Broader Horizons: The Long-Run Impacts of Exposure to New Places

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Abstract

We study how and why exposure to different places shapes individuals' social attitudes and actions by administering an original survey to 15,000 former volunteer missionaries for The Church of Jesus Christ of Latter-day Saints. Leveraging exogenous variation from the location assignments, we document large, long-term changes in stated attitudes toward underrepresented minorities and political out-partisans, but not towards women in the workforce. In addition to attitudes, location assignments change voting and donation behavior, residential racial diversity, and family formation and fertility decisions 10–50 years after volunteering. Mechanism analyses reveal that "contact theory" explains only a small share of results, highlighting the importance of social learning more broadly to attitude formation and expression.

Key Words: racial attitudes, political attitudes, gender attitudes, contact theory, social learning, place effects

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1. Introduction

In countries across the world growing divisiveness about social issues raises questions about the development of social attitudes and preferences—especially in the formative years of young adulthood. Although economic research often takes these social preferences as given, mounting evidence shows how they are shaped by opportunities like college; study abroad; and national, religious, and humanitarian service (e.g., Malamud and Wozniak, 2012; Mo and Conn, 2018; Berinsky et al., 2023; Ertola Navajas et al., 2022) and by the geographic locations in which these opportunities occur (e.g., Bazzi et al., 2019; Bagues and Roth, 2023; Okunogbe, 2024). Despite the clear importance of place, little is known about who is affected by new cultural experiences, how long changes persist, or the cognitive processes connecting place and preference formation. To answer these questions, we study how and why exposure to new places shapes social attitudes and actions regarding under-represented minorities, working women, and political out-partisans.

Two obstacles complicate estimating the causal effects of exposure to new places on social attitudes. First, systematically different people choose to live in different places, contaminating cross-sectional associations between place and attitudes. To address this difficulty, we study a natural experiment that assigns young volunteers to locations around the world for 1–2 years without regard to their prior preferences: missionary service for The Church of Jesus Christ of Latter-day Saints (the Church). Second, no existing data sources measure mission location assignments, attitudes, and actions. To address this challenge, we administer an original survey to 15,000 individuals who began their volunteer service as missionaries between 1970–2010. Our survey determines where each volunteer was assigned, retrospectively collects the information listed on mission applications, and elicits both stated and behavioral measures of attitudes about race, politics, and gender roles.

Causal identification depends on the assumption that the unobserved determinants of social attitudes are unrelated with location assignments. Under that assumption, this design identifies the causal effect of location assignments on volunteers (but not the effect of volunteering). Although other high-profile research has used this variation from the Church's missionary program to study academic and political outcomes for young adults (e.g., Pope, 2008; Berinsky et al., 2023), we directly address concerns of confoundedness in our data by leveraging the fact that assignments are made by central church leaders using the information on mission applications. First, we demonstrate how application information informs assignments. For example, experience or interest in foreign languages increases the probability of being assigned to non-English speaking countries whereas pre-existing medical conditions reduce the likelihood of assignments outside of the United States. Second, we demonstrate

that—conditional on application information—other baseline characteristics are not associated with mission assignments. Finally, we control for mission-application information sets in all of our analytical results and interpret the resulting effects of mission-location assignments as causal.

Our analysis reveals three main results. First, exposure to different places affects some attitudes and actions but not others. For race, mission assignment generates significant dispersion in attitudes towards Latinos, leads some volunteers to live in more ethnically diverse zipcodes decades after their service, and to be more likely to marry a Latin American spouse. Mission assignments also reshape the affective polarization in stated attitudes towards Republicans and Democrats and changes voting and donation behavior toward both parties. For gender, there are essentially no effects on stated attitudes, learning about gender issues, or voting for women, but mission assignment does affect individuals' own marriage and fertility decisions.

Second, the place effects on attitudes and actions load on salient location characteristics. For example, for every (cross-location) standard-deviation increase in the Latino population share, stated attitudes towards Latinos increase by 0.04 standard deviations and zipcode diversity increases by 0.03 standard deviations. The effects on political polarization load on government size: assignment to a place with one standard deviation higher per-capita government spending reduces the cross-partisan gap in stated attitudes by 0.03 standard deviations and reduces the cross-partisan gap in voting by 0.04 standard deviations. Finally, the effects on marriage and fertility load on local social norms, with a one standard deviation increase in gender equity increasing assortative matching for male volunteers and *increasing* marriage rates for female volunteers.

Finally, we show that attitudes toward groups and individuals grow through ongoing-dynamic channels of social learning that extend well beyond traditional contact-theoretic explanations. Contact theory suggests that authentic interactions with members of other groups could improve attitudes toward them, and we find some evidence of this—particularly for race. Volunteers assigned to places with larger Black and Latino population shares report more positive interactions with locals and retrospectively state that their attitudes towards both groups improved during their volunteer service. Attitudes towards out-partisans tell a completely different story. Volunteers assigned to places with larger government report more hostile interactions with locals and that their attitudes toward out-partisans improved mainly *after* their volunteer service. They are also much more likely to report discussing social issues while serving and observing better-functioning political institutions (compared to their home locations). These patterns with attitudes towards out-partisans are inconsistent with contact-theoretic explanations and point to dynamic social learning as mission experiences

continue to shape how individuals interpret information over the course of their lives.

Our paper relates most closely to a set of papers that study the impact of exposure to new places on immigration views (Berinsky et al., 2023), political identity (Brown et al., 2023), and national integration (Bazzi et al., 2019; Cáceres-Delpiano et al., 2021; Bagues and Roth, 2023; Okunogbe, 2024). Our contribution is using worldwide variation from over 400 different locations to consider multiple dimensions of place and how they interact with long-term outcomes in multiple domains. In this regard, the most closely related paper to ours is Berinsky et al. (2023) which also uses Latter-day Saint missionaries to examine the impact of contact with immigrants on immigration attitudes. They survey BYU students immediately before and after their missionary service and find that missionaries assigned to places with a higher likelihood of interacting with immigrants express more pro-immigrant attitudes. Our sampling method and original survey allow us to estimate effects 10-50 years after service (as in Bagues and Roth, 2023); to measure actions rather than only stated attitudes (as in Bazzi et al., 2019); and to consider new outcome domains of race, politics, and gender.

We also speak to the broader literature on "contact theory" (Allport, 1954), where interaction with individuals from different groups affects attitudes towards those groups. In economics, this has been studied in a variety of contexts, including random roommate assignment (for example Van Laar et al., 2005; Boisjoly et al., 2006; Marmaros and Sacerdote, 2006; Shook and Fazio, 2008; Baker et al., 2011; Gaither and Sommers, 2013; Carrell et al., 2019), assignment across schools (Rao, 2019; Billings et al., 2021; Kaplan et al., 2025), sports teams (Lowe, 2020; Mousa, 2020), training programs (Scacco and Warren, 2018), plausibly exogenous refugee exposure (Dinas et al., 2019; Hangartner et al., 2019; Steinmayr, 2021; Schaub et al., 2021), or military assignments (Schindler and Westcott, 2021; Dahl et al., 2021). We build on these studies by finding that while contact with people from a different background is one important driver of changes in attitudes, it is only one mechanism through which social learning affects preference formation.

Finally, we relate to the literature on place effects more broadly. Because of the endogeneity of location choice, many place effect papers often use mover designs. Prominent movers designs include estimating the effects of place on children's later-life earnings (e.g., Chetty and Hendren, 2018a,b), workers earnings (e.g., Card et al., 2023), consumer behavior (Bronnenberg et al., 2012), political identity (Brown et al., 2023), and medical spending and mortality (e.g., Finkelstein et al., 2016). We have two main contributions to this literature. First, because location assignment is conditionally independent in our setting, we are able to estimate place effects without relying on a movers design. Second, rather than focusing on the effects of place on *economic outcomes* (like income, consumption, and health), our

study is trying to measure the effects of place on *economic primitives* measured in attitudes towards different groups.

The rest of the paper is organized as follows. Section 2 describes missionary service and assignment, and Section 3 presents the sampling design, survey, and other data. After describing and validating the empirical approach in Section 4, we present our results in Section 5, and conclude in Section 6.

2. Conceptual Framework and Institutional Background

This section presents a conceptual framework for understanding how place shapes social attitudes and explains why we study them in the context of the Church's missionary program. Because place effects reflect a bundled set of experiences, it is challenging to disentangle causal mechanisms—even from well-identified reduced form effects. Our conceptual framework addresses this by contrasting likely mechanisms and providing empirical predictions to distinguish between them. In context of this framework, we argue that the Church's missionary program has many institutional features that make it an ideal setting for studying place effects and empirically disentangling these contrasting mechanisms.

2.1 Conceptual Framework: Place Effects and Social Attitudes

Social scientists have long viewed local social context as an important source of attitude and identity formation (e.g., Park et al., 1925; Lazarsfeld et al., 1944; Key, 1949; Huckfeldt, 1986). Place is conjectured to be a critical piece of this social context because of the substantial variation in communities, institutions, experiences with new types of people, and in observed norms and policies. Scientifically, understanding which attributes of place have the largest effects may be key to understanding social preference formation, but the same contextual richness that makes place relevant also makes mechanistic identification challenging. Even without issues of endogenous location choice, disentangling which channels drive place effects is challenging because of the bundled nature of local experiences.

Different social sciences bring unique strengths to bear when considering social preference formation. Economic models and methods specialize in generating testable predictions about behavior change and in causally testing their implications. In simple models of economic behavior, social preferences enter directly as fixed primitives—like out-group preferences in models of taste-based discrimination (Becker, 1971). Although more general models can explain apparent changes in preferences through evolving intermediate state variables—such as accumulated experience with or knowledge of the out-group (an application of Stigler and Becker, 1977)—these two models produce observationally equivalent behaviors. As a result,

empirical tests are better suited for exploring which contextual factors causally generate persistent behavioral change rather than attributing change to a specific unobserved object in an individual's utility function. Because these models are also often agnostic about which features actually drive behavioral changes, we inform them with two canonical theories from other social sciences—then use the model to produce and interpret more precise predictions about behavioral change.

We explore two major theories connecting social experiences to behavior. The first emphasizes interpersonal experiences. Classical contact theory proposes that positive contact between social groups can reduce prejudice (Allport, 1954).[1] The second emphasizes contextual experiences. Social learning theory proposes that observing institutions, norms, and social environments can shape attitudes even without any direct interpersonal contact (Bandura, 1977). While there are many other psychological theories we could consider, we focus on these two for four reasons: (1) they capture particularly distinct sources of social information, (2) the relative importance of each mechanism could vary across different domains of social attitudes, (3) they have both been repeatedly validated with causal research in real-stakes settings,[2] and (4) exposure to new places should generate significant variation in both interpersonal and contextual experiences.

Although both interpersonal and contextual experiences could plausibly drive place effects on social attitudes, researchers have primarily interpreted the social effects of place through the lens of interpersonal experiences. For example, Bazzi et al. (2019); Berinsky et al. (2023); Bagues and Roth (2023) and Okunogbe (2024) all estimate the causal effects of living in a new place on social attitudes or outcomes then interpret those effects as the effects of "contact." While the contact interpretation is certainly plausible given the spatial variation in demographics observed and the frequent repeated interpersonal interactions generated by living in a new place, other features of the social environment are just as likely to vary and

[1] Allport originally proposed four criteria for contact to reduce prejudice: common goals, cooperation, equal status, and institutional support (Allport, 1954). Because these criteria may not be met, contact theory also acknowledges how (perceived) antagonistic contact could exacerbate animus (Blalock, 1967; Dinas et al., 2019; Hangartner et al., 2019). Although empirical evidence is mixed regarding the necessity of the individual criteria (see meta-analysis in Pettigrew and Tropp, 2006; Paluck et al., 2019), it is clear that cooperation and common goals matter in many contexts (e.g., Lowe, 2020). These results lead us to focus on the combined implications of these criteria for the overall valence of contact rather than analyzing each independently.

[2] For contact theory consider examples studying randomized exposure interventions (Enos, 2014; Scacco and Warren, 2018) or (quasi-) random assignment to roommates (for example Van Laar et al., 2005; Boisjoly et al., 2006; Marmaros and Sacerdote, 2006; Shook and Fazio, 2008; Baker et al., 2011; Gaither and Sommers, 2013; Carrell et al., 2019), schools (Rao, 2019; Billings et al., 2021; Kaplan et al., 2025), sports teams (Lowe, 2020; Mousa, 2020), and military units (Schindler and Westcott, 2021; Dahl et al., 2021). For social learning theory examples include learning from external social norms (e.g., Krupka and Weber, 2013), cultures and institutions (e.g., Alesina and Giuliano, 2015), and messages and persuasion about values (e.g., DellaVigna and Gentzkow, 2010).

generate learning. Interpreting the reduced-form effects of place as "contact" projects each multidimensional social experience onto a single psychological mechanism. To explore the limitations of this projection, we consider testable predictions to determine which features of place generate persistent changes on different domains of social attitudes and actions.

Empirically Distinguishing Mechanisms. We use the structure of the economic model to discipline the broad psychological theories and produce comparative statics that we can test to distinguish between mechanisms. Imagine a latent state $\boldsymbol{K}_i$ that affects individual i's attitudes and behaviors in d different domains. Whether this latent variable is a group preference or some internal capital, we assume that it accumulates based on $x_{j,\ell}$, different contextual experiences j occurring in location ℓ. These contextual factors include (but are not limited to) interpersonal experiences ($x_{j,\ell} \in \mathcal{C}$ for contact) and contextual experiences ($x_{j,\ell} \in \mathcal{S}$ for social learning). Living in location ℓ causes

$$K_{i,d}^{\text{post}} - K_{i,d}^{\text{prior}} = \alpha_{i,\ell,d} \left(\boldsymbol{\omega}_d' \boldsymbol{X}_\ell - K_{i,d}^{\text{prior}} \right)$$

where α is a domain-specific adjustment rate that may depend on individual or place characteristics, and ω are relevance weights that map contextual factors into domain-relevant experiences. The psychological theories impose different restrictions on the adjustment rate and relevance weights, telling us who may be more responsive and which experiences should enter this accumulation process. The economic structure then highlights common comparative statics in exposure quality, intensity, transfer, and persistence.

First, consider two predictions from the measure of experience itself. First, both mechanisms suggest that the *sign* of place effects depends on the relative quality of the exposure ($\boldsymbol{\omega}_d' \boldsymbol{X}_\ell - K_{i,d}^{\text{prior}}$). Quality, however, has different implications under each psychological model. For contact, quality-weights focus on the positive (or negative) valence of interpersonal interactions, whereas for contextual learning it focuses on the desirability and efficacy of local norms, values, and institutions. Under as-good-as-random place assignment, detecting reduced form effects of characteristic x_j on attitude d provides direct evidence about which ωs actually matter. Second, the model suggest that the direction of updating depends on the new information received relative to aggregated prior experiences. Although these differences in $K_{i,d}^{\text{prior}}$ net out of average treatment effects under independent assignment, they should create heterogeneous responses that can validate candidate mechanisms.[3]

Next consider three predictions involving individuals' adjustment rate in each domain. First, in both models, the *magnitude* of adjustment should increase with the intensity of

[3]Note that the model cautions against interpreting these comparisons as more than suggestive validations because the individual specific factors that affect updating, may be correlated with $K_{i,d}^{\text{prior}}$.

the relevant exposure (a contributing factor to α). For contact, this means more frequent exposure to domain-relevant groups; for contextual learning, it means more frequent exposure to norms, institutions, or observed behaviors. Second, there may be individual-specific factors that lead some people to update more such as perceptiveness, flexible thinking, or persuadability. Finally, psychology suggests that the contextual proximity between the place of an experience and the behavioral domain should predict the rate of adjustment. For example, attitudes about race in the US might be more strongly affected by interacting with Black people in Atlanta than with Black people in Ghana. Note that this produces an interesting tension surrounding contextual distance. The theory predicts that experience quality is increasing in the distance between X_ℓ and X_{h_i}, but at the same time it predicts that transfer from experiences to attitudes K_d decreases with the same conceptual distance.

Finally, consider a last prediction about dynamics. In this simple model, people adjust in the direction of the new experiences created in location ℓ, but if they were to return back to h_i, the model suggests that they would revert back to K^{prior}. Interestingly, to the extent to which fixed individual factors that lead some individuals to respond more to experiences in location ℓ, these same individuals who respond the most will revert back the fastest. This prediction provides a sharp test for the presence of additional state dependence of dynamic complementarities, i.e., whether attitudinal changes persist or even continue to develop in the direction of the experiences in ℓ even after leaving.

Traditionally, the cleanest way to test and compare independent mechanisms like these would be through a multi-armed experiment. For example, Lowe (2020) tests collaborative and combative mechanisms for contact theory by jointly randomizing the demographics of cricket teammates and opponents. In the domain of place effects, separately manipulating each mechanism is infeasible because every place is defined by a bundle of treatments—demographics, interpersonal experiences, social norms, institutions, and other features—and interventions manipulate which bundle individuals experience. Nevertheless, a setting with many independently assigned places and substantial variation in the joint distribution of their characteristics provides unusual leverage for testing which comparative predictions are borne out in the data. The missionary program we study provides exactly this type of variation.

2.2 Missionary Service in The Church of Jesus Christ of Latter-day Saints

In this section, we describe the Church's missionary program and show that it does approximate the ideal RCT. We then detail the process for assigning volunteers to locations around the world, which provides variation in place exposure that is plausibly independent of prior social attitudes conditional on the information available at the time of assignment.

2.2.1 The Mission Program

The Church's missionary program assigns 18- to 25-year-old, unpaid volunteers to locations all around the world.[4] These volunteers typically stay for 1.5 to 2 years and participate daily in personal, authentic interactions with the communities where they are assigned. Though volunteers' experiences differ across locations, they share much of the same overall big-picture and day-to-day structure. The primary purposes of the program include proselytizing, strengthening church members globally, providing community service, and the personal development of volunteers.

The missionary program has been running for more than a century and in 2025, over 74,000 young, full-time missionaries volunteer in 450 different locations (called "missions") across the world. This wide variation in location assignments provides for vastly different experiences and is precisely the feature of this program that so closely approximates the ideal RCT. Young missionaries are drawn from the membership of the Church. Among practicing church members we estimate that approximately 75-85% of young men and 45-50% of young women volunteer as missionaries.[5] Participation is considered a responsibility for young men—who serve for 24 months—and is optional for young women—who serve for 18. The young volunteers in each mission are organized under a few full-time adult volunteers who oversee mission logistics and training.[6]

Despite regional differences, the overall administrative structure of the experience is very similar. Prospective volunteers submit mission applications 1–5 months before their availability to serve and typically receive their location assignments within 2–4 weeks. Missionary service begins with 2–9 weeks of standardized training, religious study, and language learning. Thereafter, volunteers go to their assigned missions, (which can vary in size from part of a metro-area to multiple countries). Once at their assigned location, missionaries are paired up with another, more experienced volunteer and assigned to serve a local congregation. Over the course of their service, volunteers rotate through different locations and pairs within the mission every few months but generally do not leave the mission location. At the conclusion of their service, volunteers are required to return to their hometowns of origin.

[4] Although volunteers pay some of their expenses, the Church averages and subsidizes costs. This means that the volunteers pay a standard amount based on where they come from rather than where they are assigned to (this way someone assigned to live in Tokyo pays the same amount as someone assigned to live in the Dominican Republic despite cost of living differences). Those who cannot pay the flat fee are provided for by local donations or general church funds.

[5] Based on statistics published by the Church, there are roughly 30,000 missionaries out of an estimated 130,000-150,000 nominal members of any given age. Combining that with the fact that in recent years 35% of young missionaries are women and that roughly one third of nominal members are actively practicing, this yields 76-86% for men and 44-50% for women (if 50% of members are women).

[6] Including housing, travel, visas, etc.

Missionary service is intensely interpersonal and involved with local communities. Typical daily activities include talking to people in the community about the Church and Christianity, teaching individuals in their homes, visiting with members of the local congregation, attending local church meetings and meetings with other missionaries, participating in religious and language study and preparing lessons, and taking part in formal and informal community service.[7] An important aspect of this program is that volunteers are given the explicit commission to interact with as many people as possible, to get to know them, and seek to develop love and understanding for them. As such missionaries' experiences will often be particularly salient and authentic (relative to a typical person living or working in the area). Volunteers frequently build lasting relationships with those whom they meet while serving and stay connected even after returning home. This structure provides the ideal opportunity to understand the relative importance of contact and social environment in place effects.

2.2.2 The Mission Assignment Process

Our identification hinges on the quasi-experimental assignment of volunteer missionaries to service areas. Specifically, to explore the causal impact of place on a person's social attitudes and actions, location assignment must be conditionally independent of the unobserved determinants of these outcomes (such as baseline characteristics and attitudes). This conditional independence is plausible in our setting because volunteers are assigned to specific, well-delineated locations following a standardized, well-understood process. There is precedent for using this variation, as several studies have done to explore different questions (Pope, 2008; Crawfurd, 2021; Berinsky et al., 2023).

Individuals who want to volunteer as missionaries participate in a standardized application and assignment process. Prospective volunteers begin by filling out an application. While the specific questions have changed over time, this application has generally included availability dates for service and information on basic demographics, church participation, education, language learning, family situations, and information from general medical checkups. Applicants interview with local ecclesiastical leaders who know the volunteer personally. These interviews are standardized and are intended to accomplish at least three purposes: (1) determine whether the person is living church standards, (2) understand whether applicants' physical and mental health are sufficient for the rigors of volunteering, and (3) elicit a commitment from the volunteer to go wherever they are ultimately assigned. These local leaders may make comments on the application and send them in to church headquarters,

[7] Although these activities constitute most of what missionaries will do anywhere in the world, the specific mix of activities varies greatly by location.

but importantly, neither the volunteer nor the ecclesiastical leaders can make requests or recommendations for specific (types of) service area.

Mission location assignment also follows a well-understood process. High-ranking Church leaders make mission assignments based on application information and the needs of each mission. The leader making the assignment begins by reviewing a digital list of staffing needs in mission locations across the world as well as the volunteer's picture and application information. Assignments are made based on thoughtful consideration of that information, including constraints like when the volunteer is available and whether any moderately serious mental- or physical-health challenges limit possible locations. Because these twelve senior church leaders have many other responsibilities, we estimate they only have 1–3 minutes to make each assignment decision.[8] Volunteers are then told their location assignments, start date, and basic information about preparing to serve. Because members of the Church view mission view assignments as a manifestation of divine intent and because prospective missionaries preemptively commit to accepting any assignment, there is extremely low attrition of volunteers after receipt of the assignment, so there is little concern of differential attrition based on social views.

In Section 4 we demonstrate the conditional independence of assignment. We document how application characteristics affect assignment decisions and present evidence that church leaders seem to be making the matches based on mission and volunteer characteristics based on openings. Furthermore, we show that conditional on the information in the application, mission assignments are not correlated with volunteers' baseline characteristics not available from the mission application. As such, we will condition on the information set available at assignment in our analyses and consider location assignments independent of the unobserved determinants of social attitudes and related actions.

3. Data on Volunteers and Locations

This section outlines both the data gathered from volunteers via survey, which includes outcomes and background information on volunteers, and data on the locations where volunteers can be assigned.

3.1 Survey

Our primary data for this project are collected using an original survey. The survey, sample frame, and mode of administration were all designed after extensive piloting from 2021–2023

[8]Over this time period the Church averaged roughly 70,000 volunteer missionaries serving at any given time, implying 700–800 applications per week. Each week 2–4 of these leaders spend 4–6 hours making mission assignments (Jones, 2001), which gives them at most about 3 minutes per volunteer.

(see Appendix B.1 for details). This section discusses sampling, survey design, and selection into participation.

3.1.1 Sampling and Survey Administration

Identifying former volunteer missionaries to recruit for any survey presents a significant challenge. Although the Church maintains administrative records about mission assignment, it does not collect data about social attitudes or share confidential data with external researchers. Instead of directly recruiting former volunteers, we identified a larger population with a high share of volunteers: former students of Brigham Young University (BYU). BYU is owned and operated by the Church, and most students are practicing members. We estimate that about 59.9%[9] of former BYU students volunteered as missionaries, providing a sample frame with a high hit rate for former volunteers.

