Contact and Commitment to Development: Evidence from Quasi-random Missionary Assignments

Lee Crawfurd

Abstract

Public support for global development in rich countries is critical for sustaining effective government and individual action. But the causes of public support are not well understood. Does spending time living in a developing country play a role in generating individual commitment to development? Addressing this question is fraught with selection bias, as individuals are rarely exogenously assigned to spend time in different countries. In this paper I address this question using a natural experiment—the quasi-random assignment of missionaries from the Church of Jesus Christ of Latter-day Saints to two-year missions in different world regions. I provide the first causal estimates of the effect of travel to a developing country on attitudes to global development. Data comes from a new survey gathered through mission alumni Facebook groups. Missionaries assigned to low-income and middle-income world regions (Africa, Asia, Latin America, and the Caribbean) have similar prior characteristics to those assigned to high-income Europe. Those assigned to Africa self-report greater interest in global development and greater charitable attitudes and behaviours. However they also express stronger opposition to immigration from poor countries, and are less likely to be involved in political campaigns to address global development. Spending time in lower-income countries may lead to greater support for charity but less support for political change.

Keywords: Development, Aid, Attitudes, Travel, Religion, Missionaries

JEL: F22, O10, Z10

Center for Global Development
www.cgdev.org

Working Paper 544
August 2020

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I'm grateful for helpful comments, advice, and inspiration to Jana Riess, Benjamin Knoll, Lant Pritchett, David K. Evans, Ryan T. Cragun, Matthew Martinich, Derill D. Watson, Matthew Collin, Rohit Naimpally, Georgina Turner, Matt Lowe, and anonymous reviewers at the journal *Kyklos*.

This paper is forthcoming as an article in *Kyklos*.

Lee Crawfurd, 2020. "Contact and Commitment to Development: Evidence from Quasi-random Missionary Assignments." CGD Working Paper 544. Washington, DC: Center for Global Development. https://www.cgdev.org/publication/contact-and-commitment-development-evidence-quasi-random-missionary-assignments

The data used in this paper is available here: https://www.cgdev.org/sites/default/files/crawfurd-contact-development-missionaries-code-data.zip. More information on CGD's research data and code disclosure policy can be found here: www.cgdev.org/page/research-data-and-code-disclosure.

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1. Introduction

Close to 700 million people live in extreme poverty. Actions taken in rich countries matter for the wellbeing of people in poor countries. This includes both public policy and private action. Relevant public policy includes foreign aid, but also immigration, trade, investment, climate, and technology policy (Birdsall and Roodman 2003). Public support is critical to sustain such policy (Heinrich, Kobayashi, and Bryant 2016; Pritchett 2015; Milner and Tingley 2013; Tingley 2010). Private actions also matter, through individual giving and consumption choices.

This paper asks whether individual contact plays a role in forming attitudes towards global poverty and development. Many people who work on global development can point to a formative experience in a developing country that they believe set them on their current path. The intergroup contact hypothesis (Allport 1954) suggests that, in the right context, interaction between people from different groups can lead to reduced prejudice, which could lead to greater sympathy. Does interaction between people from high-income and lower income countries increase support for global development? Or are those who are predisposed to be interested in global development the ones who choose to spend time in developing countries?

In this paper I exploit the quasi-random assignment of missionaries to high or lower income world regions to estimate the effect of contact on attitudes to development. I provide the first causal estimates of the effect of travel to a developing country on attitudes to global development. Around a third of American members of the Church of Jesus Christ of Latter-day Saints go on a mission (Pew Research Center 2012, Riess 2019). These last around 2 years, and the location is assigned by the church based on revelation. I survey 1,499 returned missionaries. Those assigned to different world regions are reasonably balanced on baseline characteristics. Returned missionaries who were assigned to a lower-income region are more interested in global development, years after their assignment, but have lower support for foreign aid to and immigration from poor countries. There is little difference in donations or other personal actions.

This paper is related to several strands of literature. First, several other papers consider the determinants of attitudes to global development in rich countries – focusing on information treatments (Wood 2019, Scotto et al. 2017), the effect of economic downturns (Heinrich, Kobayashi, and Bryant 2016), and of weather shocks (Egan and Mullin 2012). I add to this the effect of international travel on attitudes to aid.

Second, there is a wide literature supporting the hypothesis that contact reduces prejudice. Pettigrew et al. (2011) report on a meta-analysis of over 500 observational studies. A more focused review of experimental studies found 27 studies (Paluck, Green, and Green 2018). Overall the case is strong that in general contact matters for reducing prejudice, though the type of contact matters (Lowe 2017), and fewer studies have looked at increases in positive attitudes, rather than the reduction in prejudice. The type of contact that is generated through a proselytizing mission matters for any claims to generalizability from my study. The large income and wealth differentials between people from high-income and low-income countries means that the uneven power relationship between missionaries and locals may be similar to that as between a wide range of international aid workers or volunteers and locals.

Third, several papers have looked at the effect of international or regional travel on attitudes not explicitly related to global development and poverty. Jones (2014) and van Eerdewijk et al. (2009) look at the effect of 'study abroad' programmes on 'a sense of international community' and feelings of nationalism. Clingingsmith, Khwaja, and Kremer (2009) exploited the Pakistani government lottery for Hajj visas, finding that exposure to people from different countries generated more pro-social attitudes. They only consider travel to Saudi Arabia for Hajj, and can't distinguish between the effects of visiting different countries.

Ridge and Montoya (2013) find that within the US, volunteering in the Southwest reduced prejudice against Mexicans. Mo and Conn (2018) and Okunogbe (2018) both show that national service can increase understanding of out-groups.

Fourth, my study is closely related to Pope (2008) who makes use of the same identification strategy to study the impact of foreign language acquisition (missionaries are required to learn a foreign language in certain countries but not others). Learning a foreign language has no impact on later Grade Point Average. Other studies have looked at the attitudes of Latter-day Saint missionaries, finding that many learn a foreign language on their mission (Campbell, Green, and Monson 2014; Riess 2019), and that returned missionaries have higher support for immigration than those who have not served a mission. Those who learned a language on their mission had the highest support of all (Riess 2019). Neither of these studies distinguish between the kind of country that missionaries served in, or address the problem of causal inference.

