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Regular Article

Uptake, use, and impact of Islamic savings: Evidence from a field experiment in Pakistan¹Syedah Ahmad, Robert Lensink^{*}, Annika Mueller

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ABSTRACT

We implement a randomized field experiment in Pakistan to evaluate three interventions designed to encourage poor Muslim women to open and use Islamic savings accounts. First, an intervention that increases religious salience by using a religious speech that highlights the purposes, benefits, and desirability of savings and dispels the misconception that all formal saving is impermissible in Islam, mainly by quoting directly from the Quran; in contrast to a conventional speech conveying the same information without quoting from the Quran. Second, a subsidy that covers the account opening fee; compared to no subsidy. Third, assistance with completing the account opening form; compared to no such assistance. We find that the subsidy and assistance encourage greater uptake, and that adding religious salience induced by the religious speech to these efforts prompts even greater uptake — far greater, in fact, than the combination of the conventional speech with subsidy or assistance. The most effective intervention, comprising a religious speech in combination with a subsidy and assistance, increases uptake by approximately 60 percentage points, compared to an approximate increase of 5 percentage points for either subsidy or assistance in combination with the conventional speech. On its own, however, the religious speech does not significantly enhance uptake compared to the conventional speech, indicating that financial as well as educational/administrative constraints, and high cognitive load, present insurmountable barriers to uptake in our context. Therefore, holistic strategies to increase savings account uptake, that recognize and engage with the religious context while at the same time addressing practical barriers, should be prioritized.

1. Introduction

Increasing interest in financial inclusion reflects enhanced understanding of the fundamental role of inclusivity in economic development. As account ownership serves as an important marker of financial inclusion, the World Bank had formulated a universal financial access goal that “adults, who currently aren’t part of the formal financial system, are able to have access to a transaction account to store money, send and receive payments as the basic building block to manage their lives”, committing to enabling 1 billion people to gain access to such an account by 2020 (World Bank, 2018).

Yet, hundreds of millions of people remain currently unbanked, with

financial exclusion being especially prominent among poor people of the Muslim faith. In fact, of the seven countries that are home to almost half the world’s unbanked adults, five also feature the largest Muslim populations in the world, including Pakistan, an Islamic nation with the third largest unbanked population in the world, surpassed only by China and India (Global Findex Database, 2017). Financial inclusion of poor Muslim populations, and especially poor Muslim women, who are disproportionately affected within these populations (Global Findex Database, 2017), is thus a prominent need, and promoting Islamic microfinance options that address religious concerns by providing permissible products and services constitutes a pertinent, global goal.

However, best practices for promoting Islamic microfinance have not

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¹ The experiment was registered at the AEA RCT registry prior to any analyses (ID 0005295). The public URL for the trial is <http://www.socialsciregistry.org/trials/5295>. Ethical approval for this study was obtained from the Research Ethics Committee of the Faculty of Economics and Business at the University of Groningen (Approval Number, 2017-10-06 ECFEB), as well as from Akhuwat and the Meezan Bank, the partner organizations in Pakistan. The data management plan was approved by the University of Groningen (Reference Number FEB-20171101-2681). We thank the editor and two anonymous reviewers for their helpful comments.

yet been established. Therefore, we investigate the impact of three relevant interventions to encourage the adoption and usage of Islamic savings accounts in Pakistan. Pakistan is a highly relevant research setting for our study, as it hosts one of the world's largest unbanked Islamic populations, with striking inequalities in account ownership between different socioeconomic groups (Global Findex Database, 2017). Furthermore, it ranks second lowest in the world in terms of gender equality (<https://www.iknowpolitics.org/en/news/partner-news/female-empowerment-pakistan>), reflected in a gender gap in account ownership of 30 percentage points, compared to the developing country average of 9 percentage points (Global Findex Database, 2017). Thus, there is a pressing need, which has also been acknowledged by the government of Pakistan, to find ways to encourage uptake and usage of savings accounts among poor Muslim women in Pakistan.

Against this backdrop, we implement a randomized controlled trial in and around Multan City involving more than 2000 mostly female microfinance borrowers from Akhuwat, a well-known MFI in Pakistan, by partnering with an Islamic commercial bank (Meezan Bank) and Akhuwat, to examine the take-up and usage of a savings account provided by Meezan Bank. Our three interventions are designed to address known significant barriers to having a bank account in Pakistan, namely, religious concerns, high costs, as well as barriers associated with low educational attainment including low literacy levels (Global Findex Database, 2017), administrative matters, and high cognitive load.

Specifically, we (i) provide a religious speech that mainly uses quotes from the Quran to make more religiously salient the purposes, benefits, and desirability of savings and to dispel the common misconception that all formal saving is impermissible in Islam (cf. A conventional speech that does not quote from the Quran, but conveys the same information) (ii) subsidize the account opening fee (cf. No subsidy), and (iii) provide assistance completing the account opening form (cf. No such assistance).

