

The Elephant in our Analyses: Sensitivity Bias and Survey Research in the Middle East and North Africa

Ammar Shamaileh

Doha Institute for Graduate Studies

With the relatively recent development of large survey datasets like the Arab Barometer and the Arab Opinion Index, we have witnessed a significant increase in the amount of research exploring public opinion and political behavior in the Middle East and North Africa (MENA).¹ Such resources have proven to be valuable to the field, allowing easy access to data for researchers to use in exploring various theories and phenomena related to the politics of the region. While the work that has been produced has helped answer a number of important questions, there are significant hurdles associated with conducting analyses of such data. Perhaps the most daunting challenge is finding a way to overcome sensitivity bias induced by preference falsification due to fear and social desirability.² Despite some important research addressing sensitivity bias, the overarching issues persists.³ Not enough has been done to properly explore and produce solutions to these problems within the MENA politics community.

Much of the work we produce relies on items collected in authoritarian environments related to topics such as government approval, religious devotion and political beliefs, yet many of our studies do little to problematize the potential bias introduced into the data. All too often, we neglect to adequately deal with or acknowledge the potential threats to our inferences caused by sensitivity bias while working with such questions.⁴ Whether the distortions in the data are introduced by social desirability bias or strategic preference falsification, they are potentially severe and should not be ignored or dealt with superficially.

Although the problems associated with sensitivity bias may not be unique to the Middle East and North Africa, the prevalence of authoritarian regimes in the region make survey research a particularly difficult task.⁵ Estimating the overall degree of sensitivity bias may provide us with

¹ Benstead, Lindsay J. "Survey research in the Arab world: Challenges and opportunities." *PS: Political Science & Politics* 51, no. 3 (2018): 535-542; Jamal, Amaney, and Mark Tessler. "The democracy barometers (Part II): Attitudes in the Arab world." *Journal of Democracy* 19, no. 1 (2008): 97-111; El Kurd, Dana. "Creating a State Capacity Index Using the Arab: Opinion Index." *AlMuntaqa* 1, no. 1 (2018): 100-105.

² Kuran, Timur. *Private Truths, Public Lies*. Cambridge, MA: Harvard University Press, 1997; Berinsky, Adam J. "Political context and the survey response: The dynamics of racial policy opinion." *Journal of Politics* 64, no. 2 (2002): 567-584; Shamaileh, Ammar. "Never out of now: Preference falsification, social capital and the Arab Spring." *International Interactions* 45, no. 6 (2019): 949-975.

³ Benstead, Lindsay J. "Effects of interviewer–respondent gender interaction on attitudes toward women and politics: Findings from Morocco." *International Journal of Public Opinion Research* 26, no. 3 (2014): 369-383; Corstange, Daniel. "Sensitive questions, truthful answers? Modeling the list experiment with LISTIT." *Political Analysis* 17, no. 1 (2009): 45-63

⁴ If this statement is to be interpreted as an indictment of survey research in our field, it should be made clear that much of the thought expended on this issue was related to reflection upon my own work.

⁵ Benstead, Lindsay J. "Survey research"; Blair, Graeme, Alexander Coppock, and Margaret Moor. "When to worry about sensitivity bias: A social reference theory and evidence from 30 years of list experiments." *American Political Science Review* 114, no. 4 (2020): 1297-1315.

some guidance as to whether we can draw descriptive inferences from the data and a rough proxy for how it could affect our analyses. However, it may be just as critical for scholars to understand patterns of response biases in the societies they study when examining relationships between variables. It is for this reason that I argue we should be more cognizant of the threats to inferences drawn from our analyses due to sensitivity bias, acknowledge the sources of such potential bias, and work to further develop tools that help us deal with this issue.

A Brief Simulation

To demonstrate the importance of concerns associated with sensitivity bias, I conducted a simple simulation analysis. To enhance the readability of this short piece, I will sacrifice some precision and technical details in my discussion of the results.⁶

In the simulation, there is a population of one million simulated individuals who are characterized by two core dimensions, whether they: 1) oppose the regime or not; and, 2) belong to the majority or minority group. Twenty five percent of the population belongs to the minority group. Among those who belong to the majority group, forty percent oppose the regime; and, among individuals in the minority group, fifty percent oppose the regime. Note that for analyses of observational data and survey experiments in political science, this represents a fairly typical, if not somewhat large, effect size: Members of the minority group are twenty five percent more likely to oppose the regime than members of the majority group.

