Experiments and quasi-experiments in Islamic microfinance

Ahmad, Syedah

DOI:
10.33612/diss.147426107

Chapter 5

Religion, Social Desirability Bias and Financial Exclusion: Evidence from a List Experiment on Islamic (Micro-)Finance in Pakistan*

Abstract

We conduct a *list experiment* to measure attitudes toward non-Islamic financial products, and implement it in a sample of more than 2,000 borrowers of an Islamic microfinance institution in Pakistan. We find that approximately 37 percent report using non-Islamic financial products and services. Furthermore, exploring predictors of this behavior using our rich survey data, we document heterogeneity along several dimensions, including demographic and socio-economic measures, as well as measures of religious behavior, e.g., frequency of attendance at religious gatherings and consultation of Islamic scholars. We also discuss the implications of our results for financial inclusion strategies, such as, promising target groups for such strategies. Our study makes an important contribution to the rapidly growing literature on causes of and measures to mitigate financial exclusion among Muslim populations, and also throws light on the general issue of deriving meaningful measures of public opinion and attitudes in sensitive religious contexts.

*This chapter is based on Ahmad, Lensink, and Mueller (2020d), which is currently under review at a high-ranked journal. The ethical approvals for the study were obtained from the University of Groningen (Approval number 2017-10-06 ECFEB) as well as Akhuwat and the Meezan Bank (our partner organizations in Pakistan). A Data Management plan was approved by the University of Groningen (reference number: FEB-20171101-2681).

5.1 Introduction

Financial exclusion is seen as a major obstacle in reaching the UN Sustainable Development Goals (SDGs). Currently, about 1.7 billion adults remain unbanked (Demirgüç-Kunt, et al. 2018), i.e. without an account either at a financial institution or through a mobile money provider. Almost all of these adults live in developing economies and nearly half reside in one of only seven countries: Bangladesh, China, India, Indonesia, Mexico, Nigeria, and Pakistan. Thus, realizing the SDGs will depend critically on the progress achieved in these countries. At the same time, Muslims worldwide are substantially less included in the formal financial system than non-Muslims (Demirgüç-Kunt, et al. 2013). Data from survey and public opinion polls in a variety of nations and contexts highlight insufficient availability of Islamic (micro-)finance as an important cause of financial exclusion among poor Muslim populations. Such empirical evidence about potential demand- and supply-side barriers to financial inclusion often shape costly (in terms of fiscal and other resources) national financial inclusion strategies designed by governments worldwide.

In this paper, we conduct – to the best of our knowledge – the first ever *list experiment* to measure attitudes toward non-Islamic financial products. A list experiment attempts to elicit truthful responses through indirect questioning, by asking respondents about the number of itemized questions on a list with which they agree. List experiments have been shown to provide more accurate responses to sensitive questions – e.g., the willingness to use non-Islamic financial products by Muslims in our case – compared to direct questioning (see, e.g., Holbrook and Krosnick 2009).[1] Notably, our list experiment is carried out in Pakistan, which besides being Muslim majority, is one of the 7 countries mentioned above.

Our study is innovative and important because it provides useful guidance on the design of financial inclusion policies – in terms of whom to target – when implementing them in practice. Furthermore, we place our results in the backdrop of a similar measure of attitudes towards the use of non-Islamic finance that is derived from direct questioning. Our study contributes in particular to policy makers‘ understanding of the reasons behind financial exclusion, and addresses certain shortcomings found in commonly employed survey tools.

[1] Biases inherent in self-reported answers about sensitive topics are well known, and several qualitative (see e.g., Blattman, et.al. 2016) and quantitative (see e.g., Bullock Imai and Shapiro 2011) approaches have been developed to deal with them. Prominent among them are list experiments, which have been employed in political science for understanding voters attitudes (see e.g., Redlawsk Tolbert and Franko 2010), and recently, in economics for studying sensitive topics, e.g., the uses of microfinance loans by borrowers (see e.g., Karlan and Zinman 2012; Eriksen and Lensink 2015).