Our key contribution is intervention (i) outlined above, which draws inspiration from a strategy that has proven successful in the public health domain in Pakistan, in particular, the polio vaccination campaign of Pakistan. Pakistan is one of two countries in the world where polio is still endemic. This is for a variety of reasons, including a misconception that its vaccine is not permissible in Islam. Pakistan's government had originally sought to increase uptake of the vaccine by vaccination programs that included broad information campaigns designed to highlight the benefits of the vaccine and fight this misconception. More recently they integrated social mobilizers and religious leaders into these campaigns, who provided the same information, i.e., highlighting the benefits of the vaccine and dispelling the idea that the vaccine is not permissible, but by using quotes from the Quran (see Ali et al., 2019; Polioeradication.org, 2012; Nishtar, 2010). Analogously, our conventional speech provides information about the purposes, benefits, and desirability of savings, and dispels the misconception that saving in a formal institution is necessarily impermissible in Islam (e.g., by emphasizing the Sharia compliance of the savings account provided by Meezan Bank). In contrast to the conventional speech, our religious speech intervention provides the same information, but uses quotes from the Quran to do so, thereby enhancing the religious salience of the information (Malhotra, 2010); note that, contrary to Pakistan's vaccination campaign, we do not directly involve religious leaders in our intervention. With a three-step randomization procedure and factorial design, we assign borrowers to 8 different treatments (including the group that is exposed to the conventional speech only, without subsidy or assistance, that is forming the control group) and test the effects of each form of encouragement, as well as their combination, on the uptake and usage of Islamic savings accounts. Reflecting evidence related to the polio vaccination campaign, we anticipate that among the predominantly female, Muslim sample, subsidies and assistance will be more effective if they are combined with the religious speech.

This study contributes to a growing literature on incentivizing savings in developing countries, including providing a preliminary analysis of the impact of increased savings on expenditures. In an experimental

study in India, Somville and Vandewalle (2018) determine that savings increase substantially if weekly payments go into a bank account, rather than being paid in cash. Mehrotra et al. (2021) find a positive correlation between savings in a bank account and trust in a banker. When Ashraf et al. (2006) compare a standard savings product with a newly developed commitment savings product that does not allow savers to withdraw any savings before they reach a certain goal, they find that the latter version leads to more savings. In a subsequent study (Ashraf et al., 2010), these authors also establish that women who lack bargaining power can improve it by using a commitment savings account. Karlan et al. (2016) suggest sending text reminders to clients to increase savings rates (and repayments), while Dupas and Robinson (2013b) provide evidence that labeling a savings account for a specific purpose (e.g., health costs) can have positive effects on savings. However, in an experiment in Kenya, Schaner (2018) determines that higher interest rates increase savings, with potentially greater long-run effects, relative to the short-run outcomes, which may be due to behavioral mechanisms like habit formation and mental accounting.

In studies that also consider religiously oriented interventions, Bursztyrn et al. (2019) quote from the Quran to examine whether "moral appeals" (e.g., a text message stating that "non-repayment of debts by someone who is able to repay is an injustice") encourage repayment of credit card debt among Indonesian Muslim borrowers. That is, their message is meant to invoke a moral response, which differs from the argument we offer, as our religious speech treatment does not in any way suggest that saving in a formal account is morally superior. Rather, our religious speech conveys the same information as our conventional speech, but attempts to make more religiously salient, mainly by using quotes from the Quran: (i) the purposes, benefits, and desirability of savings *in general* and (ii) the dispelling of the common misconception that all formal saving is impermissible in Islam. Several other studies besides ours include subsidies or assistance (e.g., Cole et al., 2011; Dupas and Robinson, 2013a; Prina, 2015). Although both of these inducements encourage greater uptake and usage on average, Schaner (2017) cites the "household conflict motive" (Anderson and Baland, 2002) to caution that lowering transaction costs may reduce savings if people then are subject to more transfer requests from others. She finds that reducing transaction costs (e.g., randomly allocating ATM cards linked to bank accounts) increases account use only for Kenyan people with greater bargaining power.

By building on these prior findings, our results help inform policy debates about the most effective strategies for increasing uptake of financial products and improving savings, in religious settings and among women. We confirm earlier findings that subsidy and assistance lead to higher uptake; our novel contribution is to show that a religious speech aimed at increasing religious salience, *in combination* with subsidy or assistance, prompts very high uptake—far greater than the combination of a conventional speech with these devices. On its own, the religious speech does not enhance savings significantly more than the conventional speech. Thus, this study identifies financial as well as educational/administrative constraints, and high cognitive load, as insurmountable challenges that must be addressed. If interventions adopt a holistic approach, directly engaging with religious texts while simultaneously addressing practical barriers, they offer the greatest chances of success.

To establish these findings, we start by outlining the research context in Section 2, then the experimental setup and design in Section 3. After that we describe the data in Section 4, and sketch our empirical strategy in Section 5. Next, in Sections 6 and 7, we present our main results, before we conclude in Section 8.

