 2 below shows the proportion of white personnel who were promoted (33.06%) compared to non-white personnel who were promoted (38.46%).

Table 2. Proportion of Non-White and White Personnel Promoted

Race	Promoted	Total	Proportion Promoted
Non-White	40	104	38.46%
White	201	608	33.06%

A z-score test of equality of proportions shows no statistically significant difference between the proportion of white personnel who were promoted compared to the proportion of non-white personnel who were promoted (Z=1.04, p=.297).

Why my findings differ from the findings in Stelly's and Broadway's expert reports

As stated above, I approached my analysis to examine whether there is a difference in the proportion of white personnel who are promoted compared to black personnel who are promoted, and the proportion of white personnel who are promoted compared to non-white personnel who are promoted.

Alternatively, Stelly's expert report states to examine "whether LSP used race as a factor in promotions to captain from 09-26-17 through 10-04-21." I did not see where Broadway's expert report stated a research question.

Stelly's expert report methodology uses binomial analysis and a Monte Carlo analysis of data at the promotional panel level. Broadway's report methodology uses Fisher's exact test to analyze

¹ prtest command used in Stata. Statistical significance threshold set at α <.05.

² prtest command used in Stata. Statistical significance threshold set at α <.05.

³ Page 1, Stelly expert report.

the promotional panels. I use a z-score test for the difference in proportions for my analysis of the pooled data in this report.

Stelly's and Broadway's methods (binomial analysis, Monte Carlo methods, and Fisher's exact test) are statistical methods that test for the probability of an event happening. To acquire probabilities, these methods are applied to a repeated event, like the occurrence of a promotional panel.

Binomial analysis, Monte Carlo methods, and Fisher's exact tests require certain assumptions be met by the data used for the test. All three of these methods require that the data being used in the statistical test meet the assumption of independence.

In statistics, independence assumes that each event is independent of other events in the data.⁴ According to Kleinbaum et al., the assumption of independence is commonly violated when different observations are made on the same individual at different times. According to Norusis, "To use the binomial test, ... All of the observations must be independent, and the probability of success must be the same for each member of the sample population. ... one subject's response can't influence that of another."5

In the Stelly matter, promotional panels cannot be assumed to be independent events. First, the outcome of a panel may influence the make-up of the next panel. Depending upon who is promoted in a panel, the next panel's personnel make-up may or may not include the promoted person. Therefore, panel personnel make-up is not independent because previous panels have occurred. Second, observations are made on the same person at different times when they are on multiple panels, such as the plaintiff. When personnel are on multiple panels, the same observation (whether they are promoted, yes or no) is made on them multiple times. Here, observations of personnel are not independent.

When the assumption of independence is violated in the application of statistical methods, it "can often lead to invalid statistical conclusions." Research validity simply means that the data are measuring what they are supposed to measure, with respect to the research question. Valid data are correct data.

Since the Stelly matter data violate the assumption of independence, binomial analysis, Monte Carlo methods, and Fisher's exact tests cannot be used on this data and result in a valid conclusion.

^{4 &}quot;Assumption: Independence: The Y-values are statistically independent of one another. ... [this assumption] is usually violated when different observations are made on the same individual at different times." From "Applied Regression Analysis and Multivariable Methods." Kleinbaum, Kupper, Muller, and Nizam. 3rd ed. Duxbury Press, 1998, page 43.

⁵ "SPSS 8.0 Guide to Data Analysis." Marija Norusis. Prentice Hall, 1998, page 171.

⁶ Kleinbaum et al., page 43.

⁷ See "Reliability and Validity Assessment," by Edward G. Carmines and Richard A. Zeller. Sage Series: Quantitative Applications in the Social Sciences, no. 17, 1979.

The assumption of independence does not apply to data not containing repeated events, or pooled data. Given the lack of independence in the promotional panels, I approached the Stelly matter data as one dataset, examining all personnel together for their proportions of promotion based on race, as described above.

This pooled approach does not require an assumption of independence, as there are no repeat events. Alternatively stated, Stelly and Broadway approach the data through a lens of panel data, and I approach the data absent the panel framework.

Finally, a pooled approach includes all personnel data, even personnel who sat on all-white panels. Stelly's and Broadway's expert approaches exclude data of personnel who sat on all-white panels.

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It is my opinion, to a reasonable degree of certainty in the field of statistics, that there is no difference between the proportions of white and black personnel who were promoted to captain, and no difference between the proportions of white and non-white personnel who were promoted to captain.

As with any professional opinion, these opinions are subject to change based on the production and review of additional information, data, and documents.

Date: February 20, 2024

Submitted by:

Melissa Kovacs, Ph.D., PStat

Melissa KDVag

MELISSA S. KOVACS, Ph.D., PStat

Scottsdale, AZ USA | melissa.s.kovacs@gmail.com | 602.361.8070

EDUCATION

Ph.D. University of Maryland, College Park

Policy Studies, 2005

Examination Fields: Quantitative Research Methods, Microeconomics, Health Policy,

Philosophy of Civic Education, Political Institutions, Normative Policy Analysis.

Dissertation: "Civic Skills and Civic Education: An Empirical Assessment."

Advisors: Christopher H. Foreman, Jr. and Mark Hugo Lopez

Readers: William A. Galston, Peter Levine and James G. Gimpel

M.A. Duquesne University, Pittsburgh

Social Policy, 2000

Thesis: "The Influence of Government Funding on Charitable Givers: A Study of the 1994 Violence Against Women Act in Southwestern Pennsylvania."

B.S. Purdue University, West Lafayette

Accounting, 1995

RESEARCH EXPERIENCE

Associate Professor of Trauma Research

Chandler Regional Hospital, Dignity Health, AZ, 2022 to present

- Support Trauma Department research agenda and conduct statistical analyses for physician research publications.
- Teach and mentor on biostatistics and research methods in growing graduate medical education program.

Principal and Founder

FirstEval, LLC, 2009 to present (biostatistics, data analysis, statistical consulting, program evaluation, and litigation support)

- Founder of statistical and program evaluation consulting firm. Former and current clients include hospital systems, physician groups, law firms, marketing firms, non-profit organizations, state government agencies, foundations, and universities.
- Provide statistical and data analytic litigation support; design and conduct program evaluations; provide policy report writing services; provide various statistical consulting; establish data analytic departments in corporations; and provide general evaluation advice.
- Extensive pro-bono analytic work in the fields of homelessness data and housing.

Associate Director for Research

Morrison Institute for Public Policy, Arizona State University, 2018 to 2020

- Manage team of public policy research analysts, assess workload capacity, bring in research projects.
- Review analysts' data and writing work.

Research Director

Justice System Planning and Information, Maricopa County, 2013 to 2015

- Directed criminal justice system-wide research department that provided analytics and program evaluations to Maricopa County policy decision-makers.
- Established shared data repository, including infrastructure and governance, for criminal justice data within Maricopa County.
- Managed team of seven researchers and interns, managed budget and directed analytic projects, program evaluations, strategic planning for criminal justice system, and provided ad hoc data support.

Program Manager

Cisco Systems, Research and program evaluation in corporate affairs, 2012 to 2013

- Evaluated big-data global Networking Academy program.
- Researched and published on the global ICT job market.

Program Manager, Arizona Violent Death Reporting System

Center for Violence Prevention and Community Safety

Arizona State University, 2009 to 2010

- Established data-sharing and collection framework for all Arizona counties leading to Arizona's participation in the Center for Disease Control's Violent Death Reporting System.

Research Fellow

Center for Political Participation, Allegheny College, 2005 to 2009

- Managed college research center, secured grants, managed student researchers, and organized research events.

Research Assistant

Center for Information and Research on Civic Learning and Engagement (CIRCLE), University of Maryland, 2003-2004.

- Conducted research and authored fact sheets and memos on youth political participation.

Research Associate

Emergency Medicine Association of Pittsburgh, 2000.

- Assisted team of emergency physicians with their publishable research, clinical trial enrollment, and participation in the Nurses' Health Study.

Research Assistant

Graduate Center for Social and Public Policy, Duquesne University, 1999.

- Wrote and maintained community development block grants for the Center and City of Pittsburgh.

Volunteer Member, Public Education Committee

Greater Pittsburgh Community Food Bank, 2001-2002.

- Represented Member of Congress on community food bank advisory committee, provided research on local hunger and food insecurity issues.

ACADEMIC APPOINTMENTS

Lecturer

Arizona State University, School of Public Affairs, 2020 to 2022.

Graduate Course Title: Data Analytics for the Public Good

Arizona State University, School of Sustainability, Fall 2014 and Fall 2017.

Graduate Course Title: Sustainability and Social and Family Welfare

Arizona State University, School of Public Affairs, 2010 to 2012.

Graduate course titles:

Public Service Research Methods I (survey of research methods)

Public Service Research Methods II (quantitative methods and statistics)

Undergraduate course title:

Economics for Public Affairs (microeconomics and macroeconomics)

Assistant Professor

Allegheny College, Department of Political Science, 2005 to 2009.

Undergraduate course titles:

Freshman Seminar (writing and public speaking)

Health Policy

American Government (Introductory)

Statistics and Data Analysis

Education Policy

Women and Public Policy

Women, Suffrage, and Political Participation

Public Policy Analysis (Seminar)

Fulbright Professor, Junior Lecturer

Universität Duisburg-Essen, Essen, Germany, 2007 to 2008.

Anglophone Studies

OTHER TEACHING EXPERIENCE

Graduate Student Instructor

Duquesne University, 1999 to 2000.

Graduate course title: Quantitative Analysis (lab)

Undergraduate course title: Sociological Methods II Lab (quantitative research methods)

Teaching Assistant

Duquesne University, 1999.

Undergraduate course titles:

Survey of Sociology

Sociological Methods I (qualitative research methods)

PUBLICATIONS

"Modified Puerto Rico Recurrence Scale for Chronic Subdural Hematomas: Augmenting the Grading Scale with Postoperative Pneumocephalus Volume." With Giancarlo Mignucci-Jiminez and others. *Acta Neurochirurgica*. July, 2023.

"AATS 2023: Assessment of the Well-being of Significant Others of Cardiothoracic Surgeons." With Ross Ungerleider and others. *Journal of Thoracic and Cardiovascular Surgery*. April, 2023.