5.2 Overview of existing work

Available studies on the demand side of Islamic (micro-)finance have failed to paint an unequivocal picture. First, policy discussions are confused by imprecise interpretation of survey responses, e.g., statements about *preference* for Islamic financial products being misinterpreted as implying financial exclusion if such products are *unavailable*. Second, current empirical evidence is incomplete and contradictory (Range and Kaiser-Yücel, CGAP 2016): While some studies highlight the importance of religious motives when it comes to financial inclusion, other studies cast considerable doubt on this claim. For example, Karim and Khaled (2011) report that a large percentage (approximately 67%) of prospective and current microfinance clients in the Islamic world only accept, or have a preference for financing in line with Sharia principles. Others such as Abdul-Rahman (2007), Dusuki (2008), and Karim, et al. (2008) also make a strong case for the importance of Islamic (micro-)finance in the context of financial inclusion. El-Gamal, et al. (2011) report voluntary financial exclusion in markets where Islamic (micro-)finance products are unavailable. Several other studies support this notion, e.g., Beck and Brown (2011) in a study spanning 29,000 individuals in 29 countries find that Muslims are less likely to have bank accounts than non-Muslims, partly for religious reasons. One of the most prominent contrarian voices are Demirgüç-Kunt, et al. (2015) who state, based on data from the Global Findex 2014, that: "*Religion does not appear to be a major barrier to account ownership.*". However, beyond these contradictory findings, the general discussion around the issue has been further complicated by public opinion/attitude survey questions that confound demand- and supply-side effects. Furthermore, even for individual studies with well-designed survey questions, the meaningfulness of their findings for policy has been called into question due to mismatches between survey results that suggest high demand for Sharia-compliant products compared to limited actual take-up. These mismatches have been highlighted by randomized controlled trials (RCTs) that examine the difference between survey responses and actual choice when it comes to opting for Islamic financial products (see El-Zoghbi, et al. 2016), and have been attributed to false reporting, which is a general and prominent weakness of the survey approach in this context, and for which social desirability bias may be an important driver.

5.3 Data

Our sample contains data from borrowers of an Islamic microfinance institution in Pakistan. Our data is particularly appropriate for our research question because Pakistan adopted financial inclusion as a national priority well before many other low or middle income countries, but progress on financial inclusion has been much slower than expected (the so called ―Pakistan Enigma" of financial inclusion, see Rasmussen, CGAP 2018). For example, according to the Global Findex (2017) the average account ownership is the lowest in Pakistan among lower- and middle-income countries (20 percent in comparison to an average of 63 percent across developing economies).

Our data collection took place between September 16-October 31 2017 in Multan, Pakistan, as part of a survey for an RCT studying the impact of savings-related interventions among small business loan holders of Akhuwat, our partner organization in Pakistan. Akhuwat is one of the two largest Sharia-compliant microfinance providers in Pakistan. We conducted our study in the religiously conservative city of Multan. Our sample consists of 2,145 Akhuwat borrowers, from a total of 24 branches. We individually randomized borrowers into treatment and control groups (described below) stratified by branch. The questionnaire focused on demographic and socio-economic variables, access to (formal and informal) financial markets, as well as religious practices and preferences.[2]

5.4 Methodology

In a list experiment, the control group receives a list comprising exclusively of non-sensitive statements, whereas the treatment group receives the same list with an additional sensitive statement, which in our case concerned the use of non-Islamic financial products. Given a large enough sample size, under certain conditions that are discussed below, the difference in the mean number of supported statements between the groups provides an estimate of the proportion of respondents in the population who agree with the sensitive statement.

We implemented our list experiment as follows. First, an enumerator explained the procedure by reading the statement: ―*Now I will read four(five) statements that apply to some people but not to others. While I am reading these statements to you, please count how many of them are true for you. Do not count loudly or count on your fingers. After I read all four(five), just tell me HOW MANY of these apply to you – none, 1, 2, 3, or 4/(5). I do not want to know which ones, just HOW MANY.*"

[2] Note that the enumerators had no relation to Akhuwat. This was made clear to respondents during the introduction to and consenting of individuals to mitigate potential bias.