2. Background information

2.1. Context

Our focus on Islamic finance is timely and prompted by increasing

interest among financial institutions, especially MFIs, in offering products and services compliant with Islamic financial principles (Ahmed, 2002; Abedifar et al., 2013). A substantial proportion of the world's poor live in Muslim-majority nations (700 million in 2013; World Bank, 2014). Pakistan has the second largest Muslim population in the world and is also home to the world's third largest unbanked population, with 100 million unbanked individuals (Global Findex Database, 2017). In May 2015, the State Bank of Pakistan (SBP) launched a National Financial Inclusion strategy, with the aim of extending financial access to at least 50% of adults by 2020. The policy resulted in a slight increase in bank account ownership, more significantly among men than women (Global Findex Database, 2017; Financial Inclusion Insight, 2018). Still though, only 14% of all adults in Pakistan have a bank account (Financial Inclusion Insight, 2018), and only 5% save formally (Global Findex Database, 2017). People instead tend to adopt semiformal saving methods, such as using a savings club, joined by about 20% of adults (Global Findex Database, 2017).

We conduct this study in and around the city of Multan, the seventh largest city in Pakistan, located in Southern Punjab. We did so in partnership with two organizations: Akhuwat, an Islamic MFI that provides various small, Sharia-compliant (and thus also interest-free) loans to poor borrowers, such as loans to cover expenses related to education, marriage, health, and emergencies, as well as small business loans; and Meezan Bank, an Islamic commercial bank in Pakistan, which was founded in 1997 and maintains more than 660 branches in about 159 cities. The sample consists of borrowers from Akhuwat, who at the time we started the project were about to receive a new loan under the Family Enterprise Loan category²—which are granted to start, expand, or invest in a family business—from any Akhuwat branch in Multan. Most of the supported businesses involved garment tailoring or embroidery, livestock, or were vendor shops.

According to data collected by Ahmad et al. (2020), at the time of our interventions, i.e., in 2017, 4 Islamic banks and 8 conventional banks with Islamic windows were operating in Pakistan. In addition, there were 13 Islamic MFIs operating in Pakistan in 2017, out of 101 Islamic MFIs worldwide. The total market share of Islamic MFIs in Pakistan in 2017 was small compared with that of conventional MFIs (revenues in 2017 totaled 60 million USD for Islamic MFIs versus 505 million USD for conventional MFIs; see Online Appendix Table A1), but in terms of market penetration measured in terms of number of outstanding loans, it was a substantial market (1,530,581 loans for Islamic MFIs; 3,332,380 loans for conventional MFIs).³

2.2. Asaan savings accounts

Meezan Bank offers a basic Islamic savings account called Asaan (asaan means “easy” in Urdu). The fee to open an Asaan account is 250 PKR (approximately 2.5 USD at August 2017 exchange rates), which comprises a minimum balance of 100 PKR⁴ and a 150 PKR fee for a checkbook with 10 checks (for withdrawals and payments) that also functions as a logbook for registering balances. Furthermore, an applicant for an Asaan account must complete an “Account Opening Form” (see Online Appendix A.6 for a copy of this form) with 35 fields, requesting information about the specifications of the account applied for and personal information about the applicant. While most field titles are written in both English and Urdu, some field titles toward the end of the form appear only in English.

Since the Asaan account is targeted at low-income borrowers, it requires limited proof of income. It also requires a copy of a Pakistani

National Identity Card (NIC), and for illiterate people, a color photograph, such that the account can operate as a photo account: for safety reasons, the bank allows withdrawals from photo accounts only if the account holder visits a bank branch in person. Account holders can withdraw money using a check or automated teller machine (ATM); the option of conducting ATM transactions using the account additionally requires photo account holders to submit a judicial stamp, duly signed by a notary public and magistrate, confirming the ability of the account holder to recognize numbers to a sufficient degree to be able to operate an ATM. Otherwise, there are no restrictions on withdrawals, and account holders can withdraw funds at any time.⁵

In line with Islamic principles, the Asaan savings accounts do not earn interest. However, Meezan Bank pays a profit to Asaan account holders. Specifically, it invests money from the savings accounts into Mudarabah contracts, for which the variable profit rate is determined by SBP regulations and may change each month. At the time of the study, the prevailing profit rate for Asaan savings was 2.4%. The earned profit is taxed at the source, and the tax is deducted by Meezan Bank before paying the remainder to the account holders. This profit is paid on a monthly basis and calculated on a daily basis. Other benefits for account holders include free accidental death insurance up to PKR 1 million if their monthly balance is at least PKR 10,000. Free mobile and online banking services are standard. A Zakat deduction (a form of almsgiving in Islam) does not apply to most Asaan savings accounts, and in the rare cases that it does, account holders can submit a “no Zakat deduction form” to the bank.

