Research Statement

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Overview of My Research Contributions

Political Methodology aims to improve statistical analysis in political science through developing and applying statistical methods that are tailored to the unique characteristics of political research. As a member of the Political Methodology community, my research covers two specific areas: (1) developing Bayesian statistical methods for measuring latent constructs and (2) improving the analysis of survey experiment.

Almost all political research relies on concepts that are only indirectly observable. Political ideology, for example, is a latent construct that is not directly measurable, but is inferred from observable behavior such as voting patterns or survey responses. To effectively utilize newly available data sources, such as text, image, and video data, one needs to summarize the information contained in these data into a low-dimensional representation. As new research topics and concepts emerge in the field and as the data sources become more diverse, the task of measurement becomes more important and challenging.

My research on Bayesian statistical models contributes to the political methodology literature on this issue. Bayesian models are particularly suitable for this task, because they allow for flexible modeling with a large number of parameters and combining different sources of information. However, researchers often face the questions of what the desired model structure is and how exactly multiple sources of information should be combined. Two of my papers, Shiraito et al. (2023) and Xiang and Shiraito (2025), address the issue of model specification in measuring ideology of politicians and voters and voting blocks within parties, respectively. In these papers, I develop methods to discover groups of individuals with similar latent structures and to estimate the latent constructs of individuals from their observed behavior, instead of assuming that a common understanding of latent constructs applies to everyone as in existing methods. On the other hand, in Bosley et al. (2025) and Kim et al. (2025), I propose methods for combining information from text and another source, human labeling and citations between documents, respectively. These papers enrich statistical text analysis in political science by providing new methods to use these other inputs in addition to text. I also add a hierarchical component to an existing measurement model for policy significance so that a region-specific political salience of presidential actions can be estimated in Goehring et al. (2025).

Survey experiment, experiment in which survey respondents are randomly assigned to manipulated survey questions, is now the standard tool for public opinion research. Political methodologists have made significant contributions to the design and analysis of survey experiments by inventing new designs and analysis methods that are suited to political science applications. Due to the wide variety of applications, however, how to address methodological issues that are known in other applications is not always obvious.

The second area of my research is to fill this gap. In Liu and Shiraito (2023), I draw the field's attention to one of such issues in one of the most widely used design in political science,

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conjoint analysis. Conjoint analysis allows researchers to estimate the effects of multiple factors, but statistically testing on multiple estimates is prone to false discoveries due to random chance. I show potential pitfalls of standard practices in the field and proposed how practitioners can avoid this problem. I advance the understanding of conjoint analysis in McClean and Shiraito (2025), which examines how survey respondents answer conjoint questions about candidates differently from their actual voting behavior and what exactly researchers can learn from the answers.

In addition to methodological research, I work on substantive research topics on citizens' political attitudes. I use survey experiments specifically in three different contexts: toward international institutions in democratic societies, toward political leaders under authoritarian regimes, and toward gender and immigration issues in Japan.

Scholars in international relations have shown that informing people of their government's violation of international law or an international organization's support for a policy can change their attitudes toward the government or the policy, but the aspect of the information that matters has yet to be disentangled. Kuzushima et al. (2024) contribute to this literature by showing that the public is moved because they prefer their government to abide by international legal obligations. Additionally, in Kuzushima et al. (2025), I show that an international organization can affect public opinion only when it is perceived as aligned with their country's interests. Both of these contributions are achieved by designing survey questions specifically for these research questions.

My contribution to the literature on authoritarian politics also relies on survey experiments. In authoritarian countries, citizens generally avoid expressing their political opinions in surveys, which makes it difficult to measure their political attitudes. In Higashijima and Shiraito (2025), I use the types of survey experiments called list and endorsement experiments to measure citizens' support for the *de jure* and *de fact* dictators in Kazakhstan. By doing so, the paper is able to show that citizens are more favorable to the *de jure* dictator than the *de fact* dictator, which is contrary to the conventional wisdom. In examining the effect of introducing multi-candidate elections at a local level, Higashijima et al. (2025) use double list experiment to elicit truthful answers to a question about bribing experience. The paper shows that the quality of local governance deteriorated by the local elections, again contrary to what the literature would expect.

My research also examine multiple underexplored aspects of public attitudes toward gender and immigration issues in Japan. Japan has the lowest ratio of female politicians and the lowest ratio of immigrants in the population among the industrialized democracies, but how citizens' perceive this situation is not fully understood. Liu et al. (2023) show that conservatism measured by preferences on policies unrelated to gender issues, rather than sexism measured by general prejudice against women, drives opposition against monarchical successions by women. Sonntag et al. (2024b) find that Japanese voters evaluate female and male candidates similarly on immigration policy positions. Finally, during the COVID-19 pandemic, I discovered that Japanese citizens uniformly opposed almost any entry of foreign nationals into the country (Sonntag et al., 2024a).