To identify former volunteers, we contacted former students using publicly available contact information. In 2021 we collected public directory information on 400,321 former students at BYU. The sample also includes students who enrolled at BYU as undergraduates or graduate students, including those who did not complete any degree. Although not all directory information was public (individuals may request to not be listed), we benchmark coverage among recipients of undergraduate degrees against annual IPEDs counts and find cohort-coverage rates ranging between 80–95% of students with undergraduate and graduate degrees from BYU. These results are displayed in Appendix Table A.6.

We then recruited participants via email using publicly available email addresses we were able to scrape or verify online. We collected contact information for 137,680 of these former students using social media, online employee listings, and online white pages. After setting aside a hold-out sample of 25,000[10], we contacted 111,914 former BYU students through Qualtrics between November 2023 and March 2024. Individualized emails explained the survey and concluded with an embedded screening question asking whether each person had volunteered as a missionary as a young adult. If individuals had not completed the survey one and two weeks after the original email, we sent short follow-up emails. Appendix B.2 contains our email templates and sampling protocols.

This recruiting approach generated a strong response rate among former missionaries. Of the 111,914 emails sent, Qualtrics reported that emails landed and were opened by 74,626 (67%) of the individuals—32,586 (43%) of whom answered the screening question. Of those who answered the screening question, 18,321 former BYU students said they had served a mission as a young adult and consented to take the survey. Given our estimate that 59.9%

[9]Our bounds on this estimate are 56.6%-65.3%, see Appendix B.3 for details.

[10]Which ultimately became 25,766 as we scraped additional emails.

of our sample frame was eligible to participate, this constitutes a roughly 27% response rate to sent emails and a 41% response rate to received then opened emails. We consider this rate to be very high given that respondents were *not* paid for participation in the survey.

This sample design has several advantages relative to prior work exploiting this same setting. These previous studies have used convenience sampling from Facebook groups, (Crawfurd, 2021), administrative data on about a fourth of incoming freshman from the 2005 graduation cohort (Pope, 2008), or (at the time) current BYU students who responded to a study invitation via email then participated in a survey immediately before and after their volunteering (Berinsky et al., 2023). The first advantage of our study design is it allows us to speak to selection into the ultimate survey sample and into survey completion since we can measure characteristics of the near universe of living BYU alumni. Another advantage is that we have the ability to explore long-term impacts, as our survey respondents completed their volunteering between 10 and 50 years prior to their participation in our study.

3.1.2 Survey Instrument

After consenting to participate respondents answered six main blocks of questions. The median time to completion was 25 minutes and 13% of individuals who began the survey did not complete it. The full survey instrument is included in Appendix B.4, and the source code for custom survey items is available at `https://tseastmond.github.io/research/`.

Retrospective Mission Information. The first block of the survey was about mission assignment. First, we asked individuals what location they were assigned to, what language they were assigned to learn (if any), and when their service began and concluded[11]. Then individuals retrospectively reported the information included in their mission applications including gender; education and work experience (high school GPA and college applications/enrollment decisions); experience and interest in traveling out of the country; interest, experience, and aptitude for learning a language; leadership experience; activity in the Church; previous family mission assignments; and whether there were any medical conditions flagged in the application process. The block concluded by eliciting baseline characteristics not included on mission applications such as childhood zipcode, parental education and employment, and subjective assessments of the underlying motivations for choosing to volunteer.

[11] A handful of respondents required imputing a missing start or end date because it was missing or reflected the default Jan 2000 value without a corresponding start or end date that gave a plausible service length. We assumed that missions never ran 3+ months longer than the specified time and left all missions shorter than the specified time since volunteers occasionally go home early. 95.6% of respondents had a valid start date to begin with. Of those, we imputed 22.2% of end dates (assuming 2 years for men and 18 months for women). We also imputed 1.4% of start dates where there was a valid end date but no valid start date. This left us with 3.0% missing altogether.

Contemporaneous Life Outcomes. The second block of questions was the shortest. Because there were individuals in pilot surveys who chose to attrit as soon as they saw questions related to race, we asked our key behavioral questions first. These questions included current zipcode of residence, marital status, number of children, and current attachment to the Church. We are also in the process of linking our survey responses to voting registration and donation records for additional behavioral outcomes.

Stated Attitudes. The third block of questions focused on stated attitudes toward underrepresented minorities, political partisans, and mothers working outside of the home. We measured all stated attitudes using the standard "feelings thermometer" from 0-100 as used in the American National Election Studies and the General Social Survey. We asked for feelings toward Black, Latino, and White individuals; Republicans, Democrats, and Political Independents; and Mothers Pursuing Careers, Mothers Pursuing Education, and Stay-at-Home Mothers. To avoid anchoring effects we randomized the order of the three domains and of the groups within each domain at the individual level. Appendix Figure B.8 presents the prompt and user experience for the feelings thermometer questions.

Related Actions. After measuring stated attitudes, we asked individuals three sets of questions about actions related to their social attitudes. First, we asked individuals whether they had participated in various activities in the last five years. The activities included (1) reading a book or listening to a podcast (about race, gender norms, or Republican/Democratic policies), (2) donating or volunteering (for a social justice cause or a Republican/Democratic political cause), (3) voting in a national election (for a minority, female, or Republican/Democratic candidate), and (4) protesting police violence or masking/vaccine mandates.

Second, to measure actions related toward working women we also asked how respondents (and spouses for married respondents) allocate between working for pay, housework, dependent care, and leisure. We adapted this activity from Deryugina et al. (2021).

Third, the block of related actions also included a real-stakes donation activity. We adapted this activity from Exley (2020) and allow participants to choose between donations of different sizes to different charitable organizations. Each respondent indicates whether they would prefer a donation of a given amount (any, \$0.25, \$0.50, \$1.00, or nothing) to a given nonprofit relative to a \$0.50 donation to the American Red Cross. The alternative organizations were the National Association for the Advancement of Colored People (NAACP), the National Partnership for Women and Families, the Republican party, the Democratic party, and the Church. Appendix Figure B.9 presents the prompt and user experience for the donation activity.

Mechanisms. The fifth block of survey questions aimed to clarify the channels through

which effects operate. As such, we elicit respondents own perceptions about whether and how volunteering changed their attitudes toward other groups of people. We also asked about specific experiences during their service like how they spent their time; what their interactions with others were like; whether they had conversations about race, politics, or gender; and to what extent they felt like related institutions functioned better or worse in their mission locations relative to at home.

Other Demographics. The survey concludes with some additional demographics, like race, education, household income, political orientation, and retrospective perception of parents' political orientation.

3.1.3 Sample Validation and Description

A core concern to the validity of any results from the survey is which individuals chose to participate. We use the survey data to discuss three related sets of results that could affect the interpretation of the results: selection into participation, selective attrition, and external validity. In addition to this evidence of data quality, we also describe the characteristics of our core analytical sample.

The two biggest threats to internal validity are selective participation and selective attrition based on mission assignments. The core concern here is if assignment to certain places affect both social attitudes and pro-social actions (like the willingness to complete an uncompensated survey), then estimated effects will be contaminated by sample selection bias. We conduct two exercises to address these concerns.

For sample selection, we compare the distribution of assigned locations among our respondents to the distribution in Berinsky et al. (2023) and find very little evidence of selection into participation based on mission assignment. Because mission assignments in Berinsky et al. (2023) are observed before exposure to the places, they provide a ground truth to which we compare our survey responses. Appendix Figure A.1 depicts the two distributions of assignments (restricting our sample to the 10 years surrounding their sample period). Visually the two distributions track each other quite closely. Although Latin America and Europe are slightly overrepresented in our survey,[12] we find no appreciable differences in the underlying distribution of mission characteristics.

We also find no evidence of selective attrition. In the full sample, the survey completion rate is 87.7%. Appendix Figure A.2 depicts the point of attrition for individuals who do not complete the survey. We find that 45% of attrition occurs during the mission assignment and application block of the survey. Because this is before individuals are asked any

[12]We omit the numbers from Chile and the Netherlands (locations mentioned in the recruiting email), which are significantly overrepresented in our survey.

questions about social attitudes, we have very little concern about selective attrition at this step. Another 20% of attrition occurs during the self-reported actions block, apparently because respondents realized the survey would be longer than anticipated. Overall neither the decision to attrit nor the point of attrition in the survey are related with any observable mission characteristics.

We also conduct two exercises to consider external validity within the sample frame. First, we show that the emails collected and surveys received were broadly representative of population in the broader sampling frame. Appendix Table A.3 uses directory characteristics of former students to predict whether we would find publicly available contact information, whether the email would land/ be opened, and whether the individual would answer the screening question. Because there are nearly half a million observations, we do find statistically significant differences across groups, but overall most differences are not economically meaningful. For example, women were about 0.004 (-0.026/-0.06) more likely to start the survey (have publicly available contact information/open our recruiting email) than men. We find similar sized differences in selection by major and census region. The largest differences were by cohort and degree completion. Because coverage is the best and most consistent for graduates between 1970–2015, our main analytical sample focuses on these cohorts. We are also more likely to find contact information for graduates than students who did not complete a degree.

We also compare our sample of missionaries to other groups to explore external validity beyond the sample frame. Former missionaries are a population with unusually high baseline religiosity and civic commitment, and as such their attitudes and treatment effects may not be representative of typical young adults. Using data from the 2020 and 2024 ANES, we find that Latter-day Saints are much more prosocial but also hold slightly more conservative attitudes toward racial minorities compared to the overall US population. For example, they are nearly twice as likely to spend time volunteering, and express 0.2 standard deviation higher trust in others. At the same time, they also score 0.2–0.3 standard deviations higher on indices of questions measuring racial resentment and concern with immigration. Latter-day Saints also seem to report higher feelings thermometer scores towards other groups, conditional on their stated attitudes. Although the missionary population seems to be slightly different, it is also scientifically interesting. Whereas many other papers exploring the effects of formative experiences on social attitudes study populations like young adults at elite universities (e.g., Carrell et al., 2019) or applicants for Teach for America (e.g., Mo and Conn, 2018), our sample is predominantly white, conservative, and Christian—characteristics typically associated with very different baseline social attitudes. This sampling distinction is a pathbreaking extension to the current evidentiary base, and whether these differences

will amplify or attenuate the effects of exposure to new places is an empirical question.

With these considerations in mind, we restrict our main analysis sample to 15,647 former volunteers who began their missionary service between 1970–2010. Appendix Tables A.4 and A.5 describe the characteristics of these volunteers before volunteering and now, separated by which decade they started their volunteering. Our sample includes about 20% women over time and is predominantly white. A decreasing fraction attended some college before leaving to complete their volunteering, and three quarters report having grown up with Republican parents. About a third spoke another language at the time of application. Currently, most former volunteers are married with children, over 85% completed a Bachelor's Degree and over 50% of the total completed a graduate degree. A majority of the former volunteers are Republicans, but the share of Democrats increases across cohorts to just under one fourth in the 2000-2010 cohort. Nearly 85% of respondents report actively participating in The Church of Jesus Christ of Latter-day Saints.

3.2 Data on Mission Locations

We collect data on mission location from a variety of administrative sources. We first describe the data and sources then show the actual variation experienced by volunteers in our sample.

3.2.1 Mission Location Characteristics

The wide variation in assigned location characteristics provides the treatment variation necessary to parse the differing channels for place effects. Conceptually speaking, a volunteer who was assigned to a location today would have 450 different possible "treatments" since, in principle, they could be assigned to any one of the possible mission locations around the world. Though each location is a bundle treatment, we target three characteristics to understand the differing channels for place effects: Black or Latin American population shares, expenditure per capita, and the Gender Equality Index from the United Nations Development Programme (UNDP) Human Development Reports. The population shares provide a natural measure to explore the contact channel, whereas expenditure per capita and the Gender Equality Index provide two measures allowing a contrast of intergroup contact and social environment.

Since treatment assignment is at the mission level, data are required at that level as well. Mission locations are defined by clearly specified set of boundaries and range in size from part of a metro-area to multiple countries. Volunteers assigned to a location stay within those boundaries for the entire duration of their service, though they do move within a mission. We only measure treatment characteristics as the average aggregated to the mission level,

meaning that treatment effects are measured with error and can be interpreted as intent-to-treat. Practically, we aggregate the data to the mission level by digitizing and geo-tagging maps for each location over time.[13] Within the US, all data is measured at the mission-year level, but outside of the US we aggregate to the country-year level.

Though straightforward within the United States, collecting data on race and ethnicity across the world is challenging and can be fraught. For mission locations within the United States, data on the number of Black and Hispanic[14] residents over time is used directly from the Census Bureau's Population Estimates Program. This gives yearly estimates of the Black, Hispanic, and total population in each county that we aggregate to the mission-year level. We primarily lean on data collection from the United Nations Statistics and Population Divisions as well as data from national censuses across the globe for information about the ethnic makeup of individuals in each country. Though race is a fraught social construct, for consistency and comparability across countries we then categorized these data using a US Census definition[15] to get a fraction of 'Black' residents and 'Latin American' residents in each country. This categorization of ethnicities was done both by hand and using a Large Language Model (LLM) to ensure maximal consistency. Discrepancies between these two methods were then adjudicated one-by-one by a separate person from the original classifier.

We focus on Black and Latin American population shares around the world primarily because this is a natural dimension for contact to reduce prejudice; these groups are in the minority in the US and often experience relatively high levels of prejudice.[16] Additionally, there is wide variation across the world in exposure to these two groups. Some mission locations have all or nearly all of the residents who are part of one of these groups, while other missions have no residents in these groups. This provides ideal variation to explore contact as a channel for place effects.

In contrast to population shares, political affiliations, institutions, policies, and ideas provide no consistent, worldwide measure that we can use to explore place effects operating through either interpersonal contact or exposure to social environment. Not every country even has the same type of governmental system, much less the same platforms for political parties or implementation of policies. These things are also more difficult to measure, even

[13]Mission boundaries are relatively stable but can and do change over time.

[14]We acknowledge the difference between 'Hispanic' and 'Latin American' individuals, but for purposes of our analysis combine the two under the heading 'Latin American.'

[15]The US Census definition of 'Black or African American' is "A person having origins in any of the Black racial groups of Africa." and the definition of 'Hispanic or Latino' is "A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race."

[16]We also considered including Muslims or Arab individuals, but since the countries with the largest share of these individuals do not accept Christian missionaries, we did not ultimately target population shares of these groups.

when they are conceptually similar across countries. To circumvent these difficulties we measure government expenditure per capita as a proxy for political and institutional environment. While no single measure can fully capture political attitudes or institutions across highly diverse national settings, expenditure per capita reflects an important and readily comparable dimension of governance: the scale of state activity. In practice, higher expenditure coincides with more expansive government social safety nets, greater public provision, and policy environments that are more consistent with left-leaning political preferences and individuals. This provides a meaningful, measurable way to explore impacts on political attitudes and actions that may operate either through contact with individuals of different political leanings or exposure to different political environments. Expenditure per capita is measured yearly within the United States using public information from Federal budgets and the Census Bureau State and Local Government Finances summaries. For international data we compile information on GDP per capita from the World Bank and expenditure (as a percent of GDP) from the International Monetary Fund.

When considering attitudes towards working women, we use the Gender Inequality Index, which is a composite index created by the United Nations Development Programme (UNDP) Human Development Reports. We reverse-code the Gender Inequality Index so that higher values correspond to greater gender equality. We refer to this measure as the Gender Equality Index. This index combines the following information at the country level: maternal mortality ratio, adolescent birth rate, share of parliamentary seats held by each sex, population with at least some secondary education, and labor force participation rate. It is intended to reflect "gender-based disadvantage in three dimensions—reproductive health, empowerment and the labour market ... It shows the loss in potential human development due to inequality between female and male achievements in these dimensions" United Nations Development Programme (2022c). The index ranges between 0 and 1, with 1 meaning that women and men fare equally and 0 meaning that one gender does as poorly as possible in all dimensions. Since these data are only available at the national level, we collect data on each component of the index for counties in the US and generate the index at that level within the US. This ultimately provides a clean measure of only the social environment with regard to gender norms and equality since we should not expect contact theory to operate in this domain.

In addition to these features of mission locations around the world, we also construct 'experience' characteristics of mission locations using our survey data. We focus on two experiences: how kind people were to you and whether you were able to observe different institutions. We construct these as leave-one-out, inverse-covariance-weighted indices that measure place characteristics, so they will be untainted by an individual's own experience.

For example, we can think of a person going to a place with a high kindness measure as going to a place where everyone else found the residents to be very kind. The kindness index consists of how kind residents are, how receptive they were to missionaries, and how much time was typically spent in people's homes. This index gives a clear measure of the positive or negative valence of a person's interaction with local residents. The institutions index is comprised of whether volunteers felt treatment of different racial, ethnic, or gender groups in the workplace was better and whether political parties worked together better in their assigned mission location. The discussion index indicates that the volunteers discussed gender roles, race/racism, and politics during their service.

3.2.2 First-Stage Variation Induced by Mission Assignment

Our ability to identify place effects and distinguish among potential channels depends on the extent to which volunteers in our sample are exposed to meaningfully different types of places. Figure 1 shows the variation in the percent of residents that are Latino or Black, the per-capita expenditure, and the Gender Inequality Index in each area plotted against the experience characteristics of each location derived from the survey. Note two empirical patterns from this figure that produce clear predictions in our setting.

First, Panel (a) reveals that the social valence of volunteers' interactions is systematically related to the kinds of places to which they are assigned. The kindness index has a strong negative relationship with expenditure per capita and the Gender Inequality Index and a strong positive relationship with the percent of residents who are Latino. Mission locations with the lowest levels of kindness have virtually no Latin American residents, average spending around $20,000 per capita, and have the highest levels of gender equality (0.8) on the index. Those with the highest levels of kindness exhibit the opposite: low spending, relatively low gender equality (though the slope is much flatter than expenditure), and many Latin American residents. There is a small but positive slope between kindness and the percent of Black residents in an area. The predictions from our conceptual framework suggest that to the extent that interpersonal contact matters, we should expect positive contact effects towards Latin American and Black individuals in places with high shares of those groups since the valence of those interactions is positive with the high levels of kindness. The negative valence of interactions in high expenditure locations, however, should lead us to expect negative impact on affect towards left-leaning individuals.

Second, proxies for exposure to the broader social environment are most strongly associated with expenditure per capita rather than local demographic composition. Panel (b) suggests that volunteers in high expenditure locations are more likely to talk about social issues, but the remaining characteristics exhibit no clear relationship. Furthermore, Panel

(c) shows a clear positive relationship between observed institution quality and expenditure in a location. This relationship with discussions and positive institutional quality predicts positive place effects on attitudes and actions related to expenditure in places with higher expenditure. Additionally, the small positive relationship between institution quality and the Gender Inequality Index would also predict positive place effects. By contrast, the weak relationships with percent Latino and percent Black suggest less reason to expect place effects here due to social environment.

Importantly, these characteristics give independent and broad variation across potential mission locations. Appendix Table A.1 gives the full set of correlations between each of the location characteristics. The population shares are negatively but imperfectly correlated with expenditure per capita and the Gender Inequality Index, with the highest correlation being -0.628 between percent Latino and expenditure. Gender Inequality has a 0.360 correlation with expenditure. These meaningful but low correlations demonstrate that the variation we are using across the 450 mission locations exhibits meaningful differences; these measures are not picking up the same underlying characteristic. Appendix Table A.1 also shows the total variation in each of these characteristics: locations cover the full range of population shares, spending ranging from just under $20 per capita to $56,560 per capita, and Gender Equality ranging from very little equality (0.096) to near complete equality (0.953).

4. Empirical Strategy

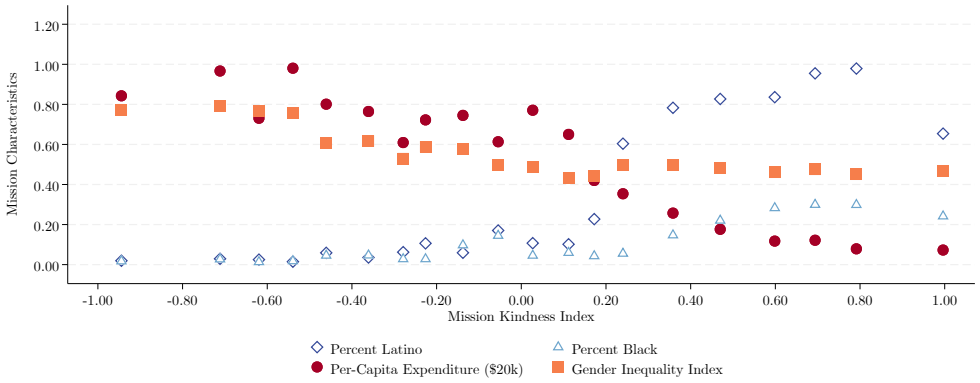
Data on mission assignments and later-life actions and attitudes allow us to consider the long-term effects of exposure to new places. Because identification depends on the validity of this natural experiment, this section empirically examines the assignment process. We quantify how information on applications is used to make mission assignments and assess the plausibility of the conditional independence of these assignments from the unobserved determinants of social actions and attitudes. We then discuss our approach to estimating place effects.

4.1 Application Information Influences Assignments

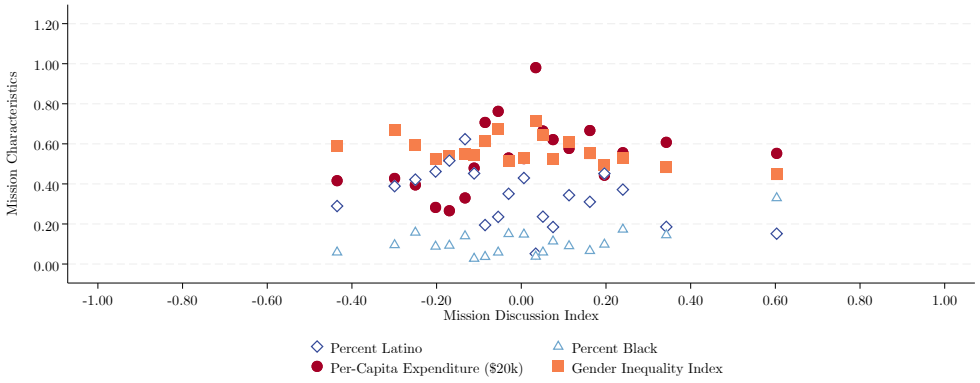
We first use our retrospective survey data to show that leaders use information about mission applications in predictable ways to make mission assignments. To do this, we run regressions that use application information to predict mission assignments. Specifically, we estimate

$$\text{Assignment}_i = \gamma_1 X_i^{\text{app}} + u_{1,i} \tag{1}$$

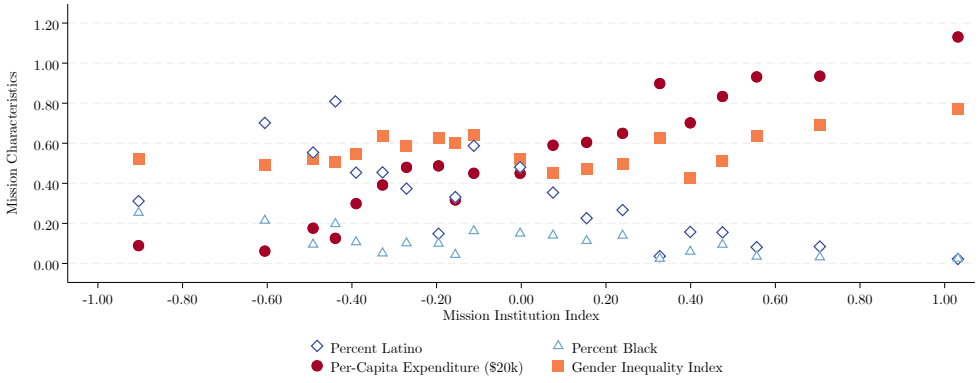
Figure 1. Differences in Mission Characteristics Provide Rich Variation



(a) Perceived Kindness



(b) Discussions of Social Issues



(c) Institutional Quality

Note: This figure depicts the relationship between objective mission characteristics and survey-based measures related to mechanisms of contact, persuasion, and institutions. Each panel depicts the Latino population share, the Black population share, local expenditure-per-capita, and gender equality over 20 assignment-weighted vigintiles of mission-average indices. An index about the kindness and receptiveness is in Panel (a), an index about discussing social issues is in Panel (b), and an index of perceived institutional quality is in Panel (c).