Notably, the Asaan savings account was introduced by Meezan Bank in the same year that we organized our study (2017), hence most potential customers were unaware of it: According to data that we collected in our baseline survey, only 5% of our sample had heard about the Asaan account prior to our interventions. Thus, all treatment groups were provided detailed information about the basic features of the Asaan savings account.

3. Intervention and experimental design

The interventions were executed between September 16–22, 2017. In August 2017, a month prior to starting the interventions, we conducted discussions with the regional and area managers of Akhuwat for Multan district. We also conducted 15 focus group discussions (with 5–10 participants in each group; each group discussion lasting 45–60 min) with a total of 130 Akhuwat family enterprise loan holders in Multan, recruited using convenience sampling of participants in five loan disbursement meetings of a single Akhuwat branch (see below). These discussions informed both the baseline survey (which took place between September 16–October 31, 2017) and the interventions.

Akhuwat has a total of 25 branches in the Multan region. We use borrowers receiving a Family Enterprise Loan from one randomly determined branch for the focus group discussions; the main study sample includes the approximately 2220 Family Enterprise Loan receivers linked to the remaining 24 branches.⁶

Participants could open the Asaan savings accounts any time after the intervention period by physically visiting a Meezan Bank branch, but the subsidy (one of the treatments, see below) was only available until October 31, 2017. After about three weeks beyond the intervention period, no additional Akhuwat clients associated with our study opened an Asaan savings account with Meezan Bank. Next, we conducted a

² Some of the loan recipients were receiving a loan for the first time; some were receiving a new loan, but not their first one.

³ Online Appendix A.1 provides further details about the Islamic micro-finance market, in Pakistan and other countries.

⁴ The account permits a maximum balance of PKR 5,000,000.

⁵ Optional costs include an approximate yearly cost for ATM usage of PKR 1,000, in case someone opts to use ATMs. To receive optional SMS alerts or hold mail services, Meezan Bank publishes a schedule of charges. The delivery of bank statements to a mailing address is free. If account holders do not collect the check book within 30 days of issuance, it may be destroyed, with applicable charges to be recovered.

⁶ Online Appendix A.2 provides a power calculation.

follow-up survey three months after the intervention (December 15–31, 2017), and then, an endline survey about ten months after the intervention (July 7–27, 2018).⁷ Table A3 in Online Appendix A.3 details the timeline.

3.1. Recruiting participants

Each month, all Akhuwat branches hold loan disbursement meetings in nearby mosques with minimum capacities of 100 people. A day before these meetings, Akhuwat staff members issue loudspeaker announcements in these mosques instructing borrowers to arrive at an appointed time to receive their loan checks. In September 2017, in support of our study, these staff also mentioned the presence of our research team and invited participants to take part in a research study, which was described as a study whose purpose was to examine people's behavior from a cultural perspective. They also placed telephone calls to prospective borrowers, with the same information. Both the public announcements and the telephone calls asked borrowers to arrive 1 h prior to the scheduled start of the loan disbursement meeting if they were interested in participating in the research study. We also asked them to bring at least the one passport-sized photograph that was necessary for a photo account, and a copy of their NIC (to verify their identity) if they wanted to participate in the study: Keeping in mind the low education levels of most prospective participants, we wanted to recommend during the intervention that they open photo accounts; bringing a photograph along would give them the option of visiting the bank right after the intervention. Notably, the loan disbursement meetings where we held our interventions involved people who were receiving a new loan from Akhuwat (of whom 64% were receiving their first loan); hence, a meeting would be the first time that these individuals had come together as a group. This has implications for possible peer effects that we discuss later.

3.2. Randomization

In this section, we provide an overview of the randomization procedure. A more detailed description can be found in Online Appendix A.4. Prior to the loan disbursement meetings, we implemented the following randomizations. Related to the religious and conventional speeches, for logistical reasons, we used *branch-level* randomization to construct two groups of 12 branches each, where half the branches were allocated to the conventional speech treatment, and the other half to the religious speech treatment (described in Section 3.3.1). Second, we used stratified (per branch) *individual* randomization to randomly assign borrowers of each Akhuwat branch to two groups that, during the actual meeting, would be determined to receive a subsidy or not (described in Section 3.3.2). Third, we used stratified individual randomization (for the four groups thus determined) to allocate borrowers to an assistance or no assistance treatment (described in Section 3.3.3). Therefore, during the course of the meeting we randomly determined eight groups: (1) conventional speech, no subsidy, no assistance; (2) conventional speech, subsidy, no assistance; (3) conventional speech, no subsidy, assistance; (4) conventional speech, subsidy, assistance; (5) religious speech, no subsidy, no assistance; (6)

religious speech, subsidy, no assistance; (7) religious speech, no subsidy, assistance; and (8) religious speech, subsidy, assistance (see Figure A1 in the appendix).⁸ Group 1 (conventional speech, no subsidy, no assistance) forms the control group for all comparisons.