The remainder of this paper provides more detail about Church of Jesus Christ of Latter-day Saints Missions in Section 2, the empirical approach in Section 3, and results in Section 4.

2. Context

2.1 International Travel and Social Attitudes

Nearly 1 billion people travel abroad each year. 75 percent of these journeys begin in high or upper-middle income countries, and 40 percent end in a developing country (Mitchell and Ashley 2009). One major source of travel from rich to poor countries are religious missions. Today there are 430,000 Christian missionaries worldwide (Johnson and Zurlo 2018). A substantial literature focuses on the effect of early missionaries on people in developing countries (Woodberry 2011; Woodberry 2012; Bryan, Choi, and Karlan 2018; Jedwab, Selhausen, and Moradi 2018). Yet there has been little quantitative research on the effect of missionary activity on the missionaries themselves. 1.6 million volunteers travel from rich to poor countries annually (Tourism Research and Marketing 2008). International voluntary service is sometimes subsidized by governments – for example the British government spent £130 million on its International Citizen Service programme. United States Peace Corps Volunteers and Alumni amount to 220,000 people. It has been claimed that international voluntary service might increase intercultural competence (Sherraden, Lough, and McBride 2008). The British Conservative Party set up its own volunteering project designed explicitly "to try to make sure that within the Conservative Party there is a core of people

who are passionate about development" (Bloomfield 2017). But there is little rigorous evidence on the effect of international voluntary service on the volunteer.

Most closely related to my paper, Smith, Roberts, and Kerr (1996) surveyed 766 Latter-day Saints, of whom 273 were recently returned from a mission, and 493 were college students who had not served missions. Returned missionaries were more accepting of contact with members of other races, more developed in the acknowledgment and cognition of their own racial identity attitudes, but more prejudiced in their subtle racial opinions, than the non-missionary group. They found no difference in the attitudes of those who served in English speaking or non-English speaking nations.

2.2 Church of Jesus Christ of Latter-day Saints Missions

Around half of male and 15 percent of female American Latter-day Saints have served a full-time proselyting mission (Pew Research Center 2012). Missionaries work long hours, have limited contact with home, and cover all of their own expenses. Having completed one is deemed to be prestigious. Missionaries have standardized duties across countries with a strict schedule of 60-65 hours of proselytizing based on the same set of handbooks and instructions (Pope 2008). There are currently 67,000 members of the Church of Jesus Christ of Latter-day

Saints serving full-time missions (Cudworth 2015, Church of Jesus Christ of Latter-day Saints 2018). Most missionaries are young people under the age of 25, serving in more than 400 missions throughout the world. 64 percent of returned missionaries (who are still church members and live in the United States) served in the US or Canada, and 10 percent in Europe (Riess 2019). Men become eligible at age 18 and serve for up to two years. Women become eligible at age 19 and serve for up to 18 months. These ages were lowered in 2012 from 19 for men and 21 for women (Church of Jesus Christ of Latter-day Saints 2012).

Missionaries receive their assignment from Church headquarters. Missionaries do not request their area of assignment and do not know beforehand whether they will need to learn a language. The Latter-day Saints youth magazine reports "An Apostle looks into each missionary's eyes and receives revelation about where to assign him or her" (Church of Jesus Christ of Latter-day Saints 2015), a process which we treat as quasi-random. Church leaders use a computer database with photographs of each missionary rather than a face-to-face meeting (Cudworth 2015). The database also contains the applicants name, address, date of birth, confirmation date, any criminal record, parent's occupation, a recommendation from their Bishop, languages spoken, education, work experience, extra-curricular activities, source of funds for the mission, and a doctor's health report. Leaders have stated that "every missionary called in this Church, and assigned or

reassigned to a particular mission, is called by revelation from the Lord God Almighty through one of these, His servants" (Rasband 2010).

Anecdotally there is a perception that foreign missions are higher status than domestic missions (see for example Harline 2014). In particular, missionaries with pre-existing language skills or foreign experience may be more likely to be assigned to international missions. Missionaries with health issues may also be more likely to be assigned to US missions (Mormon Social Science Association 2007). Both of these issues pose a threat to our research design. The focus of my analysis is therefore between those assigned to (high-income) Europe and those assigned to low- and middle-income Asia, Africa, and Latin America. I present evidence in Table 1 that prior differences between those assigned to different world regions are small.

The external validity of our results depends in part on whether the views of members of The Church of Jesus Christ of Latter-day Saints are similarly malleable to those of the general population. Overall, Latter-day Saints are more likely to identify as or lean toward the Republican Party than the general population - 69 percent in 2016 (Pew Research Center 2016), a slight decrease from 74 percent in 2011 (and compared to 45 percent of registered voters in the population as a whole - Pew Research Center (2012). US Latter-day Saints are

more likely to describe themselves as politically conservative (66 percent, compared with 37 percent of all U.S. adults in the same 2011 survey), and the majority (75 percent) prefer a smaller government providing fewer services to a bigger government providing more services (compared with 48 percent of the general population). Latter-day Saints are more likely to think that government aid to the poor does more harm than good (64 percent of Latter-day Saints, compared to 44 percent of all US adults) (Pew Research Center 2015). All of these factors might make Latter-day Saints less likely to hold pro-aid or pro-immigrant views (and less likely to be influenced in that direction). On the other hand, a strong majority of Latter-day Saints (73 percent) see "working to help the poor" as essential for being a good member of the church. This is higher for returned missionaries (82 percent) than those who have not served a mission (70 percent), though there is no data on how this varies by country of mission. Latter-day Saints are also split on immigration – 45 percent say "immigrants strengthen the U.S. because of their hard work and talents" versus 41 percent who say that immigrants "burden the U.S. by taking American jobs, housing and health care". On this question, the views of Latter-day Saints closely resemble those of the public as a whole (Pew Research Center 2012). None of these concerns about external validity of the results affect the differential effect shown in this paper.