Then, after ensuring that the respondent understood these instructions, the following four statements[3] were read to an individual of the control group:

1) "*A salaried job would suit me more than running my own business because a salaried job guarantees a dependable, exact, and expected amount on each paycheck and provides a sense of security to me.*"
2) "*I enjoy running my own business as it gives me a flexible lifestyle and I am the one in control, I have choices and I get to make decisions.*"
3) "*I prefer to eat home cooked food because it is most nutritious and healthy.*"
4) "*I prefer to eat from small hotels as doing so is convenient and the food is rich in taste.*"

Five statements were read to the treatment group, which comprised the four above and in addition, the sensitive statement: "*I use non-Islamic financial products from time to time - either formal ones or informal ones, such as bringing jewelry or a vehicle to a pawn shop and retrieving it later by paying interest on the loan.*" It was placed third on the list above, while otherwise preserving the order of the statements.

Three key assumptions underpin the validity of any list experiment (see Imai, 2011). First, that our randomization procedure was effective, which can be seen from the balance table, Table 5.1, showing that the means of key variables are not statistically significantly different across treatment and control groups.

[3] The statements were selected on the basis of local context specific to the borrowers after consultation with the regional manager of Akhuwat, and underwent subsequent piloting.

Table 5.1: Summary statistics and balance tests

Variable	Overall sample		Control Group			Treatment Group			p-value
	N	Mean	N	Mean	SD	N	Mean	SD	
Female	2,220	0.87	1,108	0.87	0.33	1,112	0.87	0.33	0.92
Age Top Quartile	2,220	0.24	1,108	0.23	0.42	1,112	0.25	0.44	0.23
Educ. Top Quartile	1,972	0.24	980	0.25	0.43	992	0.23	0.42	0.50
Educ. Abv. Median	1,972	0.46	980	0.45	0.50	992	0.46	0.50	0.94
Formal Educ.	1,972	0.57	980	0.57	0.50	992	0.57	0.49	0.96
Read Urdu	2,147	0.53	1,073	0.53	0.50	1,074	0.54	0.50	0.68
Read Quran	2,147	0.83	1,073	0.82	0.38	1,074	0.83	0.38	0.81
Poor	2,145	0.28	1,073	0.29	0.45	1,072	0.28	0.45	0.93
Richest HH	2,106	0.33	1,051	0.34	0.48	1,055	0.32	0.47	0.19
Maj. Inc. HH	2,106	0.81	1,051	0.81	0.39	1,055	0.80	0.40	0.86
HH Own House	2,146	0.87	1,073	0.87	0.34	1,073	0.87	0.34	0.95
HH Own Land	2,146	0.58	1,073	0.58	0.49	1,073	0.59	0.49	0.69
Quran Daily	2,144	0.22	1,072	0.21	0.41	1,072	0.23	0.42	0.37
Quran Daily/Weekly	2,144	0.47	1,072	0.46	0.50	1,072	0.48	0.50	0.39
Quran Daily/Weekly/Monthly	2,144	0.66	1,072	0.67	0.47	1,072	0.66	0.47	0.86
Attend Gathering At Least Once a Week	2,143	0.48	1,071	0.48	0.50	1,072	0.48	0.50	0.98
Attend Gathering More Than Once a Month	2,143	0.76	1,071	0.77	0.42	1,072	0.75	0.43	0.25
Always Consult Scholar	1,753	0.12	875	0.11	0.32	878	0.13	0.34	0.36