3.3. Meeting day activities: consent and interventions

On the day of the loan disbursement meeting, we sought written consent from the borrowers who voluntarily arrived at the mosques an hour early, thus signaling their interest in participating in our research study. The meetings each took less than an hour, during which we obtained consent and implemented the different interventions. This section outlines the meeting day activities and the key elements of the interventions, while Online Appendix A.4 provides a more detailed description, especially of the logistics.

3.3.1. Speeches

The speech intervention featured either a conventional or a religious speech, whose text can be found in the online appendix.⁹ We would like to emphasize that both speeches contained the same substantive information. In particular, both contained the same information regarding the basic features of the Asaan savings account and the logistics for opening it (e.g., that it was an Islamic account that adhered to Sharia principles and thus did not pay interest; that it was available to individuals of all income levels; when and how withdrawals could be made; and documents required to open the account).¹⁰ Both speeches discussed the purposes, benefits, and desirability of savings in general (i.e., whether formally or informally) and dispelled the common misconception that all formal saving is impermissible in Islam (e.g., by emphasizing the Sharia compliance of the Asaan savings account). In addition, both speeches pointed out a few benefits (e.g., safety) of formal saving over some forms of informal saving.

The *only* difference between the two speeches was that the religious speech made more religiously salient (Malhotra, 2010), using verses quoted from the Quran, certain key information that was also present in the conventional speech (specifically, the purpose, benefits, and desirability of savings in general and the Sharia compliance of the offered account).¹¹

As noted earlier, while both speeches point out a few benefits (e.g.,

⁸ Figure A1 in the appendix provides a schematic representation of the randomization steps while the Online Appendix A.4 contains a more detailed textual description of each step.

⁹ See Online Appendix A.5.

¹⁰ Both the conventional and the religious speeches mentioned Riba in the context of pointing out that the Asaan savings account does not pay interest and is overall in line with Sharia principles. The fact that Riba is forbidden in Islam was commonly known and understood by the individuals in our sample, is supported by the following facts. (1) The individuals had all been approved for a loan from Akhuwat. Since Akhuwat is an Islamic MFI that does not charge interest on their loans (as Riba is considered impermissible), this should have been discussed with the participants in the context of their loan applications. (2) During the focus group discussions conducted prior to the interventions, one of the concerns raised by participants was that formal savings accounts (and bank products more generally) may involve interest/may not be Sharia-compliant, which suggests that they were already thinking about these matters. (3) While answering a question in the religious knowledge section of our baseline questionnaire, out of 2145 individuals, less than 7% could not explain the concept of Riba (which, in our view, is a more complex task than knowing that interest would make a bank product not Sharia-compliant, as Riba is considered haram) to our field staff. Overall, it appears that the study participants would have been well aware of this issue.

¹¹ For example, a quote that we used related to the purposes/benefits of savings is Sūrah Yūsuf, verse 47–48: “[Yūsuf] said: ‘For seven years you should cultivate the land as usual, but leave the harvest that you reap in the year except for a little that you eat. Then after that will come seven difficult years in which you will eat all that you have set aside except for a little of what you have stored.’”

⁷ Our contract with the partner institutions lasted until the end of the loan repayment schedule, so we needed to conclude the study approximately nine months after the interventions, which is why we did not wait a full year after the interventions to conduct the endline survey. Regarding possible seasonal effects, we note the following points. First, due to where the study was conducted, we do not expect seasonal effects as they would occur in a rural setting, where the main source of livelihood is agriculture. Second, no major religious events or festivals were held close to the time of the interventions. Third and importantly, since our focus in all our analyses is on the difference between the treatment groups and the control group, seasonal effects are unlikely to play a role since they would likely not affect our treatment arms differently. The absence of religious events around the time of the interventions is also advantageous in this respect since our novel treatment added religious salience.

safety) of formal saving over some forms of informal saving, neither speech implied that formal savings are *morally* superior to informal ways of saving. Nor did we, at any point in the intervention, offer any such suggestion. We also did not include Quranic verses that *explicitly* tell people to save formally in our religious speech; hence, the benefits of formal over informal savings were *not* made more religiously salient by the religious speech. In fact, in our extensive conversations with an Islamic scholar,¹² who advised us on the selection of quotes, we learned that no such Quranic verse, that would support the view that formal ways of saving are morally superior to informal ways, exists. Thus, the *contents* of the speech were unlikely to have been perceived as morally coercive.

Importantly, to avoid any sense of coercion in the *delivery* of the speeches, they were not delivered by a religious scholar or other authority figure, but rather by orators, hired as part of the research team: Two young men, with professional backgrounds in radio broadcasting, delivered the speeches in Urdu. To avoid any potential biases related to the orators, we randomly allocated the two orators to the 24 disbursement locations, using a stratified randomization procedure. Each delivered a total of 12 speeches, 6 religious and 6 conventional, which all lasted less than 20 min. The speeches, conventional and religious, were delivered in a mosque, where men and women were separated by a partition, and the orator spoke from a podium. In each location, fewer than 100 participants heard the speech.