"Virtual Reality Consumer Product Injuries: An Analysis of National Emergency Department Data." With Dan Cucher and others. *Injury*. Jan. 17, 2023.

- "Puerto Rico Recurrence Scale: Predicting Chronic Subdural Hematoma Recurrence Risk After Initial Surgical Drainage." With Giancarlo Mignucci-Jiminez and others. *Surgical Neurology International*. 03-Jun-2022;13:230.
- "An Overview of Unintentional Deaths in Arizona: July 1, 2019 June 30, 2020." With Charles Katz and Taylor Cox. 2021. Arizona State Unintentional Drug Overdose Reporting System (AZ-SUDORS). Phoenix, AZ: Center for Violence Prevention and Community Safety, Arizona State University.
- "Geographic Prevalence and Characteristics of Unintentional Overdose Deaths in Arizona: July 1, 2019 June 30, 2020." With Charles Katz and Taylor Cox. 2021. Arizona State Unintentional Drug Overdose Reporting System (AZ-SUDORS). Phoenix, AZ: Center for Violence Prevention and Community Safety, Arizona State University.
- "The Racial Divide of Prosecutions in the Maricopa County Attorney's Office," with Analise Ortiz and ACLU of Arizona, July, 2020. https://www.acluaz.org/sites/default/files/7.16embargofinal the racial divide 2020.pdf
- "Perceptions Around Affordable Housing in Arizona," essay from the Arizonans Speak Poll 2019. November, 2019. Morrison Institute for Public Policy, Arizona State University. https://morrisoninstitute.asu.edu/sites/default/files/affordable housing.pdf
- "Do I Need a Statistician or a Forensic Accountant?" March 2019. Arizona Attorney magazine. http://www.azbar.org/AZAttorney
- "Honoring Wishes: Is Arizona Doing Enough to Protect Seniors?" with David Schlinkert. January 2019. Morrison Institute for Public Policy, Arizona State University.
- "Nuisance and Vagrancy Laws: The New Exclusionary Zoning." January 2018. Arizona Attorney magazine. http://www.azbar.org/AZAttorney
- "Child Neglect in Arizona: Prevalence of Neglect Types Reported to Arizona's Department of Child Safety for 2013-2015." October 2017. With Erica Quintana, Jade Sun, Andrea Whitsett, Dan Hunting, Robert Vagi, Joseph Garcia, and Thomas Morton. Morrison Institute for Public Policy, Arizona State University.
- "Stop Bullying Speak Up: Improving Communication to Combat Bullying." With R. Bradley Snyder and Aaron Kupchik. Research in Brief. Commissioned by Cartoon Network.
- "Seven Reasons to Call Your Expert Early in the Case." March 2016. Arizona Attorney magazine. http://www.azbar.org/AZAttorney
- "Measuring Homelessness: Tenure, Characteristics, and Movement of Clients at the Human Services Campus." March 2016. With Eric Hedberg and Bill Hart. Morrison Institute for Public Policy, Arizona State University.
- "Arizona's Services, Supports, and Unmet Needs for Individuals with Developmental Disabilities and their Families." January 2016. With Erica McFadden, Kim Fisher, Sang Eun Lee, and Maria Barajas. Morrison Institute for Public Policy, https://morrisoninstitute.asu.edu/products/comprehensive-review-and-analysis

- "How Big Data Equals Big Changes in Cases and the Bottom Line." January 2016. Arizona Attorney magazine. http://www.azbar.org/AZAttorney
- "An Evaluation of a New Application of a Mental Health Peer Navigation Model in a Forensic Setting: Evidence of Reduced Recidivism." July 2015. Working paper with Dawn Noggle and Noor Singh.
- "Data and Evidence Sharing: The Spirit of our Time." December, 2014. Advantage Magazine, Maricopa County. http://www.maricopa.gov/dcm/advantage.asp
- "IT Organization Skills: Critical Nontechnical Skills," with Cushing Anderson, IDC, May, 2013. http://www.idc.com.
- "IT Organization Skills: Demand and Change in the Era of the 3rd Platform," with Cushing Anderson, IDC, May, 2013. http://www.idc.com.
- "Youth Attitudes Toward Civility in Politics." Center for Information and Research on Civic Learning and Engagement (CIRCLE) Working Paper 71, 2010. www.civicyouth.org.
- "Nastiness, Name-Calling, and Negativity: The Allegheny College Survey of Civility and Compromise in American Politics," report with Dan Shea and Barbara Steadman, April, 2010, http://sites.allegheny.edu/civility/
- "A Nationwide Look at the Introductory American Government Course," chapter in *Teaching Matters:* Strategy and Tactics to Engage Students in the Study of American Politics, ed. Dan Shea, Pearson Books, 2010.
- "Learning to Participate: The Effects of Civic Education on Racial/Ethnic Minorities," *National Political Science Review*, vol. 12, 2008.
- "The Solution Down the Hall" with Dan Shea, *Inside Higher Ed*, November 6, 2007. www.insidehighered.com
- "Political Participation and Service-Learning: Civic Education as Problem and Solution," chapter in *The Fountain of Youth: Strategies and Tactics to Mobilize Young Voters*, eds. Dan Shea and John C. Green, Roman and Littlefield, 2006.
- "The Effects of Civic Education on Civic Skills," Center for Information and Research on Civic Learning and Engagement (CIRCLE) fact sheet, 2005.
- "Civic Education: Required." Georgetown Public Policy Review, vol. 10 no. 2, Spring 2005
- "Civics Curriculum and Civic Skills: Recent Evidence," Center for Information and Research on Civic Learning and Engagement (CIRCLE) fact sheet, 2003.
- "Characteristics of Group Membership Among Young People," Center for Information and Research on Civic Learning and Engagement (CIRCLE) fact sheet, 2003.
- "Group Membership and Group Involvement Among Young People," Center for Information and Research on Civic Learning and Engagement (CIRCLE) fact sheet, 2003.

PRESENTATIONS

"The Effects of Oxygen Therapy on COVID-19 Patients' Aspiration Risk." With Kimberly Deal, Rebecca Volk, and Kelly Van Dahm. Poster to be presented at the Dysphagia Research Society annual conference, March, 2024, San Juan, Puerto Rico.

"Variabilities in Patient Perception of Swallowing Impairments Across Settings." With Kimberly Deal, Rebecca Volk, and Kelly Van Dahm. Poster to be presented at the Dysphagia Research Society annual conference, March, 2024, San Juan, Puerto Rico.

"High Flow Nasal Oxygen: Impact on Aspiration and the Care of Medically Complex Patients." With Kimberly Deal, Rebecca Volk, Kelly Van Dahm, and Dan Cucher. Presentation at the Society of Critical Care Medicine Critical Care Congress, January, 2024, Phoenix, AZ.

"Effects of Deep Brain Stimulation on Psychological Well Being of Caregivers." With Thomas Gossard, Pireh Ansari, Amputch Karukote, Markey Olson, Holly Schill, Francisco Ponce, and Sana Aslam. Poster presented at Future of Parkinson's Disease conference, November, 2023, Austin TX.

"Firearm Injuries Differently Affect Homeless and Undocumented Trauma Patient Populations." With Vafa Ghaemmaghami, Jessica Sloan, Charles Hu, and Dan Cucher. Poster presented at the National Research Conference for the Prevention of Firearm-Related Harms, November, 2023, Chicago, IL.

"Outcomes Differ between Homeless and Housed Trauma Patients." With Nicholas Thiessen, Dan Cucher, and others. Poster presented at American College of Surgeons Clinical Congress, October, 2023, Boston, MA.

"Inter and Intra-rater Reliability of the Manjila and Semaan Classification System when Assessing Jugular Bulb Position." With M. Hunt, C. Smith, A. Svec, A. Nanda-Vaidya, E. Christiansen, J. Karis, and J. Hughes. Poster presented at Western Neuroradiology Society annual meeting, October, 2023, Scottsdale, AZ.

"Firearm Injuries and Intoxicants in Trauma Patients: An Analysis with Implications for Violence Prevention." With Dan Cucher and others. Southwestern Surgical Congress, Ojai, CA, April 2023.

"Cannabis Positivity in Trauma Patients is not Associated with Increased Thrombotic Complications." With Dan Cucher and others. Southwestern Surgical Congress, Ojai, CA, April 2023.

"Hypocalcemia Consciousness during Trauma Massive Transfusion: Monitoring, Medicating, and Mortality." With Dan Cucher and others. Eastern Association for the Surgery of Trauma (EAST) conference, January, 2021.

"Modeling Socioeconomic and Demographic Variables Affecting IVC Filter Placement and Retrieval: A Single Institution Retrospective Review at a Safety Net Hospital from 2012-2019." With Kevin Curley and others. Poster presented at Society of Interventional Radiology meeting, March, 2021.

"The Racial Divide of Prosecutions in the Maricopa County Attorney's Office," Race, Data, and Justice panel at Good Tech Fest, August, 2020.

Panelist, "Root Out Racism in the Maricopa County Attorney's Office," ACLU of Arizona, August 2020.

"The Elusive Definition of Evaluation: Three Examples in Practice." Arizona Evaluation Network conference, June, 2020.