Notes: The table reports the number of observations (*N*, where the unit of observation is an Akhuwat borrower) and means for the overall sample and the number of observations (*N*, where the unit of observation is an Akhuwat borrower), means, and standard deviations (*SD*) for the treatment and control groups. For each variable, the right-most column displays the p-value from a *t*-test of equality of the means for the treatment and control groups. All variables are dummy variables. *Female* is taking the value 1 if a respondent is female; 0 otherwise. *Age Top Quartile* is taking the value 1 if a respondent's age falls above the 75th percentile; 0 otherwise. *Educ. Top Quartile* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed falls above the 75th percentile; 0 otherwise. *Educ. Abv. Median* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed falls above the median; 0 otherwise. *Formal Educ.* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed is larger than 0; 0 otherwise. *Read Urdu* is taking the value 1 if a respondent is able to read Urdu; 0 otherwise. *Read Quran* is taking the value 1 if a respondent is able to read the Quran; 0 otherwise. *Poor* is taking the value 1 if a respondent is describing the financial situation of their household over the course of the last year as poor or very poor; 0 otherwise. *Richest HH* is taking the value 1 if a respondent states that their overall monthly household income lies above 30,000 PKR; 0 otherwise. *Maj. Inc. HH* is taking the value 1 if a respondent states that their overall monthly household income is at least 20,000 PKR; 0 otherwise. *HH Own House* is taking the value 1 if a respondent or a respondent's household owns a house; 0 otherwise. *HH Own Land* is taking the value 1 if a respondent or a respondent's household owns land; 0 otherwise. *Quran Daily* is taking the value 1 if a respondent is reading the Quran daily; 0 otherwise. *Quran Daily/Weekly* is taking the value 1 if a respondent is reading the Quran daily or weekly; 0 otherwise. *Quran Daily/Weekly/Monthly* is taking the value 1 if a respondent is reading the Quran daily, weekly or on a monthly basis; 0 otherwise. *Attend Gathering At Least Once a Week* is taking the value 1 if a respondent attends religious gatherings more than once a week; 0 otherwise. *Attend Gathering More Than Once a Month* is taking the value 1 if a respondent attends religious gatherings at least once a month; 0 otherwise. *Always Consult Scholar* is taking the value 1 if a respondent always consults a Sheikh (religious scholar) for verifying the validity of financial products; 0 otherwise. The data are from the authors' own survey.

Second, we test for ―no design effects", i.e., answers to control statements not being affected by the inclusion of our sensitive statement. We implement the likelihood ratio test of Blair and Imai (2012), and cannot reject the null hypothesis of ―no design effects" (p-value=0.77). Third, following the literature, we also consider the possibility that respondents might lie about the sensitive statement or otherwise manipulate their answers having realized the mechanism behind the list experiment technique. The likelihood of lies about the sensitive statement increases when affirmative responses to the sensitive statement are easy to identify, in which case respondents expect their privacy to be violated. This may happen in the case of so-called ceiling (floor) effects, which refer to respondents answering positively (negatively) to all control statements. To prevent such effects, control statements need to be chosen whose responses are expected to be negatively correlated among themselves. Thus, we select the four control statements above with the expectation that affirmative responses to statements 1 versus 2, as well as statements 3 versus 4 are negatively correlated with each other. The data show low probability of strategic lying due to ceiling or floor effects (see Table 5.2).

Table 5.2: Floor or ceiling effects

Response value	Frequency	Percentage	Cumulative
0	5	0.47	0.47
1	61	5.68	6.15
2	960	89.47	95.62
3	45	4.19	99.81
4	2	0.19	100
Total	1,073	100	

Notes: The table reports floor and ceiling effects for the control group. The frequency of the response value ―0" shows the number of respondents in the control group agreeing with none of the statements, i.e., it represents a floor effect. The frequency of the response value ―4" shows the number of respondents in the control group agreeing to all statements, i.e., it represents a ceiling effect. The frequencies of the response values ―1", ―2", and ―3" show the numbers of respondents in the control group that agree with one, two, or three statements, respectively. Corresponding percentages (calculated by dividing the frequency by the total number of respondents in the control group) and cumulative percentages are also reported. The unit of observation is an Akhuwat borrower. The data are from the authors' own survey.

In particular, in our control group of 1073 respondents, the modal response was approximately two, indicative of the preferred negative correlation between control statements. Indeed, only 0.47% agreed with zero control statements, and only 0.19% agreed with all control statements.

5.5 Main Results

We first regress the count of positive responses from the list experiment on the treatment dummy, which takes a value of 1 for individuals in the group that received the sensitive statement (see Table 5.3).

Table 5.3: Treatment effect

	List Experiment
List Treatment	0.369***
	(0.021)
Constant	1.979***
	(0.011)
Observations	2,145
R^2	0.131

Notes: The table reports the result of an OLS regression of List Experiment on List Treatment. The variable *List Experiment* is the number of positive responses from the list experiment; the variable *List Treatment* is a dummy that is taking the value 1 if an Akhuwat borrower is in the treatment group, i.e. the group that received the sensitive statement; 0 otherwise. Robust standard errors in parentheses.
* = $p < 0.10$, ** = $p < 0.05$, *** = $p < 0.01$

The coefficient of the treatment dummy suggests that approximately 37% of our sample agrees with the sensitive statement, i.e. a sizeable fraction of the sample uses non-Islamic financial products.