Note on Coauthorship.[1] All papers I list in this statement are coauthored. My role in most of these projects was either principal investigator (PI) or co-PI, and I was able to determine the author order of these papers. Although political science as a field has not yet established a clear convention on author order, I use the following general rules in my papers: (1) Graduate student coauthors are listed first, within which the order is determined by the amount of contribution to the paper unless it is noted that they contributed equally. (2) Among faculty coauthors, I am either (a) the last and corresponding author or (b) listed alphabetically (since my last name begins with "s", I have always been the last under this rule as well). There are two exceptions to this rule. In

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[1]This paragraph is added as instructed by "Policy and Procedures for Tenure and Promotion," the College of Literature, Sciences and the Arts, the University of Michigan.

Shiraito et al. (2023), I was the first and corresponding author. In Goehring et al. (2025), I am not the PI, and I followed the author order determined by the PI of this project.

Bayesian Models for Measuring Latent Constructs

In the literature on locating political actors in a continuous scale of political ideology, i.e., ideal point estimation, item response theory (IRT) models are workhorse models. However, differential item functioning, where different groups interpret or respond to items differently, can complicate comparisons. For example, when legislators propose a policy, voters without extensive political knowledge may see the same policy differently, in which case their preferences cannot be directly compared. An important challenge is to specify subsets of actors who share similar mappings from latent space to observed policy proposals. Shiraito et al. (2023) contributes to this literature by using a nonparametric Bayesian model to address unobserved heterogeneity in item response functions. It proposes the Multiple Policy Space (MPS) model, whose key innovation is to use a Dirichlet process mixture of item response functions so that the model discovers groups of individuals who share common item parameter values. Therefore, unlike conventional IRT models, the MPS model does not make the assumption of measurement invariance that individuals respond to policy proposals with an identical policy space in their mind. Moreover, the MPS model does not require the number of groups to be specified in advance. Applied to data on U.S. legislators and voters, this approach reveals that a substantial portion of voters may not share the same item parameters as legislators, impacting joint scaling analyses.

Another approach to estimating preferences of political actors is to find distinct groups of actors who share similar voting patterns. Even within a single party, legislators may have different policy preferences on certain issues that lead them to form coalitions with members of other parties who are not necessarily close on the ideological scale. When these coalitions change over time, it is important to understand when and how these changes occur. However, since coalitions that do not match party lines are often unrecorded and unstable, how many coalitions exist and how many times they change are hard to specify. Xiang and Shiraito (2025) address this problem by developing a dynamic nonparametric Bayesian model for analyzing the evolution of legislative coalitions over time. We specifically extend the Dirichlet process mixture model to a dynamic setting, allowing individuals in the data to move across latent groups over time. Our core technical innovations is to embed a Dirichlet process into a Markov process of group memberships and develop a forward-backward algorithm for posterior inference using Markov chain Monte Carlo (MCMC). In our proposed model, unspecified number of groups may emerge and diminish as a continuing process, rather than a structural change that affects all individuals. We apply the model to data on legislative behavior of the U.S. House Representatives from the 1930s to the 1960s on civil rights issues and show that the method allows us to discover changing patterns in inter- and intra-party coalitions during this period.

The use of text data has become popular in political science over the past fifteen years. Since raw text is too noisy to be used directly, political scientists need to extract meaningful information by some form of dimension reduction. A common approach in political science is to classify documents into predefined categories and use the category labels as outcomes or predictors. Unfortunately, large-scale labeled document data sets are rare in social sciences, and it is costly to obtain document labels that are tailored for a specific research question of each study. In Bosley et al. (2025), my coauthors and I propose a method to combine active learning and a mixture model to achieve more accurate performance under the constraint of limited human-labeled documents. Active learning is a machine learning technique in which human coders are asked to label a small number of documents that the algorithm is most uncertain about, rather than labeling randomly sampled documents in the data set. By using a simple mixture model as a workhorse for text classification,

we can effectively combine human labels from active learning steps with unlabeled documents to improve the classification performance. The paper demonstrates that the method replicates prior substantive findings based on text classification with approximately one third of the number of manually labeled documents compared to original studies.