3. Methods

I focus on the comparison between those assigned to (mostly high-income) Europe and other world regions. I exclude those assigned to the US or Canada to avoid the potential for confounding between domestic and international placements. I estimate the effect on individual i of being assigned to group T_i on a set of outcomes y_i whilst controlling for pre-existing and time invariant individual characteristics X_i (equation 1). The three treatment regions are Africa, Asia, and Latin America and the Caribbean. Europe is treated as the control region. I report results using ordinary least squares (OLS) and the linear probability model for continuous and binary variables. Results are similar when estimating ordered logit for responses on Likert scales, and with probit and logit models for binary variables. Outcomes include self-reported interest in development, personal donations, volunteering, work, or political campaigning, and attitudes to government aid and immigration. Control variables include current age, age at start of mission, sex, the number of languages spoken and countries visited prior to mission assignment, and high school test scores.

$$y_i = \alpha + \beta_1 T_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

An important threat to the validity of this approach is whether mission assignment is truly random and how much observed missionary characteristics are considered in the assignment process. To the extent that there may be any systematic matching of missionaries to missions, this would likely bias my estimates of the effect of treatment upwards. This could be the case if those with a greater pre-assignment interest in low-income countries were then assigned to those countries. Hence, I can interpret my results as upper bounds on the true estimates.

Data

I developed a short online survey that was distributed through Facebook groups for returned missionaries. I posted the survey link on 93 Facebook groups – 82 for alumni from specific missions and 11 generic Latter-day Saint and returned missionary groups. The questionnaire gathers data on respondents' interest in global development, attitudes towards aid and immigration policy, and personal actions including donations and volunteering. The questionnaire first asks the outcome questions, before turning to questions about the mission, in order to avoid priming the respondent to think about their mission when answering the outcome questions.

1,499 returned missionaries completed the survey. Whilst this self-selected sample is not representative of all returned missionaries, my identification strategy rests only on the sample not being systematically more or less representative of the treatment or control groups. Thus, I assume that returned missionaries from high- and low-income countries are a) equally likely to be members of a Facebook group for mission alumni, and b) conditional on being a group member, equally likely to respond to the survey. Missionaries in my sample are highly educated. 46 percent of respondents have completed a college degree and 35 percent a post-graduate degree (compared with just 18 percent and 11 percent in the general US Latter-day Saint population, respectively). The average age in my sample is 35 years, which is younger than the average age of 45 years for all Latter-day Saints in the US (Pew Research Center 2012). My results also may not generalize to the general population of missionaries, as members of mission Facebook groups are likely to have been particularly attached to the place they served in. Around ten percent of returned missionaries have left the church (Riess 2019). This group may be less likely to be part of my sample altogether, if they are less likely to be a member of a mission Facebook group. I find no statistically significant difference in the likelihood of leaving the church for those assigned to Europe or a lower-income world region (Table A8).

I first present a balance test of time invariant and pre-assignment characteristics across different regions (Table 1). Those assigned to Africa are younger (at time of interview) and less likely to be female than those assigned to Europe, but there is no statistically significant difference in the number of languages spoken or countries visited prior to assignment, on high school test scores, or on the average length of the mission. I convert self-reported ACT and SAT scores into an overall percentile score to allow for comparison between the two. Where covariate data is missing I replace the value with zero and include a dummy variable in the main regression analysis indicating that the data is missing.

Table 1: Pre-Treatment Descriptive Statistics

	US / Canada	Europe	Africa	Asia	Latin America / Caribbean	Australia / Pacific
Individual Characteristics						
Age (Years)	33.7	34.4	31.0***	36.2*	35.3	35.5
Female %	0.34	0.34	0.17***	0.37	0.25***	0.19***
Prior Languages	0.0	0.2	0.2	0.3**	0.2*	0.2
Prior Countries Visited	0.0	1.8	1.8	1.5*	1.4***	1.6
ACT/SAT Percentile	47.5	58.4	49.6*	50.8***	56.0	50.0*
Mission Length (Months)	.	21.9	22.5	21.1**	22.1	22.3
Age at Mission Start	.	19.4	19.5	19.2	19.4	19.3
N	164	391	90	164	587	83
Mission Characteristics						
GDP Per Capita	61,923	30,223	2,238	12,058	9,209	26,928
Missions	132	43	31	43	154	18

Note: This table shows the mean values of pre-mission individual characteristics. Stars represent statistically significant differences between each group and the value for Europe. GDP per capita for each region shows the mean national GDP per capita for all missions in that region.
* p<0.1, ** p<0.05, *** p<0.01

Due to the nature of my sampling process respondents to my survey skew heavily towards non-US or Canada missions. However the geographic distribution of non-US or Canada missions to which respondents went is similar to that of a nationally representative survey of all returned missionaries living in the US (Riess 2019), and to the distribution of missions (Table 1). Outside of the US or Canada, 30 percent went to Europe, 7 percent to Africa, 13 percent to Asia, 45 percent to Latin America, and 6 percent to the Pacific.

Descriptive statistics for the outcome variables are reported in Table 2. A large majority (81 percent) of respondents reported some interest in global development and poverty ('somewhat' or 'very'). Fewer (23 percent) were interested enough to provide their contact details in order to receive a copy of this study. 38 percent reported having some personal involvement in helping poor countries. The most common form of personal involvement was donating money. 47 percent of respondents had a positive attitude towards official foreign aid (disagreed with the statement that "US government aid to poor countries is too high"). 44 percent had a positive attitude towards immigration (disagreed with the statement "immigration to the US from poor countries is too high"). Reported personal giving to international causes was around 1 percent of income.

Table 2: Outcome Variables

	N	Percent	
How Interested Are You in Global Development?	1,482	100	
- Not at all	25	1.7	
- Not very	252	17.0	
- Somewhat	874	59.0	
- Very	331	22.3	
Aid to poor countries is too high	1,488	100	
- Agree	202	13.6	
- Disagree	471	31.7	
- Neither agree nor disagree	532	35.8	
- Strongly agree	51	3.4	
- Strongly disagree	232	15.6	
Immigration from poor countries is too high	1,488	100	
- Agree	199	13.4	
- Disagree	441	29.6	
- Neither agree nor disagree	578	38.8	
- Strongly agree	57	3.8	
- Strongly disagree	213	14.3	
	N	Mean	SD
Wants to receive results of this study	1,499	.23	.42
Personal involvement in development			
- Any of below	1,259	0.38	0.49
- Donates to an NGO	1,259	0.23	0.42
- Volunteers with an NGO	1,259	0.11	0.31
- Work professionally on development	1,259	0.07	0.25
- Political campaigns	1,259	0.05	0.22
Giving to international causes as % of income	1,084	0.01	0.06

Note: This table shows descriptive statistics for our main outcome variables.