Next, motivated by the rationale behind conducting a list experiment, i.e. biases in direct reporting, in our case mainly underreporting due to social desirability bias, it is useful to place our results in the context of a closely related direct question from our survey: "*Would you become or are you a customer of financial institutions that are non-Islamic.*" (see Table 5.4). Note that this direct question was part of the same survey as the list experiment, and thus was intentionally not phrased in the same manner as the sensitive statement to avoid concerns about one response leading to the other. The translations of both statements make it clear that both formal and informal products/institutions are covered.

Table 5.4 shows that there is a large difference of about 17 percentage points between the list experiment and the direct question responses that is also highly statistically significant.

Table 5.4: Bias observed in reporting through list experiment

		All Borrowers
Direct Report		
- Proportion of borrowers reporting that they are or may become a customer of non-Islamic financial institutions		0.1995
	SE	(0.008)
	N	2,145
List Experiment		
- Mean of "yes" responses for control group		1.979
	SE	(0.011)
	N	1,073
- Mean of "yes" responses for treatment group		2.348
	SE	(0.018)
	N	1,072
Difference (proportion of borrowers using non-Islamic financial products)		0.369
- SE of difference		(0.021)
- p-value from t-test		0.000
	N	2,145
Comparison (direct question and list experiment)		0.169
Z-test statistic for difference in proportions		12.31***

Notes: The table reports a comparison between the response in the list experiment response and to a direct question; see main text for details. The variable corresponding to the direct report question is a dummy that takes the value 1 if the respondent reports that they are or may become a customer of non-Islamic financial institutions; 0 otherwise. The variables corresponding to the list experiment show the means of two groups; a mean of the number of affirmative responses for the control group which is presented with 4 statements and a mean of the number of affirmative responses for the treatment group which is presented with an additional sensitive statement, i.e., 5 statements. Difference represents the proportion of borrowers who use non-Islamic financial products, whether formal or informal ones. Comparison (direct questioning and list experiment) shows the list experiment difference minus the proportion from the direct report. *** indicates significance at the 1-percent level for the reported Z-statistic for the difference in proportions.

5.6 Heterogeneity analysis

List experiments can only provide an estimate of the collective behavior of the community (i.e., the proportion of respondents in the population who agree or disagree with the sensitive statement). While anonymity rules out correlating responses to characteristics at the individual level, sub-group analyses can still be informative (Ahart and Sackett 2004). We proceed by conducting a number of heterogeneity analyses, beginning with two key demographic variables – gender and age – that we expect a priori to have an influence on our outcome variable. Note that the coefficient of interest in each case below will be the one on the interaction term between the list treatment indicator variable and the indicator variable for the relevant dimension of heterogeneity (e.g., being female or having education above the median).

Females comprise 87% of our sample, but as the interaction coefficient in the first column of Table 5.5a shows, the propensity to adopt non-Islamic finance is not significantly different for females.

Table 5.5a: Demographics

	(1)	(2)
List Treatment	0.297***	0.343***
	(0.064)	(0.024)
Female	-0.040	
	(0.036)	
List Treatment#Female	0.083	
	(0.067)	
Age Top Quartile		-0.019
		(0.024)
List Treatment#Age Top Quartile		0.105**
		(0.047)
Constant	2.014***	1.984***
	(0.034)	(0.013)
Observations	2145	2145
R^2	0.132	0.134

Notes: The table reports the result of OLS regressions of List Experiment on various dummy variables. The variable *List Experiment* is the number of positive responses from the list experiment. The variable *List Treatment* is a dummy that is taking the value 1 if an Akhuwat borrower is in the treatment group, i.e. the group that received the sensitive statement; 0 otherwise. *Female* is taking the value 1 if a respondent is female; 0 otherwise. *Age Top Quartile* is taking the value 1 if a respondent's age falls above the 75th percentile; 0 otherwise. Robust standard errors in parentheses. * = $p < 0.10$, ** = $p < 0.05$, *** = $p < 0.01$.

Notably, the proportion of respondents using non-Islamic finance increases with age: While not significantly different for persons above median age (37 years) compared to those below, it is significantly more, by about 11 percentage points, for those above the 75th percentile of age (46 years) compared to those below. Other demographic factors (results not shown for brevity), including household size measured by total number of household members and number of children in the household, do not significantly affect responses.