Because there are over 500 unique mission locations in our data, we define Assignment_i as an aggregated indicator for assignment to one of four types of missions: English-speaking missions in the US, English-speaking missions abroad, foreign-language missions in the US, and foreign-language missions abroad. In addition to application-year and month fixed effects, we include four main sets of application information in X_i^{app}. Each is reported in Panel (a) of Figure 2. The first set of variables relate to language preparedness, including intermediate proficiency in any language besides English (and indicators for each language), stated interest in learning a language, stated ability to learn a language, and high-school GPA. Second, we include information related to international travel including stated willingness to leave country, previous experience traveling abroad, whether immediate family members have served international missions, completion of seminary (a church teaching curriculum required for ministerial certificates in some countries), and whether the individual reported location-limiting medical conditions on the application. The third set are demographics, including gender, church participation, work experience, and education at the time of application. Finally, we include leadership experiences in high school or in the Church.

As seen in Figure 2, language information is strongly predictive of mission assignment. The figure reports the change in probability of each type of assignment based on each piece of information. Speaking a language, ability to speak a language, and each high school GPA point increase the probability of a foreign-language international assignment by 5–10 percentage points. Even more importantly, self-reported interest in learning a language increases the odds by 24 percentage points (37%). Interest and ability both also have small effects in levels on assignment to a foreign-language mission within the United States, but because these assignments are less common, it represents a 24–29% increase. In Appendix Figure A.3 we further disaggregated missions and show that intermediate proficiency in the ten most common languages listed on mission applications (Spanish, French, Portuguese, German, Italian, Russian, Mandarin, Japanese, Korean, and ASL) has a 25–55 percentage point effect on assignment to a mission speaking the listed language. These same pieces of language information reduce the probability of assignment to English speaking missions in the US and abroad.

Certain information about international travel is also extremely predictive of assignments. The most dramatic evidence of this is pre-existing medical conditions, which decrease international assignments by 40-57% while increasing domestic English assignments by 114% and domestic language by 247%. Self-reported willingness to leave the country is also important especially for foreign-language missions abroad and for domestic English-speaking missions. Previous travel and family member assignments have small but statistically significant effects on international assignments, again noting that because there are relatively few English

speaking missions outside of the United States, these small effects represent relatively larger percent changes.

Other information from the mission application seems less influential on mission assignment. Most demographics have relatively small and statistically insignificant predictive power. Both women and people with previous college experience are slightly more likely to receive domestic English assignments rather than foreign-language assignments abroad, but the differences are much more modest than nearly all of the language and travel variables. Leadership also has null or small negative effects. It is perhaps unsurprising that leadership experience is fairly unrelated with mission assignment as, from a staffing perspective, Church leaders likely want a roughly uniform distribution of potential leaders across mission locations. Together, these results suggest that mission assignments follow a predictable process driven by a small set of observable application characteristics. Because we gather the key application information used in assignments, we can account for this process when considering whether assignments are correlated with prior social attitudes.

4.2 Mission Assignments Are Unrelated to Characteristics Unobserved by Leaders

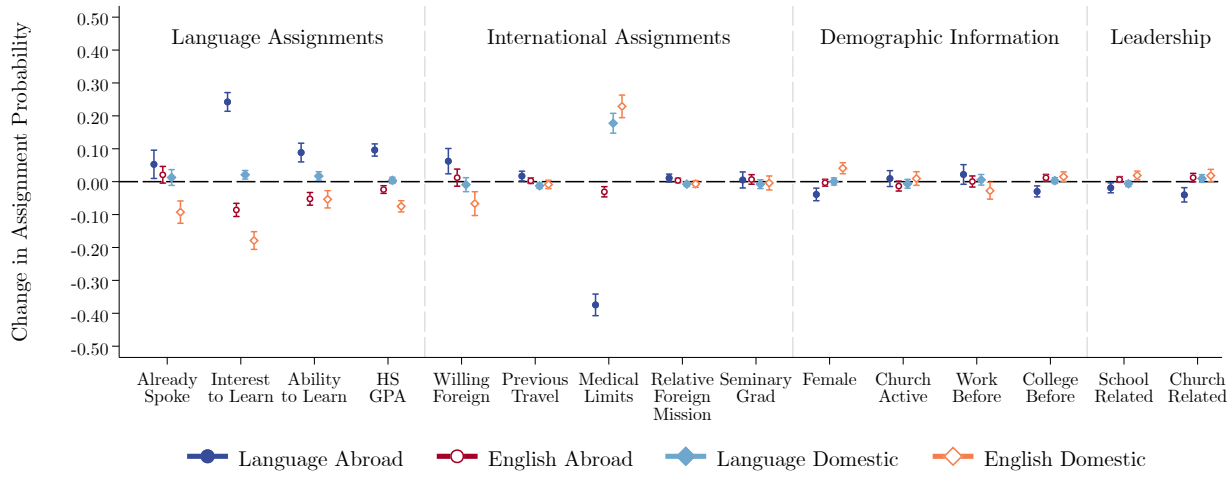
With an understanding of how application information influences mission assignments, we explore whether baseline characteristics that were not reported on the mission application are conditionally balanced across locations. To do this, we extend the regressions in Equation 1 by including additional unobserved characteristics, X_i^{o}:

$$\text{Assignment}_i = \gamma_1 X_i^{\text{app}} + \gamma_2 X_i^{\text{o}} + u_{2,i} \tag{2}$$

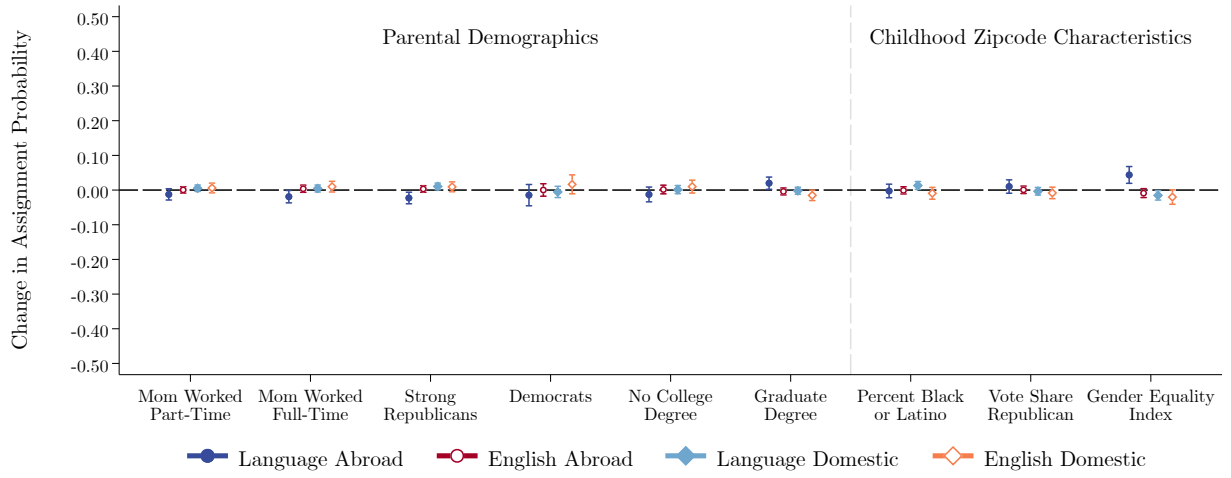
We specifically include maternal employment (part-time or full-time versus stay at home), parental political leaning (strong Republican or independent/Democrat/strong Democrat versus Republican), parental education (no college degree or graduate/professional degree versus bachelors degree), and childhood zipcode characteristics (share Black or Latino, Republican vote share, and Gender Equality Index above sample mean). We chose to elicit these characteristics because they are strongly related with baseline social attitudes. The key intuition from this comparison is that conditional on the application information, which is observed by the leaders making assignments, these other characteristics should not be predictive of mission assignments; in other words, γ_2 should be approximately zero.

Panel (b) of Figure 2 shows that these baseline characteristics are generally balanced across assignments. Shown on the same scale as Panel (a) the effects are small and nearly uniform with a standard deviation 6.2 times smaller than the effects in Panel (a). Although a

Figure 2. Mission Assignment is Conditionally Independent



(a) Application Information



(b) "Unobserved" Baseline Characteristics

Note: This figure depicts how mission assignment probabilities change with baseline information about prospective missionaries. Panel (a) uses information available on the mission application to predict assignments to four types of missions: English-speaking missions in the US, English-speaking missions abroad, foreign-speaking missions in the US, and foreign-speaking missions abroad. Panel (b) predicts the same outcomes but using other variables that are not included on the mission application or observed by the Church leader making assignments.

handful of the estimates are statistically or marginally significant, they are almost uniformly smaller than the significant estimates in Panel (a) and are generally not significant more often than we would expect by chance.[17] With this information, we can rule out even relatively small changes in assignment probabilities related to these baseline characteristics. Mission assignments are not meaningfully correlated with the unobserved predictors of social attitudes.

This evidence is reinforced by the empirical work done by Berinsky et al. (2023). Their results show that application characteristics predict mission assignments in similar ways to what we found in Section 4.1—women are more likely to be assigned to the US, people who spoke a language prior to applying are more likely to be assigned abroad[18] or to learn a language, and people with medical conditions are more likely to be assigned to the US. Despite this, they find that prior political preference and immigration attitudes were balanced *unconditionally*. Because the leaders making assignments only observe application information, which does not include baseline social attitudes, their unconditional balance and our conditional balance point to the same conclusion: mission assignments are unrelated to baseline social attitudes.

Overall, our results, along with the results from prior work and the known details about the mission assignment process, provide strong evidence that mission assignment is plausibly exogenous. This allows us to turn our attention to estimating causal place effects on long-term actions and attitudes.

4.3 Estimating Place Effects

The plausibly exogenous mission assignment lends itself to a straightforward estimation of causal place effects. We first estimate these effects using regressions of the form:

$$y_i = \gamma_{m(i)} + \beta X_i^{\text{app}} + e_i \tag{3}$$

where y_i is the outcome, $\gamma_{m(i)}$ is a fixed effect for mission location m where person i was assigned in year t and X_i^{app} are the application characteristics defined above and application-year and month fixed effects. We consolidate missions into pre-specified regions[19] for power

[17] Formally, only the effect of living in a zipcode with above-average gender equity index on foreign speaking assignment abroad has a Benjamini et al. (2006) sharpened q-value less than 0.10.

[18] This is slightly underpowered in their sample, showing roughly a 10% increase in the probability of being assigned abroad with a p-value of 0.12.

[19] US West, US Midwest, US South, US Northeast, Canada/Greenland, East Asia, Southeast Asia, South Asia, Central Asia, Middle East/North Africa, Sub-Saharan Africa, Europe, Latin America, and Oceania

instead of estimating one fixed effect per mission location. We also compute the Empirical Bayes predictions of each region effect by shrinking to global mean.

We also estimate reduced form regressions with specific place characteristics to attempt to understand results from Equation 3:

$$y_i = \tau \text{PlaceCharacteristic}_{m(i),t} + \beta X_i^{\text{app}} + e_i \tag{4}$$

where y_i is the outcome, $\text{PlaceCharacteristic}_{m(i),t}$ is the relevant characteristic for mission location m where person i was assigned in year t and X_i^{app} are the application characteristics defined above and application-year and month fixed effects. We focus on three main place characteristics that are related to our main outcome domains. We measure whether the demographic makeup of residents (Latino + Black) affects attitudes about race, whether government size (measured by per-capita expenditure) affects attitudes about political partisans, and whether local social attitudes about gender equity affect attitudes related to gender roles. Each of these is standardized across mission assignments to be mean 0 and standard deviation 1 in our sample.

Formulated this way, τ is the causal effect of being assigned to a place with a one standard deviation higher value of the given characteristic. As in other papers that follow this approach (e.g., Chetty and Hendren, 2018b), this exercise does not describe the causal effect of increasing the characteristic by one standard deviation, but rather the effect of being assigned to a place with a one standard deviation higher value of the characteristic (and everything that comes with it). Our identifying assumption is that, conditional on application characteristics, mission assignments are unrelated to unobserved determinants of y_i, which we found strong evidence of in the previous section.

Because the survey presented us with many outcomes of interest, we aggregate our outcomes into standardized, inverse-covariance weighted indices for each domain: an actions index and an attitudes index. First, we create an attitudes index based on the pre-specified items in the feelings thermometer: Latino and Black people for race, Republicans and Democrats for politics (with Republicans reverse coded), and moms at work and moms at school for gender. The indices for actions aim to capture voting and donation behavior, geographical and marital sorting, and personal identity. For race this index includes voting for a minority, the NAACP donation score, the percent Black and percent Latino in respondents' current zipcode, and marrying a minority spouse. For politics the action index includes voting for each party, party donation scores, the vote share for each party in respondents' current zipcode, and personal identity as partisans or strong partisans (with

Republicans outcomes reverse coded). Finally for gender, the index includes voting for a woman, NPWF donation score, gender equity of respondents' current zipcode, and whether the wife (for married couples) works, has a graduate degree, and served a mission.

5. Interpreting the Long-Run Effects of Mission Assignment

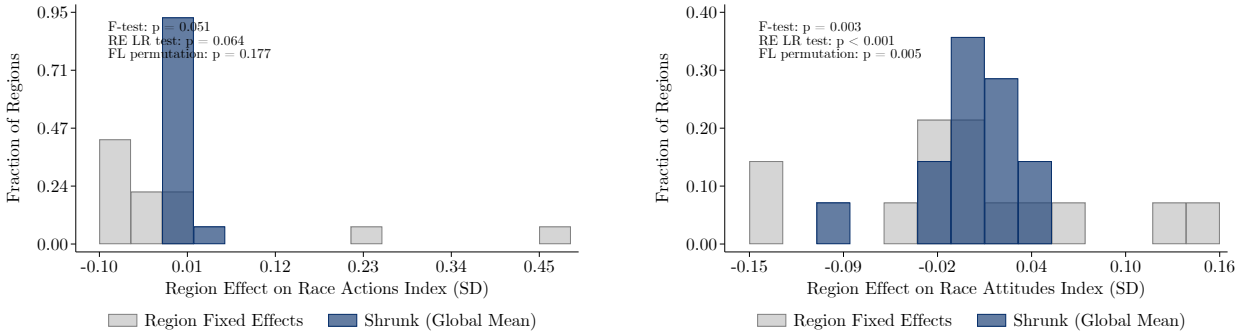
This section presents our empirical results. We first show that volunteers experience meaningful, long-term effects from their experience. These effects cannot be explained by only contact: both contact and learning from the social environment play an important role. Considering outcomes more tightly tied to affect towards groups versus policy views and the timing of changes further validates this finding. We finish the section by exploring how the conceptual distance between a volunteer's background experience and identity interact with their mission context.

5.1 Mission Assignment Shapes Long-Run Actions and Attitudes

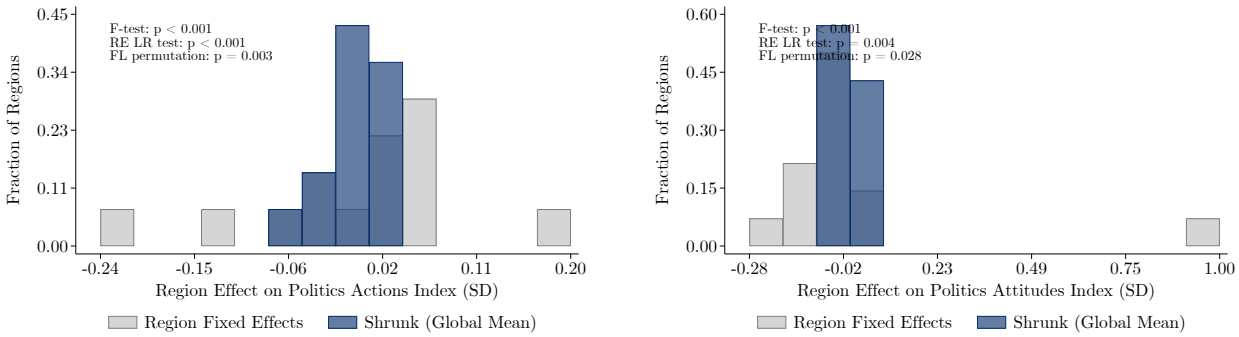
The quasi-random assignment of volunteers across locations around the world allows us to first explore the extent to which these assignments do affect long-term actions and attitudes. Figure 3 displays the estimates of Equation 3.

The estimated impacts of assignment to each region are large and varied. In each panel a histogram of the raw region fixed effects is displayed in gray and the shrunk Empirical Bayes estimates for each region are shown in the blue histogram. The shrunk effects show meaningful variation for race and politics, but the gender effects shrink completely to the mean, exhibiting no meaningful variation across mission assignments. We also employ three formal tests to understand whether the observed variation across mission assignments is statistically meaningful. First, we prespecified a heteroskedasticity robust F-test that all region fixed effects are zero. The other two tests are more conservative. The second estimates a model allowing the intercepts for each mission to vary randomly then testing whether there is statistically meaningful between-mission variation using a likelihood-ratio test, i.e., testing whether the variance of the shrunk region fixed effects is zero. The last is a randomization test in the spirit of Freedman and Lane (1983) where we calculate the residuals from regressing the outcome on the application controls and application-year and month fixed effects. We then permute these residualized outcomes across individuals and calculate the average residual within each mission assignment. We then report the p-value as the fraction of permutations that have a higher sum of squared average residuals across mission assignments than the actual assignments. Intuitively, this asks how unusual is the clustering of unexplained outcome variation in the actual assignment.

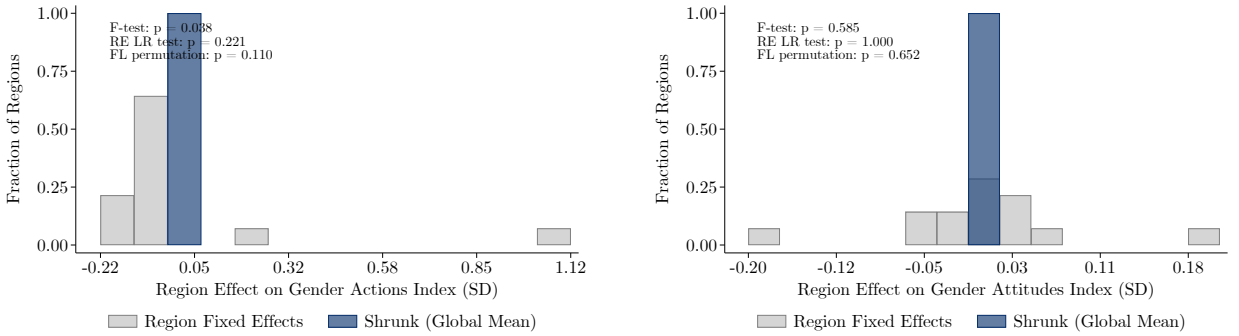
Figure 3. Long-Term Effects of Mission Assignments are Large and Vary Greatly



(a) Race Effects



(b) Political Effects



(c) Gender Effects

Note: Each panel shows the raw region fixed effects in gray on the indicated outcome and the region effects shrunk to the global mean in blue. The outcomes are the race, politics, and gender action and attitude indices. Each panel includes the p-value from a heteroskedasticity robust F-test that all region effects are zero, the p-value from a likelihood ratio test which tests whether random mission intercepts in a mixed-effects model exhibit between mission variation different than 0, and the p-value from a Freedman-Lane residual permutation test.

The results from these exercises are in the top left corners of each panel in Figure 3. Each of these tests reject at the 1 percent level for political actions and attitudes and for race attitudes[20]. The F-test and the Random Effects Likelihood Ratio test reject at the 10 percent level for race actions. With the exception of the F-test for gender actions, which rejects at the 10 percent level, all tests for the gender effects fail to reject. These results provide strong evidence that mission assignments do, in fact, matter for long-term effects on actions and attitudes for race and politics.

5.2 Parsing Reduced Form Impacts of Mission Assignment

Though these results demonstrate the existence of long-term effects of mission assignment, they do little to guide understanding of how individuals are changing. We estimate Equation 4 to build out this understanding. This asks whether the race effects are systematically driven by places with more Black or Latin American residents, whether the political effects are driven by places with higher per-capita expenditure, and whether there are gender effects for places with higher gender equality. The results are presented in Table 1.

Table 1. Long-run Impacts on Actions and Attitudes

	Race	Politics	Gender
Actions	0.019^{**}	0.016^{**}	0.003
	(0.007)	(0.008)	(0.009)
Attitudes	0.018^{**}	0.026^{***}	0.001
	(0.009)	(0.009)	(0.010)
Observations	15,199	14,454	14,745

Note: This table presents estimates from Equation 4. The outcomes are the indicated action and attitude indices for race, politics, and gender. The independent variable for race is the standardized fraction of Black or Latin American residents in the assigned mission location. The independent variable for politics is the standardized government expenditure per capita in the assigned mission location. The independent variable for gender is the standardized Gender Equality Index in the assigned mission location. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

A volunteer assigned to a location where the fraction of Black or Latin American residents

[20] with the exception of the Freedman-Lane test for political attitudes, which rejects at the 5 percent level

is one standard deviation higher experiences a 0.019 standard deviation increase in their favorable actions towards Black or Latin American people and a similar increase in their related attitudes (0.018 standard deviations). Political attitudes and actions also see a meaningful increase, with volunteers assigned to a place where expenditure per capita is one standard deviation higher increasing their favorable actions towards Democrats by 0.016 and their related attitudes by 0.026. We see no overall effects for gender attitudes and actions.

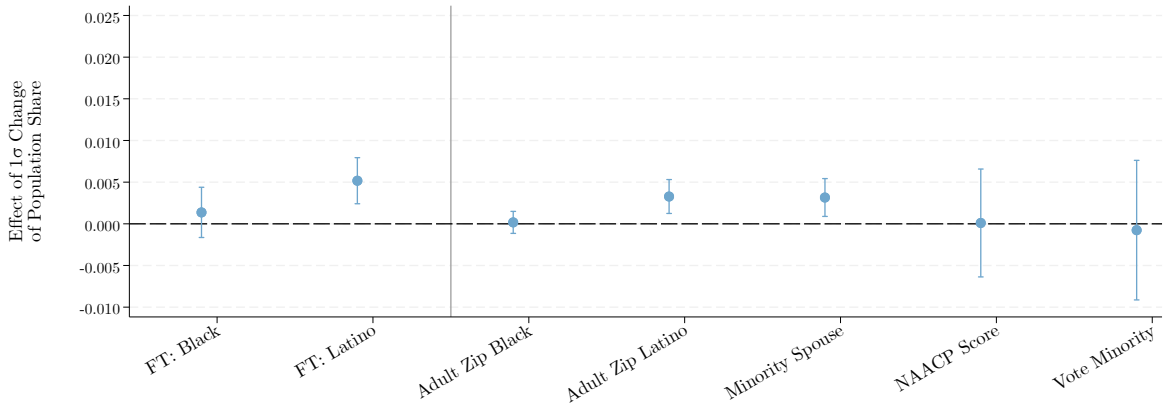
Note two main takeaways from Table 1. First, the effects for race and politics are sizable. To contextualize the size of these impacts, a similar exposure to a one-standard-deviation change in neighborhood quality for two years would produce roughly a 0.012 standard deviation change in economic mobility (Chetty and Hendren, 2018b)[21]; going from the 25th to the 75th percentile of Black or Latin American residents would result in an effect nearly 3 times larger, 0.034. Additionally, being assigned to a location in the 75th percentile of expenditure per capita as compared to the 25th percentile closes the gap in favorable attitudes towards Democrats between those with Republican parents and those with Democrat parents by 6% and the gap in related actions by 11%. Second, the persistence of these effects on attitudes also contrasts starkly with other—primarily contact-based—interventions that show rapid fade out. Our average respondent concluded their missionary service more than 30 years ago but we still observe significant effects.