3.3.2. Subsidy

After the speech, we determined (see earlier discussion and Online Appendix A.4) and explained who would be eligible for the subsidy of 250 PKR (approximately 2.35 USD at then-prevailing exchange rates), which paid for the account opening fee. This subsidy covered, as noted previously, the 100 PKR minimum balance of the Asaan savings account, in addition to 150 PKR for a checkbook that is required for withdrawals. Participants could avail of the subsidy amount if they, at any time after the meeting concluded until October 31, 2017, visited a Meezan Bank branch physically and decided to open an Assan savings account. However, also as noted earlier, no Akhuwat clients associated with our study opened an Asaan savings account with Meezan Bank after about three weeks beyond the intervention period; thus, the October 31 deadline for availing of the subsidy does not appear to have been binding. The 100 PKR we provided was not free money for the participants since it served as the minimum balance and hence needed to remain on the account. As additional transaction costs accrued (e.g., transportation costs of traveling to a bank branch), we did not expect 100% take up in the subsidy treatment arms, even for those who do not face any other constraints. To put the total subsidy of 250 PKR into perspective and give a sense of the extent to which it relaxes constraints, it is useful to compare it to daily household and personal incomes for our sample. In particular, for almost half of the *female* borrowers, the subsidy exceeded 75% of their daily *personal* income; for about 80% of *all* borrowers the subsidy exceeded 37.5% of their daily *personal* income; and, looking at household incomes, the subsidy exceeded 25% of the daily *household* income (where average household size exceeded six) for about two-thirds of all borrowers.¹³

¹² The religious scholar, Mufti Ghulam Mustafa Rizvi, is a former advisor in the Federal Shariat Court, former member of the Council of Islamic Ideology, and senior religious scholar in the Madrassa “Anwar ul Aloom” in Multan.

¹³ Our questionnaire asked for personal and household income in terms of income ranges. Hence, these numbers are calculated as follows. For example, the frequency of personal income for women in the range 0–10,000 PKR is 48.03%. We take the upper bound of the range 0–10,000 PKR, which is 10,000 PKR. The fee of 250 PKR is approximately 75% of 10,000 PKR divided by 30 (as an approximation of the number of days in a month). We include the word “exceeded” in our statements since we take the upper bound of the ranges. We followed the same approach for the other calculations.

3.3.3. Assistance

Finally, we announced (see earlier discussion and Online Appendix A.4) who would receive assistance with filling in the account opening forms.¹⁴ The account opening form included 35 fields, with the questions and field titles written in both English and Urdu, except for certain field titles at the end of the form that were exclusively in English. Due to the low education level (and associated low literacy levels) of the participants, filling in this form may have constituted a barrier that discourages uptake of savings accounts. Filling in the form may also have imposed administrative challenges (certain questions might have, e.g., required the study participants to clarify details with bank staff) and cognitive load (e.g., a question asking about their main source of income; because some of the participants were, at the time of answering the question, not in formal employment, but were in the process of setting up their own business, having just received a loan for that purpose). In the assistance treatment, members of our research team completed the entire form with information provided by Akhuwat and the applicants, and handed it back to the study participants (who then had the choice of handing over the completed form to Meezan Bank staff if they decided to visit a Meezan Bank branch to open an Asaan savings account). We filled in 22 out of 35 fields before the disbursement meetings, pertaining to the account specifications and some personal information about the prospective applicants that had been provided to us by Akhuwat (e.g., operating currency of the account, full name of the applicant, marital status, birth date; see Online Appendix A.4 for the complete list of pre-filled fields). During the meeting, staff members confirmed with participants in the assistance treatment arm that the pre-filled information was accurate and checked their NICs. The remaining fields for these participants were filled in during the meeting, by asking for the required information from them (e.g., details of next of kin). Certain fields such as the name and address of the Meezan Bank branch, the customer and account numbers assigned, and the undertaking, were left blank since it was only possible to fill those in at a Meezan bank branch.

3.4. Post-meeting

The Asaan savings account could not be opened without the participants visiting a Meezan Bank branch in person with supporting documents and the account opening form, which they could do at any point of time after the meeting. It is worth emphasizing that this ensured that the actual decision to open/not open an account was entirely private and could not be observed by other study participants unless an applicant decided to make it known. This logistical detail has implications for peer effects, which we discuss later when we present our results.¹⁵

4. Data, balance, and attrition

4.1. Data sources

We gathered data from four sources. First, we obtained administrative data about borrowers from Akhuwat, including background and contact information, previous loans, and information on whether the borrower had any bank account prior to our interventions. Second, we collected primary data using three surveys that we conducted: a baseline survey (conducted September 16–October 31, 2017), a follow-up survey (December 15–31, 2017) and an endline survey (July 7–27, 2018). The baseline survey asked for demographic and socio-economic characteristics of the participants such as age, marital status, household composition, education, main source of income, assets, access to financial institutions, formal and informal savings, and religious knowledge and practices, among other information (see Online Appendix A.8 for the full

¹⁴ The account opening form is presented in Online Appendix A.6.