Surprisingly formal education in terms of the highest grade of schooling completed does not matter at various cut-offs (columns 1-3 of Table 5.5b).

Table 5.5b: Education

	(1)	(2)	(3)	(4)	(5)
List Treatment	0.370***	0.378***	0.345***	0.331***	0.335***
	(0.024)	(0.028)	(0.031)	(0.029)	(0.047)
Educ. Top Quartile	-0.003				
	(0.026)				
List Treatment#Educ. Top Quartile	0.037				
	(0.053)				
Educ. Abv. Median		0.044**			
		(0.022)			
List Treatment#Educ. Abv. Median		0.001			
		(0.043)			
Formal Educ.			0.020		
			(0.022)		
List Treatment#Formal Educ.			0.059		
			(0.043)		
Read Urdu				0.002	
				(0.022)	
List Treatment#Read Urdu				0.072*	
				(0.041)	
Read Quran					-0.044
					(0.029)
List Treatment#Read Quran					0.041
					(0.052)
Constant	1.974***	1.953***	1.962***	1.978***	2.016***
	(0.013)	(0.015)	(0.017)	(0.016)	(0.026)
Observations	1971	1971	1971	2145	2145
R^2	0.136	0.138	0.139	0.134	0.132

Notes: The table reports the result of OLS regressions of List Experiment on various dummy variables. The variable *List Experiment* is the number of positive responses from the list experiment. The variable *List Treatment* is a dummy that is taking the value 1 if an Akhuwat borrower is in the treatment group, i.e. the group that received the sensitive statement; 0 otherwise. *Educ. Top Quartile* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed falls above the 75th percentile; 0 otherwise. *Educ. Abv. Median* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed falls above the median; 0 otherwise. *Formal Educ.* is taking the value 1 if a respondent's education in terms of highest grade of (government) schooling successfully completed is larger than 0; 0 otherwise. *Read Urdu* is taking the value 1 if a respondent is able to read Urdu; 0 otherwise. *Read Quran* is taking the value 1 if a respondent is able to read the Quran; 0 otherwise. Robust standard errors in parentheses. * = p < 0.10, ** = p < 0.05, *** = p < 0.01.

However, an important caveat to this finding is that about 48% of our respondents have no formal education, so the median and 75th percentile of grade completed are only grades 3 and 7, respectively. Due to these characteristics, and given the local context, passive literacy measured by reading skills may be a more suitable proxy in our sample for the qualities normally associated with being educated. Indeed, we find that those who can read Urdu are significantly more likely, by about 7 percentage points, to state that they adopt non-Islamic finance (column 4). The ability to read the Quran does not matter in contrast (column 5) because the ability of reading the Quran does not reflect general education levels as it is generally read in Arabic, i.e., not the local language.

Interestingly, and in line with the literature, the household being poor according to their own understanding of their situation predicts roughly 9 percentage points higher propensity to adopt non-Islamic finance, but significant only at 10% (column 1 of Table 5.5c).

Table 5.5c: Financial status

	(1)	(2)	(3)	(4)	(5)
List Treatment	0.345***	0.336***	0.262***	0.446***	0.331***
	(0.024)	(0.025)	(0.045)	(0.070)	(0.032)
Poor	-0.026				
	(0.024)				
List Treatment#Poor	0.086*				
	(0.045)				
Richest HH		0.018			
		(0.021)			
List Treatment#Richest HH		0.107**			
		(0.044)			
Maj. Inc. HH			-0.031		
			(0.026)		
List Treatment#Maj. Inc. HH			0.133***		
			(0.051)		
HH Own House				0.033	
				(0.035)	
List Treatment#HH Own House				-0.089	
				(0.073)	
HH Own Land					-0.055**
					(0.022)
List Treatment#HH Own Land					0.067
					(0.042)
Constant	1.987***	1.974***	2.005***	1.951***	2.011***
	(0.013)	(0.014)	(0.023)	(0.034)	(0.016)
Observations	2145	2105	2105	2145	2145
R^2	0.133	0.137	0.134	0.132	0.133