- "Nuisance Laws and Homelessness: The New Exclusionary Zoning," with Joanna Lucio and Leonor Camarena. Presentation at the Arizona Coalition to End Homelessness (AZCEH) conference, Phoenix, AZ, September, 2016.
- "From Having Data to Using Data Managing Change in the Social Sector," with Paul Collier, Toby Olvera, Debra Natenshon, and Erika Van Buren. Do Good Data conference, Chicago, IL, April, 2016.
- "Homelessness Data Informing, Illuminating, and Sometimes Infuriating," with Eric Hedberg, Dawn Noggle, Kelli Donley, and Margaret Kilman. Presentation at the Arizona Coalition to End Homelessness (AZCEH) conference, Phoenix, AZ, October 2015.
- "Peer Navigator Referrals Upon Community Reentry from Jail: Evidence of Reduced Recidivism," with Dawn Noggle and Noor Singh, paper presented at the Western Society of Criminology annual meeting, Phoenix, AZ, February 2015.
- "When is a Result Significant?" with Jeff Smith, Austin Nichols and Winston Lin, roundtable at the Association for Public Policy Analysis and Management (APPAM) conference, Albuquerque, NM, November 2014.
- "Understanding Frequent Jail Usage, Homelessness, and Mental Health A Note From the Field," with Noor Singh, poster at the Association for Public Policy Analysis and Management (APPAM) conference, Albuquerque, NM, November 2014.
- "Engagement not Enforcement: Collaborating with Law Enforcement on Assessment and Engagement of Service Resistant Populations" with Noor Singh, Margaret Kilman, and Charlie Consolian. Presentation at the Arizona Coalition to End Homelessness (AZCEH) conference, Phoenix, AZ, October 2014.
- "Women's vs. Men's Experiences Along their Technology Education Pathways" with Lisa Dinella, Kristina Chapple, and Amy Guimond. Poster presentation at the American Psychological Association (APA) Annual Meeting, Honolulu, HI, August 2013.
- "How to say N/A: Illuminating Survey Responses using Missing Data Patterns and Latent Class Modeling," with Katie L. Kunze, Derek Fay, Aaron V. Crawford, Shawn M. Stockford, Kristina Chapple, and Roy Levy. Paper presented at the American Educational Research Association (AERA) Annual Meeting, San Francisco, April 2013.
- "Leveraging Factor Analysis and Item Response Theory Approaches in Analyzing a Large-Scale Student Satisfaction Survey," with Derek Fay, Aaron V. Crawford, Katie Kunze, Shawn M. Stockford, Kristina Chapple, and Roy Levy. Paper presented at the American Educational Research Association (AERA) Annual Meeting, San Francisco, April 2013.
- "Ethnic and Gender Borderlines in the 2008 U.S. Presidential Election." Paper presented to the Beyond Borders: Reconceptualizing Fine Lines, Fences, and Frontiers in the Americas Conference, Bielefeld, Germany, June 2009.
- "Latino Youth Participation in American Democracy: Voice and Education." Paper presented to the Latina/o Images for the 21st Century: Interethnic Relations and Politics of Representation Conference, Bielefeld, Germany, January 2008.

- "The Effects of Place on Voter Turnout Rates." Paper presented to the American Political Science Association annual meeting, Chicago, August 2007.
- "The Effect of State Civic Education Policies on Young Women." Paper presented at the Association for Public Policy Analysis and Management (APPAM) conference, Madison, WI, November 2006.
- "Equalizing Participation Abilities: Civic Education and Civic Skills." Paper presented to the Midwest Political Science Association annual meeting, Chicago, April 2006.
- "Equalizing Political Participation Abilities: Civic Education and Cognitive Civic Skills." Paper presented to the International Conference on Civic Education, Orlando, January 2006.
- "Group Discussion Skills and Civic Education Content." Paper presented to the International Conference on Civic Education, Orlando, January 2006.
- "Women's Civic Skill Development: An Empirical Assessment of Civic Education." Paper presented to the Women's Caucus for Political Science at the American Political Science Association annual meeting, August 2005.
- "Civic Education Policy and Civic Skills." Paper presented at the Georgetown Public Policy Institute Student Conference, *Youth and Public Policy*, February 2005.
- "Civic Skills and Minorities: An Empirical Assessment." Poster presented at *Tools for Justice: University of Maryland at the Intersections of Scholarship and Community* Research Day, September 2004.
- "The Influence of Government Funding on Charitable Givers: A Study of the 1994 Violence Against Women Act in Southwestern Pennsylvania." Paper presented to the Pennsylvania Sociological Society Annual Meeting, 2000.

INVITED LECTURES

- "Who are our Neighbors in Need? Homelessness Data and Affordable Housing." With Joanna Lucio, Arizona Heritage Center, April 16, 2019.
- "Evaluation in the Education Space." Education Evaluation Ph.D. seminar, Arizona State University, March 25, 2019.
- "The Ethics of Criminalizing Homelessness." Ethics and Philosophy course, Arizona State University, April 20, 2017.
- "Interpreting Data for Criminal Justice Reform." with Toby Olvera. Arizona Center for Civic Leadership, October, 2016.
- "Experiencing Homelessness in Our Community." Solution-Oriented Town Hall on Homelessness, Tempe, AZ, August, 2016.
- "The 2016 Presidential Campaign: Disruption and Shadow." Universität Duisburg-Essen, June, 2016.
- Data + Women panel, Tableau Phoenix User Group meeting, March 2016.

"Jail Data – What Should we Capture and How Should we Use It?" Presentation at the National Institute of Corrections' Large Jail Network meeting, Aurora, CO, March 2015.

"The Career Search: Behind the Scenes," with John Hutchins and David Schachter, panel at the Association for Public Policy Analysis and Management (APPAM) conference (Panel: Beyond the Degree: Bringing Career Options into Focus), Albuquerque, NM, November 2014.

"The 2012 American Republican Presidential Primary – A Tale of SuperPACS, American Dreams, and Women's Rights." Universität Duisburg-Essen, May 2012.

Guest lecturer, "Econometrics of Program Evaluation" graduate course, School of Public Affairs, Arizona State University, summer 2010.

Public seminar on applications for propensity score matching methods, Center for Violence Prevention and Community Safety, Arizona State University, February, 2010.

"Civic Education and Youth Political Participation in the U.S." Trier Center for American Studies, Universität Trier, Trier, Germany, May 2008.

"Working Mothers in America: Policies and Practicalities." Universität Rostock, Aspects of American Culture Lecture Series, Rostock, Germany, June 2008.

"Women, U.S. Social Policy, and the Dynamics of Reform and Reaction." Universität Leipzig, 2008 Leipzig-Fulbright Lecture Series, Leipzig, Germany June 2008.

"Teaching in Europe" Panel presentation, Fulbright Annual Meeting, Berlin, April 2008.

GRANTS

Pennsylvania Department of Community and Economic Development grant, Voter Turnout Archive Project, with the Allegheny College Center for Political Participation, 2006-2007.

Project Pericles course grant recipient, Allegheny College, May 2007, Washington, D.C. course, Civic Engagement in the College Classroom.

Project Pericles course grant recipient, Allegheny College, Spring 2007, Civic Engagement in the College Classroom.

Project Pericles course grant recipient, Allegheny College, Spring 2006, Civic Engagement in the College Classroom.

Dissertation Support Grant, Center for Information and Research on Civic Learning and Engagement (CIRCLE), Civics Education K-12 research, 2004-2005.

Ph.D. Fellowships, School of Public Policy, University of Maryland, 2002-2003 and 2004-2005.

Tuition Scholarships, McAnulty College and Graduate School of Liberal Arts, Duquesne University, 1999-2000.

INSTITUTIONAL SERVICE

Chair, Undergraduate Curriculum Committee, School of Public Affairs, Arizona State University, 2011-2012

Founding Member, Institutional Assessment Committee, Allegheny College, 2008-2009

Advisor for Allegheny College students participating in Carnegie Mellon University "3-2" Public Policy program, 2005-2009

Advisor, Allegheny College Democrats, 2005-2007

Advisor, Allegheny College chapter of Pi Sigma Alpha Honorary Association, 2006-2007

PROFESSIONAL ACTIVITIES

Conference moderator, Joint Statistical Meetings, 2019.

"Perspectives on Homelessness and the Community." Event moderator and organizer, Arizona Heritage Center, July, 2019.

Reviewer: Public Integrity, 2004; Political Behavior, 2009; Journal of Urban Affairs, 2012; and PLOS 2020.

Fulbright Peer Reviewer, 2008, 2009, 2010.

Conference Discussant, Midwest Political Science Association annual meeting, Chicago, April 2006.

Contributing Editor, Journal of Public and International Affairs, 2004.

Graduate Center for Social and Public Policy Recruitment Committee member, (student member of faculty committee), Duquesne University, 1999-2000.

OTHER PROFESSIONAL EXPERIENCE

Field Representative

U.S. Representative Mike Doyle, PA-18, 2001-2002.

Social Worker, Guardianship Department

Ursuline Services, Inc., Pittsburgh, 1997-1998.

Staff Accountant

Kaplan Sipos & Associates, CPA's, Pittsburgh, 1996-1997.

ADVISORY BOARD and NONPROFIT BOARD MEMBERSHIPS

Hootology Advisory Board member, 2022 to present.

Proof Analytics Senior Advisor, 2017 to present.

City of Scottsdale Short Term Rental Working Group community member, 2021.

Morrison Institute Child Welfare Leadership Advisory Board, 2017 to present.

Arizona's Violent Death Reporting System Advisory Board, 2014 to present.

Maricopa Area of Governments Continuum of Care Regional Committee on Homelessness, Performance Standards and Data Quality Workgroup, 2015 to 2016.

Maricopa Area of Governments Continuum of Care Regional Committee on Homelessness, 2014 to 2015.

Arizona Fulbright Association Board of Directors, 2014 to 2015.

Lodestar Day Resource Center and Human Services Campus Board of Directors, 2010 to 2017.

VOLUNTEER EXPERIENCE

Chief Science Officer Mentor

Arizona Technology Council, 2019 to 2022.

Big Brothers Big Sisters

Big Sister, 2017 to 2018.

Ride for Life organizer

Cystic Fibrosis Foundation – Phoenix, AZ Chapter, 2015 to present.

American Friend - Refugee Volunteer

International Rescue Committee (IRC), Phoenix, AZ, 2011 to 2012.

Math Tutor

Boys Hope Girls Hope, Phoenix, AZ, 2009 to 2010.

Public Policy Graduate Student Advisor

Dinwiddie Street Block Club, Pittsburgh, 1999.

Legislative Volunteer

Pennsylvania Coalition Against Domestic Violence, Harrisburg, 1999.

Hotline Shift Supervisor

Women's Center and Shelter of Greater Pittsburgh, 1996-1998.

"Sister to Sister Summit" Facilitator

American Association of University Women / Girl Scouts, Pittsburgh, 1998.

AWARDS

Alliance for Innovation's Innovation Academy graduate, 2015.