Figure 4 displays the impacts on individual components of the indices. This disaggregation helps illuminate what precisely is driving the results from Table 1. The feelings thermometer measure towards Latin Americans drives the race attitude results; we see the same for actions, where the share of Latin American residents in the volunteer's current zipcode and their likelihood of marrying a minority spouse are the actions that move. We observe nearly equal and opposite impacts on feelings towards Republicans (a modest negative impact) and feelings towards Democrats (a slightly smaller impact). The biggest changes with politics come from changes in voting behavior (again, away from Republicans and towards Democrats), likelihood to report strong partisan leanings, and donations to the two political parties. Though we did not observe overall changes in the gender actions and attitudes, we see suggestive movement on the individual's likelihood to marry someone who also served a mission. These results are shown in detail in Table A.2.

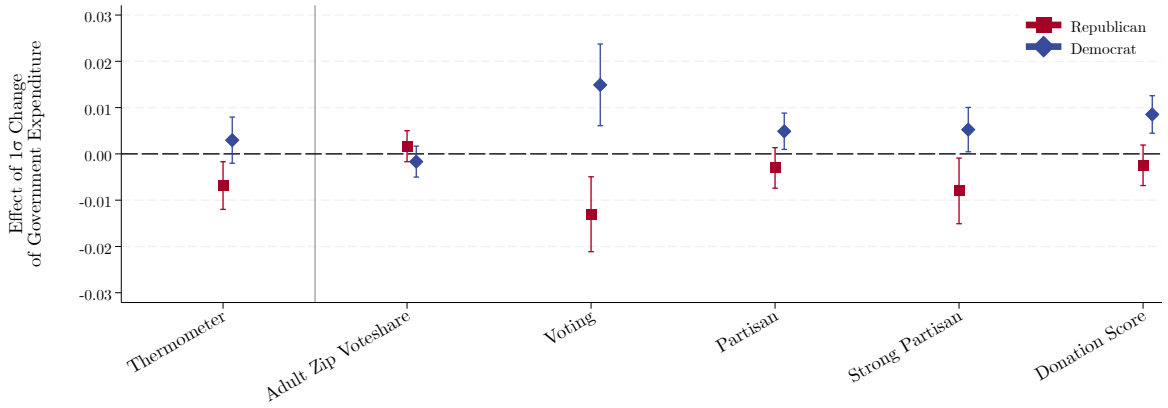
With these results in hand, we turn our attention to understanding the distinct roles that contact and learning from the social environment play in the place effects experienced by the volunteers in our sample. Given the null results on gender, we discuss only the race and politics results in the following sections.

[21]Given an annual effect of 0.17 percentile points per year (at p=25) and a mechanical standard deviation of uniform ranks of 29, we get annual effects of 0.006 standard deviations.

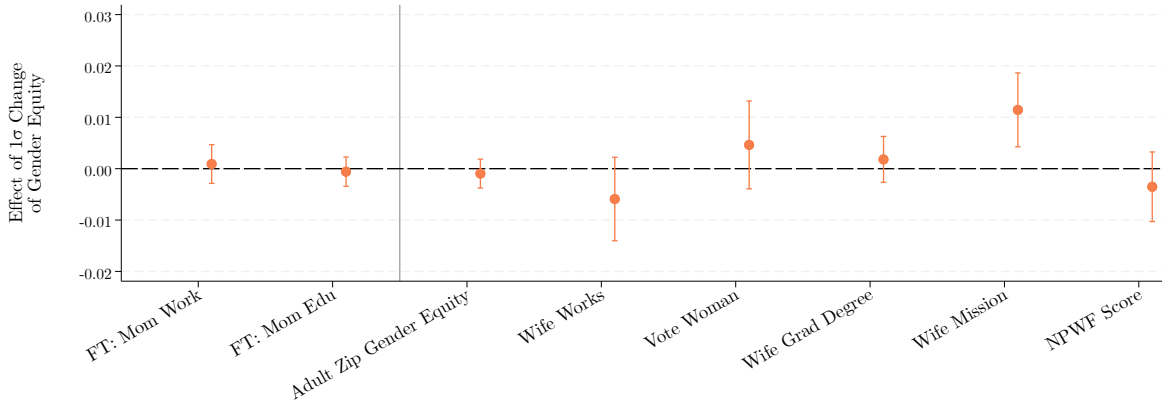
Figure 4. Attitude and Action Index Disaggregation



(a) Race



(b) Politics



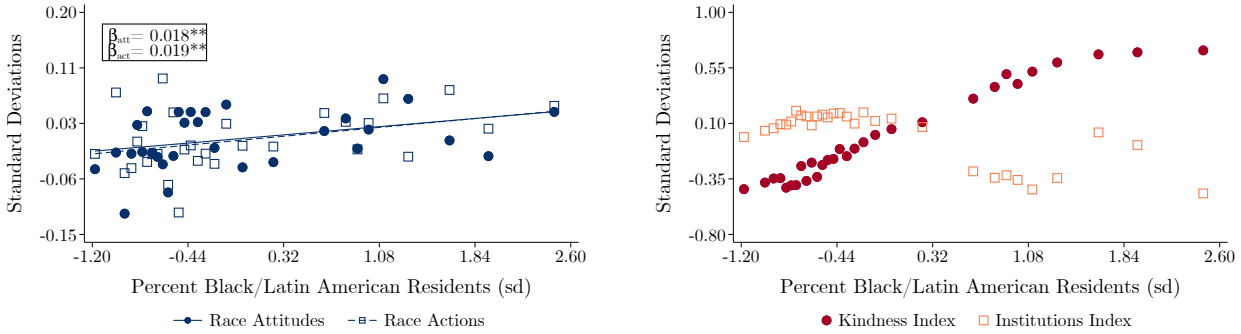
(c) Gender

Note: This figure depicts our estimates of the effect of a one standard deviation change in mission characteristics on specific attitudes and actions related to race, politics, and gender. Coefficients come from estimating equation 4 with controls and independent variables as discussed in Table 1. Robust 95% confidence intervals accompany each estimate.

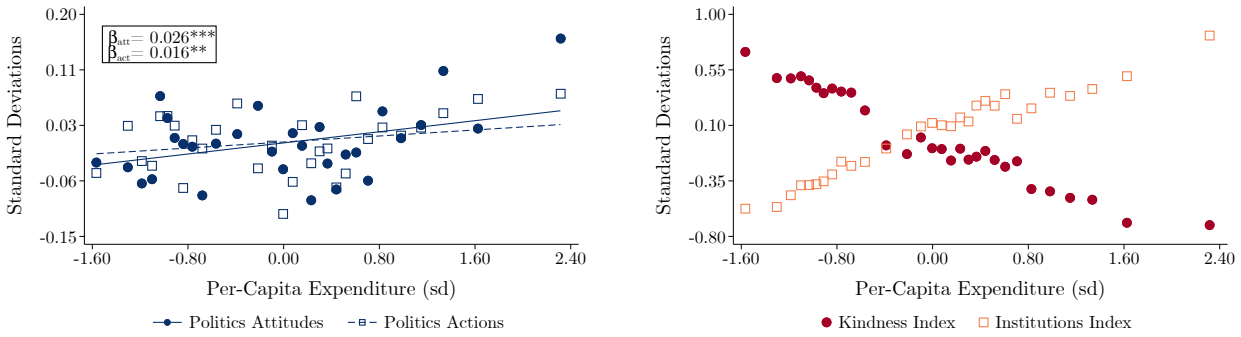
5.3 Contact Theory and Social Environment Both Play an Important Role

The extensive variation in our setting and our focus on several different outcome domains allow us to do more than just show the long-term effects of exposure to different types of places: it allows us to understand the different roles that contact and social environment play in those place effects. Our conceptual framework predicts that effects will be positively related to both the valence and the intensity of the exposure. With more than 400 possible location assignments, we are able to observe places with more or less positive exposure to people (contact) and to institutions (social environment). Figure 5 presents the main results alongside the treatment effects on the kindness and institutions indices for each volunteer.

Figure 5. Contact is Supported by Race Effects but Contradicted by Political Effects



(a) Race Effects and Population Shares



(b) Political Effects and Expenditure

Note: This figure depicts the binned scatter plot of the indicated outcome against the standardized measure of the indicated place characteristic, both controlling for reported medical conditions, race, graduation from seminary, participation in extracurriculars in high school, leadership opportunities in high school and church, whether they spoke a language pre-mission, which languages they spoke pre-mission, whether they attended some college pre-mission, their participation level in the Church pre-mission, their sex, and fixed effects for the month and year of mission service. Reported coefficients are the impact of a one-standard-deviation change in the place characteristic and come from estimating equation 4, including the controls listed above. The attitudes and actions index are an inverse covariance weighted index described in the text. The Kindness and Institutions indices are as described in the text. 'Percent Black/Latin American Residents' refers to the fraction of the residents in the mission location who were Black or Latino and 'Per-Capita Expenditure' is the the amount of government spending per person in the mission location. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

The primary story that comes out of Figure 5 is a stark one: while we see positive race and political effects, the experience underlying these positive effects appears to be very different. Panel (a) shows that volunteers assigned to places with more Black and Latin American residents have a much more kind, personal experience with the people in their assigned area, and this relationship is nearly linear. They also are less likely to observe institutions during thier volunteering. These relationships are consistent with contact theory driving the observed positive race effects. Panel (b) tells a different story, however. If contact were the primary mechanism in driving positive effects, our conceptual framework would predict negative effects on the political actions and attitudes because there is a strong, negative relationship between kindness and per-capita expenditure. However, Panel (b) also shows a strong positive relationship between per-capita expenditure and observing institutions. The strong relationship with the quality of observed institutions suggests that learning about the social environment plays an important role in the observed positive political effects. As seen in Section 5.1, gender shows no clear patterns.

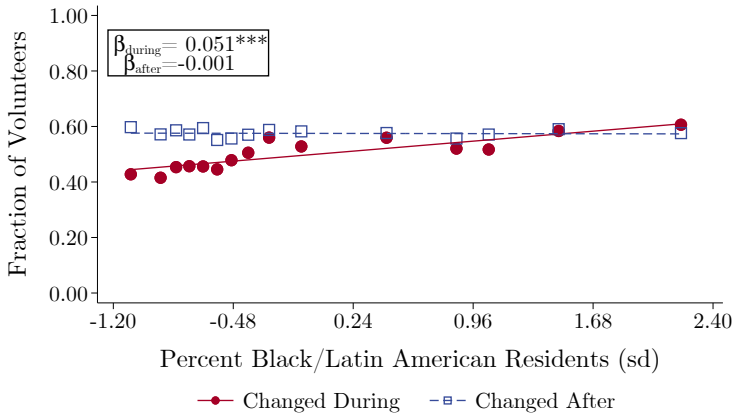
Not only does Figure 5 demonstrate the distinct roles that are played by contact and social environment, it also speaks to the prediction from the conceptual framework that greater exposure intensity leads to stronger effects. The linearity of the relationships of percent Black and Latin American residents, per-capita expenditure, the kindness index, and the institutions index demonstrate increasing exposure intensity along these dimensions. Additionally, the effects are also increasing along these axes, consistent with our prediction.

The timing of these changes further supports this interpretation. Our conceptual framework highlights this: prior literature also suggests that contact effects appear immediately and shrink over time but that learning from the social environment may unfold slowly and even cause learning after the experience happens. In our survey we asked whether the volunteers felt that their views improved, worsened, or did not change during and after their mission service. Figure 6 shows the impact of being assigned to different types of locations on whether the volunteer changed their views for the relevant outcome during or after their mission service[22].

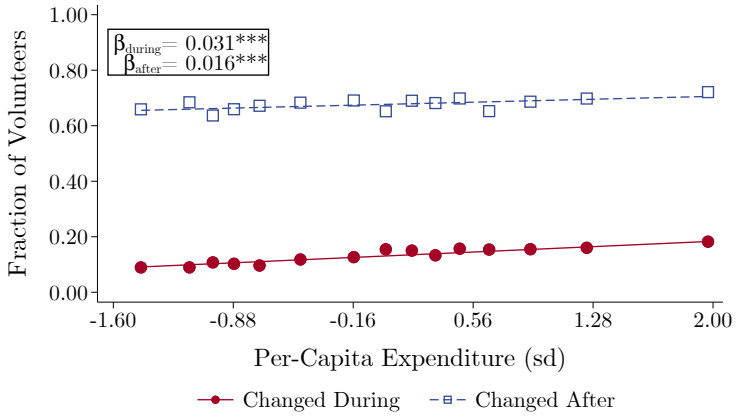
A few items are worth noting. First, a similar fraction of volunteers say they changed their views on race and politics after their missions, but a much smaller fraction of volunteers changed their views on politics during their mission (around 15 percent as compared to around 50 percent for race). This low fraction is a nice sanity check on the data, because volunteers are explicitly instructed to avoid discussing politics on their mission, so we should anticipate low rates of change with politics. Second, Panel (a) shows a strong increase in the fraction of volunteers who report that they changed their views during their mission but

[22]We code 'changed' as improved or worsened versus did not change.

Figure 6. Contact and Social Environment Imply Different Timing



(a) Race



(b) Politics

Note: These figures display estimates from Equation 4 where the outcome is whether the volunteer felt they changed their relevant attitudes (race for Panel (a), politics for Panel (b)) during their mission and whether they felt they changed their relevant attitudes after their mission. All variables are residualized using the controls from Equation 4. 'Changed' for politics includes any change towards either Republicans or Democrats.

no change after the experience. This is consistent with predictions of effects due to contact theory. In contrast, changes in political views did happen during service, but continued after the completion of the service. This continued change after the experience itself suggests continued learning, as would be expected with observing the social environment.

One final point that helps to distinguish contact and learning from the social environment is that contact may move outcomes more closely related to affect and feelings towards people, while learning from the social environment could be more likely to move actions related to policy. In Panel (a) of Figure 4 the effects on race are precisely what we should expect if we were observing contact effects: we see significant impacts on stated affect towards Latin American individuals and volunteers live in places with more Latin Americans. They are even more likely to marry a minority spouse. One may sensibly have reservations that reported feelings thermometers do not accurately reflect a person's affect towards a group. However, if a person truly did change and feel more warmly towards a group we would expect them to choose to interact with those people more in the future, and we see this in the most authentic possible way. Volunteers who went to the place with the highest fraction of Latin American residents are 1.20 percentage points more likely to marry a minority spouse and live in places with 1.25 percentage points more Latin Americans than those volunteers who went to places with the lowest fraction. This stands in contrast to outcomes such as donating to the NAACP or voting for minority candidates for national office, where we see no impact.

These conclusions contrast with the politics results shown in Panel (b). Policy actions such as voting behavior, partisan affiliation, and donation to political parties are the outcomes with the strongest observed effects. We see small or insignificant impacts on feelings thermometers and where people live. Though a person certainly may vote for someone they like better or they may join a party they feel more warmly towards, these are broadly consistent with policy views moving. Taken together, the results on the valence, intensity, timing, and specificity of the effects on race exhibit a strong contact signature, whereas the results for politics cannot be explained by contact and are much more consistent with learning from the social environment.

5.4 How Learning from the Social Environment Operates

A wealth of prior work has studied how place effects driven by contact theory function, including when it does or does not work, what types of things drive change, etc., but little is known about how learning from the social environment looks in place effects. Section 5.3 demonstrated that our political effects are happening because of learning from the social environment, so we explore how the background characteristics of individuals interact with their experience and change these effects. All of our political survey outcomes have a valence

towards Republicans or Democrats, so we can consider those dimensions for heterogeneity in background experience. We measure two relevant factors: (1) the (survey-reported) political leaning of the volunteer's parents when they were growing up, and (2) the Republican vs Democrat vote share in the area where they primarily grew up. Table 2 displays the estimates for both the marginal heterogeneity, i.e., what are the differences in place effects for people growing up in Republican vs Democrat areas or with Republican vs Independent vs Democrat parents, and for the joint heterogeneity.

Table 2. Political Heterogeneity

		Grew up in...		
	All areas	Democrat area	Republican area	Difference
Panel A. Political actions				
Republican parents	0.023**	0.008	0.031***	0.023
	(0.009)	(0.012)	(0.011)	(0.015)
Independent parents	0.022	0.009	0.053***	0.044*
	(0.014)	(0.021)	(0.019)	(0.026)
Democrat parents	0.041	0.060	0.057	-0.004
	(0.044)	(0.072)	(0.052)	(0.085)
All parents	0.016**	0.002	0.034***	0.033**
	(0.008)	(0.011)	(0.010)	(0.014)
Panel B. Political attitudes				
Republican parents	0.023**	-0.000	0.035***	0.035*
	(0.010)	(0.015)	(0.013)	(0.019)
Independent parents	0.018	0.022	0.028	0.005
	(0.016)	(0.024)	(0.023)	(0.033)
Democrat parents	0.025	0.048	0.020	-0.028
	(0.046)	(0.080)	(0.058)	(0.096)
All parents	0.026***	0.010	0.037***	0.027*
	(0.009)	(0.013)	(0.011)	(0.016)

Note: This displays estimates from Equation 4 where the outcome is the indicated index. Each column and label tells which individuals are included in the estimation sample. The difference column gives the difference between the Democrat and Republican estimates.

Note three takeaways from Table 2. First, considering the heterogeneous impacts along the two margins shows a clear pattern for where the volunteers grew up and less pattern for different parental partisanship. The original estimates of 0.016 for actions and 0.026 for attitudes are not only completely driven by those who grew up in Republican areas, but they are much larger—0.034 for actions and 0.037 for attitudes—and are both statistically

significant at the 1 percent level. Though only the estimate for those with Republican parents is statistically significant, the estimates for those with Independent and Democrat parents are not statistically different.

Second, volunteers with Republican parents who grew up in Democrat areas did not change at all, whereas those who grew up in Republican areas have strong, statistically significant impacts. This pattern is precisely what should be expected if individuals are learning from exposure to institutions in their mission location since in principle they would have observed similar institutions already when growing up. Those volunteers with Republican parents who grew up in Republican areas are the individuals who we would expect to be the most exposed, and this is exactly what we observe.

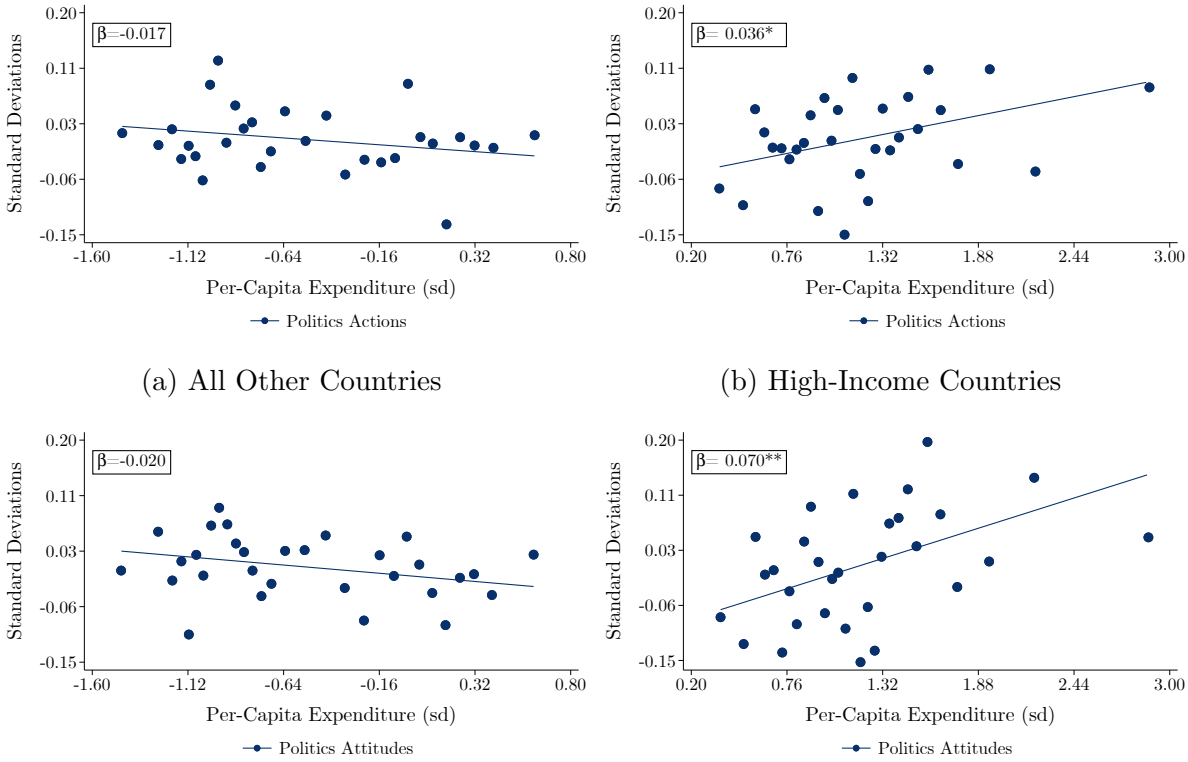
Third, the biggest difference between those who grew up in Republican vs Democrat areas is in those with Independent parents for actions but is in those with Republican parents for attitudes. Those with Republican parents likelier have further to move relative to those with Independent parents. Additionally, attitudes likely represent a smaller change than actions, suggesting that Republicans should move more on the attitudes and Independents on the actions.

These takeaways should be taken with an important caveat. Though the effects are noisy, the magnitude of the estimated effects on both actions and attitudes are largest for those with Democrat parents. Taken at face value, this is suggestive evidence of confirmation of prior opinions, especially since the largest estimates are for those with Democrat parents who grew up in Democrat areas. Those in Democrat areas with Independent or Republican parents also exhibit smaller estimates than those in Republican areas, and this pattern reverses for those with Democrat parents for both actions and attitudes. These effects should be interpreted cautiously since the sample size is very small—only 695 people in our sample grew up with Democrat parents. This split provides much less leverage than the partisan makeup of the areas where people grew up, where the split between growing up in Democrat vs Republican areas is 41 percent to 59 percent.

One additional observation is worth discussing when considering distance from prior experience. Especially when it comes to political actions and attitudes, if the context of exposure is too different from a person's original experience and from what they will go back to after the volunteering, we may not observe the same type of learning. Since the vast majority of our volunteers come from the United States, the most comparable countries around the world may also be relatively wealthy, developed countries. We explore this by utilizing year-by-year World Bank Group Country Income Classifications and grouping assignments into High-Income (like the United States) vs not High-Income (World Bank, 2026, 2025). We then run the analysis separately for these two groups of assignments.

Figure 7 displays the results of this exercise.

Figure 7. Positive Political Effects are Driven by the Most Comparable Location Assignments



(a) All Other Countries

(b) High-Income Countries

(c) All Other Countries

(d) High-Income Countries

Note: These figures display estimates from Equation 4 where the outcome is the indicated index. They are split into High-Income Countries (as measured by the World Bank Group Country Income Classifications) and all other countries.

Figure 7 provides evidence that this comparability of context is relevant in our setting. In fact, the positive results we observe on political actions and attitudes are entirely driven by volunteers assigned to High-Income countries. Panels (b) and (d) show more than double the impact of the overall estimates on actions and attitudes. These large estimates are further highlighted by the fact that Panels (a) and (c) show statistically insignificant estimates on actions and attitudes that are, if anything, negative. Taken together these patterns suggest that place effects are most prominent when the contexts are the most similar along other important dimensions.