¹⁵ Ethical aspects of the RCT are addressed in detail in the Online Appendix A.7.

questionnaire). While we mainly use the baseline survey data in our analysis, we also use some variables from both the follow-up and endline surveys. Table A1 (“Variable Descriptions”) in the appendix of the paper indicates which of the surveys the variables used in our analysis come from. The baseline survey was conducted either directly after the loan disbursement meeting at the mosque, or shortly after, one-on-one at a mutually agreed upon time and location (before visiting the participants at their homes or workplace, we set-up an appointment with them) that guaranteed privacy. When the survey was conducted at their home, in most cases, a family member was present in the dwelling, though it was rarely the husband in case the participant was female. We did not repeat most of the baseline questions in the follow-up and endline surveys to avoid overburdening respondents. Therefore, we mainly rely on post-treatment regressions, as we detail subsequently. We also collected account usage information in the form of bank statements from the respondents during the endline survey. Third, we obtained administrative data from Meezan Bank about the use of the savings accounts. Note that the usage data collected directly from the respondents and the usage data from Meezan Bank were both in the form of bank statements, whose ultimate source was Meezan Bank. Hence these two data sources, though they cover different individuals (for reason explained in the footnote below), are substantively the same.¹⁶ Fourth, we collected detailed data from participants’ check (log) books, which indicate the number of withdrawals and the respective amounts.¹⁷

4.2. Sample characteristics

Table 1 presents summary statistics for our sample. The large majority (87%) of our respondents are women; their average age is 38 years, and about 95% of the respondents are married. On average, our respondents completed just fewer than four grades of schooling. Our sample consists of low-income individuals, most of whom (68%) have a monthly family income of less than 30,000 PKR (~282 USD). They are predominantly Muslim: Of the 2147 participants who responded this question, only 7 indicated they are Christian, and all others (99.7%) indicated that they are Muslim. The sample of participants are by and

¹⁶ During the study, out of the 626 borrowers who had opened an Asaan savings account, 444 withdrew their consent for Meezan Bank to share their transaction data with us, while 182 borrowers continued to allow Meezan Bank to share their transaction data with us. The withdrawal of consent was mainly due to a report in the media of a financial scam in Multan that was unrelated to our partner organizations (Meezan Bank and Akhuwat) as well as to our project. Note that the borrowers showed a continued willingness to share their bank statements with us directly through our field staff during the endline survey. These bank statements are identical in nature to those we received via Meezan Bank, as the borrowers received their statements from the bank itself. Thus, receiving information from borrowers de facto meant that we used information provided by the bank. For those that withdrew consent from the bank, we received bank statements directly from them for a period of 4 months (statements from April–July 2018 that included usage data from March–June 2018) during the endline survey. For participants who never withdrew their consent, we received the statements from Meezan Bank, from the account opening date until the endline survey (i.e., for a period of 9–10 months; statements from October 2017–July 2018 that included usage data from September–June 2018). For our usage analysis, we run the regressions on the pooled data, i.e., on the data stemming from those who provided the bank statements to us directly as well as from those for whom we received the data from Meezan Bank, for the same 4-month period (i.e., statements from April–July 2018 that included usage data from March–June 2018, which was period 6–10 months after the treatment). Balance tests, that are available upon request from the authors – using the treatment variables as well as the same set of baseline variables that we use in our main balance test in the online appendix, Table B1(1) – between the sample that withdrew consent and the one that did not, turns up only one variable (Female) as marginally significant at 10%; which could be expected to happen by statistical chance alone.

¹⁷ All rounds of questionnaires are provided in Online Appendix A.8.

large quite religious: 47% recite the Quran at least once per week, and 53% watch or listen to religious programs at least once a month. About 65% of our sample prays at least once per day, and approximately 50% attend religious gatherings at least once a week. According to data from the World Values Survey Wave 7 (Haerpfer et al., 2022), the corresponding percentages for Pakistan overall are 77% and 47%, respectively; for countries that belong to the Organization of Islamic Cooperation (OIC), they are 73% and 44%, respectively; for Muslims in non-OIC countries, they are 66% and 52%, respectively. Thus, in terms of these two measures of religiosity (praying at least once per day and attending religious gatherings at least once a week), individuals in our sample appear to be representative of the country as a whole, as well as being comparable to populations in other Muslim-majority countries and Muslim populations in non-Muslim-majority countries.

The majority of our respondents (64%) received their first loan from Akhuwat at the loan disbursement meeting prior to which we conducted our interventions (the remaining were borrowers who were receiving a new loan from Akhuwat, but not their first one). In terms of savings behavior, only a minority (14%) had some formal savings before the experiment started, but nearly everyone had some form of informal savings, such as through rotating savings and credit associations (ROSCAs). Many respondents reported earning income through self-employment (48%; mostly garments and embroidery work, cosmetics, or food stuffs); 16% reported not working; and the remainder reported earning their income through salaried employment. In reference to the latter two categories, we note that Family Enterprise Loans are available to start-ups. In summary, our sample consists primarily of poor Muslim women who are religious in their outlook, and are illiterate and unbanked.