Faculty Associate Teaching Award, School of Public Affairs, Arizona State University, 2010-2011 Aspen Institute Wye Fellow, 2007

MEMBERSHIPS

American Statistical Association

American Council on Germany Caucus for Women in Statistics Arizona Evaluation Association Andrew Tyler Broadway 151 Windstone Drive Columbia, SC 29212

EXPERT REPORT

I. Materials Reviewed

- a. Correspondence from Mr. Stelly to Sirwanda Hall from the U.S. Equal Employment Opportunity Commission
- b. John Stelly's Deposition
- c. Lamar Davis's Deposition
- d. 30(b)6 State of Louisiana, through Major Robert A Burns
- e. Stelly Subpoena Duces Tecum LSPC response
- f. LSPC Supplemental Production
- g. Student Workbook Operational Leadership Lieutenant
- h. Second Amended Complaint and Jury Demand
- i. Data From Discovery LSP
- j. Kovacs Expert Report
- k. P.O. 229 Promotions

II. Introduction and Scope of Engagement

- a. I have been engaged to provide independent expert statistical opinions on LT Stelly's claim of race discrimination against Louisiana State Police (case Stelly v LSP, USDC, Eastern District of Louisiana, Civil Action # 23-772).
- b. More specifically I have been asked to do the following:
 - i. Review promotion records of the Louisiana State Police to investigate allegations of racially discriminatory promotion practices.
- c. This report summarizes my opinions based on the data provided to me.
- d. All of the opinions expressed in this document are opinions I genuinely hold and would be willing to testify to in open court under oath.
- e. I reserve the right to supplement or modify this report later based on additional information provided or discovered during proceedings.

III. Simplified Methodology and Statistical Information

- **a.** For my main analysis I simply looked at captain promotional panels where there was a choice to promote a Black officer over a White officer. I took the number of police lieutenants of each race who had applied for captain and how many were promoted and compared the rates of promotion.
- **b.** Statistical tests, in simple terms, determine when there's a difference between two or more things, whether we can say that the difference is probably not due to random chance.

- c. Two common ways to detect a difference are tied together, a standard deviation calculates how far something deviates from what is expected, and a p-value calculates the probability of it. A confidence interval tells a range of how likely a data set is to repeat 95% of the time.
- d. When data is normally distributed, the typical standard for declaring there to be a difference is a standard deviation of 1.96, often rounded up to 2, which is roughly equivalent of a P-value below 0.05.
- e. There were 53 lieutenants eligible for promotion to captain who attended panels that had Black and White officers as choices for promotion from 09-26-17 through 10-04-21. 75% of Black officers who applied for a captain position were promoted and about 21% of White officers who applied were promoted. Black officers were three and a half times as likely to be promoted than White officers.

IV. Detailed Methodology and Statistical Information

- a. The main statistical measure being used in this document is relative risk ratio (RR), which is an intuitive and widely used metric within data sciences. In the context of this lawsuit, we calculate this by simply finding the probability of promotion among one racial group and the probability of promotion among another racial group and then dividing these probabilities. If the ratio is significantly greater than 1, we would consider the probability of promotion to be increased on the basis of race and if the ratio is 1, we would view race as having no bearing on the probability of promotion. As a hypothetical example, let us imagine a situation where in a company, there are 100 Black employees and 20 Asian employees. There are 20 promotions, and 10 Black employees are chosen as well as 10 Asian employees. The promotions are even, but the probability of being promoted while a Black employee is 10/100 or 10% and the probability of being promoted as an Asian employee is 10/20 or 50%. As 50%/10% is an RR of 5, we can interpret this as "In this company, promotion among Asian employees are 5 times as likely as promotions among Black employees."
- b. When making a conclusion about whether a ratio is different than 1, it's important to consider statistical significance. Within statistics the default to comparisons between groups is to assume that there's no meaningful differences, this is called a null hypothesis. A test statistic is used to determine whether there is enough evidence of a difference to reject the null hypothesis. In most conventional analysis, we would consider a test statistic with a p-value below 0.05. Based on the size of the data, Fisher's Exact Test is an ideal statistical test for our data. Fisher's Exact Test requires stronger evidence than other similar statistical tests such as the Chi-Square test. In a situation where a Chi Squared P Value might be 0.04 and meet the threshold for statistical significance, the same analysis with Fisher's exact test might have a P value of 0.06 and not meet the threshold for statistical significance. Another method I use to determine statistical significance is called a confidence interval. A 95% confidence interval is commonly used in medical and social sciences, and the basic principle is that if you were to resample and redo the analysis 100 times, you would expect to see a range of results 95 out of 100 times, so that only

- 5% of the time would you expect to see anything outside of this range. For example, with a 95% confidence interval between 1.5 RR and 4.5 RR of promotions by race, you would expect to see significantly elevated rates of promotion ranging between a 50% increase and a 350% increase 95% of the time. A confidence interval is significant if the range does not include an RR of 1. For example, an RR between 0.8 RR and 3.5 RR would not be significant.
- c. For my main analysis, I only included panels where racial discrimination was plausible to demonstrate, such as panels where at least one White and one non-White candidate were applicants. Including panels that involved only one racial group would not be defensible for this analysis, as the panel would have no other options but to promote a candidate of that racial group. I approached whether there was racial discrimination in promotion to captain, in two different ways: 1. Comparing the rates of White versus non-White candidate promotion, 2. Rates of White versus Black candidate promotion. My primary analysis revolves around White versus Black promotion, but all possibilities were considered and all options have similar results. I took all candidates who applied for a promotion to Captain rank, sorted them by whether they were promoted or not, and removed earlier panel applications so that only one record was retained for each officer.
- d. During 09-26-17 through 10-04-21, 53 lieutenants in Louisiana State Police applied for 18 captain position openings that had both White and Black candidates. Among these 53, 38 are White, 12 are Black, 2 are Asian, and 1 is Native American. Of these, 8 White officers, 9 Black officers, and 1 Asian officer were promoted. From there I compared the rates of promotion by racial groups for my main analysis. As a secondary analysis, I looked at the 39 officers in LT Stelly's promotion panels, of whom 26 are White officers, 10 are Black officers, 2 are Asian and 1 is Native American.

V. Confounding

- a. PO229 is a Louisiana state police policy that states the promotion panels will review the data pertinent to the candidate officer's promotion. Confounding is a term that is used to describe when there are multiple factors potentially contributing to an outcome. In this case the defense might argue that that Black certified candidates were more qualified than White certified candidates which led to the difference in rates of promotions, and that needs to be addressed.
- **b.** I had complete information for promotional exam scores for all certified candidates and complete information on other factors for the 39 officers in the panels Lt. Stelly applied for. For all promotion factors, I took the certified candidates with the top 25% highest qualifications and compared them to the rest.
- c. Promotional exam scores: I considered qualified applicant with a promotional exam authorized by the commission for promotion to captain. I considered a certified candidates with a test score of 87 or above to be a top candidate, and anyone below 87 to be a lower consideration candidate. The results for this showed no differences. Black certified candidates did not have higher test scores than White certified candidates (Fisher's P=1.0)

- and certified candidates with higher test scores were not more likely to be promoted (Fisher's P=1.0). Recall that we consider a smaller P value to be more statistically significant, with the least statistically significant result possible being P=1.0. Captain test scores had no bearing on promotion.
- **d.** Awards: I considered certified candidates with 15 awards or above to be a top certified candidates and anyone below 15 awards to be a lower consideration certified candidate. Black certified candidates did not have higher numbers of awards than White certified candidates (Fisher's P =0.717), and certified candidates with more awards were not more likely to promoted (Fisher's P =0.502) than certified candidates with lower numbers of awards. Having a higher number of awards did not measurably affect promotion.
- **e.** Education: I considered any certified candidates with the equivalent of a college education or above to be a top certified candidates and an officer with less education to be a lower consideration certified candidate. Black certified candidates were not more educated than White certified candidates (Fisher's P = 0.119) and more educated certified candidates were not more likely to be promoted (Fisher's P = 0.297).
- f. Disciplinary Records: I considered any certified candidates with no disciplinary action to be a top candidate and an officer with any disciplinary action to be a lower consideration candidate. Black certified candidates did not have more clean disciplinary records than White certified candidates (Fisher's P = 0.231) and certified candidates with no disciplinary action were not more likely to be promoted (Fisher's P = 0.301) than certified candidates with disciplinary action.
- g. Years of Service: I considered any certified candidates with more than 25.4 years of service to be a top certified candidates and anyone below that to be a lower consideration certified candidate. Black certified candidates did not have more years of service than White certified candidates (Fisher's P = 1.0). Having more years of service in the police did not affect promotion (Fisher's P = 0.0596.)
- h. Time In Grade: I considered any certified candidates with more than 10 years of service to be a top candidate and anyone below that to be a lower consideration certified candidate. Black certified candidates did not have more time in grade than White certified candidates (Fisher's P =1.0). Having more years of time in grade as a lieutenant was not associated with promotion (Fisher's P =1.0) than having less time in grade.
- i. Performance evaluation score: Black certified candidates did not have better performance evaluation scores than White certified candidates (Fisher's P = 0.0759) and having better evaluation scores did not affect promotion (Fisher's P = 1.0).
- j. Prior Law Enforcement Experience: I considered any certified candidates with more than 3.68 years of prior experience to be a top certified candidates and anyone below that to be a lower consideration certified candidate. Black certified candidates did not have more prior law enforcement experience than White certified candidates (Fisher's P = 0.39) and prior law enforcement experience did not affect promotion (Fisher's P = 0.68).

- **k.** Prior Military Experience: This data was only present for 11 certified candidates and was not usable.
- **I.** There is no evidence that any of the above factors described in PO229 had any effect on promotional choices.