6. Conclusion

In this paper we have explored the impact of where a person lives on their social views, including both what they say about important issues and their actions. We use the quasi-

random assignment of volunteer missionaries for the Church of Jesus Christ of Latter-day Saints to fixed geographic locations to explore the impacts on those volunteers' views on race, gender roles, and politics. We find strong impacts of where a person lives on their views and actions related to politics and race, but find little impact on their views on gender roles. Our main contribution is documenting these effects and showing that while some of them can be rationalized through a contact-theoretic lens, place effects also entail exposure to a broader social environment and the subsequent learning is also critical when considering place effects.

Our work suggests that programs immersing individuals in communities with new demographics, attitudes, and institutions can be powerful tools in mitigating bias towards different groups. On a national level these programs could include national or military service as required in many countries. Additionally, educational institutions could use or expand existing study abroad programs to include service and community integration components. For example, scholarship programs exist for doctors who are willing to relocate to under-served areas. Since racial bias has been found to be prevalent in the medical profession (e.g. Williams and Wyatt, 2015), programs such as these could encourage doctors to become involved in the community and specifically serve, help, and integrate with marginalized individuals in the community in addition to the important service of providing medical care to under-served areas.

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A. Appendix Table and Figures

Table A.1. Correlations Between Place Characteristics

	Percent Black	Percent Latino	Expenditure per Capita ($20k)	Gender Inquality Index	Kindness Index	Discussion Index	Institutions Index
Percent Black	1.000	0.365	-0.299	-0.277	0.224	-0.003	-0.110
Percent Latino	0.365	1.000	-0.628	-0.244	0.396	-0.011	-0.212
Expenditure per Capita ($20k)	-0.299	-0.628	1.000	0.360	-0.374	0.028	0.339
Gender Inequality Index	-0.277	-0.244	0.360	1.000	-0.309	0.007	0.010
Kindness Index	0.224	0.396	-0.374	-0.309	1.000	-0.002	-0.072
Discussion Index	-0.003	-0.011	0.028	0.007	-0.002	1.000	0.007
Institutions Index	-0.110	-0.212	0.339	0.010	-0.072	0.007	1.000
SD	0.211	0.439	0.440	0.213	1.000	1.000	1.000
Min	0.000	0.000	0.001	0.096	-10.158	-15.761	-2.214
Max	1.000	1.000	2.828	0.953	5.240	4.826	4.675

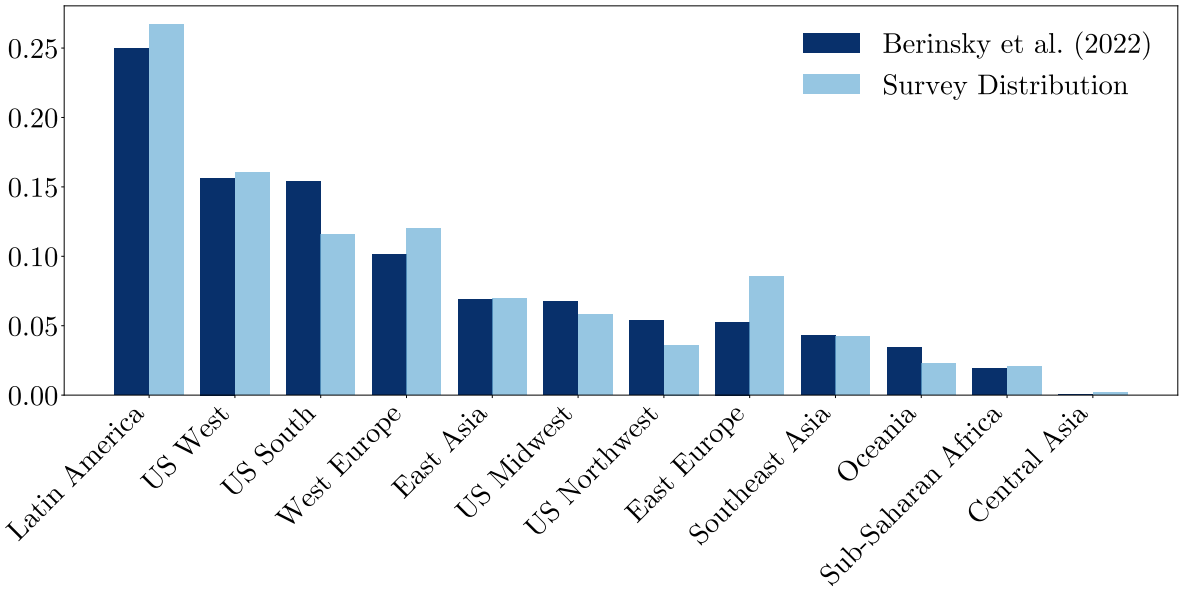
Note: This table displays the correlation between each row and column as well as the standard deviation, min, and max of each variable at the bottom of the table. Percent Black and Percent Latino are the fraction of residents that are Black or Latino. Expenditure per capita is measured in $20,000's. The Gender Inequality Index with a value of 0 demonstrates maximum inequality for one gender, whereas 1 demonstrates complete equality. The Kindness Index is a standardized index including the fraction of volunteers who felt people were kind, the fraction of volunteers who felt people were receptive, and the fraction of time volunteers spent in people's homes. The discussion index is a standardized index of the fraction of volunteers who discussed race, politics, and gender at least occasionally. The institutions index is the fraction of volunteers who said treatment of gender and racial minorities in the labor force and political cooperation were better in their mission location than at home.

Table A.2. Long-run Impacts on Actions and Attitudes

	Estimate	Std. Error	q-value	N
Panel A. Race				
Attitudes				
Thermometer: Black individuals	0.008	(0.009)	0.589	13,464
Thermometer: Latino individuals	0.032***	(0.009)	0.003	13,586
Actions				
Adult zip code % Black	0.002	(0.009)	1.000	14,315
Adult zip code % Latino	0.028***	(0.009)	0.005	14,315
Married a minority spouse	0.039**	(0.014)	0.012	7,376
NAACP donation score	0.000	(0.008)	1.000	12,781
Voted for a minority candidate	-0.002	(0.009)	1.000	14,651
Panel B. Politics				
Attitudes				
Thermometer: Democrats	0.011	(0.009)	0.129	12,109
Thermometer: Republicans	-0.024**	(0.009)	0.013	12,408
Actions				
Adult zip code Republican vote share	0.009	(0.009)	0.150	13,206
Voted Democratic	0.030***	(0.009)	0.005	13,571
Identifies as Democrat	0.015*	(0.008)	0.058	14,454
Identifies as strong Democrat	0.025**	(0.009)	0.013	12,917
Donated to the Democratic party	0.027**	(0.011)	0.013	13,483
Democratic party donation score	0.042***	(0.009)	0.001	11,608
Voted Republican	-0.029***	(0.009)	0.006	13,586
Identifies as Republican	-0.026***	(0.008)	0.006	14,454
Identifies as strong Republican	-0.011	(0.008)	0.108	12,917
Donated to the Republican party	-0.014*	(0.008)	0.065	13,505
Republican party donation score	-0.010	(0.010)	0.140	11,687
Panel C. Gender				
Attitudes				
Thermometer: Mothers pursuing careers	0.004	(0.009)	1.000	13,116
Thermometer: Mothers pursuing education	-0.004	(0.010)	1.000	13,338
Actions				
Adult zip code gender inequality index	-0.006	(0.010)	1.000	13,524
Wife works for pay	-0.012	(0.008)	0.787	14,745
Wife has a graduate degree	0.007	(0.010)	1.000	14,745
Wife served a mission	0.021***	(0.006)	0.006	12,715
Voted for a woman candidate	0.009	(0.010)	1.000	13,847
NPWF donation score	-0.010	(0.010)	1.000	12,119

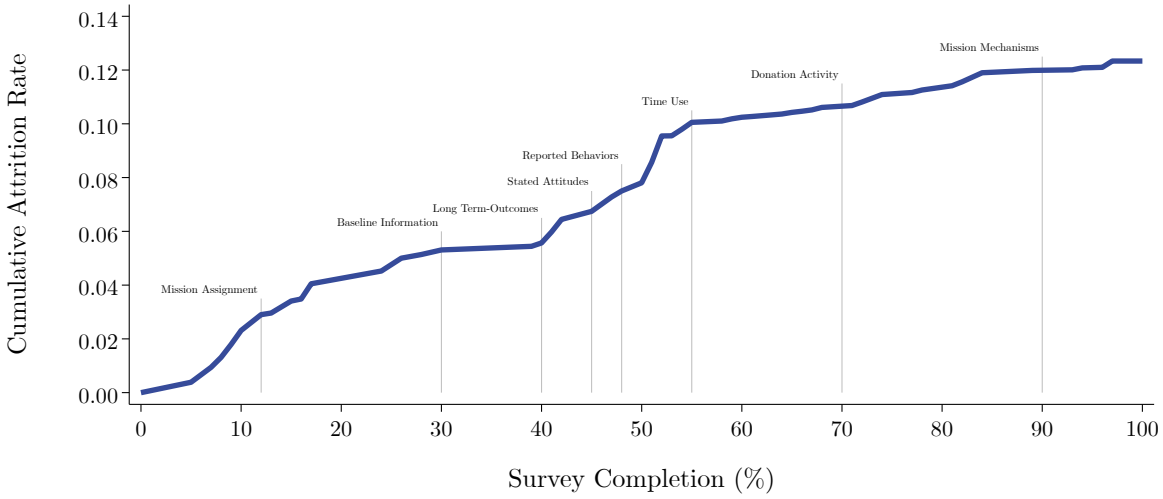
Note: This table presents estimates from Equation 4. The independent variable for race is the standardized fraction of Black or Latin American residents in the assigned mission location. The independent variable for politics is the standardized government expenditure per capita in the assigned mission location. The independent variable for gender is the standardized Gender Equality Index in the assigned mission location. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Figure A.1. Comparing Mission Assignment Distributions



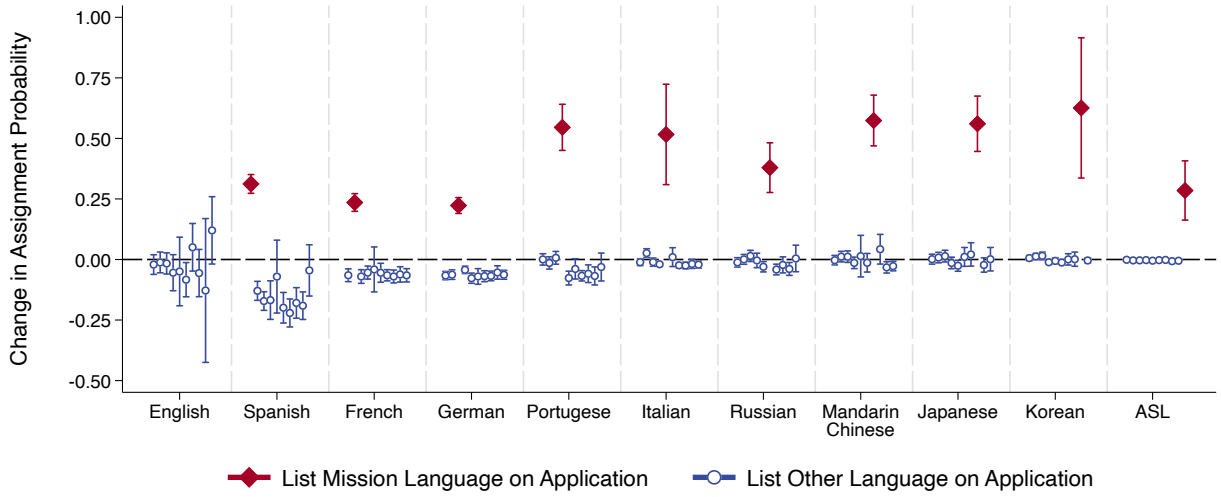
Note: This figure depicts the distribution of mission assignments from our sample compared to that reported in Berinsky et al. (2023). Sample shares are reported across mission regions. Our sample in this figure is restricted to volunteers who began their service from 2003-2013 to most closely approximate the sample in Berinsky et al. (2023).

Figure A.2. Cumulative Distribution of Attrition Point



Note: This figure presents the cumulative distribution of attrition over the percent of the survey completed. The total attrition rate is 12.3%. Gray lines along the x-axis denote the point of completion for various blocks of questions. The sample include the full set of 18,369 respondents who screened in and connected to the survey regardless of how far they progressed.

Figure A.3. Language Proficiency Strongly Influences Language Assignment



Note: This figure reports how intermediate proficiency in a foreign language affects mission assignment probabilities. Following Equation 2 we regress assignment to language X on application characteristics including the 10 most common languages listed on mission applications. Large diamond markers report the "on-diagonal" change in probability from speaking a given language on assignment to that language. The smaller hollow circle markers report the "off-diagonal" changes in probability from speaking a different language on assignments.

Table A.3. Sample Selection Characteristics

	Find Contact	Email Lands	Open Email	Start Survey
Female	-0.026	-0.012	-0.006	0.004
	(0.002)	(0.002)	(0.001)	(0.001)
Married	0.016	-0.003	0.013	0.012
	(0.002)	(0.002)	(0.001)	(0.001)
Cohort:				
Before 1950s	-0.107	-0.101	-0.091	-0.036
	(0.005)	(0.004)	(0.003)	(0.002)
1960s	-0.028	-0.031	-0.043	-0.021
	(0.004)	(0.003)	(0.003)	(0.002)
1970s	-0.001	-0.004	-0.012	-0.006
	(0.003)	(0.003)	(0.002)	(0.002)
1990s	0.006	0.012	0.024	0.011
	(0.003)	(0.003)	(0.002)	(0.001)
2000s	0.019	0.04	0.056	0.018
	(0.003)	(0.003)	(0.002)	(0.002)
2010 and After	-0.041	-0.004	0.044	0.006
	(0.003)	(0.003)	(0.002)	(0.002)
Degree:				
Graduate Degree	0.06	0.059	0.058	0.043
	(0.002)	(0.002)	(0.002)	(0.001)
No Degree	-0.057	-0.052	-0.059	-0.035
	(0.002)	(0.002)	(0.002)	(0.001)
Major:				
Arts	0.036	0.035	0.021	0.013
	(0.004)	(0.004)	(0.004)	(0.002)
Education	-0.016	-0.013	-0.019	-0.005
	(0.003)	(0.003)	(0.003)	(0.002)
Health Sciences	-0.008	-0.008	-0.012	0.001
	(0.004)	(0.003)	(0.003)	(0.002)
Humanities	0.006	0.007	0.004	0.017
	(0.003)	(0.003)	(0.003)	(0.002)
Interdisciplinary Studies	0.021	0.018	0.006	0.019
	(0.006)	(0.006)	(0.005)	(0.003)
STEM	-0.004	0.000	-0.003	0.008
	(0.003)	(0.003)	(0.003)	(0.002)
Social Sciences	0.004	0.010	0.006	0.010
	(0.003)	(0.003)	(0.003)	(0.002)
Other	0.005	0.008	0.000	0.006
	(0.003)	(0.003)	(0.002)	(0.002)
Census Division:				
East North Central	-0.005	-0.003	0.000	0.014
	(0.005)	(0.005)	(0.004)	(0.003)
East South Central	0.012	0.012	0.010	0.010
	(0.008)	(0.008)	(0.007)	(0.005)
Middle Atlantic	0.000	0.007	0.009	0.009
	(0.007)	(0.007)	(0.006)	(0.004)
New England	0.016	0.017	0.028	0.024
	(0.009)	(0.008)	(0.008)	(0.006)
Pacific	0.001	0.002	0.004	0.006
	(0.002)	(0.002)	(0.002)	(0.001)
South Atlantic	0.006	0.006	0.006	0.010
	(0.004)	(0.003)	(0.003)	(0.002)
West North Central	0.004	0.006	0.009	0.018
	(0.006)	(0.005)	(0.005)	(0.003)
West South Central	0.001	0.005	0.005	0.007
	(0.004)	(0.004)	(0.003)	(0.002)

Note: This Table presents tests of selection into each stage of our recruitment process. Each column presents a multivariate regression using directory information as predictors for each outcome. Omitted groups include Bachelor's Degrees, Business Majors, and the Mountain Census Division. The sample comprises 400,000 former students from Brigham Young University with publicly available directory information.

Table A.4. **Sample Baseline Characteristics**

	1970-1979	**1980-1989**	**1990-1999**	**2000-2010**
Female	0.11	0.2	0.27	0.23
White	0.94	0.93	0.93	0.92
Black	0.00	0.00	0.00	0.00
Asian	0.01	0.01	0.02	0.03
Hispanic	0.02	0.02	0.03	0.05
Reported Medical Conditions	0.03	0.03	0.05	0.09
Spoke Language	0.18	0.21	0.26	0.28
Graduated Seminary	0.73	0.82	0.89	0.92
HS GPA	3.39	3.50	3.63	3.71
	(0.50)	(0.46)	(0.42)	(0.39)
Leadership Opportunities in HS	0.48	0.53	0.59	0.62
Leadership Opportunities in Church	0.77	0.84	0.86	0.86
Some College Before	0.40	0.32	0.29	0.24
Parents Republican	0.72	0.79	0.83	0.84
Parents Democrat	0.10	0.08	0.06	0.04
Observations	2662	3202	5077	4706

Note: Each column gives the means for volunteers who started their volunteering in the given year range. Standard deviations are in parentheses.

Table A.5. **Sample Current Characteristics**

	1970-1979	**1980-1989**	**1990-1999**	**2000-2010**
Married	0.89	0.89	0.87	0.82
Never Married	0.02	0.03	0.04	0.08
Number Children	4.52	4.18	4.04	3.33
	(1.86)	(1.68)	(1.64)	(1.57)
Active in Church	0.91	0.88	0.84	0.76
Bachelor's Degree	0.27	0.3	0.28	0.29
Graduate Degree	0.61	0.6	0.6	0.56
Earn less 50k	0.05	0.02	0.01	0.03
Earn 50-75k	0.08	0.04	0.03	0.05
Earn 75-100k	0.11	0.06	0.06	0.09
Earn 100-150k	0.21	0.18	0.18	0.22
Earn 150-200k	0.13	0.16	0.16	0.16
Earn 200-250k	0.30	0.28	0.27	0.29
Earn more than 250k	0.17	0.28	0.30	0.19
Republican	0.58	0.51	0.39	0.29
Democrat	0.08	0.11	0.14	0.22
Observations	2662	3202	5077	4706

Note: Each column gives the means for volunteers who started their volunteering in the given year range. Standard deviations are in parentheses.

Table A.6. **Limiting Data to 1970-2009 Enables a Sufficient Coverage Rate**

Cohort Decade	HEGIS+IPEDS Bachelor's	Alumni directory	Coverage
1960–1969	24,594*	16,611	67.5%
1970–1979	39,367†	35,270	89.6%
1980–1989	46,246†	41,137	89.0%
1990–1999	59,739	56,601	94.7%
2000–2009	69,954	67,993	97.2%
2010–2019	66,538	44,340	66.6%

Note: This table reports the number of BYU bachelor's degrees conferred per decade from HEGIS (1965–1985) and IPEDS (1986 onward) Completions surveys, the number of BYU bachelor's recipients in our alumni-directory sample frame, and the resulting coverage rate. * indicates that the decade includes one or more years for which HEGIS does not predate AY 1965–66, so the count was linearly back-extrapolated from cohort 1966 at +81/year. † indicates that the decade includes one year that was linearly interpolated between adjacent observed years (cohort 1970 from the AY 1969–70 HEGIS file that is missing from the ICPSR mirror, and cohort 1983 from AY 1982–83 which is missing from both HEGIS and IPEDS).

B. Survey Details

B.1 Survey Design

Before running this project at-scale, we ran multiple rounds of field interviews, pilot surveys, recruitment experiments, and tests of construct validity to prepare the survey instrument.

We first conducted a series of field interviews with former volunteers to understand how they understood their mission experiences to have affected their social attitudes. These interviews highlighted parent political leaning, parent education, and the diversity of the childhood hometown as possible dimensions of heterogeneity. Furthermore, we identified the possible mechanisms like contact (e.g. 'I feel more warmly towards people because I have now met them'), exposure to local institutions (e.g. 'I didn't realize how large income gaps were between Black and White Americans, but now I know differently'), and contemporaneous learning from people who have different beliefs and attitudes about the world, opening to future learning about social issues after volunteering, and confirmation of prior stereotypes.

Our first pilot ran in August 2021. This survey used a convenience sample of individuals recruited through social media to answer questions focused on racial attitudes among individuals assigned to volunteer within the United States. We focused on this group primarily to allow for cleaner comparisons across mission location assignments. This was intended as a simplification to show viability in a first pass and to explore important heterogeneity and mechanisms. We collected 497 responses with an uncertain response rate (given the social

media recruiting) and fairly high attrition (30%). Notwithstanding its limitations, this first survey did demonstrate balance across different types of mission assignments. It also provided suggestive evidence of changes in both racial and political attitudes and heterogeneity by parental characteristics and childhood zipcode.

To better design our recruitment strategy we ran three waves of a second pilot. This pilot was the first to use BYU alumni as a sample frame (both the main campus and BYU Idaho). This shorter survey did not ask about mission application information and allowed individuals who volunteered in any country to respond. This pilot validated the feasibility of using scraped contact information from online sources to contact former students who were likely to have volunteered as missionaries. It also showed that compensating individuals for participation raised response rates relative to offering a lottery prize or asking for participation without compensation (which were equivalent).

To finalize and validate our survey questions and user experience, we also ran several smaller surveys on the online survey marketplace Prolific. In particular, we validated feelings thermometers with other stated measures of racial attitudes including trust questions and the racial resentment index among respondents in Utah. We also validated that feelings thermometers and inter-spousal time allocations are strongly associated with a variety of stated attitudes about gender roles. Finally, we used these pilots to sharpen the user experience of the donation activity in Exley (2020), designing a simplified version that participants seemed to understand much better without dedicating time to instrument comprehension.

B.2 Survey Recruitment and Administration

We administered our survey to a sample of BYU alumni from January 2024 to April 2024. These individuals were identified and contacted in the following way. In 2021, we collected information on 397,665 living BYU alumni from a publicly available alumni directory. Thereafter we set up a consistent and ongoing web scrape that searched social media, public white pages, company websites, and other public web sources to identify contact information for as many alumni as possible. We ran this consistently for over a year and identified email addresses for 137,680 of these alumni. After setting aside a holding sample of 25,000 (ultimately this became 25,766 as we scraped additional emails), we sent emails to 111,914 individuals across three waves happening a month apart. The first wave went out to 48,786 individuals on January 8th, 2024; the second went out to 48,254 individuals on February 12th, 2024; and the last went out to the remaining 14,910 on March 5th, 2024. We sent it in waves so as to not hit the Academic Brand Limit for UCSD in Qualtrics. For each wave, we sent an initial invite (see Figure B.4), a first follow-up to those who had not yet responded (see Figure B.5), and a second follow-up to remaining non-responders (see Figure B.6). Of

the 111,914 emails sent, 7,039 failed (the email received a hard bounce response) and 41,128 were never opened. The remainder of the emails were opened, with 32,646 at least opening the survey. Out of these, 26,276 completely finished the survey and 6,146 partially finished the survey.

Some of the potential/eventual respondents had questions or concerns before participating and would respond to the email invite. When asked about the purpose of the study, we would ask that the individual respond to the survey before we discussed the study, with the standard IRB assurances that they could remove their data after taking the survey if needed. Though this was offered to everyone, only 3 individuals asked to have their data removed after completing at least a portion of the survey.

B.3 Survey Response Rate Calculation Details

This section provides details on how we calculate our response rates to our survey. Since our survey frame is the near universe of BYU alumni during the years 1970-2010 (see Appendix Table A.6) calculating response rates to our survey requires us to understand how many individuals in this frame were eligible to take the survey, i.e., served a mission for The Church of Jesus Christ of Latter-day Saints as a young adult). For purposes of brevity in this appendix, we refer to those who previously served missions as returned missionaries (RMs).