4. Results

Those assigned to countries in Africa display some more charitable attitudes and behaviours, but are less likely to support political change that addresses structural barriers to development. The main results are summarized in Table 1, which presents marginal effects of being assigned to different regions, compared with those assigned to Europe. Those assigned to Africa are much more likely to report that they are very interested in global development. They are more likely to report that they donate to and volunteer with international non-profits, or to work professionally on global development (Table 4). They are however more opposed to immigration from poor countries, and less likely to be involved in a political campaign focused on global development. Those assigned to Latin America are more likely to be opposed to both immigration and foreign aid. Eight of nine main results are statistically insignificant for those assigned to Asia. All results are robust to including controls for age, gender, high school test scores, and prior languages spoken and prior countries visited. Results are also robust to using randomization inference methods following Young (2017).

Women and those with higher high school test scores were more interested in global development, more supportive of immigration, and more supportive of

foreign aid. Interaction effects are estimated in Annex 1, showing no large or consistently different effects for those of different ages, sex, or prior test scores.

Table 3: Interest in Development and Policy Views

	Interest in Global Development	Interest in Survey Results	Positive on immigration	Positive on official aid
Africa	0.323***	0.066	-0.210*	0.153
	(0.077)	(0.052)	(0.117)	(0.118)
Asia	0.086	-0.089**	-0.102	0.025
	(0.061)	(0.041)	(0.093)	(0.094)
LAC	0.018	-0.042	-0.170***	-0.143**
	(0.043)	(0.029)	(0.065)	(0.066)
Age	0.003*	0.001	0.001	0.004
	(0.002)	(0.001)	(0.003)	(0.003)
Female	0.123***	-0.055*	0.167***	0.356***
	(0.042)	(0.028)	(0.064)	(0.065)
Prior Languages	0.163***	0.039	-0.012	0.092
	(0.040)	(0.027)	(0.062)	(0.062)
Prior Travel	-0.002	-0.001	-0.019	0.019
	(0.012)	(0.008)	(0.018)	(0.018)
ACT/SAT Percentile	0.003**	-0.001	0.010***	0.005**
	(0.001)	(0.001)	(0.002)	(0.002)
Dep var control mean	3.008	0.281	3.468	3.494
N	1,230	1,232	1,232	1,232
R-squared	0.046	0.014	0.034	0.053

Notes: All results in this table are from OLS regressions. The first outcome is a scale from 1 to 4, whether respondents are "not at all" (1), "not very" (2), "somewhat" (3), or "very" (4) interested in development. Ordinal Logit results for this outcome are presented in Table A1. The second outcome is a binary indicator for whether respondents volunteered their email address so that they could receive the results of this study. The third and fourth outcomes are Likert scales coded from 1 to 5 for how much respondents agreed with higher immigration from poor countries and higher aid to poor countries, respectively. Ordinal Logit results for these two outcomes are presented in Annex 1. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are current age, age at mission start, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. Following Abadie et al. (2017), as the treatment is randomized at the individual level, I do not cluster the standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 4: Personal Actions on Global Development

	(Log) International Giving	Any Donation	Volunteers for NGO	Works on Development	Political Campaigns
Africa	-0.177	0.099*	0.094**	0.062**	-0.059**
	(0.611)	(0.051)	(0.037)	(0.031)	(0.027)
Asia	0.269	0.042	0.031	-0.035	0.025
	(0.492)	(0.044)	(0.032)	(0.027)	(0.023)
LAC	0.583*	-0.025	0.002	-0.013	-0.022
	(0.342)	(0.029)	(0.021)	(0.018)	(0.015)
Age	0.162***	0.006***	0.002*	0.001	0.000
	(0.016)	(0.001)	(0.001)	(0.001)	(0.001)
Female	-0.931***	0.009	0.035*	-0.036**	-0.025
	(0.337)	(0.029)	(0.021)	(0.018)	(0.015)
Prior Languages	-0.033	0.000	0.016	0.033**	0.039***
	(0.324)	(0.028)	(0.020)	(0.017)	(0.015)
Prior Travel	0.425***	0.014*	0.003	0.011**	0.017***
	(0.094)	(0.008)	(0.006)	(0.005)	(0.004)
ACT/SAT Percentile	0.021**	0.002***	0.000	0.000	0.000
	(0.010)	(0.001)	(0.001)	(0.001)	(0.000)
Dep var control mean	2.372	0.245	0.095	0.078	0.070
N	1,141	1,090	1,090	1,090	1,090
R-squared	0.118	0.041	0.022	0.036	0.041

Notes: The first outcome is the log of personal international giving. The remaining outcomes are binary indicators for whether the respondent reported giving donations to NGOs working on development, volunteering with NGOs, working professionally on development, or being engaged in political campaigns. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. All regressions are estimated with OLS. Control variables are current age, age at mission start, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. Following Abadie et al. (2017), as the treatment is randomized at the individual level, I do not cluster the standard errors.

* p<0.1, ** p<0.05, *** p<0.01

Limitations

There are several plausible explanations for these findings. First, the treatment may not have been the right kind of treatment. Greater proactive engagement may simply be too much to expect from inter-group contact. The contact hypothesis focuses on the reduction of prejudice (negative attitudes) rather than the promotion of positive attitudes and behaviours. Further - the type of contact generated through religious missions (with a particular spiritual purpose) may not be as conducive to generating sympathy as the contact generated by other forms of interaction. Allport (1954) laid out conditions for optimal contact to include equal status and common goals[1]. It might be that missionaries do not have equal status or common goals with the population they are living amongst. Implicit in the act of proselytizing is the idea that you have something "better" or "superior" to offer. If the attitude of missionaries is one of superiority the Contact Hypothesis may not be applicable. Whether the findings here hold any external validity and can be generalized to secular aid and development workers may thus depend on the extent to which they have equal status and common goals to those that they interact with (Simpson 2004).