VI. OPINIONS

- a. OPINION 1: The data shows that the Black certified candidates were promoted 3.56 times as often as the White certified candidates at the captain rank in panels that had Black certified candidates as a choice.
 - Black certified candidates were 3.56 times (95% CI 1.77-7.15, Fisher's P = 0.0012) as likely as White certified candidates to be promoted to Captain. This means a Black certified candidate was 256% more likely to be promoted to captain than a White certified candidate. We are 95% confident that Black certified candidates were promoted between 77% and 615% more than White certified candidates. This result was statistically significant as the p-value from the Fisher's exact test is below 0.05 and because the confidence interval does not include 1. Such a large disparity would occur by chance less than 5% of the time.
- b. OPINION 2: The data shows that the non-White certified candidates were promoted 3.17 times as often as the White certified candidates at the captain rank in panels that had Black officers as a choice.
 - Non-White certified candidates were 3.17 times (95% CI 1.55-6.45, Fisher's P= 0.0031) as likely as White certified candidates to be promoted to Captain. This means a non-White certified candidate was 217% more likely to be promoted to captain than a White certified candidate. We are 95% confident that non-White certified candidates were promoted between a 55% and 545% more than White certified candidates. This result was statistically significant as the p-value from the Fisher's exact test is below 0.05 and the confidence interval does not include one. Such a large disparity would occur by chance less than 5% of the time.
- c. OPINION 3: The data shows that among LT Stelly's captain rank panels that had Black certified candidates as a choice, Black certified candidates in were promoted 3.03 times as often as the White certified candidates.
 - Black officers were 3.03 times (95% CI 1.35-6.82, Fisher's P= 0.0178) as likely as White officers to be promoted to Captain. This means a Black certified candidate in LT Stelly's panel was 203% more likely to be promoted to captain than a White certified candidate. We are 95% confident that Black certified candidates were promoted between a 35% and 582% more than White certified candidates. This result was statistically significant as the p-value from the Fisher's exact test is below 0.05 and the confidence interval excludes 1. Such a large disparity rate would occur by chance less than 5% of the time.
- d. OPINION 4: The data shows that Black certified candidates did not have better promotional exam scores than White certified candidates (Fisher's P=1.0), and that

- promotional exam scores were not a factor contributing to promotions (Fisher's P=1.0) at the captain rank in panels that had Black certified candidates as a choice.
- e. OPINION 5: The data shows that in LT Stelly's captain rank panels, no other merit-based factors for promotion, including awards, evaluation scores, education, disciplinary records, years of service, time-in grade or prior law enforcement experience, were higher among Black certified candidates, nor contributed to increased likelihood of promotion at the captain rank in panels that had Black certified candidates as a choice.
- f. OPINION 6: Given these findings, that the race of the certified eligible candidate was consistently the statistically significant factor in promotion, and given that no merit-based explanation for the differences in promotion were statistically significant, I conclude that racial discrimination is the most likely factor in promoting certified candidates to captain in the LSP, in this period of 09-26-17 through 10-04-21.

VII. Response to Kovac's Report.

In this section of the report, I will address comments about my analysis written by Kovacs.

Kovacs asserts that my analysis was not pooled and therefore violates independence. This is incorrect, and the confusion may be due to slight differences in how methodology is worded between different academic fields. Like her analysis, mine is also pooled, there is only one record retained for each candidate, the officer's name, their race, the factors that may or may not have contributed to promotion, whether they were eventually promoted or not, and I merged rank and demographic information for the panel that they were applying for. The same officer is not counted in the analysis twice and my analysis does not violate independence assumptions.

The primary difference between her analysis and my own is that I isolated captain rank candidates, and she included every officer promotion throughout the entire agency. There are three problems with her approach:

1. Kovacs does not isolate her analysis to the captain rank, yet still makes conclusions on the captain rank. In this data there are over 700 officers who were candidates for promotion over the 4-year period. Only 73 officers were eligible for promotion to a captain rank during this 4-year period or 10.3% of the overall sample. 89.7% of officers included in her analysis were never candidates for promotion to captain, so she cannot make conclusions on the 10.3% of captain candidates without doing analysis on them specifically, as promotional behaviors may be different at higher ranks than lower ones. To use an analogy, imagine we were looking at the faculty and staff ages in a middle school. If 90% of the data we have is on students and 10% is on staff, and the students average age is 12 years old, and the staff's average age is 40 years old, then the average person in this middle school would be about 15 years old. We cannot use that average to assume that the staff is also 15 years old, that would be nonsensical, staff needs to be considered separately. Similarly, Kovacs cannot use her race/promotion results from the broader

- police data to make conclusions on captain rank promotions, she must analyze captain rank promotions separately.
- 2. The process of pooling data results in losing data. Early on in my analysis I considered looking at every promotion rank in the same way that Kovacs did. There's a major problem with it, which is that multiple individual officers are promoted more than once through the data. An officer who is promoted from Sergeant to Lieutenant on the first year of the data and then promoted to Captain at the third or fourth year can only be present in a pooled analysis as either a captain candidate or lieutenant candidate, not both. This is not a small issue when it comes to analysis of the captain rank, a large portion of the captain candidates have low time in grade, so if you start with the full sample and then pool everyone you will nearly halve your sample compared with if you start captain rank and then pool.
- 3. Kovacs argues later in her report that excluding candidates whose only interviews were in panels that had one race is biased and not justifiable. Looking at a smaller portion of a larger group to better answer a research question, is a practice called an inclusion criteria, and it happens in most modern research. A study on women's ovarian health would not include men, or women who have had their ovaries removed, the only possibility for them is to have no ovarian problems as they lack the physical capacity to develop ovarian problems. It would be silly and bias the analysis towards the conclusion that there are no ovarian issues. Similarly, a Louisiana state police panel consisting of only candidates of one race cannot result in the interviewers making a racially discriminatory promotion decision.

VIII. Lamar Davis Panels.

As a tertiary analysis I conducted an examination of Lamar Davis's promotional panels from the year he was involved in promotional panels, and used the same methodology above from my main analysis. Four captain rank panels he was involved in had both Black certified candidates and White certified candidates, with a total of 16 certified candidates. Of these certified candidates, 10 were White, 2 were Asian and 4 were Black. Among 6 non-White certified candidates, 4 of the 6, or 66% were promoted, and among the 10 White certified candidates, 0 of the 10 were promoted. I do not have a relative risk estimate for this, as 66% divided by zero is undefined. However, Fisher's exact test does not require a White candidate to be promoted to discern a statistically significant difference. With a small sample of 16 officers, it simply has to be wildly disproportionate to be significant. The Fisher's P value for this difference is 0.0082, meaning that there's statistically significant evidence that Davis's captain promotion panels highly favored Black certified candidates, as evidence that he did not voluntarily promote any White certified candidates when given an option.

Andrew Tyler Broadway does hereby state the following: In accordance with Rule 26 of the Federal Rules of Civil Procedure, I do hereby state the following:

I have authored one publication within the preceding 4 years:

Use of a cascade strategy to infer chronic Hepatitis C follow-up within an infectious disease surveillance system. BMC Proceedings 2023, 17(Suppl 19):P3

I expect to be compensated for my work according to my standard fee schedule, which is \$350 per hour, with the exception of depositions, for which my standard rate is \$420 an hour.

I have not testified as an expert at trial and/or been deposed within the preceding four (4) years.

I attach my curriculum vitae below.

Andrew Tyler Broadway

May 31, 2024

Andrew Tyler Broadway

Date

Andrew Tyler Broadway, MSPH, BA

Professional and Business History

SC DHEC, Maternal and Child Health Epidemiologist, July 2023 to Present

SC DHEC, Infectious Disease Biostatistician, July 2019 to July 2023

SC DHEC, Opioid Epidemic Epidemiologist, October 2018 to July 2019

SC DHEC, Chronic Disease Epidemiology Graduate Assistant, March 2017 to August 2017

Education

Master of Science in Public Health Epidemiology, December 2018

Bachelor of Arts in Public Health with Research Distinction, May 2016

Range of Experience

Mr. Broadway has a wide variety of interests and experience within public health and has had professional or academic experience with opioid use disorder, injury, hospitalization, vaccinations, diabetes, veteran affairs, depression, maternal and infant health, infectious disease, rural health, lived experiences, and racial health disparities.

Mr. Broadway has personal and professional experience in statistical concepts including, but not limited to, data analysis, data management, descriptive statistics, linear regression, regression diagnostics, survey analysis, probability, logistic regression, statistical confounding, and statistical methodology.

John Ray Stelly II vs. State of Louisiana CIVIL ACTION NO. 2:23-cv-00772 Eastern District of Louisiana United States District Court

Amended Report of Statistical Analysis of the Use of Race in the Promotions to Captain by LSP

John Stelly II, B.S. in Mathematics, B.S. in Computer Science, M.S. in Mathematics

May 31, 2024

The task of this report is to determine by statistical analysis if race was a factor that Louisiana State Police (LSP) used in selecting lieutenants for promotion to captain. Since my submitting my last expert report in this matter on 01-19-24, LSP submitted more documents in response to both my then still pending and my additional requests for production of documents in support of my claim that the LSP discriminated against me because of my race by promoting black and non-white candidates over me to captain despite their being much less qualified than me. This report serves to both supplement my original report and further analyze the totality of all data that LSP has submitted thus far.

This Amended Report concludes that large racial disparities exhibited in LSP's promotions to captain from 09-26-17 through 10-04-21 would occur by chance less than 5% of the time. These disparities were adverse to me because I applied for captain 18 times from 09-26-17 through 10-04-21, and the LSP Commission qualified me as eligible all 18 times. As a white lieutenant on those 18 panels, I competed against non-white candidates 17 times (94.4%) and against black candidates 13 times (72.2%).

Materials reviewed

- 1. LSP's position statement on Stelly's EEOC complaint.
- 2. Stelly's response to LSP's position statement.

- Stelly's second amended complaint (USDC, Eastern District of Louisiana, Civil Action 23-722).
- 4. Documents Stelly received via subpoena from the LSP Commission.
- 5. Documents Stelly received from LSP via requests for production of documents.
- 6. Documents Stelly received from public records requests.
- 7. Reports of Melissa Kovacs, LSP's statistical expert.
- 8. Reports of Tyler Broadway, Stelly's statistical expert.
- 9. Deposition of LSP COL Lamar Davis.
- 10. Deposition of John Stelly.
- 11. 30(b)(6) deposition of LSP.

Assumptions and observations

1. Selection criteria for determining which panels conducted from 09-26-17 through 10-04-21 should be analyzed.

This first issue to resolve is choosing the sets of candidates that best allow the fairest calculations of indicators that show the extent of racially discriminatory promotional practices. Choosing otherwise is obviously suboptimal.

