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Dear Members of the Search Committee,

I write to express my interest in your call for an Open Rank Professorship in Computational Social Science. I am a postdoctoral fellow in Advanced Statistical, Causal Inference, and Computational Methodologies in the Department of Political Science at McMaster University. I specialize in comparative politics and quantitative methods. 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 postdoc work involves building a machine learning text analysis pipeline to understand methodological patterns in academic citations in the social sciences. My research uses tools from computational social science and design-based causal inference to develop standards to navigate research design tradeoffs in the social sciences. My contributions are informed by my substantive work on the challenges to accountability and representation in low to middle income countries. My work is published or forthcoming in outlets including *World Development*, the *Journal of Experimental Political Science*, and *The SAGE Handbook of Research Methods in Political Science and International Relations*.

My primary research agenda focuses on the practices that researchers can adopt to improve statistical precision before data collection. In a *SAGE Handbook* chapter with Christopher Grady (USAID) and Jim Kuklinski (Illinois), we discuss the merits and challenges of increasingly complex survey experimental designs that improve precision at the expense of ecological validity. In a solo-authored piece forthcoming in 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 complications. In a working paper with Jake Bowers (Illinois) and Christopher Grady, 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 work under review with Erin Rossiter (Notre Dame), we argue how the gains in precision from adopting good practices in experimental designs, such as block randomization or repeated measurement of outcomes, can be offset by explicit or implicit sample loss.

My methods work informs a substantive research program on the challenges to accountability and representation in the Global South. The core of this agenda is an original data collection effort in Brazil, combining text analysis and machine learning to construct the most comprehensive dataset of corruption infractions at the local level. This dataset informs several of my ongoing research projects. For example, in a solo-authored working paper, I argue that corruption revelation drives politicians in nearby municipalities to undertake preemptive behavior to ward off a negative reaction from their constituents. While previous literature suggests that partisans might react strategically

to anticipate sanctions when their political party is linked to corruption, my work shows that this behavior is even more widespread, and that politicians fear being caught in an electoral anti-corruption wave even when there is no evidence of their own wrong-doing.

I also maintain a research program on the gendered electoral consequences of investigating corruption with Kelly Senters Piazza (US Air Force Academy). In a forthcoming book chapter, we use my corruption infractions dataset to show how corruption revelation increases the proportion of female candidates running for mayor, but not their chances of winning elections. We attribute this to incumbents' incentives to counter the rise of female politicians. In another forthcoming chapter, we discuss the challenges and opportunities of different data sources to study gender and corruption.

This program extends toward the gendered evaluations of officeholders' performance in general. In a piece in *World Development*, we discuss how the COVID-19 pandemic can to promote female political representation through increased discontent with the performance of male-led executives and by priming a health policy issue commonly associated with women. In work under review with Virginia Oliveros (Tulane), Rebecca Weitz-Shapiro (Brown), and Matt Winters (Illinois), we use a survey experiment in Argentina to show gendered differential reactions to policy implementation.

My experience as a methodology and area studies postdoc at two separate institutions has given me the opportunity to teach courses in comparative politics and quantitative methods. At McMaster, I teach data analysis for public policy and public opinion. At Tulane, I taught introduction to comparative politics and a seminar on evidence-informed public policy to address social and political challenges in developing democracies. My work as the methods editorial assistant for the *American Political Science Review* also exposes me to the most current methods in the field, awareness of which I can incorporate into my teaching and mentoring.

In my time at Illinois, I served as a teaching assistant for statistics courses at the undergraduate and PhD levels using a flipped classroom approach. I served as a math camp instructor for incoming graduate students for three consecutive years and started a collaborative project in which graduate students introduced their peers to new methods. I also taught an online course on the politics of developing countries. These experiences have prepared me to teach to a diverse student body, to adapt to both online and in-person platforms, and to teach both the theory and application of research methods.

I am prepared to teach courses on computational social science, machine learning, data analysis and visualization, evidence informed public policy, and causal inference. You can find copies of current and sample syllabi in my website. As a first-generation scholar, my teaching philosophy emphasizes building skills for students with different backgrounds and career goals.

I believe my expertise makes me an excellent fit at Notre Dame. If you have any questions, you can contact me via email or phone.

Sincerely,

Gustavo Diaz
Postdoctoral Fellow
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McMaster University