[1] Though a meta-analysis found that these conditions are not necessary (Pettigrew et al. 2011).

Second, the treatment may have worked to make people care, but not to understand the nature of effective action. The measure gathered in this paper might capture only one conception of effective action for global development (i.e. support for government aid, immigration, and private donations), that is not shared by members of the returned missionary community. Though there is evidence that Latter-day Saints are in general as supportive of immigration as other groups (Knoll 2009; Campbell, Green, and Monson 2014), they are also on average right-leaning politically. Many survey respondents expressed skepticism in an open qualitative response about the effectiveness of government and NGO aid. Many stated that they were in favour of legal but not illegal migration. If a mission or volunteer trip makes people care more about development but less confident in the ability of government or philanthropy to make a difference, this poses a real challenge to those advocacy organisations engaged in trying to inform rich country publics about the effectiveness of such action.

Third, the internal validity of the quasi-experiment could be undermined as missions even in developed countries in Europe often work with immigrant communities, which could have a comparable treatment effect to living in a poor country.

Fourth, our null findings on personal donations may be due to substantial pre-existing tithing obligations – 10 percent of income to the church (though there is some variation in actual percentages paid as the income base on which the tithe is levied is left to individuals to determine - Dahl and Ransom, 1999).

None of these possible explanations though explain why there seems to be a larger effect for Africa than for other regions.

5. Conclusion

In this study I estimate the effect of quasi-random assignment of US residents to foreign countries for an extended period, on their later views and behaviours. Experience in developing countries leads to greater stated interest in global development, but to less favourable political views and little other action. Effects are in general more positive for those assigned to Africa than to Asia or Latin America.

These findings may have relevance for advocates working on increasing rich country public support for global development, as well as for schemes that take students and volunteers to developing countries.

Overall our findings, including a balance test on pre-existing characteristics suggest that the quasi-experimental design is valid. Assignment of missionaries to countries can be treated as quasi-random. But we find that extended international travel to developing countries may not be an important determinant of individual attitudes or actions. Future research with a larger dataset and more representative sample could further test the robustness of the quasi-experimental design and the choice of outcome measures used here. Understanding how to

increase the quality of contact between people to maximise sympathy and an expanding moral circle is also of high importance.

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Annex 1: Additional Tables and Figures

Table A1: Location of Missions and Missionaries

	Full Sample					Non- US or Canada Sample		
	This Survey		Reiss (2019) Survey	Missions		This Survey	Reiss (2019) Survey	Missions
	N	%	%	N	%	%	%	%
USA or Canada	164	11.1	62.9	132	31			
Europe	391	26.4	9.3	43	10	29.7	25.1	14.9
Africa	90	6.1	3.8	31	7	6.8	10.2	10.7
Asia	164	11.1	6.4	43	10	12.5	17.3	14.9
Latin America or Caribbean	587	39.7	15.7	154	37	44.6	42.3	53.3
Australia or Pacific	83	5.6	1.9	18	4	6.3	5.1	6.2
Total Non-US or Canada	1,315	88.9	37.1	289	68	100	100	100
Total	1,436	100	100	421	100	100	100	100

Note: This table shows a comparison of the distribution of our survey respondents with those from a nationally representative survey of Latter-day Saints in the US (Reiss, 2019), and the global distribution of all Missions. Our sample is focused on non-US missions, and is roughly in line with the placement of all non-US missionaries.

Table A2: Mission and "How interested are you in global development?"

	Not at all	Not very	Somewhat	Very
Africa	-0.008***	-0.108***	-0.103***	0.220***
	(0.003)	(0.020)	(0.036)	(0.053)
Asia	-0.002	-0.027	-0.005	0.035
	(0.002)	(0.024)	(0.007)	(0.032)
LAC	-0.000	-0.005	-0.000	0.006
	(0.002)	(0.018)	(0.001)	(0.021)
Age	-0.000	-0.001*	-0.000	0.002*
	(0.000)	(0.001)	(0.000)	(0.001)
Female	-0.004**	-0.047***	-0.010**	0.061***
	(0.002)	(0.017)	(0.005)	(0.022)
Prior Languages	-0.006***	-0.066***	-0.014**	0.086***
	(0.002)	(0.016)	(0.006)	(0.021)
Prior Travel	0.000	0.000	0.000	-0.001
	(0.000)	(0.005)	(0.001)	(0.006)
ACT/SAT Percentile	-0.000*	-0.001**	-0.000*	0.001**
	(0.000)	(0.001)	(0.000)	(0.001)
N	1,230	1,230	1,230	1,230

Notes: This table presents marginal effects from an ordinal logit regression. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are age, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table A3: Mission and "Immigration to the US from poor countries is too high"

	Strongly Agree	Agree	Disagree	Strongly Disagree
Africa	0.014	0.040	-0.046	-0.042*
	(0.009)	(0.026)	(0.029)	(0.024)
Asia	0.004	0.013	-0.015	-0.015
	(0.006)	(0.018)	(0.020)	(0.021)
LAC	0.010**	0.029**	-0.033**	-0.032**
	(0.004)	(0.013)	(0.015)	(0.015)
Age	-0.000	-0.000	0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.001)
Female	-0.011**	-0.032**	0.036**	0.034**
	(0.005)	(0.013)	(0.015)	(0.014)
Prior Languages	-0.001	-0.002	0.002	0.002
	(0.004)	(0.013)	(0.014)	(0.014)
Prior Travel	0.001	0.003	-0.003	-0.003
	(0.001)	(0.004)	(0.004)	(0.004)
ACT/SAT Percentile	-0.001***	-0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
N	1,232	1,232	1,232	1,232

Notes: This table presents marginal effects from an ordinal logit regression. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are age, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * p<0.1, ** p<0.05, *** p<0.01

Table A4: Mission and "US government aid to poor countries is too high"