Members of this population possess true preferences that can be expressed truthfully or hidden. Their true preferences are the same as their expressed preferences when they face no consequences associated with expressing opposition, but when regime coercion induces fear, some opponents of the regime hide their true preferences. In each of the simulation analyses below, I examine the ability to detect the relationship between minority status and opposition to the regime as we vary the proportion of individuals falsifying their preferences.⁷ For these analyses, I run two-proportions z-tests,⁸ and examine our estimated statistical power and the difference in proportions indicating that they oppose the regime. Moreover, while there are a number of ways in which patterns of preference falsification can influence the results, I will focus here on two simple scenarios. The first explores preference falsification that is proportionally distributed between groups, and the second examines patterns of preference falsification that are uneven.

Sensitivity Bias when All Opponents are Equally Likely to Falsify Preferences

One might wonder whether sensitivity bias matters much when the explanatory variable is uncorrelated with preference falsification and we are testing a relational hypothesis. In this simulation, there are six alternative universes where zero, five, ten, twenty, thirty, forty and fifty percent of individuals who oppose the regime falsify their preferences. The probability that any individual opponent of the regime falsifies her preference when asked if they oppose the regime is essentially equal for both minority and majority groups. It should be noted that this would be a very strong and often violated assumption. Nevertheless, even if we were to assume that

⁶ Contact the author if you would like further details regarding the simulation analyses.

⁷ 1000 simulations were conducted where I drew samples of 2000 individuals from the population.

⁸ This was conducted with Yates' continuity correction.

preference falsification is uncorrelated with the independent variable, and such an assumption is reasonable, a number of issues can arise.