Notes: The table reports the result of OLS regressions of List Experiment on various dummy variables. The variable *List Experiment* is the number of positive responses from the list experiment. The variable *List Treatment* is a dummy that is taking the value 1 if an Akhuwat borrower is in the treatment group, i.e. the group that received the sensitive statement; 0 otherwise. *Poor* is taking the value 1 if a respondent is describing the financial situation of their household over the course of the last year as poor or very poor; 0 otherwise. *Richest HH* is taking the value 1 if a respondent states that their overall monthly household income lies above 30,000 PKR; 0 otherwise. *Maj. Inc. HH* is taking the value 1 if a respondent states that their overall monthly household income is at least 20,000 PKR; 0 otherwise. *HH Own House* is taking the value 1 if a respondent or a respondent's household owns a house; 0 otherwise. *HH Own Land* is taking the value 1 if a respondent or a respondent's household owns land; 0 otherwise. Robust standard errors in parentheses. * = p < 0.10, ** = p < 0.05, *** = p < 0.01.

However, columns 2 and 3 of Table 5.5c show that for the top two household income groups the affinity towards non-Islamic finance is larger: for the highest income group (above 30,000 PKR, the local currency, per month) it is about 11 percentage points higher and for the top two groups combined (at or above 20,000 PKR per month) it is about 13 percentage

points higher. Note that roughly 33% and 81%, respectively, of our sample lie in these income categories. In contrast, wealth indicators such as owning a house or land do not seem to matter for the proportion that is willing to avail non-Islamic financial products (columns 4 and 5).

Table 5.6 shows that in terms of religious behavior, people who read the Quran daily, at least weekly or at least monthly (compared to those who do not at all or only during Ramadan) are all less likely (about 11 percentage points on average across these three different groups) to adopt non-Islamic finance. While not surprising, these results are reassuring because they show that the list experiment is successful at capturing components of financial behavior that are correlated with religion.

More policy relevant however are our findings reported in columns 4-6 of Table 5.6. Columns 4 and 5 show that among people who attend religious meetings at least once a week or those who do so more than once a month, the proportions adopting non-Islamic finance are about 11 percentage points and 8 percentage points lower, respectively. This suggests that such religious gatherings might be ideal venues for promoting financial inclusion, either via directly offering Islamic (micro-)finance products, or raising financial literacy/awareness about such products. Another finding, highlighted in column 6 of Table 5.6, that suggests a cost-effective avenue for increasing financial inclusion, is that among people who always consult religious scholars about financial arrangements, the proportion adopting non-Islamic finance is, as expected, lower (by about 13 percentage points). Thus, if such scholars are informed about formal Islamic financial products available to poorer segments of society on a regular basis, it is conceivable that they can play a vital role in increasing financial inclusion.

Table 5.6: Religious behaviors

	(1)	(2)	(3)	(4)	(5)	(6)
List Treatment	0.391***	0.426***	0.444***	0.420***	0.427***	0.329***
	(0.023)	(0.029)	(0.036)	(0.028)	(0.039)	(0.023)
Quran Daily	0.037*					
	(0.021)					
List Treatment#Quran Daily	-0.100**					
	(0.050)					
Quran Daily/Weekly		-0.003				
		(0.021)				
List Treatment#Quran		-0.117***				
Daily/Weekly		(0.041)				
Quran			-0.010			
Daily/Weekly/Monthly			(0.023)			
List Treatment#Quran			-0.112**			
Daily/Weekly/Monthly			(0.044)			
Attend Gathering At Least				-0.003		
Once a Week				(0.022)		
List Treatment#Attend				-0.105**		
Gathering At Least Once a Week				(0.041)		
Attend Gathering More					-0.004	
Than Once a Month					(0.022)	
List Treatment#Attend					-0.079*	
Gathering More Than Once a Month					(0.046)	
Always Consult Scholar						-0.011
						(0.041)
List Treatment#Always						-0.132**
Consult Scholar						(0.065)
Constant	1.972***	1.981***	1.986***	1.982***	1.984***	1.991***
	(0.013)	(0.016)	(0.020)	(0.014)	(0.018)	(0.011)
Observations	2144	2144	2144	2143	2143	1753
R^2	0.133	0.138	0.138	0.136	0.133	0.113