	Strongly Agree	Agree	Disagree	Strongly Disagree
Africa	-0.010*	-0.036*	0.034**	0.058
	(0.005)	(0.019)	(0.017)	(0.036)
Asia	-0.003	-0.012	0.012	0.016
	(0.005)	(0.018)	(0.018)	(0.024)
LAC	0.008*	0.027**	-0.028**	-0.029*
	(0.004)	(0.013)	(0.014)	(0.015)
Age	-0.000	-0.001	0.001	0.001
	(0.000)	(0.001)	(0.001)	(0.001)
Female	-0.022***	-0.072***	0.074***	0.085***
	(0.005)	(0.013)	(0.013)	(0.015)
Prior Languages	-0.007*	-0.021*	0.022*	0.025*
	(0.004)	(0.012)	(0.013)	(0.015)
Prior Travel	-0.002	-0.005	0.005	0.006
	(0.001)	(0.004)	(0.004)	(0.004)
ACT/SAT Percentile	-0.000***	-0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
N	1,232	1,232	1,232	1,232

Notes: This table presents marginal effects from an ordinal logit regression. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are age, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * p<0.1, ** p<0.05, *** p<0.01

Table A5: Heterogeneity by High School Test Score

Panel A	Interest in Development	Interest in Survey Results	Positive on immigration	Positive on official aid
Africa	0.270**	0.075	-0.349*	0.473**
	(0.125)	(0.083)	(0.189)	(0.190)
Asia	0.199*	0.028	-0.076	-0.106
	(0.102)	(0.069)	(0.156)	(0.157)
LAC	0.027	0.029	-0.071	0.005
	(0.075)	(0.051)	(0.115)	(0.116)
ACT/SAT Percentile	0.003**	-0.000	0.010***	0.006***
	(0.001)	(0.001)	(0.002)	(0.002)
Africa x Percentile	0.001	-0.000	0.003	-0.006**
	(0.002)	(0.001)	(0.003)	(0.003)
Asia x Percentile	-0.002	-0.002**	-0.000	0.003
	(0.002)	(0.001)	(0.002)	(0.002)
LAC x Percentile	-0.000	-0.001*	-0.002	-0.003
	(0.001)	(0.001)	(0.002)	(0.002)
Dep var control mean	3.008	0.281	3.468	3.494
N	1,230	1,232	1,232	1,232
R-squared	0.048	0.019	0.036	0.061

Panel B	(Log) International Giving	Any Donation	Volunteers with NGO	Works on Development	Political Campaigns
Africa	0.439	0.180**	0.038	-0.008	-0.061
	(1.015)	(0.087)	(0.063)	(0.053)	(0.046)
Asia	-1.241	0.039	0.107*	-0.058	-0.046
	(0.846)	(0.078)	(0.056)	(0.047)	(0.041)
LAC	0.149	-0.035	0.002	0.028	-0.039
	(0.611)	(0.054)	(0.039)	(0.033)	(0.029)
ACT/SAT Percentile	0.015	0.002***	0.000	0.000	0.000
	(0.011)	(0.001)	(0.001)	(0.001)	(0.001)
Africa x Percentile	-0.013	-0.002	0.001	0.001*	-0.000
	(0.015)	(0.001)	(0.001)	(0.001)	(0.001)
Asia x Percentile	0.028**	0.000	-0.001*	0.000	0.001**
	(0.013)	(0.001)	(0.001)	(0.001)	(0.001)
LAC x Percentile	0.007	0.000	0.000	-0.001	0.000
	(0.009)	(0.001)	(0.001)	(0.000)	(0.000)
Dep var control mean	2.372	0.245	0.095	0.078	0.070
N	1,141	1,090	1,090	1,090	1,090
R-squared	0.123	0.043	0.027	0.045	0.045

Notes: This table shows interaction effects between high school test score (ACT/SAT) percentile and region of mission placement. Outcomes are as reported in Table 3 and Table 4. All results in this table are from OLS regressions. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are current age, age at mission start, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * p<0.1, ** p<0.05, *** p<0.01

Table A6: Heterogeneity by Sex

Panel A	Interest in Development	Interest in Survey Results	Positive on immigration	Positive on official aid
Africa	0.405***	0.065	-0.270**	0.155
	(0.086)	(0.058)	(0.131)	(0.132)
Asia	0.113	-0.042	-0.303***	-0.216*
	(0.076)	(0.051)	(0.116)	(0.117)
LAC	0.045	-0.022	-0.189**	-0.210***
	(0.051)	(0.034)	(0.078)	(0.078)
Female	0.194***	-0.009	0.057	0.178*
	(0.070)	(0.047)	(0.107)	(0.107)
Africa x Female	-0.412**	0.060	0.219	-0.225
	(0.198)	(0.133)	(0.301)	(0.303)
Asia x Female	-0.079	-0.133	0.555***	0.673***
	(0.127)	(0.085)	(0.193)	(0.195)
LAC x Female	-0.084	-0.065	0.034	0.199
	(0.093)	(0.063)	(0.142)	(0.143)
Dep var control mean	3.008	0.281	3.468	3.494
N	1,230	1,232	1,232	1,232
R-squared	0.049	0.017	0.041	0.064

Panel B	(Log) International Giving	Any Donation	Volunteers	Works	Campaigns
Africa	-0.701	0.099*	0.105**	0.065*	-0.058*
	(0.679)	(0.057)	(0.041)	(0.035)	(0.030)
Asia	0.449	0.048	0.010	-0.037	0.016
	(0.607)	(0.051)	(0.037)	(0.031)	(0.027)
LAC	0.308	-0.020	0.003	-0.024	-0.018
	(0.406)	(0.035)	(0.025)	(0.021)	(0.019)
Female	-1.450**	0.017	0.032	-0.051*	-0.022
	(0.572)	(0.047)	(0.034)	(0.029)	(0.025)
Africa x Female	2.829*	0.013	-0.076	-0.038	-0.005
	(1.618)	(0.136)	(0.098)	(0.083)	(0.072)
Asia x Female	-0.440	-0.023	0.090	-0.000	0.041
	(1.030)	(0.101)	(0.073)	(0.061)	(0.053)
LAC x Female	0.962	-0.014	-0.004	0.037	-0.014
	(0.749)	(0.063)	(0.045)	(0.038)	(0.033)
Dep var control mean	2.372	0.245	0.095	0.078	0.070
N	1,141	1,090	1,090	1,090	1,090
R-squared	0.122	0.041	0.024	0.038	0.042

Notes: This table shows interaction effects between sex and region of mission placement. Outcomes are as reported in Table 3 and Table 4. All results in this table are from OLS regressions. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are current age, age at mission start, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * p<0.1, ** p<0.05, *** p<0.01