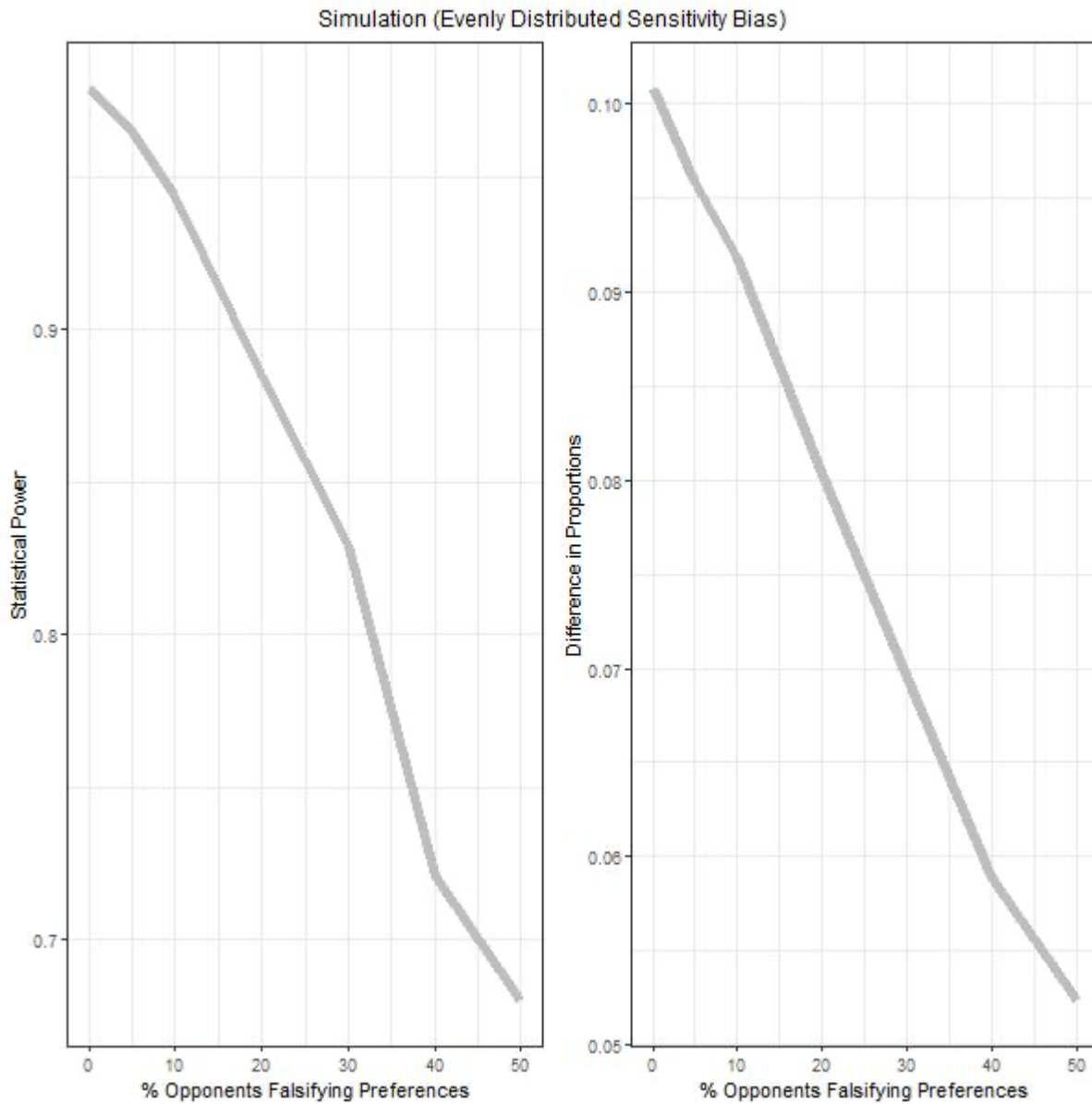


Figure 1

Figure 1 presents the results of the simulation analysis where preference falsification is distributed proportionally by group. Given that the proportion of individuals who oppose the regime is greater among members of the minority than the majority, as preference falsification increases, the proportion opposing the regime decreases at a faster rate for the minority group. This reduces the estimated effect size, leading to lower average estimates of differences between the groups. In turn, the reduced estimated effect size decreases our statistical power and ability to detect that the effect is positive. In this particular analysis, when approximately 33% of those who oppose the regime falsify their preferences, statistical power falls below the commonly used

80% threshold. While this may appear to be a relatively large amount of preference falsification, it only represents approximately 14% of respondents falsifying their preferences and falls within the range we would expect in authoritarian regimes.⁹ In addition to increases in failures to reject the null, for any given sample drawn from the population, the likelihood that the predicted direction of the correlation is in the opposite direction is increasing in the amount of preference falsification. We should always be more likely to see the result point in the correct direction when the probability of preference falsification is not correlated with group membership, yet preference falsification increases the probability that an analysis of a randomly drawn sample points in the wrong direction. One of the core implications of these findings is that analyses of statistical power should factor in preference falsification when determining the appropriate estimated effect size to use for sample size calculations.

Heterogeneity in Sensitivity Bias

While preference falsification that is evenly distributed across groups creates hurdles that may be difficult to overcome when testing relational hypotheses, the more problematic situation is when members of certain groups falsify preferences at a higher rate than others. In this second set of simulations, assume that the minority group, which opposes the regime at a higher rate, is targeted by the regime's coercive apparatus. For the sake of simplicity, also assume that members of the majority group do not fear repression when expressing opposition to the regime. As such, for this analysis, preference falsification is always set to zero percent for the majority group and varies among the minority group at the same rates as in the previous simulation.

⁹ Blair, Graeme, Alexander Coppock, and Margaret Moor. "When to worry."