To that end, the first option would be to choose all candidate panels. In particular, this choice would consider all panels from 09-26-17 through 10-04-21. Such a choice would include promotions to sergeant, lieutenant, and captain. Analysis of data based on that choice would investigate whether promotional decisions (to any of those ranks) during this time frame were generally made in a racially discriminatory manner. Although affirmative evidence from such an analysis would indicate racially discriminatory promotional practices were generally afoot, negative evidence would not imply that racially discriminatory promotional practices were not afoot at any particular level. For example, even rampant racially discriminatory promotional practices to captain could be easily obscured by non-racially discriminatory promotional practices to sergeant and lieutenant because of the much smaller number of promotions to captain. Therefore, the most appropriate slates of panels of candidates to analyze to determine whether captain promotions were made in a racially discriminatory manner would be only those slates of candidates who were competing for a captain position.

Another consideration would be whether all slates of candidates competing for captain should be analyzed or just some subset thereof. Basic observation of the captain panels reveals that some of the panels were composed of only white candidates. LSP rules require that the promotee for any position be chosen from only the list of qualified candidates who applied for that position. For example, suppose that all candidates for a

particular position were only white. Then including that panel in the final data set would taint the analysis because LSP had no choice over the race of the candidate it would choose to promote to captain from that panel. So, in addition to restricting analysis to only captain panels, only panels that permitted LSP to make racially discriminatory promotion decisions should be included in the data set to be analyzed to determine whether LSP acted in a racially discriminatory manner in making those promotions.

For any particular promotion, including those for captain, the LSP promotion system considers only qualified candidates who are presumptively eligible for promotion with eligibility being established by having sufficient experience as a lieutenant, completing all necessary leadership courses, passing a written promotional exam, timely applying for the desired promotion, and scoring in the top grade groups of fellow lieutenants who also applied for the same position. Therefore, the LSP promotion system itself when combined with the above panel restrictions facilitates a comparison of the demographics of lieutenants promoted to captain from a qualified pool of lieutenants eligible for promotion and thereby allows inferences about racial discrimination in those promotions.

I categorize members of the captain panels in two ways: black / non-black and non-white / white. The black / non-black categorization considers all candidates of only those captain panels at least one of whose candidates was black. Similarly, the non-white / white categorization considers all candidates of only those captain panels at least one of whose candidates was non-white. Of course, these divisions do not preclude the analysis of subcategories, for example analyzing white candidate promotions under the black / non-black categorization.

2. Methodologies.

My initial report analyzed captain promotional data under two methods. The first method assumed the data was binomially distributed. As previously mentioned, to satisfy the binomial constraint of the constant success rate of black (non-white) candidates being promoted, I used the average proportion of black (non-white) candidates across all panels that contained at least one black (non-white) candidate as the constant success rate. I found this a reasonable approximation given that black, non-white, non-black, and white candidates should be assumed to be generally equally qualified. Furthermore, to satisfy the binomial constraint that panel compositions be independent of each other, I noted that not only did I include for analysis only captain panels with at least one black (non-white) candidate regardless whether I was a candidate, all eligible lieutenants, regardless of race, were free to apply for any open

captain position regardless whether they applied for another previous position. In other words, relative to my analysis in my EEOC rebuttal to LSP's position statement, I eliminated any dependence potentially induced by restricting panels to only those for which I applied, and I further bolstered independence by observing that despite not being promoted, individuals of all races sometimes chose to apply for a later open position but sometimes chose not to apply.

My second method employed Monte Carlo simulations. In each simulation, the promotee was chosen uniformly in proportion to the racial makeup of each panel. For example, suppose a ten-candidate panel contained seven white candidates, two black candidates, and one Asian candidate. Then for each black / non-black simulation, the probability of choosing a black candidate to promote was 20% and the probability of choosing a non-black candidate to promote was 80%. Similarly, for each non-white / white simulation, the probability of choosing a non-white candidate to promote was 30% and the probability of choosing a white candidate to promote was 70%. These simulations were run 100,000 times under each scenario. This method obviously eliminated the constant success rate requirement of the binomial method and further bolstered independence of racial proportions between panels.

This report partly summarizes the results of my previous report and adds some further analysis, specifically relative risk calculations. For the relative risk calculations, I composed the list of all lieutenants who applied and were certified eligible for promotion to captain. Of course, this list contained only those lieutenants who were on a panel with at least one black (non-white) lieutenant. I then deduplicated that list by retaining only each lieutenant's last such record which contained his name, his race, and his promotional status. For lieutenants who were promoted to captain, their promotional status was recorded as positive; for lieutenants who were never promoted to captain, their promotional status was recorded as negative. My relative risk calculations are consistent with Broadway's.

Relative risk for two categories was then the ratio of the probabilities of promotion from within those categories. For example, if the categories were Black and Non-black, then the relative risk R associated with those two categories would be $R = \frac{b/B}{n/N}$ where b is the number of black candidates promoted, B is the total number of black candidates, n is the number of non-black candidates promoted, and N is the total number of non-black candidates. The closer R is to 1, the stronger the indication that racial discrimination

was not afoot. On the other hand, the farther R is from 1, the stronger the indication that racial discrimination was afoot.

As a numeric example, suppose that 9 of 10 black candidates were promoted and 10 of 40 non-black candidates were promoted. Superficial inspection of this scenario would show that more non-black candidates were promoted compared to black candidates, thereby refuting claims of racial discrimination. However, this is a specious conclusion because 90% of all black candidates were promoted but only 25% of all non-black candidates were promoted despite that non-black candidates out-numbered black candidates four-to-one. Relative risk quantifies this level of disparity. Here, the relative risk would be $R = \frac{9/10}{10/40} = \frac{18}{5} = 3.60$. The interpretation of 3.60 would be that black candidates were 3.60 times more likely to be promoted than non-black candidates. On the other hand, had 4 of 10 black candidates been promoted and 15 of 40 non-black candidates been promoted, then $R = \frac{4/10}{15/40} = \frac{16}{15} = 1.07$, meaning black candidates were barely more likely to be promoted than non-black candidates. Certainly, the significance of the 260% better chance of a black candidate being promoted with R = 3.60 dwarfs any significance of the trivial 7% better chance of a black candidate being promoted with R = 1.07.

The three sets of analyses below all exhibit gross statistical disparities between promotion rates of both white and non-black candidates to captain versus both non-white and black candidates. Specifically, white and non-black candidates experienced statistically significant lower rates of promotion to captain. In analyzing those rates, the various measures compare the number of minority candidates promoted to captain against the number of minority candidates that statistically should have been promoted to captain in the absence of any discrimination. These measures show that the numbers of minority candidates who were promoted to captain were statistically greater than the number of minority candidates expected to receive promotion to captain despite the insistence of COL Lamar Davis, LSP Superintendent from 10-30-20 through 01-08-24 who is black, that he did not have a policy to increase diversity. In his report, Broadway showed that objective criteria like promotional exam score and factors enumerated in LSP PO 229 / Promotions, eg years of service, time-in-grade as lieutenant, discipline, awards, and education, had no bearing on the actual promotional choice, leaving effectively only subjective criteria to establish those choices.

3. Analysis of captain panels conducted from 09-26-17 through 10-29-20.

From 09-26-17 through 10-29-20, COL Kevin Reeves conducted 14 captain panels whose candidates included at least one black candidate. Reeves promoted 6 black candidates and 8 non-black candidates.

Binomial analysis.

- On average, black candidates composed 19.0% of each panel and nonblack candidates composed 81.0% of each panel.
- o The most probable number of black candidates to be promoted was 2.
- o P(2 B, 12 NB) = 0.262 and P(6 B, 8 NB) = 0.026.
- LSP's promoting 6 black and 8 non-black candidates as it did was 9.99
 times less probable than promoting 2 black and 12 non-black candidates.
- LSP's promoting 6 black and 8 non-black candidates as it did was 2.27 standard deviations above expectation.
- Black candidates were 3.20 times more likely to be promoted than nonblack candidates.
- \circ This is statistically significant at the 95% confidence level (p = 0.0350).

• Relative Risk analysis.

- o 6 / 9 (66.7%) of all black candidates were promoted.
- o 8 / 35 (22.9%) of all white candidates were promoted.
- o 8 / 38 (21.1%) of all non-black candidates were promoted.
- o 6 / 14 (42.9%) of all promotions went to black candidates.
- o 8 / 14 (57.1%) of all promotions went to white candidates.
- o 8 / 14 (57.1%) of all promotions went to non-black candidates.
- o 9 / 47 (19.2%) of all candidates were black.
- o 35 / 47 (74.5%) of all candidates were white.
- o 38 / 47 (80.9%) of all candidates were non-black.
- Black candidates were 2.92 times more likely to be promoted than white candidates.
- Black candidates were 3.17 times more likely to be promoted than nonblack candidates.
- \circ This is statistically significant at the 95% confidence level (p = 0.0134).

From 09-26-17 through 10-29-20, COL Kevin Reeves conducted 15 captain panels whose candidates included at least one non-white candidate. Reeves promoted 6 non-white candidates and 9 white candidates.

Binomial analysis.

- On average, non-white candidates composed 28.0% of each panel and white candidates composed 72.0% of each panel.
- The most probable number of non-white candidates to be promoted was
 4.
- o P(4 NW, 11 W) = 0.226 and P(6 NW, 9 W) = 0.126.
- LSP's promoting 6 non-white and 9 white candidates as it did was 1.80 times less probable than promoting 4 non-white and 11 white candidates.
- LSP's promoting 6 non-white and 9 white candidates as it did was 1.03 standard deviations above expectation.
- Non-white candidates were 1.71 times more likely to be promoted than white candidates.

Relative Risk analysis.