Table A7: Heterogeneity by Age

Panel A	Interest in Development	Interest in Survey Results	Positive on immigration	Positive on official aid
Africa	0.287	0.138	-1.204**	0.258
	(0.386)	(0.256)	(0.578)	(0.581)
Asia	-0.358	0.268*	-1.530***	-1.361***
	(0.220)	(0.148)	(0.334)	(0.335)
LAC	0.127	0.062	-0.287	0.297
	(0.143)	(0.096)	(0.217)	(0.218)
Age	0.003	0.004**	-0.006	0.004
	(0.003)	(0.002)	(0.004)	(0.004)
Africa x Age	0.001	-0.002	0.031*	-0.004
	(0.012)	(0.008)	(0.018)	(0.018)
Asia x Age	0.012**	-0.010**	0.040***	0.038***
	(0.006)	(0.004)	(0.009)	(0.009)
LAC x Age	-0.003	-0.003	0.003	-0.013**
	(0.004)	(0.003)	(0.006)	(0.006)
Dep var control mean	3.008	0.281	3.468	3.494
N	1,230	1,232	1,232	1,232
R-squared	0.051	0.019	0.051	0.076

Panel B	(Log) International Giving	Any Donation	Volunteers with NGO	Works on Development	Political Campaigns
Africa	-6.651**	-0.071	-0.220	-0.114	-0.101
	(3.069)	(0.266)	(0.192)	(0.162)	(0.141)
Asia	6.140***	-0.065	-0.051	-0.029	0.114
	(1.776)	(0.185)	(0.134)	(0.112)	(0.098)
LAC	0.958	0.073	0.002	-0.129**	-0.055
	(1.209)	(0.099)	(0.072)	(0.060)	(0.053)
Age	0.182***	0.007***	0.001	-0.001	-0.000
	(0.023)	(0.002)	(0.001)	(0.001)	(0.001)
Africa x Age	0.212**	0.006	0.010*	0.005	0.001
	(0.096)	(0.008)	(0.006)	(0.005)	(0.004)
Asia x Age	-0.163***	0.003	0.002	-0.000	-0.003
	(0.048)	(0.005)	(0.004)	(0.003)	(0.003)
LAC x Age	-0.011	-0.003	0.000	0.003**	0.001
	(0.033)	(0.003)	(0.002)	(0.002)	(0.001)
Dep var control	2.372	0.245	0.095	0.078	0.070
N	1,141	1,090	1,090	1,090	1,090
R-squared	0.132	0.043	0.025	0.041	0.043

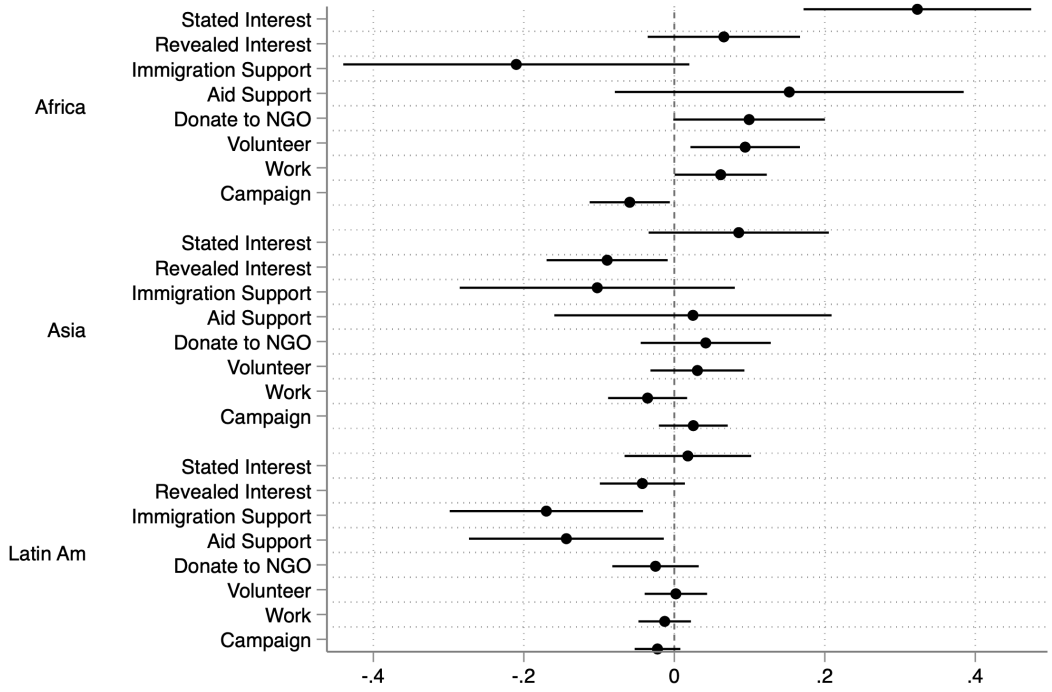
Notes: This table shows interaction effects between age and region of mission placement. Outcomes are as reported in Table 3 and Table 4. All results in this table are from OLS regressions. Effects of serving in Africa, Asia, and LAC, are all relative to the omitted category of serving in Europe. Control variables are current age, age at mission start, sex, number of languages spoken and countries visited prior to mission assignment, and high school test scores. * p<0.1, ** p<0.05, *** p<0.01

Table A8: Former Latter-day Saints, by Mission

	Current	Former	Former (%)
No Mission	758	469	38.22
US or Canada	256	40	13.51
Europe	38	6	13.64
Latin America, Asia, Africa	99	23	18.85
Australia, NZ, South Pacific	6	3	33.33