We use data published by BYU and by IPEDS about BYU to estimate the fraction of BYU alumni who served missions. We first get the total number of BYU students per year directly from the data, then calculate the RM counts by gender. This was published directly by BYU for the years 2004-2012, and we extrapolate these numbers and gender shares through 1970 using the actual enrollment numbers at BYU and the total number of missionaries serving for the Church in each year. For all of these calculations, we omit 2005 and 2006. We do this because the Church pushed to raise expectations for volunteer missionaries starting at the very end of 2002, which led to a drop in the number of missionaries in 2003 and 2004 and subsequently an unusual enrollment pattern and share of RMs at BYU in 2005 and 2006.

For men, we calculate the ever served rate by taking the number of male RMs and dividing by the number of men who could have served missions based on age. During our sample period men were eligible to serve at 19 for 2 years, so we count all men 21 and older in the denominator. This will miss a small fraction of men who served after age 21 and a small fraction of men who came home early from their missions (and are thus RMs but younger than 21). IPEDS includes counts of male enrollees by age, but bins ages 20-21. We calculate the number of male RMs who must be in this bucket by subtracting the number

Figure B.4. Initial Email Invitation

Dear [redacted]

My name is Tanner Eastmond. I'm a BYU alum working on a PhD in economics at the University of California, San Diego. To complete my degree, I am conducting a survey and am reaching out to see if you would be willing to help. The survey takes roughly 20 minutes and explores the social attitudes of returned missionaries - motivated in part by my own mission in the Netherlands.

Whether or not you served a mission, it would help me if you could answer the question below to indicate your eligibility. We're happy to share survey results with those who respond. Also if I don't hear back from you, I will follow up in a week.

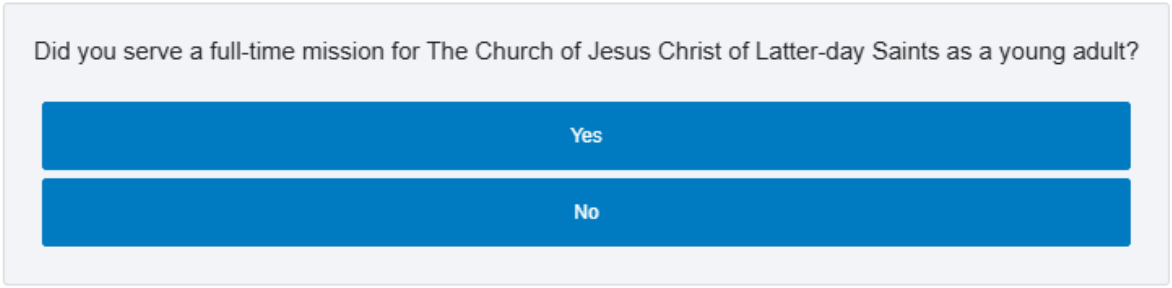
Thank you in advance for your time and help with my research. If you have any questions or need further clarification, you can reach out to me at teastmond@ucsd.edu or my collaborator, Mike Ricks, at mricks4@unl.edu. Mike is also a BYU alum (he served a mission in southern Chile) and is a new professor at the University of Nebraska.

Best regards,
Tanner

Link to my graduate profile: https://economics.ucsd.edu/graduate-program/about/grad-profiles/cohort%202018/Eastmond-Tanner.html

Link to Mike's website: https://michaeldavidricks.com/

The research has been approved by the UCSD Institutional Review Board (808966) to ensure that survey participants' privacy and data are adequately protected.



Follow this link to the Survey:
Take the Survey

Or copy and paste the URL below into your internet browser:
https://ucsd.co1.qualtrics.com/jfe/form/SV_5mqULdzWlLh9PGC?Q_DL=nP03cOKcrE8ZaW3_5mqULdzWlLh9PGC_CGC_aujlh4PcZzM9ZT0&Q_CHL=email

Follow the link to opt out of future emails:
Click here to unsubscribe

Figure B.5. First Email Follow-up

Dear [redacted]

I emailed you last week but did not hear back. I have a good start getting responses for my survey about returned missionaries, but I still need a lot more help. Your response would be greatly appreciated and would move my graduate work forward. Would you be willing to take 20 minutes to fill out the survey?

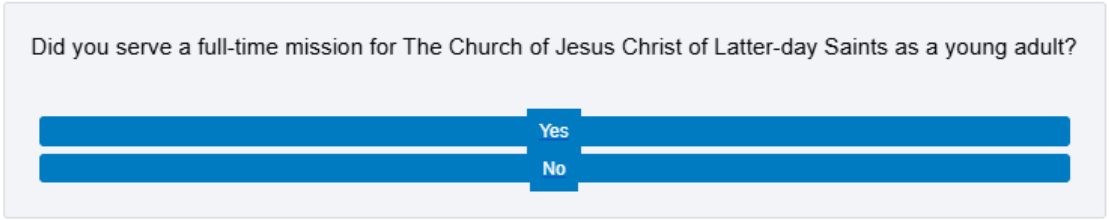
Thanks again for your time and help on this. If you already responded and we are following up unnecessarily, our apologies for the extra email. You can reach out to me at teastmond@ucsd.edu or my collaborator Mike at mricks4@unl.edu if you have any questions or need further clarification.

Best regards,
Tanner

Link to my graduate profile: https://economics.ucsd.edu/graduate-program/about/grad-profiles/cohort%202018/Eastmond-Tanner.html

Link to Mike's website: https://michaeldavidricks.com/

The research has been approved by the UCSD Institutional Review Board (808966) to ensure that survey participants' privacy and data are adequately protected.



Follow this link to the Survey:
Take the Survey

Or copy and paste the URL below into your internet browser:
https://ucsd.co1.qualtrics.com/jfe/form/SV_5mqULdzWILh9PGC?Q_DL=nP03cOKcrE8ZaW3_5mqULdzWILh9PGC_CGC_pYiHMzt7yeJgnOJ&Q_CHL=email

Follow the link to opt out of future emails:
Click here to unsubscribe

Figure B.6. Final Email Follow-up

Dear [redacted]

I wanted to check in one last time to see if you would be willing to help me by responding to my survey about returned missionaries. My graduate work would benefit greatly from your participation if you did serve as a young adult. Would you be willing to take 20 minutes to fill out the survey? If you already responded to me, my apologies for the unnecessary follow up.

Thanks again for your time and help on this. You can reach out to me at teastmond@ucsd.edu or Mike at mricks4@unl.edu if you have any questions or need further clarification.

Best regards,
Tanner

Link to my graduate profile: https://economics.ucsd.edu/graduate-program/about/grad-profiles/cohort%202018/Eastmond-Tanner.html

Link to Mike's website: https://michaeldavidricks.com/

The research has been approved by the UCSD Institutional Review Board (808966) to ensure that survey participants' privacy and data are adequately protected. The information we used to reach out are from a sample of likely or verified BYU alumni collected using publicly available information primarily from social media, online whitepages, company, and personal webpages. Your information was part of this collection effort. Our survey is not affiliated with BYU.

Did you serve a full-time mission for The Church of Jesus Christ of Latter-day Saints as a young adult?

Yes

No

Follow this link to the Survey:
Take the Survey

Or copy and paste the URL below into your internet browser:
https://ucsd.co1.qualtrics.com/jfe/form/SV_5mqULdzWlLh9PGC?Q_DL=ToFj60fj2bfOwKj_5mqULdzWlLh9PGC_CGC_MM7CahSd0SgD2YC&Q_CHL=email

Follow the link to opt out of future emails:
Click here to unsubscribe

of excess RMs (based on the 22+ bucket) and classifying all remaining men in the 20-21 bucket as ambiguous. We thus give upper and lower bounds on the ever mission rates for men by counting all of these ambiguous men in the 21 bucket (and thus counting them in the denominator) or in the 20 bucket, omitting them. One additional assumption for men is that before 1977, the Church capped the number of missionaries that could serve (as per an agreement with Selective Service) to roughly 1 per ward per 6 months. We assume 50% pass-through to BYU men since they were prioritized BYU since they were prioritized but not exempt when calculating RM numbers.

Women in our sample period were eligible to serve at 21 for 1.5 years. We assume that women returning from a mission at age 22.5 need 2-2.5 years more to finish school. We compute the annual inflow of returning sisters by taking the total stock of female RMs in a given year and dividing by 2.25 (the midpoint of the years needed to finish). We then calculate the cohort ever-served rate by dividing by the number of women in the entering cohort. We provide upper and lower bounds on this estimate by calculating the share of women old enough to have finished a mission using all women 22+ (which overstates the female RM share since 22+ year old women at BYU are over-selected towards RMS), or using seniors plus half of juniors (which understates the female RM share since female RMs that are freshman/sophomores are in the numerator but not the denominator).

Finally, we weight the yearly ever-served rates by enrollment and average across years. During our sample period, this procedure gives bounds of 90.5%-97.2% for men with a midpoint of 93.9%, 21.3%-24.5% for women with a midpoint of 24.5%, and 56.6%-65.3% with a midpoint of 59.9%.

B.4 Survey Instrument Text

The full survey instrument is reproduced below, organized by the survey blocks as they were administered in Qualtrics. Answer options are in italic, separated by a semicolon. Display logic is indicated in parentheses before the question text and references the question number within the same block. Items presented as a matrix list a single response scale once and then each row as a bullet. Graphic-intensive items (feeling thermometer, donation activity) refer the reader to a placeholder figure.

B.4.1 Screening and consent

1. Did you serve a full-time mission for The Church of Jesus Christ of Latter-day Saints as a young adult?

   Yes; No

2. (If "No" to 1) Thank you for being willing to participate in our survey. Unfortunately, we are only surveying those who served a mission for The Church of Jesus Christ of Latter-day Saints as a young adult. Based on what you indicated you are not eligible to participate. If you would like to see results of our study once we are finished or would be willing to participate in potential future studies, please indicate below.

3. (If "No" to 1) Would you like us to periodically share updates about the results of this study?

   Yes; No thank you

4. (If "No" to 1) Would you be willing to answer a follow-up survey in the future if we reach out again?

   Yes; No thank you

5. (If "Yes" to 1) Do you consent to participate in this research study?

   See Figure B.7.

   Yes, I understand what the study is about and I agree to participate; No, I do not consent.

6. (If "No, I do not consent" to 5) By not consenting, you will be unable to continue with the survey. Is this what you intended? (If this is not what you intended, change your answer to the previous question.)

   I do not want to complete the survey

B.4.2 Mission information

1. What mission did you serve in? (If you served in multiple, just indicate the mission you were originally assigned to.)

   Dropdown menu with type-ahead search; respondent required to select a valid mission name from a predefined list.

2. What was your assigned mission language?

   English; Spanish; Portuguese; French; Chinese; German; Russian; Arabic; Other, please specify.

3. To the best of your recollection, when did you serve your mission?

   Respondent selects a valid mission start and end month/year from a dropdown.

B.4.3 Initial demographics and life outcomes

1. To the best of your recollection, please answer the following questions regarding the information you shared on your mission papers.

   Response options for each item: Yes; No; N/A.

   - Did you indicate that you were willing to go outside of your home country?
   - Did you have any medical conditions (including mental health) or other major considerations that were flagged?
   - Did you graduate from seminary?
   - Did you serve in a leadership position during high school in an extracurricular activity?
   - Did you serve in a ward or stake leadership calling? (e.g., class or quorum presidency, stake youth council)
   - Did you speak a language other than English with at least conversational proficiency?

2. Select all of the following regions where you had a parent or grandparent serve a mission before your mission.

   United States/Canada/Greenland; Mexico/Central America/Caribbean; South America; Europe/Russia; Africa; Asia; Australia/New Zealand/Other Pacific Islands.

3. (If "Yes" to "Did you speak a language other than English with at least conversational proficiency?" at 1) What languages other than English did you speak with at least conversational proficiency?

   Spanish; Portuguese; French; Chinese; German; Russian; Arabic; Other, please specify.

4. To what extent do you agree or disagree with the following statements?

   Response options for each item: Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree.

   - I felt interested in learning a language.
   - I felt I would be successful in learning a language.

5. Did you live in the United States for most of your childhood?

   Yes; No.

6. (If "Yes" to 5) In which US zip code did you live for the longest during your childhood?

   Open response (numeric).

7. (If "Yes" to 5) How long did you live in that US zip code?

   Less than 3 years; 3–10 years; More than 10 years.

8. (If "No" to 5) In what city and country did you live for the longest during your childhood?

   Open response.

9. (If "No" to 5) How long did you live in that location?

   Less than 3 years; 3–10 years; More than 10 years.

10. Which of the following did you experience before your mission?

    Response options for each item: Yes; No.

    - Traveling outside of the US
    - Worked for pay outside of the home
    - Applied to Brigham Young University (BYU)
    - Attended college

11. What was your grade point average (GPA) in high school?

    Slider from 0 to 4 in increments of 0.01; top option 4+.

12. (If "Yes" to "Attended college" at 10) Which of the following describe your college attendance before your mission? Select all that apply.

    Attended BYU; Attended other university; Earned a Bachelor's degree; Earned a graduate or professional degree.

13. What is the highest level of schooling at least one of your parents had completed or the highest degree they had received before your mission?

    Less than high school; High school graduate or equivalent; Some college, no bachelor's degree; Bachelor's degree; Graduate or professional degree.

14. How often did you attend meetings/activities for The Church of Jesus Christ of Latter-day Saints during high school (including church meetings, activities, temple worship, etc.)?

    Multiple times per week; Once a week; Two or three times a month; Several times a year; Never, practically never.

15. What was the typical working situation for each of your parents?

    Response options for each item: Working full-time; Working part-time; Staying at home; N/A.

    - Your father while you were in elementary school
    - Your father while you were in high school
    - Your mother while you were in elementary school
    - Your mother while you were in high school

16. When you submitted your mission papers, approximately what share of your motivation to serve came from each of the following factors?

    Sliders for each category from 0 to 100; entries automatically scale to sum to 100.

    - Expectations of family, peers, or church leaders
    - A desire to serve God and share the gospel with others
    - Wanting to learn and have new experiences
    - Feelings of religious duty or commitment
    - Other

17. Do you currently live in the United States?

    Yes; No.

18. (If "Yes" to 16) In which US zip code do you currently live?

    Open response (numeric).

19. (If "No" to 16) In what city and country do you currently live?

    Open response.

20. How often do you currently attend meetings/activities for The Church of Jesus Christ of Latter-day Saints (including church meetings, activities, temple worship, etc.)?

    Multiple times per week; Once a week; Two or three times a month; Several times a year; Never, practically never.

21. What is your gender?

    Male; Female; Prefer not to say.

22. Are you currently married, widowed, divorced, separated, or never married?

    Married; Widowed; Divorced; Separated; Never married; Prefer not to say.

23. (If "Married" to 21) Did your spouse serve a full-time mission for The Church of Jesus Christ of Latter-day Saints?

    Yes; No.

24. (If "Yes" to 22) What mission did your spouse serve in? (If they served in multiple, just indicate the mission they were originally assigned to.)

    Dropdown menu with type-ahead search; respondent required to select a valid mission name from a predefined list.

25. How many children have you ever had?

    Slider from 0 to 10.

B.4.4 Feeling thermometer

1. Thank you for sharing information about yourself and your mission. Now, we would like to gauge your feelings toward various groups of people using a "feeling thermometer" rating system. Ratings between 50 and 100 mean that you feel favorable and warm towards the group. Ratings between 0 and 50 mean that you don't feel favorable towards them. You would rate the group at the 50 mark if you feel neutral towards them.

   See Figure B.8.

2. For example, how do you feel towards The Church of Jesus Christ of Latter-day Saints?

   Feeling thermometer slider from 0 to 100, with 50 indicating neutral.

3. Thank you for sharing! We would like to use the feelings thermometer as above to gauge your feelings towards the following groups of people.

   Each item rated on a separate feeling thermometer slider from 0 to 100, with 50 indicating neutral.

   - White people
   - Latino people
   - Black people
   - Mothers with children at home pursuing higher education
   - Mothers with children at home not working and staying at home
   - Mothers with children at home pursuing a career
   - Democrats
   - Republicans
   - Unaffiliated voters

B.4.5 Actions

1. Have you read or listened to a book, podcast, or documentary on the following topics during the last 5 years?

   Response options for each item: Book; Podcast or documentary; Both; Neither.

   - Race/racism
   - Gender roles
   - Republican party or politics
   - Democratic party or politics

2. Which of the following political activities have you engaged in during the last 5 years?

   Response options for each item: Yes; No; Not sure/don't remember.

   - Voting for a Republican candidate for national office
   - Voting for a Democratic candidate for national office
   - Voting for a Black or Latino candidate for national office

- Voting for a woman for national office
- Protesting against police violence
- Protesting against mask/vaccine mandates

3. Which of the following do you donate to in a typical year?

   Response options for each item: Yes; No.

   - Republican political campaigns or candidates
   - Democratic political campaigns or candidates
   - The Church of Jesus Christ of Latter-day Saints
   - Social justice initiatives
   - Other charitable, religious, or nonprofit organizations

4. (If "Yes" to any item at 3) What percent of your family income do you donate to political, charitable, religious, or other nonprofit organizations in a typical year?

   Slider from 0 to 20.

5. Which of the following causes do you volunteer for in a typical month?

   Response options for each item: Yes; No.

   - Republican political causes
   - Democratic political causes
   - The Church of Jesus Christ of Latter-day Saints (e.g., callings, ministering, informal service)
   - Social justice initiatives
   - Other charitable, religious, or nonprofit organizations

6. Approximately how many hours do you spend on the following activities on a typical weekday?

   Sliders for each category from 0 to 24; entries automatically scale to sum to 24.

   - Working for pay
   - Doing housework (e.g., cooking, cleaning, laundry, shopping, repairs, yardwork)
   - Caring for dependents
   - Worship and volunteering

- Leisure (e.g., exercise, reading, technology, friends)
- Self-care (e.g., hygiene, eating, sleeping)
- Other activities

7. (If "Married" to question 21 in B.3.3) Approximately how many hours does your spouse spend on the following activities on a typical weekday?

   Sliders for each category from 0 to 24; entries automatically scale to sum to 24.

   - Working for pay
   - Doing housework (e.g., cooking, cleaning, laundry, shopping, repairs, yardwork)
   - Caring for dependents
   - Worship and volunteering
   - Leisure (e.g., exercise, reading, technology, friends)
   - Self-care (e.g., hygiene, eating, sleeping)
   - Other activities

B.4.6 Donation activity

1. The following questions will present you with a series of choices. You can choose to have us donate 50 cents to the American Red Cross (on the left) or donate 50 cents to a different organization (on the right). When our survey is complete, we will donate $950 to these organizations based on the answers you and other participants give.

2. Please indicate which you would prefer in each row. Hover over the organization on the right to see the description.

   See Figure B.9.

3. (If respondent chose any non–Red Cross organization at 2) For organizations you chose over the Red Cross, would you change your mind if we double the amount to the Red Cross? Please re-select your choices below. Hover over the organization on the right to see the description.

   See Figure B.10.

4. (If respondent chose Red Cross over any non–Red Cross organization at 2) For organizations you did NOT choose over the Red Cross, would you change your mind if we

double the amount to those organizations? Please re-select your choices below. Hover over the organization on the right to see the description.

See Figure B.11.

5. (If respondent still chose Red Cross over a given organization at 3) Is there any amount of money at which you would prefer donating to the following organizations rather than giving 50 cents to the American Red Cross?

   Response options for each item: Yes; No. Each item below is displayed only for organizations the respondent still preferred at the 100–50 step.

   - The NAACP
   - The Republican Party
   - The Democratic Party
   - The National Partnership for Women and Families
   - The Church of Jesus Christ of Latter-day Saints

6. (If respondent still chose a given organization over Red Cross at 4) Is there any amount of money at which you would prefer donating to the American Red Cross rather than giving 50 cents to the following organizations?

   Response options for each item: Yes; No. Each item below is displayed only for organizations the respondent still preferred at the 50–100 step.

   - The NAACP
   - The Republican Party
   - The Democratic Party
   - The National Partnership for Women and Families
   - The Church of Jesus Christ of Latter-day Saints

B.4.7 Mechanisms

Respondents on mobile devices and on desktop saw functionally identical questions; the only difference is that mobile respondents answered the during-mission and after-mission change matrix at the end of the block (question 7 below) as two separate matrices rather than as a single combined matrix.

1. We are grateful for the information you have shared to this point. We will continue the survey asking a few questions directly about your mission experience then finish the survey with some final demographic questions.

2. In general, how kind or unkind were the local people to you on your mission (excluding members of the church)?

   Very kind; Kind; Somewhat kind; Neither kind nor unkind; Somewhat unkind; Unkind; Very unkind.

3. In general, how would you describe your feelings toward the local people on your mission? Use the same feelings thermometer as before.

   Feeling thermometer slider from 0 to 100, with 50 indicating neutral.

4. Approximately what fraction of proselyting time on your mission was spent doing the following activities? Consider the hours after morning study before you would return to the apartment for bed.

   Sliders for each category from 0 to 100; entries automatically scale to sum to 100.

   - Finding new people to teach
   - Teaching and visiting people
   - Community service
   - Transportation
   - Eating, resting, and other activities in the apartment

5. In general, how receptive were the local people to your message on your mission?

   Very receptive; Receptive; Somewhat receptive; Neither receptive nor unreceptive; Somewhat unreceptive; Unreceptive; Very unreceptive.

6. How often did you discuss the following topics during your mission in lessons, with members, or with other missionaries or mission leaders?

   Response options for each item: Never/Virtually never; A few times; Monthly; Weekly; Most days.

   - Gender roles
   - Race/racism
   - Politics

7. Indicate whether you feel the following were better in your hometown, in your mission, or equally good/bad in both.

   Response options for each item: Better at home; Better in my mission; Equally good/bad in both; Unable to compare, no exposure on my mission.

   - Equal treatment of men and women in the workplace
   - Equal treatment of different racial and ethnic groups in the workplace
   - Political parties working together
   - Church organization

8. How, if at all, did your feelings towards the following groups or topics change during your mission and after your mission?

   Response options for each item, separately for "During your mission" and "After your mission": Improved; Unchanged; Worsened.

   - Mothers working or pursuing education outside the home
   - Racial or ethnic minorities
   - Republicans
   - Democrats
   - The Church of Jesus Christ of Latter-day Saints

B.4.8 Exit demographics

1. Are you of Hispanic, Latino, or Spanish origin?

   Yes; No; Prefer not to say.

2. The following is a list of five race categories. You may choose one or more races. Are you:

   American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander; White; Other; Prefer not to say.

3. What is the highest level of schooling you have completed or the highest degree you have received?

   Some college, no degree; Associate's degree; Bachelor's degree; Graduate or professional degree.

4. What is your annual household income (before paying taxes), which is the total amount that individuals in your home made within the last year?

   Less than $50,000; $50,000–$74,999; $75,000–$99,999; $100,000–$150,000; $150,000–$200,000; $200,000–$250,000; More than $250,000; Prefer not to answer.

5. Below is a seven-point scale on which the political views that people might hold are arranged from strong Democrat to strong Republican. Where would you place yourself on this scale?

   Strong Republican; Republican; Not very strong Republican; Moderate/middle of the road; Not very strong Democrat; Democrat; Strong Democrat; Haven't thought much about it; Prefer not to answer.

6. Where would you place your parents on this scale when you were growing up?

   Strong Republican; Republican; Not very strong Republican; Moderate/middle of the road; Not very strong Democrat; Democrat; Strong Democrat; Parents held very different political opinions; Haven't thought much about it; Prefer not to answer.

7. Do you feel that this survey was biased?

   Heavy right wing bias; Moderate right wing bias; Slight right wing bias; Unbiased; Slight left wing bias; Moderate left wing bias; Heavy left wing bias.

8. Would you like us to periodically share updates about the results of this study?

   Yes; No thank you.

9. Would you be willing to answer a follow-up survey in the future if we reach out again?

   Yes; No thank you.

10. Thank you for participating in this survey! We are immensely grateful for your time. If there is anything else you would like us to know about your mission experiences, responses, or about our survey, we would love to hear your thoughts.