- o 6 / 12 (50.0%) of all non-white candidates were promoted.
- o 9 / 36 (25.0%) of all white candidates were promoted.
- o 6 / 15 (40.0%) of all promotions went to non-white candidates.
- o 9 / 15 (60.0%) of all promotions went to white candidates.
- o 12 / 48 (25.0%) of all candidates were non-white.
- o 36 / 48 (75.0%) of all candidates were white.
- Non-white candidates were 2.00 times more likely to be promoted than white candidates.
- \circ This is statistically significant at the 85% confidence level (p = 0.1057)

4. Analysis of captain panels conducted from 10-30-20 through 10-04-21.

From 10-30-20 through 10-04-21, COL Lamar Davis conducted 4 captain panels whose candidates included at least one black candidate. Davis promoted 3 black candidates, 1 Asian candidate, and 0 white candidates.

• Binomial analysis.

- On average, black candidates composed 20.3% of each panel and nonblack candidates composed 79.7% of each panel.
- The most probable number of black candidates to be promoted was 1.
- \circ P(1 B, 3 NB) = 0.411 and P(3 B, 1 NB) = 0.027.
- LSP's promoting 3 black and 1 non-black candidates as it did was 15.46 times less probable than promoting 1 black and 3 non-black candidates.
- LSP's promoting 3 black and 1 non-black candidates as it did was 2.72 standard deviations above expectation.

- Black candidates were 11.79 times more likely to be promoted than nonblack candidates.
- \circ This is statistically significant at the 95% confidence level (p = 0.0283).

Relative Risk analysis.

- o 3 / 4 (75.0%) of all black candidates were promoted.
- \circ 0 / 10 (0.0%) of all white candidates were promoted.
- o 1 / 12 (8.3%) of all non-black candidates were promoted.
- o 3 / 4 (75.0%) of all promotions went to black candidates.
- \circ 0 / 4 (0.0%) of all promotions went to white candidates.
- o 1 / 4 (25.0%) of all promotions went to non-black candidates.
- o 4 / 16 (25.0%) of all candidates were black.
- o 10 / 16 (62.5%) of all candidates were white.
- o 12 / 16 (75.0%) of all candidates were non-black.
- Black candidates were infinitely more likely to be promoted than white candidates (since no white candidates were promoted).
- Black candidates were 9.00 times more likely to be promoted than nonblack candidates.
- \circ This is statistically significant at the 95% confidence level (p = 0.0269).

From 10-30-20 through 10-04-21, COL Lamar Davis conducted 10 captain panels whose candidates included at least one non-white candidate. Davis promoted 4 non-white candidates and 6 white candidates.

Binomial analysis.

- On average, non-white candidates composed 25.1% of each panel and white candidates composed 74.9% of each panel.
- The most probable number of non-white candidates to be promoted was
 2.
- \circ P(2 NW, 8 W) = 0.281 and P(4 NW, 6 W) = 0.147.
- LSP's promoting 4 non-white and 6 white candidates as it did was 1.92 times less probable than promoting 2 non-white and 8 white candidates.
- LSP's promoting 4 non-white and 6 white candidates as it did was 1.09 standard deviations above expectation.
- Non-white candidates were 1.99 times more likely to be promoted than white candidates.

• Relative Risk analysis.

- o 4 / 6 (66.7%) of all non-white candidates were promoted.
- o 6 / 21 (28.6%) of all white candidates were promoted.

- 4 / 10 (40.0%) of all promotions went to non-white candidates.
- \circ 6 / 10 (60.0%) of all promotions went to white candidates.
- o 6 / 27 (22.2%) of all candidates were non-white.
- o 21 / 27 (77.8%) of all candidates were white.
- Non-white candidates were 2.33 times more likely to be promoted than white candidates.
- \circ This is statistically significant at the 85% confidence level (p = 0.1117)

5. Analysis of captain panels conducted from 09-26-17 through 10-04-21.

From 09-26-17 through 10-04-21, LSP conducted 18 captain panels whose candidates included at least one black candidate. LSP promoted 9 black candidates, 1 Asian candidate, and 8 white candidates.

Binomial analysis.

- On average, black candidates composed 19.3% of each panel and nonblack candidates composed 80.7% of each panel.
- The most probable number of black candidates to be promoted was 3.
- o P(3 B, 15 NB) = 0.235 and P(9 B, 9 NB) = 0.003.
- LSP's promoting 9 black and 9 non-black candidates as it did was 90.00 times less probable than promoting 3 black and 15 non-black candidates.
- LSP's promoting 9 black and 9 non-black candidates as it did was 3.30 standard deviations above expectation.
- \circ This is statistically significant at the 99% confidence level (p = 0.0033).
- Black candidates were 4.18 times more likely to be promoted than nonblack candidates.

Monte Carlo analysis.

- The probability of LSP's selecting 9 black candidates and 9 non-black candidates for promotion as it did was approximately 0.0024.
- The probability of alternatively selecting 3 black candidates and 15 nonblack candidates for promotion was approximately 0.2359.
- The probability of alternatively selecting 4 black candidates and 14 nonblack candidates for promotion was approximately 0.2156.
- LSP's actual scenario was about 100 times less probable than the most likely scenario and about 91 times less probable than the second most likely scenario.

Relative Risk analysis.

o 9 / 12 (75.0%) of all black candidates were promoted.

- o 8 / 38 (21.1%) of all white candidates were promoted.
- o 9 / 41 (22.0%) of all non-black candidates were promoted.
- o 9 / 18 (50.0%) of all promotions went to black candidates.
- o 8 / 18 (44.4%) of all promotions went to white candidates.
- o 9 / 18 (50.0%) of all promotions went to non-black candidates.
- o 12 / 53 (22.6%) of all candidates were black.
- o 38 / 53 (71.7%) of all candidates were white.
- o 41 / 53 (77.4%) of all candidates were non-black.
- Black candidates were 3.56 times more likely to be promoted than white candidates.
- Black candidates were 3.42 times more likely to be promoted than nonblack candidates.
- \circ This is statistically significant at the 95% confidence level (p = 0.0013).
- As a more concrete example, suppose that a bag contains 12 marbles all painted with B (for black) and 41 marbles all painted with NB (for non-black). Make 18 blind picks from the bag without returning the chosen marble each time. This is a hypergeometric distribution. What is the probability of choosing 9 B marbles and 9 NB marbles? Answer about 0.0012, or 0.12%, which is 3.38 standard deviations beyond the most probable answer of 4 B marbles and 14 NB marbles which has probability about 0.2700, or 27.00%. In other words, choosing 4 B and 14 NB is about 226.3 times more probable than 9 B and 9 NB, which corresponds to LSP's chosen promotion scenario.
- \circ To appreciate how unlikely LSP's chosen promotion scenario is, Figure 1 is a plot of the probabilities of each (b,n) scenario, where b is the number of black promotees and n is the number of non-black promotees. LSP's scenario is in red above (9,9) in Figure 1. (This bar is barely visible because it is so small.)

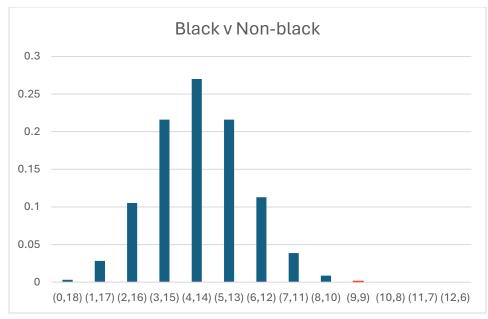


Figure 1.

From 09-26-17 through 10-04-21, LSP conducted 25 captain panels whose candidates included at least one non-white candidate. LSP promoted 10 non-white candidates and 15 white candidates.

Binomial analysis.

- On average, non-white candidates composed 26.9% of each panel and white candidates composed 73.1% of each panel.
- The most probable number of non-white candidates to be promoted was6.
- P(6 NW, 19 W) = 0.175 and P(10 NW, 15 W) = 0.058.
- LSP's promoting 10 non-white and 15 white candidates as it did was 2.99 times less probable than promoting 6 non-white and 19 white candidates.
- LSP's promoting 10 non-white and 15 white candidates as it did was 1.48 standard deviations above expectation.
- \circ This is statistically significant at the 85% confidence level (p = 0.1068).
- Non-white candidates were 1.82 times more likely to be promoted than white candidates.

Monte Carlo analysis.

- The probability of LSP's selecting 10 non-white candidates and 15 white candidates for promotion as it did was approximately 0.0583.
- The probability of alternatively selecting 7 non-white candidates and 18 white candidates for promotion was approximately 0.1785.

- The probability of alternatively selecting 6 non-white candidates and 19 white candidates for promotion was approximately 0.1770.
- LSP's actual scenario was about 3.06 times less probable than the most likely scenario and about 3.04 times less probable than the second most likely scenario.
- Relative Risk analysis.
 - o 10 / 15 (66.7%) of all non-white candidates were promoted.
 - o 15 / 47 (31.9%) of all white candidates were promoted.
 - o 10 / 25 (40.0%) of all promotions went to non-white candidates.
 - o 15 / 25 (60.0%) of all promotions went to white candidates.
 - o 15 / 62 (24.2%) of all candidates were non-white.
 - o 47 / 62 (75.8%) of all candidates were white.
 - Non-white candidates were 2.09 times more likely to be promoted than white candidates.
 - \circ This is statistically significant at the 95% confidence level (p = 0.0189).
 - As a more concrete example, suppose that a bag contains 15 marbles all painted with NW (for non-white) and 47 marbles all painted with W (for white). Make 25 blind picks from the bag without returning the chosen marble each time. This is a hypergeometric distribution. What is the probability of choosing 10 NW marbles and 15 W marbles? Answer about 0.0153, or 1.53%, which is 2.37 standard deviations beyond the most probable answer of 6 NW marbles and 19 W marbles which has probability about 0.2368, or 23.68%. In other words, choosing 6 NW and 19 W is about 15.5 times more probable than 10 NW and 15 W, which corresponds to LSP's chosen promotion scenario.
 - O To appreciate how unlikely LSP's chosen promotion scenario is, Figure 2 is a plot of the probabilities of each (n, w) scenario, where n is the number of non-white promotees and w is the number of white promotees. LSP's scenario is in red above (10,15) in Figure 2.

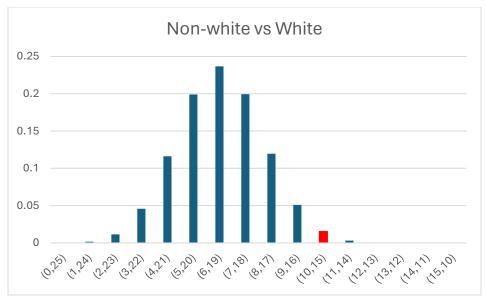


Figure 2.