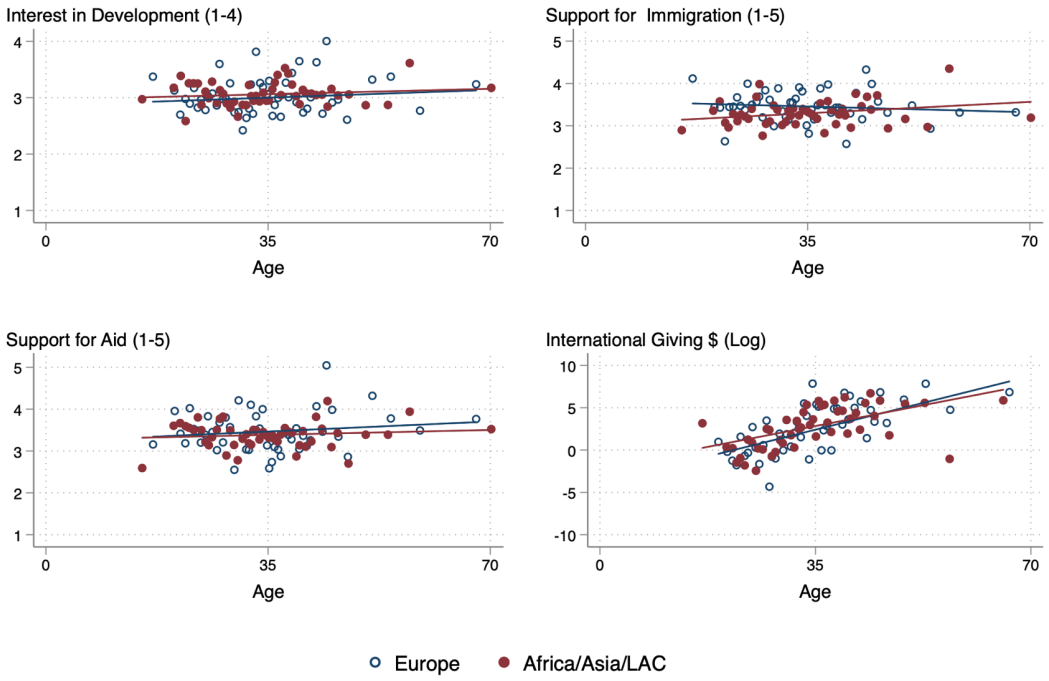
This table shows the share of returned missionaries who are no longer members of the church (and therefore may be less likely to be part of our analysis sample). Data comes from a nationally representative survey of current and former US church members, conducted by Riess (2019). The difference in the share of returned missionaries who are no longer members of the church between those who went to Europe or Latin America, Asia, or Africa, is not statistically significant.

Figure A1: Marginal effect of region assignment on main outcomes



Note: This figure presents a comparison of assignment to each of the three main lower-income world regions against assignment to Europe. Effects are estimated on eight outcome variables. First, self-reported interest in global development (on a scale from 1 to 4, whether respondents are "not at all", "not very", "somewhat", or "very" interested in development). Second, revealed interest; whether the respondent provided an email address to receive results from this study (coded as 1=yes, 0=no). Third, support for immigration from poor countries (on a Likert scale coded from 1 to 5). Fourth, support for higher official government aid to poor countries (on a Likert scale coded from 1 to 5). The remaining four outcomes are binary indicators, for whether the respondent donates to an NGO that works in development, volunteers with an NGO that works in development, works professionally in development, or is involved in political campaigns on development. Lines around point estimates are 95 percent confidence intervals. All models control for age, sex, high school test scores, number of languages spoken prior to mission, and number of countries visited prior to mission.

Figure A2: Outcomes by Age



This figure shows binned scatterplots and fitted lines of four main outcomes against age. As missionaries are of very similar age when they go on their mission, age can also be interpreted as the inverse of time since the missionary went on their mission. Self-reported interest in global development is measured on a scale from 1 to 4, whether respondents are "not at all", "not very", "somewhat", or "very" interested in development). Support for immigration from poor countries and for government aid to poor countries are measured on a Likert scale coded from 1 to 5.

Annex 2: Survey Instrument

Returned Mormon Missionary Survey

Hi there! Thank you for taking the time to fill out this survey, it should only take a few minutes of your time. Answers will be analysed for an academic research project. Rest assured that your answers will remain entirely anonymous.

* Required

1. **How old are you?** *

2. **Are you male or female?** *
   Mark only one oval.
   - ◯ Female
   - ◯ Male
   - ◯ Prefer not to say
   - ◯ Other: _____

3. **What was your SAT or ACT score in high school?** *

4. **What is the highest level of education you have completed?**
   Mark only one oval.
   - ◯ High school
   - ◯ College
   - ◯ Post-graduate degree

5. **What is your current occupation?** *

6. **On average, how much money do you currently give to charities that operate in poor countries each year? ($) (excluding tithing)** *

7. **On average, how much money do you currently give to charities that operate in the US each year? ($) (excluding tithing)** *

8. **Approximately how much is your annual income? ($)**

9. **Do you agree or disagree that immigration to the US from poor countries is too high** *
Mark only one oval.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

10. **Do you agree or disagree that US government aid to poor countries is too high** *
Mark only one oval.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

11. **How interested would you say you are in global development and poverty?**
Mark only one oval.

- ◯ Very interested
- ◯ Somewhat interested
- ◯ Not very interested
- ◯ Not at all interested

12. **Are you personally involved in helping developing countries?**
Check all that apply.

- ☐ Not really
- ☐ I donate money to a charity or NGO that helps
- ☐ I volunteer for a charity or NGO that helps
- ☐ I am involved in political campaigns to support global development issues
- ☐ I work professionally on global development issues
- ☐ Other: _____

13. **Have you served on a mission, and if so which region did you serve in?** *
Mark only one oval.

- ◯ Not applicable (have not been on a mission) *Stop filling out this form.*
- ◯ USA or Canada *Stop filling out this form.*
- ◯ Europe
- ◯ Africa
- ◯ Asia
- ◯ Latin America or Caribbean
- ◯ Australia or Pacific
- ◯ Other: _____

14. **What year did you begin your mission?** *

15. **How many months did you spend on your mission?** *

16. **Before going on your mission, how many foreign countries had you visited?** *
Mark only one oval.

- ◯ None
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5 or more

17. **Before going on your mission, how many foreign languages did you speak fluently?** *
Mark only one oval.

- ◯ None
- ◯ 1
- ◯ 2 or more

18. **Would you like to add any other comments related to any part of this survey? (Optional)**

19. **If you would like to receive a copy of the results of the survey, please include your email address here (your email will only be used for this purpose and will not be shared with anyone else)**