Topic modeling, a method for discovering latent topics in a corpus of documents, is another common approach to dimension reduction in text data. Incorporating other information than text, such as metadata of documents, into topic models has been developed in political methodology. Contributing to this literature, I co-developed a unified topic model that integrates document text and citations in Kim et al. (2025) with my former graduate students. Text datasets commonly used in political science (e.g., court decisions) often include a citation network, where documents in the dataset cite each other. Conventional methods for analyzing citation networks, however, did not allow for estimating distinct topics for multiple citations made in the same document, obscuring the topical diversity of citations. My research introduces the paragraph-citation topic model (PCTM), which systematically integrates citation network data with document text by assigning topics at the paragraph level. This novel Bayesian topic model thereby allows citations made in different paragraphs of the same document to be associated with distinct topics. The PCTM also models paragraph-level citation propensities through a regression framework, enabling researchers to explore strategic citation dynamics. Applied to the majority opinions of the Supreme Court of the United States (SCOTUS), the PCTM demonstrates its ability to find topic diversity across citations, which standard document-level topic models miss.

Conjoint Analysis and Multiple Hypothesis Testing

Since causal inference using conjoint analysis was first formulated, its use has rapidly grown in the field. The design allows researchers to estimate the effects of a large number of factors on multidimensional decision making by having respondents choose a preferred profile consisting of the features. However, this substantive virtue leads to a statistical vice, because the users have to statistically test a large number of hypotheses. Although the multiple hypothesis testing problem, where the probability of having false positive results increases with the number of hypotheses tested, is well known, little attention has been paid to this issue in applied research using conjoint analysis. Liu and Shiraito (2023) assess the severity of the problem in typical conjoint designs and discuss how researchers can ameliorate the issue. We show that even when none of the factors has any effects, the standard analysis pipeline produces at least one statistically significant estimate in more than 80% of experimental trials. More importantly, we compare three off-the-shelf easy-to-use methods for multiple testing correction in simulation studies and show how conclusions drawn from empirical analysis may differ with and without correction by reanalyzing existing applications. By doing so, we provide applied users of the design with a guidance on how to choose a correction method in their analysis.

Public Attitudes toward International Institutions

Studies using survey experiments have flourished in international relations (IR) following other subfields of political science. An important topic in this literature is public attitudes toward international institutions, such as international organizations (IOs) and international law. A longstanding question in IR is whether international institutions may influence state policies, and survey experiments have facilitated research on how citizens' attitudes toward their government's policies are affected by international institutions. Yet, although citizens, particularly in democracies, are shown to change their attitudes toward their government's policies in response to information about the compatibility of the policies with international institutions, empirical evidence is still limited on why this is the case.

In Kuzushima et al. (2024) and Kuzushima et al. (2025), my coauthors and I provide new evidence for this question. What distinguishes these two papers from existing studies is that we focus on potential mechanisms when designing our survey experiments. In the first paper, we design information treatments to disentangle two different motivations of the public for the preference to international law compliance: respect for legal obligations and the desire to follow globally common practices. As a result, we find that legal nature of international laws, rather than the desire to adopt common practices, is crucial to domestic preference for international compliance. In the second paper, we manipulate the identity of IOs that endorse a policy proposal and measure the perceived traits of the IOs, such as impartiality and expertise, to examine how these traits affect the effectiveness of IO endorsements in shaping public attitudes toward a policy. We show that, contrary to the conventional wisdom in the literature, being impartial or possessing expertise does not give rise to the IO's effectiveness. Rather, the perceived alignment of the IO with national interests is the key to its ability to shape public opinion. These findings offer new insights into when and how IOs shape mass attitudes and, by extension, state policies.

Citizens under Authoritarian Regimes

Countries with authoritarian governments are difficult places to study political attitudes and behavior of citizens, since they avoid expressing their true opinions for fear of government retaliation. For the same reason, studies on electoral authoritarian regimes have pointed out the irony that authoritarian governments face challenges in their efforts to maintain public support due to the lack of reliable information on public attitudes. Establishing empirical evidence for this claim is difficult, however, again due to the same exact reason. Higashijima and Shiraito (2025) provide new evidence for this claim by measuring public support for a tutelary power arrangement in Kazakhstan, where a long-serving autocrat transferred the presidential position to his successor while exercising substantial influence as a guardian. By using the item count technique and endorsement experiment to elicit truthful responses, we find that the successor is more popular than the guardian. Our research is the first to empirically examine citizens' support for two dictators, against the less popular one of whom mass uprisings occurred a year after the survey. In Higashijima et al. (2025), my coauthors and I continue to broaden the understanding of citizens' political attitudes under authoritarian regimes by examining how the introduction of elections affects public perceptions of government. This paper exploits the staggered implementation of village elections in Kazakhstan to identify the causal effect of experiencing elections. Again using item count technique for sensitive questions, we find that citizens who participate in their first election do not feel more politically efficacious but report more frequent experiences of bribing local officials. Our work suggests that the introduction of elections may not lead to positive changes in the public's view on the government, contrary to the expectations of existing studies and even the authoritarian government itself. More broadly, elections in early stages of potential democratization may not be a panacea for empowering citizens and improving governance.

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