    Open response.

B.4.9 Figures referenced in the survey instrument

The figures below show screenshots of the question formats and the full text of the consent screen, which are too long to reproduce inline in the questionnaire above.

Figure B.7. Consent screen. Displays the full UCSD IRB-approved informed-consent language (purpose of the study, expected time burden, data use, recontact procedures, and contact information) above the binary consent response.

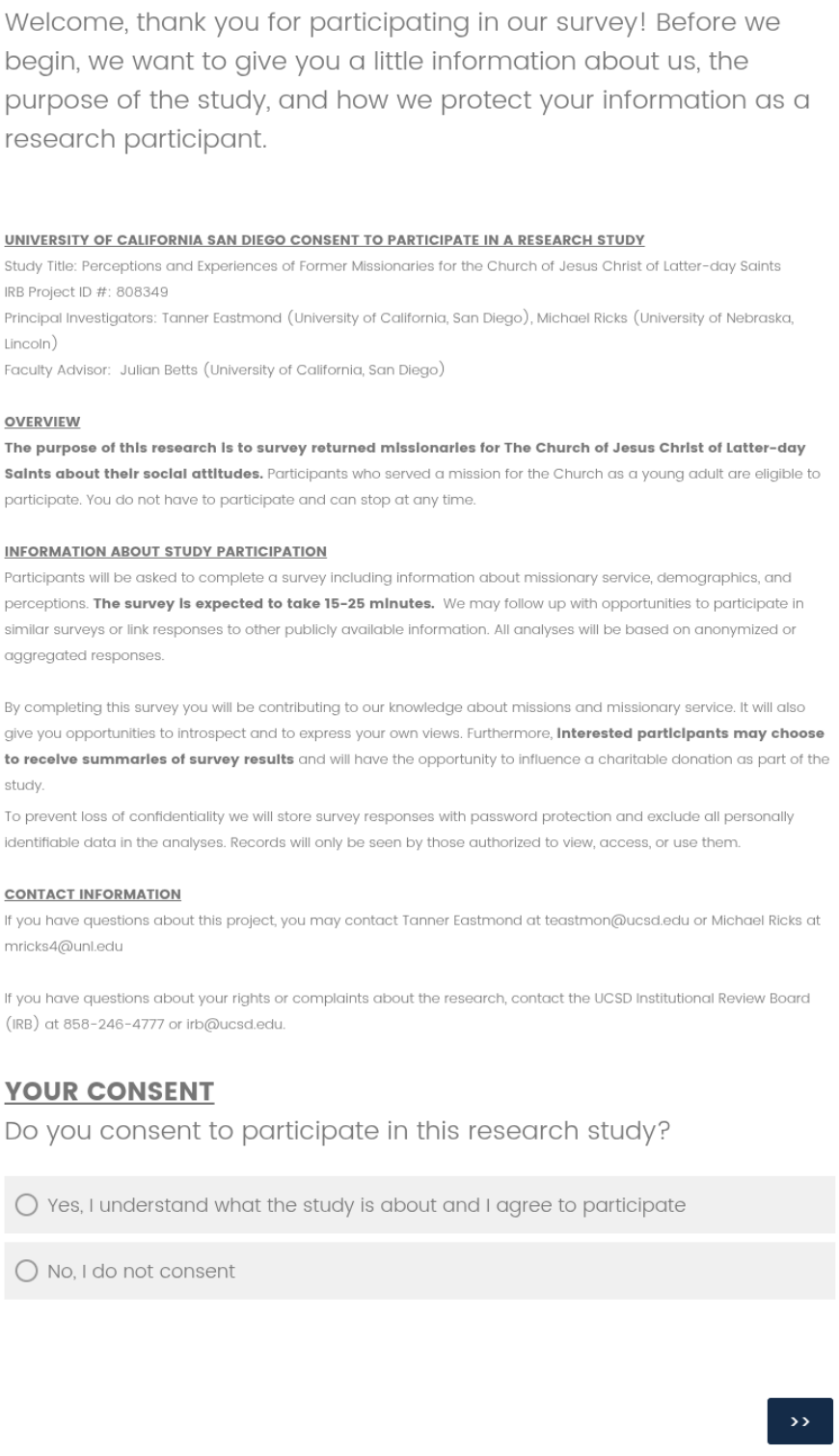


Figure B.8. Feeling thermometer example. Sliders range from 0 (most unfavorable) to 100 (most favorable), with 50 indicating neutral. Used for each group rated in B.3.4.

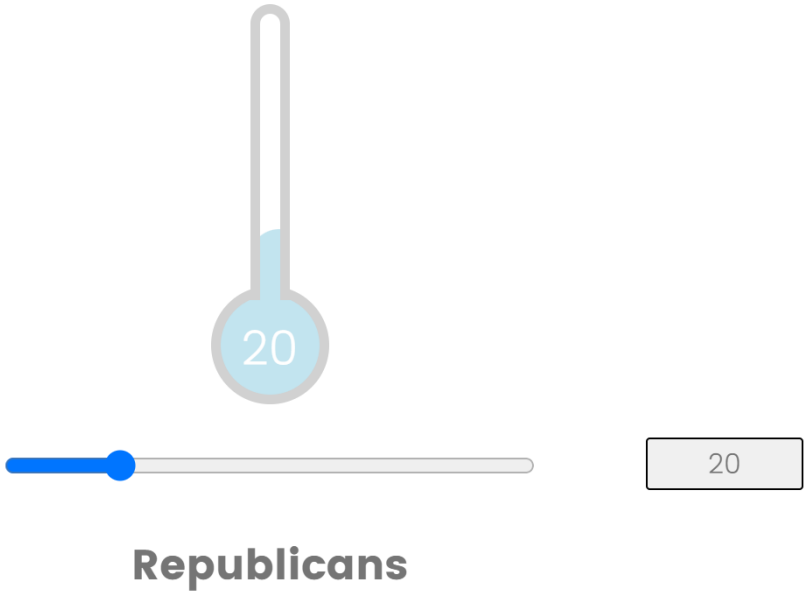


Figure B.9. Donation activity, initial choice screen. Each row pairs a 50-cent donation to the American Red Cross (left) against a 50-cent donation to one of the five other organizations (right).

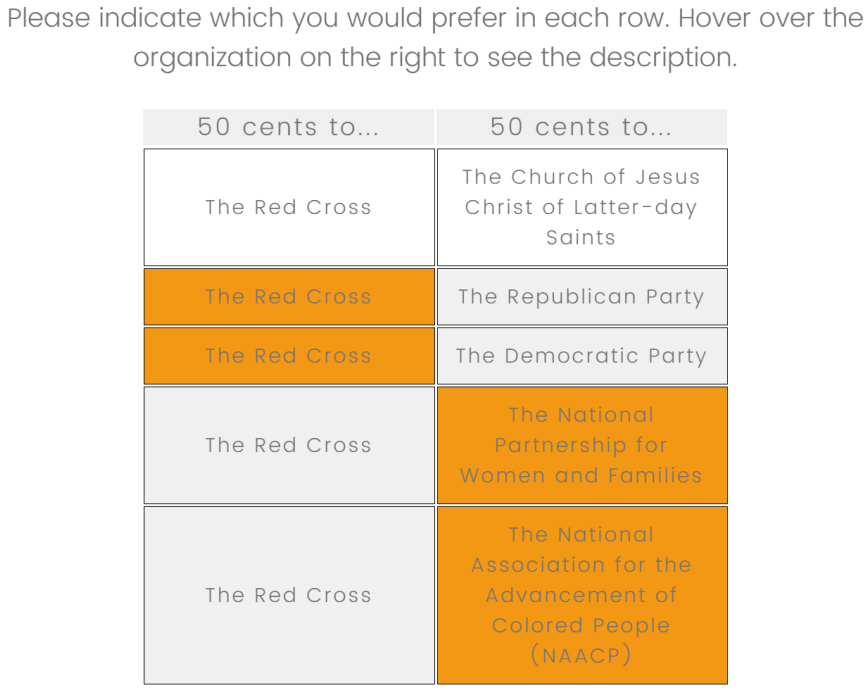
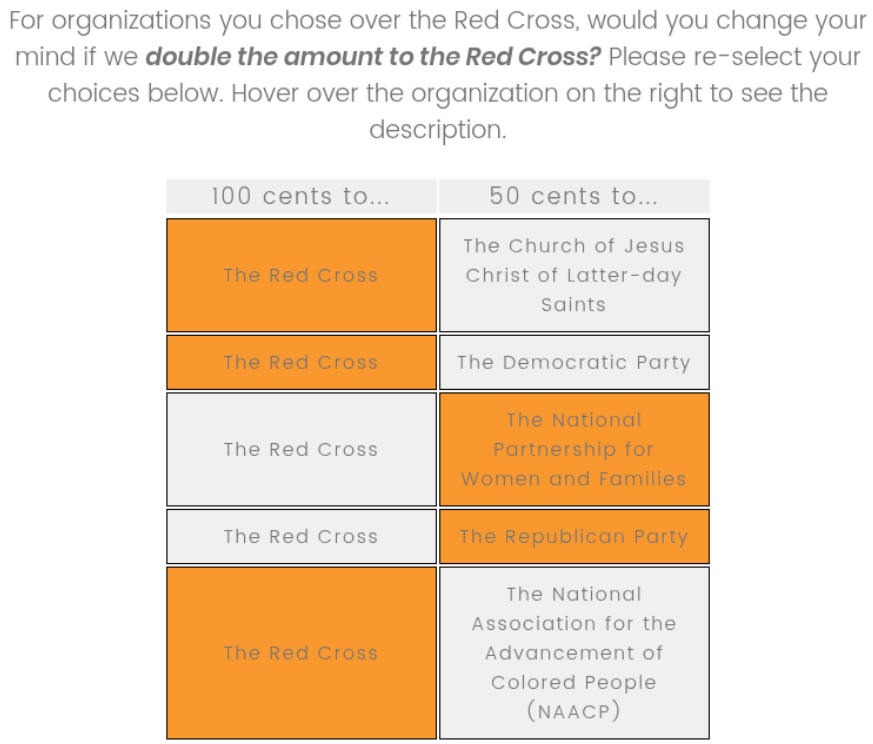


Figure B.10. Donation activity, Red Cross amount doubled. Shown only for rows in which the respondent initially chose the other organization at the 50–50 step.



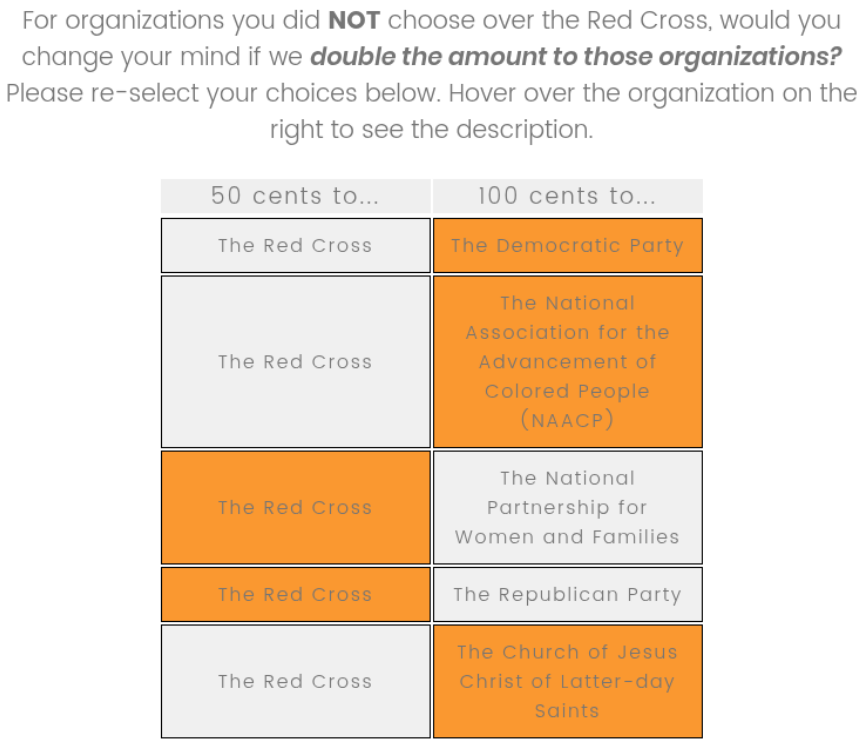
B.5 Survey Variable Definitions

Variable names below correspond to the columns in the analysis dataset. Unless otherwise noted, indicators take the value 1 when the condition is satisfied, 0 when the relevant survey item is non-missing and the condition is not satisfied, and are set to missing when the underlying survey item is missing.

Survey administration. *responseid*: Qualtrics response identifier.
recipientemail: email address used for survey distribution.
distributionchannel: Qualtrics distribution channel.
progress: percent of survey completed.
durationinseconds: time to complete the survey, in seconds.

Mission assignment. *missionloc_raw*: self-reported mission name (Qualtrics dropdown). *missionlocation*, *missionloc_clean*, *MissionName*: cleaned mission name after standardization and crosswalk to the mission-level treatment data.
missionlanguage_raw, *missionlanguage_clean*: self-reported and cleaned mission language.
missionstartmonth, *missionstartyear*, *missionendmonth*, *missionendyear*: month and year

Figure B.11. Donation activity, charity amount doubled. Shown only for rows in which the respondent initially chose the American Red Cross at the 50–50 step.



the respondent began and ended the mission.

any_foreign: indicator equal to 1 if the cleaned mission name does not contain a U.S. state.

any_language: indicator equal to 1 if the cleaned mission language is not English.

mission_eng, *mission_spa*, *mission_por*, *mission_ger*, *mission_fre*, *mission_jap*, *mission_chn*, *mission_ita*, *mission_rus*, *mission_kor*, *mission_asl*: indicators for each cleaned mission language.

Mission papers. *willingforeign*: indicator equal to 1 if the respondent indicated on the mission papers a willingness to serve outside the home country.

medconditions: indicator equal to 1 if the respondent indicated any flagged medical or mental health considerations on the mission papers.

seminarygrad: indicator equal to 1 if the respondent indicated graduating from seminary on the mission papers.

extrashsleader: indicator equal to 1 if the respondent reported a high-school extracurricular leadership position on the mission papers.

churchleader: indicator equal to 1 if the respondent reported a ward or stake youth leadership calling on the mission papers.

speaklang: indicator equal to 1 if the respondent reported speaking a language other than English with at least conversational proficiency on the mission papers.

Family mission exposure. *fam_us_can_green*, *fam_mex_ca_car*, *fam_sa*, *fam_eur_russ*, *fam_africa*, *fam_asia*, *fam_aus_nz_pi*: indicators equal to 1 if the respondent selected each region as a place where a parent or grandparent served a mission before the respondent's mission. Categories are not mutually exclusive.

Pre-mission language background and beliefs. *languagepremission*: raw text variable listing other languages spoken with at least conversational proficiency before the mission.
learnnewlang_int: indicator equal to 1 if the respondent answered "Strongly agree" or "Agree" to "I felt interested in learning a language."
learnnewlang_abi: indicator equal to 1 if the respondent answered "Strongly agree" or "Agree" to "I felt I would be successful in learning a language."
The following indicators are each equal to 1 if the value of *languagepremission* (including the free-text "Other, please specify" field) matches the corresponding regular expression (case-sensitive), and 0 otherwise. Indicator-language pairings and pattern strings follow the cleaning code in `02c_scale_survey_clean.py`.

Variable	Pattern matched in *languagepremission*
prespanish	`Spanish`
prefrench	`French`
pregerman	`German`
prerussian	`Russian`
prechinese	`Chinese|Mandarin|Cantonese`
preportuguese	`Portuguese`
prearabic	`Arabic`
preitalian	`Italian`
pretagalog	`Tagalog`
preasl	`ASL|American Sign Language`
prejapanese	`Japanese`
preswedish	`Swedish`

A parallel set of *know_¡lang¿* indicators (e.g., *know_spa*, *know_fre*, *know_ger*, *know_por*, *know_chn*, *know_rus*, *know_jap*, *know_asl*, *know_ita*, *know_kor*) is constructed in `02g_merged_treatment_survey_prep.` using the cleaned (proper-cased and trimmed) *languagepremission* string. The *know_** indicators are the ones used in the analysis; the *pre** variables are kept for legacy reference.

Childhood location. *uschild*: indicator equal to 1 if the respondent lived in the United States for most of their childhood.
zipcodechild: U.S. zip code lived in the longest during childhood (asked if *uschild*=1).
zipcodechildlength: categorical length of time lived in the longest childhood U.S. zip code (*Less than 3 years*, *3–10 years*, *More than 10 years*).
foreignchild: free-text city and country lived in the longest during childhood (asked if *uschild*=0).
foreignchildlength: categorical length of time lived in the longest non-U.S. childhood location.
child_utah: indicator equal to 1 if *zipcodechild* falls in the Utah range (84001–84791).

Pre-mission experiences and education. *outustravel*: indicator equal to 1 if the respondent traveled outside the U.S. before the mission.
workedpre: indicator equal to 1 if the respondent worked for pay outside the home before the mission.
applybyupre: indicator equal to 1 if the respondent applied to BYU before the mission.
attendcolpre: indicator equal to 1 if the respondent attended any college before the mission.
attendbyupre: indicator equal to 1 if the respondent attended BYU specifically before the mission.
bachdegpre: indicator equal to 1 if the respondent earned a bachelor's degree before the mission.
graddegpre: indicator equal to 1 if the respondent earned a graduate or professional degree before the mission.
hsgpa_1: self-reported high school GPA, slider from 0 to 4.
nohsparent, *hsparent*, *somecolparent*, *bachelorparent*, *graddegreeparent*: mutually exclusive indicators for the highest schooling completed by at least one parent before the mission (less than high school; high school; some college; bachelor's; graduate or professional).

Religious activity. *highlyactivepre*: equal to 1 if pre-mission church attendance during high school was "Multiple times per week."
activepre: equal to 1 if pre-mission attendance was "Once a week" or "Two or three times a month."
lessactivepre: equal to 1 if pre-mission attendance was "Several times a year."
inactivepre: equal to 1 if pre-mission attendance was "Never, practically never."
highlyactive, *active*, *lessactive*, *inactive*: same definitions applied to current church attendance.

Motivations to serve (auto-scaled to sum to 100; rescaled in the cleaning code to sum to 1). *motiservegod*: share attributed to a desire to serve God and share the gospel.
motinewexperiences: share attributed to wanting to learn and have new experiences.
motiduty: share attributed to religious duty or commitment.
motiexpectations: share attributed to expectations of family, peers, or church leaders.
motiother: share attributed to other reasons. (When all five raw responses are zero, all five shares are set to missing.)

Current location and household. *uscurrent*: indicator equal to 1 if the respondent currently lives in the United States.
zipcode: current U.S. zip code (if *uscurrent*=1); first five digits used in the merge to commuting-zone characteristics.
citycountry: free-text current city and country (if *uscurrent*=0).
married, *widowed*, *divorced*, *nevermarried*: mutually exclusive marital-status indicators (the "Separated" and "Prefer not to say" categories are omitted).
spousemission: indicator equal to 1 if the spouse served a full-time mission (asked if *married*=1).
spousemissionname: spouse's mission name (Qualtrics dropdown; asked if *spousemission*=1).
numkids_1: number of children, slider from 0 to 10.
female: indicator equal to 1 if respondent reports gender as "Female."

Parent work situation. *dadhomeelem*, *dadhomehigh*, *momhomeelem*, *momhomehigh*: indicators equal to 1 if the respondent reported the corresponding parent was "Staying at home" during the respondent's elementary-school / high-school years.
dadpartelem, *dadparthigh*, *mompartelem*, *momparthigh*: same, for "Working part-time."
dadfullelem, *dadfullhigh*, *momfullelem*, *momfullhigh*: same, for "Working full-time."
(Indicators are set to missing when the underlying parent–period response is missing.)

Feeling thermometers. *thermometer_church*: warmth toward The Church of Jesus Christ of Latter-day Saints, 0–100.
thermometer_black, *thermometer_white*, *thermometer_latin*: warmth toward Black, White, and Latino people, 0–100.
thermometer_rep, *thermometer_dem*, *thermometer_ind*: warmth toward Republicans, Democrats, and Independents (unaffiliated voters), 0–100.
thermometer_momwork, *thermometer_momeduc*, *thermometer_momstay*: warmth toward mothers pursuing a career, mothers pursuing higher education, and mothers staying at home (each

0–100).
thermometer_missbefore: warmth toward the local people on the mission, asked before the mechanism block in earlier waves (0–100).
thermometer_missafter: warmth toward the local people on the mission, asked in the mechanism block (0–100).

Media exposure (last 5 years). *bookrace*, *podcastrace*: indicators equal to 1 if the respondent consumed a book (*book* or *both*) or podcast/documentary (*podcast* or *both*) on race/racism.
bookgender, *podcastgender*: same for gender roles.
bookrep, *podcastrep*: same for the Republican party.
bookdem, *podcastdem*: same for the Democratic party.

Political and donation actions. *voterep*, *votedem*, *voteminority*, *votewoman*: indicators equal to 1 if the respondent reported voting for a Republican, Democratic, Black or Latino, or female candidate for national office in the last 5 years.
protestpolice, *protestmasks*: indicators equal to 1 if the respondent reported protesting police violence or mask/vaccine mandates in the last 5 years.
donrep, *dondem*, *donchurch*, *donsocialjustice*, *donother*: indicators equal to 1 if the respondent reported donating to each category in a typical year.
donationsamount_1: self-reported percent of family income donated to political, charitable, religious, or other nonprofit organizations in a typical year, 0–20 (asked if any *don**=1).
volrep, *voldem*, *volchurch*, *volsocialjustice*, *volother*: indicators equal to 1 if the respondent reported volunteering for each category in a typical month.

Time use (typical weekday). *timework*, *timehousework*, *timedep*, *timeworship*, *timeleisure*, *timeselfcare*, *timeother*: respondent's hours spent working for pay, doing housework, caring for dependents, in worship/volunteering, on leisure, on self-care, and on other activities. Raw slider entries automatically rescale to sum to 24.
timework_spouse, *timehousework_spouse*, *timedep_spouse*, *timeworship_spouse*, *timeleisure_spouse*, *timeselfcare_spouse*, *timeother_spouse*: same items for the spouse, asked only if respondent is married.
husb_work, *husb_house*, *husb_depend*, *husb_leis*: husband's hours, constructed by selecting the respondent's own entry if *female*=0 and the spouse entry if *female*=1. *husb_leis* pools *timeleisure* and *timeworship*.
wife_work, *wife_house*, *wife_depend*, *wife_leis*: analogous wife's hours.

Donation activity (incentivized). Each respondent allocated five $0.50 donations between the American Red Cross and one of five paired organizations: NAACP (*naacp*), Republican Party (*gop*), Democratic Party (*dem*), National Partnership for Women and Families (*npwf*), and The Church of Jesus Christ of Latter-day Saints (*church*). For each *¡charity¿* ∈ {*naacp*, *gop*, *dem*, *npwf*, *church*}:

don¡charity¿_50_50: indicator equal to 1 if the respondent picked the charity (right option) over the Red Cross at the initial $0.50–$0.50 choice.

don¡charity¿_100_50: indicator equal to 1 if, after the Red Cross amount was doubled to $1.00, the respondent still picked the charity (right option) over the Red Cross. Set to 0 if *don¡charity¿_50_50*=0.

don¡charity¿_50_100: indicator equal to 1 if, after the charity amount was doubled to $1.00, the respondent still picked the charity over the Red Cross. Set to 1 if *don¡charity¿_50_50*=1.

don¡charity¿_any: indicator equal to 1 if the respondent reported there exists any dollar amount at which they would prefer the charity to a 50-cent Red Cross donation. Set to 1 if *don¡charity¿_50_100*=1.

don¡charity¿_always: indicator equal to 1 if the respondent reported no amount of money would lead them to prefer the Red Cross over the charity. Computed as 1−*don¡charity¿_anyrc*.

don¡charity¿_score: 0–5 summary index of preference for the charity over the Red Cross, defined as

don¡charity¿_always+*don¡charity¿_100_50*+*don¡charity¿_50_50*+*don¡charity¿_50_100*+*don¡charity¿_any*.