Notes: The table reports the result of OLS regressions of List Experiment on various dummy variables. The variable *List Experiment* is the number of positive responses from the list experiment. The variable *List Treatment* is a dummy that is taking the value 1 if an Akhuwat borrower is in the treatment group, i.e. the group that received the sensitive statement; 0 otherwise. *Quran Daily* is taking the value 1 if a respondent is reading the Quran daily; 0 otherwise. *Quran Daily/Weekly* is taking the value 1 if a respondent is reading the Quran daily or weekly; 0 otherwise. *Quran Daily/Weekly/Monthly* is taking the value 1 if a respondent is reading the Quran daily, weekly or on a monthly basis; 0 otherwise. *Attend Gathering At Least Once a Week* is taking the value 1 if a respondent attends religious gatherings more than once a week; 0 otherwise. *Attend Gathering More Than Once a Month* is taking the value 1 if a respondent attends religious gatherings at least once a month; 0 otherwise. *Always Consult Scholar* is taking the value 1 if a respondent always consults a Sheikh (religious scholar) for verifying the validity of financial products; 0 otherwise. Robust standard errors in parentheses. * = $p < 0.10$, ** = $p < 0.05$, *** = $p < 0.01$.

5.7 Conclusion, limitations and future research directions

In this study, we use list experiment to measure attitudes toward non-Islamic financial products. To survey the respondents, we partner with an Islamic microfinance institution located in Multan district, Southern Punjab, Pakistan. We directly asked the respondents about their preference for Islamic financial products and indirectly questioned them, via list experiment technique, for their practice of availing (non)Islamic financial products.

We summarize briefly our main findings. First, we find that a sizeable fraction of our sample – about 37% – reports using non-Islamic financial products and services. Second, we find evidence of underreporting of this use in a direct survey question. Given recent policy debates and drives to increase financial inclusion, our results suggest that survey researchers in the field should exercise caution in relating questions used to elicit financial behavior to precise quantitative implications (e.g., regarding the use of non-Islamic financial products) and more clearly communicate methodological weaknesses (including those well-known to an academic audience) that are highlighted by our findings.

Third, and importantly, using our rich survey data, we find meaningful heterogeneity across several individual characteristics in the reported usage of non-Islamic financial products using the list question. In particular, we show that the proportion of respondents reporting usage of non-Islamic financial products: (i) does not depend on gender but increases with age; (ii) increases in passive literacy measured by ability to read the local language, Urdu; (iii) has a non-monotonic relationship with income, being higher for those households that identify themselves as being poor, as well as for the highest household income groups; (iv) is lower for those who read the Quran on a regular basis, as can be intuitively expected; and (v) most importantly from a policy perspective, is lower among those who attend religious gatherings frequently or consult religious scholars on a regular basis. The last set of results, especially, has important implications for financial inclusion efforts aimed at underserved Muslim populations.

The study also has some limitations. First, the data is collected via survey which may suffer from ~~–r~~eporting bias" to some extent e.g., providing an answer which is socially desirable or to please the interviewer. Likewise, self-interest and opportunism may muddle the response further, such as the respondents may be well aware of the fact that it is in their benefit to have the access to interest free loans from the Islamic MFI and availing these loans in future may be an interesting opportunity for them. As a result, self-interest and

opportunism may make it more likely to give into social pressure adding the bias in reported preferences.

In the context as ours, reliable information is important for policy makers and governments for the success of financial inclusion policies. When we asked the borrowers directly about the use of non-Islamic financial products/services, the majority of them responded negatively, seemingly endorsing the ideology of prohibition of interest in Islam. However, this may be a religiously desirable response which may not be in line with their practice. In fact, the results from the list experiment show that most borrowers do use the non-Islamic financial products if a need arise or a choice is available. This entails the second limitation that may be the poor Muslims in this region are not strict enough in their adherence to reject non-Islamic financial products. Therefore, we cannot generalize that the results hold true for other Islamic countries or outside Pakistan. More research is needed to make broad assertions.

Thirdly, the participants in our sample are mostly women. Though, women are generally perceived to be more religious (Baker and Whitehead 2016; Schnabel 2016), thus we expect the results to differ with a predominantly male sample. The future researchers may explore stated and revealed preferences of Muslim borrowers with a male sample.