Errors in the report by Kovacs, LSP's expert

LSP submitted an expert report by Melissa Kovacs, Ph.D. To fairly evaluate Kovacs' methodology, I attempted to organize the data in a manner that would result in the same values as she lists in her Tables 1 and 2. The only method I discovered resulting in almost identical values was to de-duplicate based solely on the applicant names once the list of all sergeant, lieutenant, and captain applicants was put in reverse chronological order. Kovacs' analysis suffers from several issues regardless whether she used the de-duplication of the reversed list methodology.

First, my complaint covers from 09-26-17 through 10-04-21. I chose 10-04-21 as the ending date of my complaint because, due to my experiences of discrimination from 09-06-17 through 10-04-21, on 10-05-21, I formally requested retirement – an irrevocable decision – on 12-17-21. This was after the LSP Commission found me eligible at least 32 times for promotion to captain but LSP rejected me for promotion every one of those times despite among other things my receiving the highest rating on my last 17 annual evaluations, my supervisors' repeated endorsements for my promotion, my extended formal education, my always receiving the highest promotional exam scores of my competitors, my greater experience as a lieutenant and an executive officer especially against those chosen for promotion, my supplementary training, and my co-developing and teaching LSP's leadership program that it still uses today. In her *Summary of Opinion* section, Kovacs wrote

there is no difference between the proportions of white and black personnel who were promoted to captain between September 26, 2017 through January 25, 2022 (emphasis

added) in this matter, and no difference between the proportions of white and non-white personnel who were promoted to captain during this same time period in this matter.

Second, in contrast to her above wording in her *Summary of Opinion* section, in her *Analysis Approach* section, Kovacs wrote

I examined whether there is a difference in the proportion of white personnel who are promoted compared to black personnel, and the proportion of white personnel who are promoted compared to non-white personnel.

In her subsequent comments, Kovacs actually provided her analysis of the differences in the overall proportions of white vs black promotees and in the overall proportions of white vs non-white promotees. On the other hand, Kovacs offered no analysis of any particular level of promotions in specific. In particular, Kovacs offered no analysis of promotions to captain in specific. In support of my interpretation of Kovacs' analysis, I note that she reported that approximately 240 people were promoted but did not specify the ranks to which those approximately 240 people were promoted. However, LSP did not promote approximately 240 people to captain but only 37 people from 09-26-17 through 01-25-22 and only 32 people from 09-26-17 through 10-04-21. Kovacs based all of her numerical analyses on these approximately 240 promotions without regard for rank and thusly are inapplicable to captain promotions specifically. Therefore, all conclusions that Kovacs made about captain promotions are clearly unsupported. In particular, Kovacs' *Summary of Opinion* is unsupported as is her similarly worded ending conclusion in light of her providing absolutely no analysis of captain promotions specifically.

From another perspective, Kovacs' chosen data organization would restrict her analysis to allow her to render opinions on only whether LSP's promotions to sergeant, lieutenant, and captain were in general made in racially discriminatory manner. In other words, her choosing not to separate out promotions at each level precludes her from being able to opine whether LSP's promotions at any of the sergeant, lieutenant, or captain levels in particular exhibited evidence of having been made in a racially discriminatory manner. For example, Kovacs' chosen data organization would obscure even hypothetically grossly rampant racially discriminatory promotional practices at the captain level against hypothetically non-discriminatory promotional practices at the lieutenant and sergeant levels because the sub-population of captain-level promotions was smaller than lieutenant-level promotions and much smaller than sergeant-level promotions. Making such a distinction in this analysis is crucial because my complaint was specifically aimed at practices of promotions to the captain rank. By blending promotions to sergeant, lieutenant, and captain together, Kovacs diluted and artificially reduced the power and applicability of her analysis of promotions to the captain rank. Moreover,

Kovacs' report was completely silent on any measure of racial discrimination in awarding captain promotions specifically. Nevertheless, without any captain-specific analysis, Kovacs somehow concluded that there is no difference between the proportions of white and black personnel who were promoted to captain and no difference between the proportions of white and non-white personnel who were promoted to captain.

Third, Kovacs made no effort to isolate from consideration all panels in which LSP could not have made a racially discriminatory promotional decision because all candidates in those panels were of one race. In fact, Kovacs expressly included in her calculations panels in which LSP could not have made a racially discriminatory decision, thereby artificially decreasing both her measure of LSP's use race in promotions and the applicability of that measure. Kovacs analyzed black / white and non-white / white promotion rates only in a global sense. Further, Kovacs' inclusion of LSP's choosing white candidates on panels with all white candidates artificially increased LSP's white and non-black candidate promotion rates and artificially decreased LSP's black and non-white promotion rates. In other words, Kovacs effectively credited LSP for choosing white candidates on panels all of whose candidates were white. Most disturbingly, under Kovacs' reasoning, conducting enough panels with only white candidates and therefore promoting enough white candidates could "cure" even hypothetically blatant discrimination of always *de facto* choosing black candidates on all panels at least one of whose candidates was black.

In short, Kovacs' holistic methodology for selecting which records to include for analysis of indicators of racial discrimination does little to facilitate a fair analysis, especially relative to my complaint of racial discrimination in captain promotions. In particular, Kovacs' argument is akin to concluding that because the majority of American companies do not pollute the environment, then no sector is more likely to pollute the environment than any other sector. Such an argument and any consequent conclusions are obviously fatally invalid.

As for her critique of my report, I note that she erroneously interpreted my binomial analysis as being based on the identity of promotional candidates. If that were true, then her dependence argument would have some merit. However, my binomial analysis was instead based on the average proportion of black or non-white candidates on each panel irrespective of the identity of any candidate.

Conclusions

Binomial, Monte Carlo, and Relative Risk methodologies all consistently indicate the presence of racial discrimination in captain-level promotional decisions during COL Reeves' administration individually, COL Davis' administration individually, and from 09-06-17 through 10-04-21 which covered time during both their administrations.

All indicators above showed partiality to black and non-white lieutenants in comparison to their non-black and white counterparts when competing for promotion to captain.

Multiple indicators above conclude that large racial disparities favoring black and non-white candidates over non-black and white candidates in LSP's promotions to captain from 09-26-17 through 10-04-21 would occur by chance less than 5% of the time. These large disparities in promotion of black vs non-black and non-white vs white lieutenants to captain show that there was race discrimination in the LSP promotion system.

/s/John Ray Stelly II

05-31-24

In accordance with Rule 26 of the Federal Rules of Civil Procedure, I do hereby state the following:

I co-authored one publication within the preceding ten (10) years. That publication is a chapter on uncertainty in the textbook *Traffic Crash Reconstruction*, 3rd edition that is scheduled to be published in 2024. (This is the textbook that Northwestern University, Center for Public Safety uses in the traffic reconstruction courses that I teach for them.)

I have not testified as an expert at trial within the preceding four (4) years.

Other than for this case, I have not been deposed within the preceding four (4) years.

John Ray Stelly II

Professional and Business History

PreCrash, LLC, Founder, May 2022 to present
Northwestern University, Center for Public Safety, June 2021 to present
Louisiana State Police, January 1995 to December 2021
University of New Orleans, Mathematics Department, May 1993 to December 1994

Education

Master of Science, Mathematics, University of New Orleans (May 1993)

Bachelor of Science, Computer Science, Magna Cum Laude, University of New Orleans (December 1991)

Bachelor of Science, Mathematics, Magna Cum Laude, University of New Orleans (May 1990)

Range of Experience

Stelly's experience includes application of various areas of general mathematics, programming in various computer languages, and consulting.

Qualifications

Co-author of Uncertainty chapter, *Traffic Accident Reconstruction*, 3rd edition. To be published 2024.

Personal

Stelly has served as the editor of Northwestern University, Center for Public Safety's *Traffic Crash Reconstruction*, 3rd edition since May 2022.

Stelly has been accredited by the Accreditation Commission for Traffic Accident Reconstruction, ACTAR.org, as a crash reconstructionist since January 2022.

Stelly is a member of the National Association of Professional Accident Reconstruction Specialists, NAPARS.org.

Stelly is a member of the Society of Automotive Engineers, SAE.org.

Stelly has been an adjunct instructor for crash investigation and reconstruction for Northwestern University, Center for Public Safety since June 2021.

Stelly served as the secretary and treasurer of the charitable non-profit Troop B Children's Grant A Wish Foundation from its founding in 1997 until around his retirement from Louisiana State Police in December 2021.

Stelly served as a faculty member of the Mathematics Department of the University of New Orleans from May 1993 through December 1994.

UNITED STATES DISTRICT COURT EASTERN DISTRICT OF LOUISIANA

JOHN R. STELLY, II, * CIVIL ACTION NO. 2:23-cv-00772

Plaintiff, *

* JUDGE GREG G. GUIDRY

Versus *

*

STATE OF LOUISIANA, THROUGH, * MAGISTRATE JUDGE DEPARTMENT OF PUBLIC SAFETY * JANIS VAN MEERVELD

AND SORRECTIONS, OFFICE OF *
STATE POLICE, *
Defendant. *

NOTICE OF SUBMISSION

PLEASE TAKE NOTICE that the Submission Date for Plaintiff John Stelly, II's Motion *In Limine* To Strike Defendant's Expert Witness and to Exclude her Expert Report is hereby set for submission before the Honorable Greg G. Guidry, United States District court for the Eastern District of Louisiana, on Wednesday, July 3, 2024, at 10:00 a.m.

Respectfully submitted,

/s/Victor R. Farrugia VICTOR R. FARRUGIA (#19324)

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Labor Law Specialist and Employment Law Specialist Certified by the Louisiana Board Of Legal Specialization

CERTIFICATE OF SERVICE

I hereby certify that a copy of the above and foregoing has been electronically filed with the Clerk of Court using the CM/ECF system which will send notice of electronic FILING to all counsel of record this this 18th day of June 2024.

/s/ Victor R. Farrugia VICTOR R. FARRUGIA