Mechanisms — local people and mission activity. *peoplekind*: indicator equal to 1 if the respondent described local people as "Very kind" or "Kind."

peopleneutral_kind: indicator equal to 1 if response was "Somewhat kind," "Neither kind nor unkind," or "Somewhat unkind."

peopleunkind: indicator equal to 1 if response was "Unkind" or "Very unkind."

peoplereceptive, *peopleneutral_rec*, *peopleunreceptive*: analogous indicators built from the receptiveness item ("Very receptive" through "Very unreceptive").

timespfinding, *timespteaching*, *timespservice*, *timesptransp*, *timespapartment*: shares of proselyting time spent finding new people to teach, teaching/visiting, community service, transportation, and in the apartment, respectively. Raw slider entries automatically rescale to sum to 100 and are rescaled in code to sum to 1; the five shares are set to missing if all raw entries are zero.

Mission discussion frequency. *discussgenderoften*, *discussgenderocc*, *discussgendernever*: indicators for how often the respondent discussed gender roles on the mission, equal to 1 if the response was Weekly/Most days, Monthly/A few times, or Never/Virtually never, respectively.
discussraceoften, *discussraceocc*, *discussracenever*: same for race/racism.
discusspoliticsoften, *discusspoliticsocc*, *discusspoliticsnever*: same for politics.

Home vs. mission context comparisons. *equalwomenbetter*, *equalwomenworse*, *equalwomensame*, *equalwomennocomp*: indicators equal to 1 if equal treatment of men and women in the workplace was rated "Better in my mission," "Better at home," "Equally good/bad in both," or "Unable to compare, no exposure on my mission."
equalracebetter, *equalraceworse*, *equalracesame*, *equalracenocomp*: same set for equal treatment of racial and ethnic groups in the workplace.
polcoopbetter, *polcoopworse*, *polcoopsame*, *polcoopnocomp*: same set for political parties working together.
churchorgbetter, *churchorgworse*, *churchorgsame*, *churchorgnocomp*: same set for Church organization.
(In all cases, **better* corresponds to "better in mission" and **worse* to "better at home.")

Perceived change during and after mission. For each topic, *improvedduring** and *worsenedduring** are indicators equal to 1 if the respondent reported their feelings "Improved" or "Worsened" during the mission; the omitted "Unchanged" category is captured when both indicators are zero. The corresponding *improvedafter** and *worsenedafter** apply to the period after the mission.

improvedduringgender, *worsenedduringgender*, *improvedaftergender*, *worsenedaftergender*: gender roles (mothers working or pursuing education outside the home).
improvedduringrace, *worsenedduringrace*, *improvedafterrace*, *worsenedafterrace*: racial or ethnic minorities.
improvedduringrep, *worsenedduringrep*, *improvedafterrep*, *worsenedafterrep*: Republicans.
improvedduringdem, *worsenedduringdem*, *improvedafterdem*, *worsenedafterdem*: Democrats.
improvedduringchurch, *worsenedduringchurch*, *improvedafterchurch*, *worsenedafterchurch*: The Church of Jesus Christ of Latter-day Saints.

Exit demographics. *hispanic*: indicator equal to 1 if the respondent answered "Yes" to Hispanic origin ("Prefer not to say" is coded 0).
white, *black*, *asian*: indicators equal to 1 if the respondent selected the corresponding race

category (multiple selections allowed; *white* is exclusive — equals 1 only if the only category selected was White).
somecol, *associates*, *bachelors*, *graddegree*: mutually exclusive indicators for the respondent's highest level of schooling completed (some college; associate's; bachelor's; graduate or professional).
less50k, *between50k_75k*, *between75k_100k*, *between100k_150k*, *between150k_200k*, *between200k_250k*, *more250k*: mutually exclusive indicators for annual household income bracket. "Prefer not to answer" is coded 0 in all.

Political leaning. *strongrep*, *republican*, *weakrep*, *moderate*, *weakdem*, *democrat*, *strongdem*: mutually exclusive indicators for the respondent's self-placement on the seven-point Democrat–Republican scale ("Strong Republican," "Republican," "Not very strong Republican," "Moderate/middle of the road," "Not very strong Democrat," "Democrat," "Strong Democrat").
prefernotpol: indicator equal to 1 if respondent answered "Prefer not to answer."
noideapol: indicator equal to 1 if respondent answered "Haven't thought much about it."
strongrepparent, *republicanparent*, *weakrepparent*, *moderateparent*, *weakdemparent*, *democratparent*, *strongdemparent*: same set for parents' political leaning when the respondent was growing up.
conflictedparents: indicator equal to 1 if respondent answered "Parents held very different political opinions."
prefernotpolparents, *noideapolparents*: "Prefer not to answer" and "Haven't thought much about it" for parents' leaning.

Survey-bias and recontact. *bias*: ordinal response (1–7) to the perceived survey bias item, from "Heavy right wing bias" to "Heavy left wing bias."
updates: indicator equal to 1 if respondent opted in to receive updates about study results.
followup: indicator equal to 1 if respondent agreed to be re-contacted for a follow-up survey.

Mission-level treatment and location characteristics (merged onto each respondent). *zipadult_**: characteristics of the respondent's current zip code (e.g., *zipadult_age*, *zipadult_percent_black*, *zipadult_percent_latin*, *zipadult_iat_women*, *zipadult_iat_dem*, *zipadult_iat_black*, *zipadult_civil_liberties*, *zipadult_famsize*, *zipadult_pct_urban*, *zipadult_agemarr*, *zipadult_exp_per_cap*, *zipadult_women_share_house*, *zipadult_gender_inequality_index*, *zipadult_frac_col*, *zipadult_frac_rep*, *zipadult_race_attitudes*, *zipadult_politics_attitudes*, *zipadult_gender_attitudes*). *zipadult_mflag* flags observations with no zip-level match.

*zipchild_**: analogous characteristics of the longest childhood zip code, measured 10 years before the mission start year. *zipchild_mflag* flags non-merged observations.
race_index, *politics_index*, *gender_index*: standardized indices of mission-location racial, political, and gender attitudes constructed in `ConstructTreatmentIndices.do` (see also the underlying *race_dem*, *race_att*, *race_inst*; analogous decompositions for politics and gender).
black_iat, *ftblack_mean*, *women_iat*, *rep_iat*, *ftrepublican_mean*: population-weighted IAT and feeling-thermometer averages by mission and pre/post-call period.
frac_rep, *pct_urban*, *conservatism*, *cohort*: additional mission-level covariates used in the heterogeneity analysis.

C. Location Data Details

C.1 Mapping Mission Locations

167 US maps digitized over time, by hand -¿ CountyPctRaw.csv (I think this is the fraction of each county covered by the missions)

https://mapwarper.net/

14,369 geopdfs downloaded from the public Church History Library (call number CR 298/59) (still need to process)

C.2 Race and Ethnicity

Data on race and ethnicity for mission locations around the world were compiled from a variety of source. We attempted to measure the share of Black residents and the share of Latin American residents in each mission location around the world. We followed the standard US census definition for Black or African American when classifying residents around the world, namely "a person having origins in any of the black racial groups of Africa" (U.S. Office of Management and Budget, 1997). We deviate from the standard US census definition for Latin American by attempting to measure the share of the population with origins in Latin America.

For US based mission locations, we use data from the Surveillance, Epidemiology, and End Results (SEER) program run by the National Cancer Institute (National Cancer Institute, 2026b,a; Woods and Poole Economics, Inc., 2026). We supplement this with data on US Hispanic populations before 1990 provided by the Pew Research Center (Pew Research Center, 2022b,a). While there is clearly a difference between 'Hispanic' individuals, by a Census definition, and 'Latin American' individuals, for purposes of this paper we combine the two under the heading 'Latin American.' These data were measured at the county

level and were aggregated to the mission location level using the GIS shapefiles described in Appendix C.1.

We gathered and compiled data on international missions in two ways. First, we used data from the United Nations Statistics and Population Divisions to get the share of individuals by ethnicity for 105 countries (for a total of 193 country-year observations) (United Nations Statistics Division, 2026). These data did not provide a mapping back to the share of Black or Latin American residents. To accomplish this, we hand coded each ethnicity/country pair adhering to a US census definition. We then had a large language model do the same. This procedure resulted in 89.7% agreement between human classifier and LLM classifier using a US census definition. Disagreements were adjudicated by two additional human classifiers. Second, we queried many different sources to identify the relevant population shares for 48 additional countries (78 country-years). These sources included NGOs, national censuses, national statistics offices, and others (United Nations Statistics Division, 2026; Economic Commission for Latin America and the Caribbean, 2021; Congressional Research Service, 2020; Eurostat, 2026; Barbados Statistical Service, 2013; Statbel, 2026; Central Statistics Office, 2018; Institut National de la Statistique et des Études Économiques, 2023; Statistisches Bundesamt, 2026; Hellenic Statistical Authority, 2011; Statistics Netherlands, 2022; Statistics Norway, 2026; Instituto Nacional de Estatística, 2022; U.S. Census Bureau, 2011; Central Statistical Office, 2012; Office for National Statistics, 2026; Minority Rights Group International, 2026; Statistik Austria, 2025; Statistics Denmark, 2024; Istituto Nazionale di Statistica, 2023; Instituto Nacional de Estadística, 2023; Statistics Sweden, 2023; Swiss Federal Statistical Office, 2022; Oficina Nacional de Estadística e Información, 2016; Instituto Nacional de Estadística y Geografía, 2015; Dirección General de Estadística, Encuestas y Censos, 2015; Simms et al., 2010; United Nations Children's Fund, 2016; Zimbabwe National Statistics Agency, 2012; Samoa Bureau of Statistics, 2001). All of these data are at the national level. As with the US data, we then aggregate these data to the mission location level.

In addition to gathering Black and Latin American population shares, we had the LLM code the fraction of individuals with darker skin tone in each location in the same manner described above. This is clearly a fraught exercise, but this definition is used very sparingly to attempt to understand whether individuals with little exposure to Black individuals were reacting broadly to exposure to darker skinned individuals.

C.3 Project Implicit Data

Project Implicit is a nonprofit organization attempting to study implicit biases that people have as a result of their environment, upbringing, etc. The main tool they use to do this

is called an Implicit Association Test (IAT), which measures the strength of association between concepts such as race, gender, etc. and evaluations or stereotypes. These are scored from -2 to 2, with 2 reflecting a strong implicit preference in the 'stereotype-consistent' direction and -2 reflecting a strong implicit preference the other direction. We collect data from the Gender-Career IAT (2005-2020, measuring the association between men/career and women/family), the Race IAT (2002-2022, measuring the association between white people/good and black people/bad), and the President IAT (2003-2022, measuring the association between Republican presidents/good and Democrat presidents/bad) (Xu et al., 2014, 2026). These are measured at the country level outside of the US and the state level within the US. As prespecified, we code the Gender-Career IAT as positive showing implicit favor towards women in careers, Race IAT as positive showing implicit favor to Black people, and the President IAT as positive showing implicit favor to Democrat presidents. We also pool over time and take one average per location for statistical power.

C.4 Freedom House Civil Liberties Ratings

Freedom House is a nonpartisan nonprofit organization that has produced an annual survey, *Freedom in the World*, rating political rights and civil liberties in countries and territories across the world since 1973. Each country receives a civil liberties rating from 1 (most free) to 7 (least free). This rating is constructed based on a long list of questions the raters use to evaluate freedom of expression and belief, associational and organizational rights, the rule of law, personal autonomy, and individual rights. Each decade changed the questions and methodology slightly, but they are quite consistent over time (Gastil, 1978, 1980, 1988; McColm et al., 1990, 1991; Karatnycky, 2000; Puddington et al., 2010). These questions then aggregate into a score (typically in the mid 50's) which is then translated into the 7 point civil liberties rating. We download and use the data for country-years 1973-2010, extrapolating the 1970-1972 values using the 1973 value (Freedom House, 2023).

Since Freedom House only rates countries, we used a large language model rater to follow the standard methodology to give each US state a rating for each decade in our sample, then assigning the closest decade value to each year. The LLM rater looked through old laws, news reports, US State Department Human Rights reports, etc. to make the rating as instructed in the Freedom House technical methodology documentation. The instructions that were given to the LLM rater are below.

> **Rating agent instructions (read fully before starting)**
>
> You are producing civil liberties ratings for an academic economics paper. Your assignment (entities, year, output path) is in the task prompt. These instructions

apply to every agent.

Step 0: Read the methodology

Read methodology_reference.md in full. Use ONLY the section for your assigned year, plus the "Ground rules" and (for states) the "Applying the national methodology to US states" section. Item codes, score scales, max totals, and rating cutoffs differ by year; follow the one for your year exactly.

Hard rule: no index inputs

Do NOT search for, read, quote, or reason from Freedom House ratings, scores, or country reports, nor Polity, V-Dem, CIRI, Economist Intelligence Unit, Cato/ Fraser freedom indices, or any comparable composite index. Do not search phrases like "Freedom House [country] [year]". If a search result shows such a rating, ignore it completely and do not let it anchor you. The purpose of this exercise is an independent application of the published checklist to primary evidence. State in your final report that you complied.

Evidence

Work from your own historical knowledge first, then use WebSearch (and WebFetch when a page is worth reading) to verify or fill gaps, prioritizing:

US State Department Country Reports on Human Rights Practices (available for 1977 onward; the report for year Y is published early Y+1 and covers Y),

Amnesty International and Human Rights Watch annual reports,

press-freedom organizations (CPJ, IPI) and major newspaper archives,

statutes, constitutions, court decisions,

for US states: state statutes and events of the year, ACLU/NAACP/SPLC materials, DOJ investigations, academic histories, crime and incarceration statistics.

Budget your searches: you have many entities. Spend searches where your knowledge is weakest or where the rating is near a cutoff. For well-documented cases, your knowledge is sufficient. Record what you consulted in key_sources.

Scoring discipline

Rate conditions in the assigned calendar year only.

Practice over law.

Score every item; never leave one blank.

Be comparative across your whole batch: before finalizing, scan all your ratings and fix inconsistencies (two places with similar conditions must get similar item scores).

For 2000 and 2010 the rating is mechanically determined by the total (official cutoffs). For 1970, 1980, 1990 use the guide mapping and the level definitions; you may move at most one category from the guide, and the justification must say why.

Do not compress. Use the full range the evidence supports.

Output: JSON Lines

Write one JSON object per line to the output path given in your task. Use the Write tool (build the whole file, then write once; if the file gets long, write in two or three appends using Bash cat >> file <<'EOF'). Schema:

{"entity": "<lowercase name exactly as given>", "year": <int>, "scores": {"<ITEM>": <int>, ...}, "total": <int>, "max_total": <int>, "cl_rating": <int 1-7>, "guide_rating": <int or null>, "justification": "<2-5 sentences, no line breaks>", "key_sources": "<short list, no line breaks>"}

Item keys by year:

2010: D1 D2 D3 D4 E1 E2 E3 F1 F2 F3 F4 G1 G2 G3 G4 (each 0-4; max_total 60)

2000: A1 A2 B1 B2 B3 C1 C2 C3 C4 D1 D2 D3 D4 D5 (each 0-4; max_total 56)

1990: Q1 ... Q13 (each 0-2; max_total 26)

1980 and 1970: C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 (each 0-2; max_total 28)

guide_rating is the rating implied by the mapping table alone; cl_rating is your final rating (identical for 2000/2010; may differ by one for earlier years). Set guide_rating to the same value as cl_rating when they agree.

Use plain ASCII double quotes in JSON. Escape any internal double quotes. No trailing commas. One object per line, no blank lines, no commentary in the file.

Finish

1. Validate the file with Bash: python3 -c "import json,sys; rows=[json.loads(l) for l in open('<path>')]; print(len(rows)); import collections; print(collections.Counter(r['cl_rating'] for r in rows))" and confirm the row count equals the number of entities assigned.
Fix any parse errors.

2. Your final report (returned to the coordinator) must include: row count, the distribution of cl_rating, the 3-4 entities you are least confident about and why, and a one-line statement that no composite index was used.

We validated these ratings by also having our LLM rater rate each country in 1980, 1990, 2000, and 2010, then evaluating the concordance with the actual Freedom House ratings. As seen in the instructions above, the LLM rater was given explicit instructions to not look at the Freedom House ratings for the country in question or any other comparable index. After constructing these indices from scratch, the correlation between these ratings and the actual Freedom House ratings in each year was 0.952, with 71% being an exact match. All but one of the ratings that disagreed were within 1 point on the scale. This gives strong confidence that the state ratings are consistent with the broader methodology.

C.5 Per-Capita Expenditure

We measure per-capita expenditure in the US by using federal, state, and local spending data from the US Census Bureau Federal Expenditures by State and Consolidated Federal Funds Reports (U.S. Census Bureau, 1982–1998, 1999–2011; Chantrill, n.d.). This expenditure is measured at the state level and includes federal spending in the state (minus federal grants to state and local governments and excluding federal salaries and procurements), total state spending, and total local spending. We include federal salaries and procurements for a robustness check. Population data in each state is taken from the Surveillance, Epidemiology, and End Results (SEER) program run by the National Cancer Institute (National Cancer Institute, 2026b,a; Woods and Poole Economics, Inc., 2026). These data are measured in real 2023 dollars. Data between 1970 and 1980 are imputed using each state's 1981 value, scaled by the Office of Management and Budget national federal outlays net of grants and interest.

Per-capita expenditure outside of the US is measured using data from the International Monetary Fund (IMF), the World Bank, and the United Nations Statistics Division (International Monetary Fund, 2026; Mauro et al., 2015; World Bank, n.d.; United Nations Statistics Division, n.d.b). It is constructed using total government spending where available (64% of country-years) and central government spending where total government spending is not available. We use total government expenditure as a share of GDP from the IMF multiplied by GDP per capita from the World Bank, all measured in 2023 dollars. Spending is interpolated linearly in years where the measure is missing between existing data. For country-years before the earliest government expenditure data in that country, we take the earliest government expenditure share and apply it to the older GDP per capita numbers.

C.6 Gender Inequality Index

The Gender Inequality Index (GII) is a measure produced by the United Nations Development Programme (UNDP) in the 2010 Human Development Report (United Nations Development Programme, 2010) that attempts to measure the loss in human development due to inequality between men and women. It targets three dimensions: (1) reproductive health, measured by the maternal mortality ratio (MMR) and the adolescent birth rate (ABR), (2) empowerment, measured by each sex's share of parliamentary seats ($ParlShare$) and the share of adults 25+ with at least some secondary education ($SecEd$), and (3) labor market, measured by each sex's labor force participation rate for individuals aged 15+ ($LFPR$). The GII is computed following United Nations Development Programme (2022b). The index was introduced by Gaye et al. (2010) and aggregates across sexes using the association-sensitive mean of Seth (2009). It is computed in the following way:

Step 1. Dimension indices for each sex

$$\begin{aligned}
\text{Health}_F &= \sqrt{(10/\text{MMR}) \times (1/\text{ABR})} \\
\text{Health}_M &= 1 \\
\text{Empower}_F &= \sqrt{\text{ParlShare}_F \times \text{SecEd}_F} \\
\text{Empower}_M &= \sqrt{\text{ParlShare}_M \times \text{SecEd}_M}
\end{aligned}$$

Step 2. Geometric mean across dimensions, within each sex

$$\begin{aligned}
G_F &= (\text{Health}_F \times \text{Empower}_F \times \text{LFPR}_F)^{1/3} \\
G_M &= (\text{Health}_M \times \text{Empower}_M \times \text{LFPR}_M)^{1/3}
\end{aligned}$$

Step 3. Harmonic mean across sexes (the "actual" level)

$$\text{Harm}_{FM} = [(1/G_F + 1/G_M)/2]^{-1}$$

Step 4. Equal-weight reference: average women and men within each dimension first

$$\begin{aligned}
\text{HealthBar} &= (\text{Health}_F + \text{Health}_M)/2 \\
\text{EmpowerBar} &= (\text{Empower}_F + \text{Empower}_M)/2 \\
\text{LFPRBar} &= (\text{LFPR}_F + \text{LFPR}_M)/2 \\
G_{ref} &= (\text{HealthBar} \times \text{EmpowerBar} \times \text{LFPRBar})^{1/3}
\end{aligned}$$

Step 5. Index

$$\text{GII} = 1 - \text{Harm}_{FM}/G_{ref}$$

where 0 implies complete equality along these measures and 1 implies maximal inequality. MMR is bounded between 10 and 100, all other indicators have a floor of 0.1%, and $\text{ParlShare}_M = 1 - \text{ParlShare}_F$ (United Nations Development Programme, 2022c). Throughout the paper we recode the measure to be $1 - \text{GII}$ and discuss it as the Gender Equality Index.

For destinations outside the United States, we use UNDP's published GII from the 2021/2022 Human Development Report time series, which covers 1990–2021 (United Nations Development Programme, 2022a). The one international exception is Taiwan, where we use data from the Taiwan government itself since the UNDP doesn't cover Taiwan (Department of Gender Equality, Executive Yuan, 2023). [Extrapolation]. Since the UNDP only computes the measure at the country level, we reproduce it at the state level using the following data:

- Maternal deaths per 100,000 live births from National Center for Health Statistics (NCHS) death and birth records, 1968–2002, pooled over five-year windows (National Center for Health Statistics, n.d.a,n; Hoyert and Miniño, 2020) [extrapolation]
- NCHS teen birth rates (National Center for Health Statistics, n.d.d,n)
- Women's share of state legislators, the state-level analogue of the parliamentary share (Center for American Women and Politics, n.d.; Grossmann et al., 2021)
- Educational attainment and labor force participation by sex from IPUMS census and American Community Survey samples (Ruggles et al., 2025b)

C.7 Other Data

All of the following data were collected from the cited sources then aggregated to the mission-level. [Extrapolation discussion]

- Fraction voting Republican/Democrat – county-level US presidential elections across our sample period come (Amlani and Algara, 2021; Algara and Amlani, 2021)
- Median age – US at the county level from the US SEER Program (National Cancer Institute, 2026b,a; Woods and Poole Economics, Inc., 2026)), international at the country level from the United Nations Department of Economic and Social Affairs (United Nations, Department of Economic and Social Affairs, Population Division, 2024)
- Fraction urban – US at the county level from Geocorr, the Geographic Correspondence Engine maintained by the Missouri Census Data Center (Missouri Census Data Center, n.d.), defined as the fraction of the population living in Census Bureau urban areas (census blocks with at least 1,000 people per square mile and adjacent blocks with at least 500), and international at the country level from the United Nations Department of Economic and Social Affairs (United Nations, Department of Economic and Social Affairs, Population Division, 2025), defined as clusters with 1,500 people per square kilometer and 50,000 total people
- Family size – US at the county level from IPUMS US (IPUMS only identifies large counties, so small counties receive the average value from all unidentified counties pooled together) (Ruggles et al., 2025b), international at the country level using IPUMS International (Ruggles et al., 2025a) where available and the UN Statistics Division Demographic Statistics Database where needed (United Nations Statistics Division, n.d.a). The UN data systematically understate family size since it doesn't account for non-nuclear households so we calibrate them to the IPUMS International data where they overlap.
- Singulate mean age at marriage – US at the county level from IPUMS US (IPUMS only identifies large counties, so small counties receive the average value from all unidentified counties pooled together) (Ruggles et al., 2025b), international at the country level from the United Nations Department of Economic and Social Affairs (United Nations, Department of Economic and Social Affairs, Population Division, 2013)
- Fraction completing college – US at the county level from the USDA Economic Research Service (USDA Economic Research Service, 2025), international at the country level from the Wittgenstein Centre for Demography and Global Human Capital

(Wittgenstein Centre for Demography and Global Human Capital, 2018; Lutz et al., 2018; Speringer et al., 2019)