Gustavo Diaz
Kenneth Taylor Hall 527
1280 Main Street West
Hamilton, ON Canada
diazg2@mcmaster.ca
gustavodiaz.org
+1 217 904 0581

October 30, 2023

Dear Members of the Search Committee,

I write to express my interest in your call for an Assistant Professor in Computational Analysis of Political Data. I am a postdoctoral fellow in Advanced Statistical, Causal Inference, and Computational Methodologies in the Department of Political Science at McMaster University. I received my PhD from the Department of Political Science at the University of Illinois at Urbana-Champaign under the supervision of Jake Bowers, Matt Winters, Gisela Sin, and Avital Livny.

My research develops standards to navigate research design tradeoffs in the social sciences, with emphasis on computational social science and design-based causal inference. I apply these ideas to questions about the challenges to accountability, governance, and representation in the Global South. My work is published in outlets including *World Development*, the *Journal of Experimental Political Science*, *The SAGE Handbook of Research Methods in Political Science and International Relations*, and is under **revise and resubmit** at the *British Journal of Political Science*.

My research agenda focuses on developing tools that researchers can adopt to improve statistical precision before data collection. This is overlooked in the statistics, econometrics, and political methodology literature in favor of identifying unbiased estimators. Implicitly, this literature assumes that one can improve statistical precision by increasing sample size. This is not feasible in many political science applications due to resource limitations. Moreover, resource considerations aside, even the least intrusive study has an ethical mandate to identify a research design that maximizes benefits and minimizes harm at the lowest possible cost.

Focusing on field and survey experiments, this agenda follows two strands. First, I examine cases where one can improve statistical precision without sacrificing unbiasedness, which implies unforeseen costs in other dimensions. For example, in work under review with Erin Rossiter (Notre Dame), we show how implementing alternatives to the standard experimental design, such as pre-post outcome measurement or block randomization, may attenuate the expected gains in precision via explicit or implicit sample loss. In a solo-authored piece accepted at the *Journal of Experimental Political Science*, I introduce new tools to assess the validity of estimates in double list experiments. This is a variant of the list experiment that promises more precise results but comes with under-explored questionnaire design com-

plications. In work in progress with Inés Fynn (Universidad Católica del Uruguay), Verónica Pérez Bentancur (Universidad de la República), and Lucía Tiscornia (University College Dublin), we show how to combine list experiments with network scale up questions to improve the precision of prevalence rate estimates for sensitive attitudes and behaviors at the cost one additional assumption.

The second strand focuses on cases where one can improve precision by sacrificing unbiasedness deliberately. For example, in work in progress with Jake Bowers (Illinois) and Christopher Grady (USAID), we discuss the circumstances under which researchers should prefer biased yet precise estimators to analyze experimental data, including applications to block-randomization and M-estimation. In a *SAGE Handbook* chapter with Christopher Grady and Jim Kuklinski (Illinois), we discuss the merits and challenges of increasingly complex survey experimental designs that improve precision at the cost of external validity bias.

My teaching focuses on making quantitative methods accessible to diverse audiences through a combination of flexibility and accountability. I have experience teaching courses on quantitative methods and comparative politics. At McMaster, I teach data analysis for public policy and public opinion. At Tulane, I taught a seminar on evidence-informed policy to address social and political challenges in developing democracies. Both courses emphasize experimental and quasi-experimental designs, and I plan to expand them to include applications to machine learning and data science in the future. At Illinois, I served as a teaching assistant for statistics courses at the undergraduate and PhD levels using a flipped classroom approach. I also served as a math camp instructor for incoming graduate students for three consecutive years. I also have experience teaching introduction to comparative politics in a hybrid format and an online course on the politics of developing countries.

My involvement beyond the classroom also complements my teaching and mentoring. My work as the methods editorial assistant for the *American Political Science Review* gives me the opportunity to shape and influence the development and application of cutting-edge methods in the field. As a PhD student at Illinois, I started a collaborative project in which graduate students introduced their peers to new methods and organized a reading group on computational social science.

I am prepared to teach courses on statistics, statistical programming, causal inference, computational social science, machine learning, and their application to politics and society in the Global South. You can find copies of current and sample syllabi in my website.

I believe my expertise makes me an excellent fit at Laval. I have previous experience as a student in a french-speaking university, which means I will be ready to engage in teaching and mentorship in accordance to the university's language policy in a timely manner. If you have any questions, you can contact me via email or phone.

Sincerely,

Gustavo Diaz
Postdoctoral Fellow
McMaster University