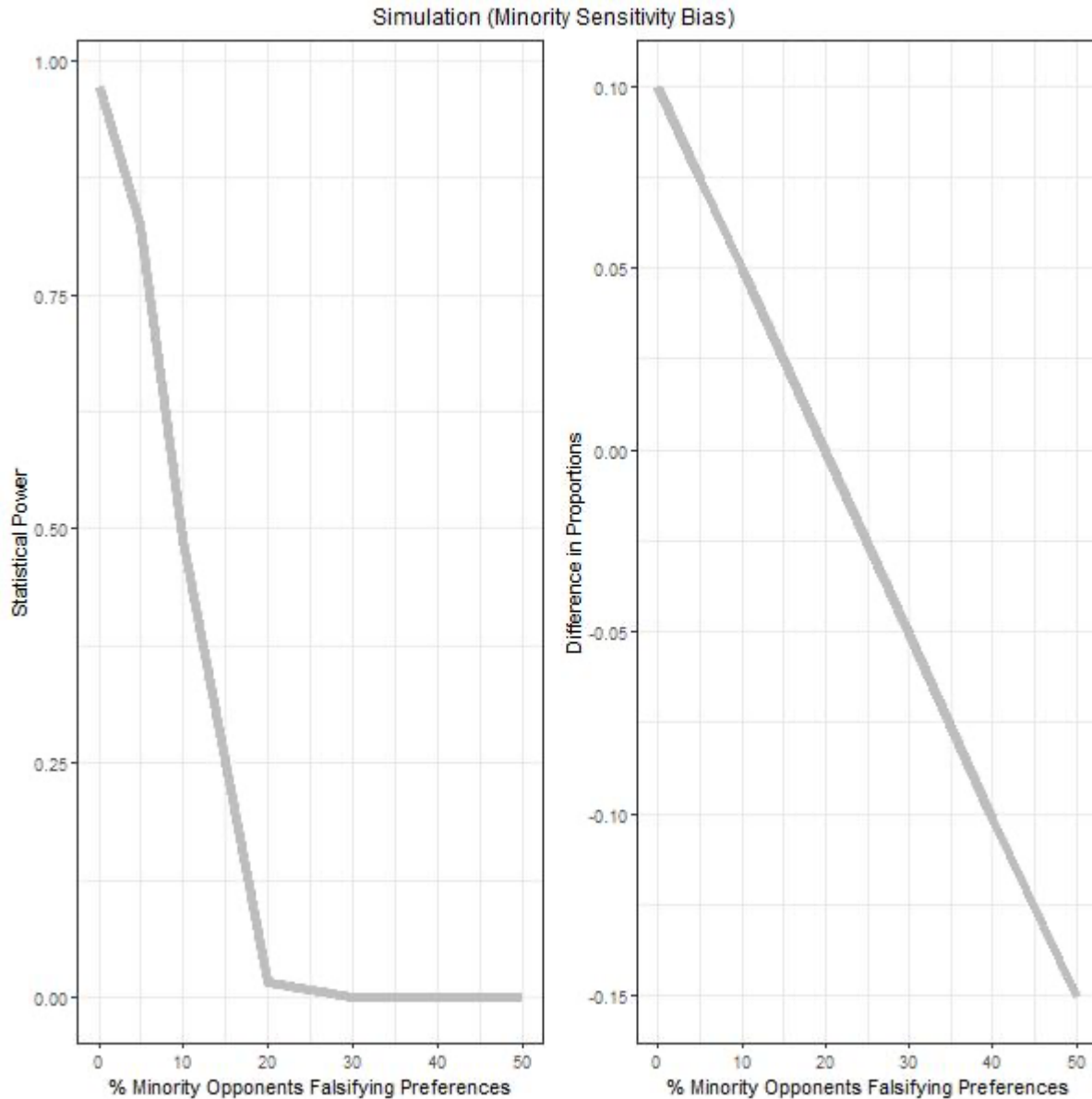


Figure 2

When preference falsification is concentrated in the group that is more likely to hold attitudes that are perceived as costly, not only does it make it more difficult to test the directional hypothesis, but the sign of the estimate will flip at sufficiently high levels of preference falsification. *Figure 2* presents the results of the second simulation analysis. With 10% of individuals in the minority group who oppose the regime falsifying their preferences, the statistical power of a single sample¹⁰ will be 50%. When 20% of the relevant subgroup falsifies their preferences, any sample drawn randomly from the population is more likely to show that members of the minority group are less likely to oppose the regime. It is important to note that

¹⁰ $n = 2000$

the overall falsification rate for the simulated population is relatively low at this threshold with only approximately 2.5% of the population falsifying their preferences. Thus, even a low falsification rate can drastically affect the results produced by an analysis when it is a segment of the population that is driving the results.

Of course, were the falsification to occur primarily among the group that is more likely to favor the response acceptable by the regime, we would expect significant overestimations of the effect size. Perhaps more importantly, where the true preferences of different groups are similar, but one group is more likely to respond strategically or face higher social costs for responding in a particular manner, the results produced by an analysis that is ostensibly testing differences in the preferences of the groups may simply be capturing the differences in the sensitivity of the question posed to these subpopulations. It is for these reasons, among others, that researchers utilizing survey data should give significant thought to the potential patterns of sensitivity bias that may be exhibited within the population.

Dealing with Sensitivity Bias

No aspect of what is presented in this piece is revolutionary or even particularly novel. The problems associated with sensitivity bias, particularly in relation to surveys conducted in the MENA region, have long been discussed. However, there has been a tendency for such issues to be set aside when we begin constructing our analyses and discussing our results. The goal of this piece is to highlight the seriousness of the issue and call attention to some of the nuances of sensitivity bias that have not been discussed enough.

At the moment, there is no simple solution to this problem. While multidimensional item response theory offers a promising potential framework for dealing with preference falsification, there are numerous hurdles associated with identifying viable items to incorporate into such analyses. While traditional solutions such as list experiments can be useful, they are no panacea and cannot always be conducted to capture each sensitive item asked in a survey.¹¹ Moreover, while rough proxies for preference falsification can at times be constructed from standard questions, such attempts are likely to be highly stylized and rooted in a particular context.

Given the abundance of work conducted by MENA experts that relies on survey data and the problems associated with sensitivity bias in many countries in the region, the field should be at the forefront of exploring how we can better capture preference falsification or creatively capture an individual's actual preferences. Until such solutions are produced, it is imperative that researchers that use sensitive questions in their analyses at least think through the nature and likely sources of sensitivity bias by capitalizing on their substantive and regional expertise. As the simulation analyses demonstrate, contemplating how high the overall degree of sensitivity bias is in a state is not sufficient. The patterns of falsification by survey respondents and their relationship to the variables of interest are potentially of greater interest when examining the relationship between variables.

¹¹ Corstange, Daniel. "Sensitive questions, truthful answers? Modeling the list experiment with LISTIT." *Political Analysis* 17, no. 1 (2009); Kuhn, Patrick M., and Nick Vivyan. "The misreporting trade-off between list experiments and direct questions in practice: Partition validation evidence from two countries." *Political Analysis* (2021): 1-22.