4.3. Balance checks

To verify that the randomization resulted in comparable groups of respondents across treatments, we conduct balance tests by regressing baseline data on the treatment dummies. According to these balance tests, in almost all cases and for all variables, the treatments do not differ significantly from the control group, i.e., the group that received only the conventional speech (see Table B1(1) in Online Appendix B.1). The only statistically significant differences, compared to the conventional speech-only group (CS), are *Grades passed* and *Recite Quran* for conventional speech and subsidy (CS + S), *Religious programs* for conventional speech, subsidy, and assistance (CS + S + A), *Offer prayers* for religious-speech-only (RS), and *Formal savings* for religious speech and assistance (RS + A). We also used Wald tests to determine whether the various treatment groups differ significantly (presented in Online Appendix B.1, Table B1(2)). We find few significant differences. Thus, the balance tests suggest that the randomization worked as intended.

4.4. Attrition

Attrition rates are low with a total of 112 borrowers dropping out over the entire duration of the study. 75 borrowers dropped out before we conducted the baseline survey, out of whom 28 did not show any willingness to participate in the study, either by not showing up to the intervention part of the loan disbursement meeting or by refusing to give consent for participation in the study, i.e., prior to learning their treatment status. After the baseline survey, 10 persons dropped out before the follow-up stage and another 27 prior to the endline survey. Table B1 (3) in Online Appendix B.1 provides a more detailed breakup of the attrition numbers for each stage by treatment group.

5. Identification strategy

We use multiple estimators to examine the relevance of the three forms of encouragement for affecting uptake and usage of Islamic savings accounts. To estimate the effects on uptake (binary variable) and

Table 1
Sample summary statistics.

| Variables | N | Mean | SD | Min | Max |
|---------------------|------|-------|------|-----|-----|
| Age | 2220 | 38.26 | 9.71 | 17 | 59 |
| Female | 2220 | 0.87 | 0.33 | 0 | 1 |
| Married | 2148 | 0.95 | 0.21 | 0 | 1 |
| Household size | 2146 | 6.15 | 2.55 | 0 | 20 |
| Grades passed | 1972 | 3.69 | 4.03 | 0 | 14 |
| Income >30 K | 2147 | 0.32 | 0.47 | 0 | 1 |
| Recite Quran | 2144 | 0.47 | 0.50 | 0 | 1 |
| Religious programs | 2145 | 0.53 | 0.50 | 0 | 1 |
| Religious schooling | 2145 | 0.81 | 0.39 | 0 | 1 |
| Offer prayers | 2145 | 0.65 | 0.48 | 0 | 1 |
| First loan | 2220 | 0.64 | 0.48 | 0 | 1 |
| Formal savings | 2145 | 0.14 | 0.35 | 0 | 1 |
| Informal savings | 2145 | 0.92 | 0.28 | 0 | 1 |
| Self-employed | 2117 | 0.48 | 0.50 | 0 | 1 |
| Not working | 2117 | 0.16 | 0.37 | 0 | 1 |
| Orator dummy | 2220 | 0.50 | 0.50 | 0 | 1 |

Notes: Age = age of the respondent; Female = female respondent; Married = married respondent; Household size = number of people (excluding respondent) living in the house; Grades passed = highest grade in school completed; Income >30 K = collective household income above 30,000 PKR; Recite Quran = often recite the Quran; Religious programs = often watch/listen to religious programs; Religious schooling = preference for religious schooling; Offer prayers = often offer prayers; First loan = respondent is taking first loan from Akhuwat; Formal savings = have some formal savings before experiment, where 1 = yes and 0 = otherwise; Informal savings = have informal savings before experiment, where 1 = saves informally and 0 = no; Self-employed = self-employed; Not working = not working; Orator dummy = dummy variable for orator. For fuller explanations, see Table A1 in the appendix.

various measures of usage, we use the following baseline model:

$$Z_{it} = \beta_0 + \sum_{j=1}^7 \beta_j T_j + \beta_8 X_{it=0} + \varepsilon_{it}, \quad (1)$$

where Z_{it} is a dummy for the uptake of a savings account by individual i over two months (D_{it}) or else refers to different proxies for usage (U). We also conduct simple analyses of the impact on consumption expenditures, for which we consider various additional outcome variables Y (detailed subsequently). T_j is treatment j , where j refers to: RS + S + A (religious speech, subsidy, and assistance); RS + S (religious speech and subsidy); RS + A (religious speech and assistance); RS (religious speech); CS + S + A (conventional speech, subsidy and assistance); CS + S (conventional speech and subsidy); CS + A (conventional speech and assistance). The group CS (group with conventional speech, but no subsidy or assistance) forms the control group. X is a vector of (baseline) controls. Assignment to the different treatments is random, so it is possible to obtain unbiased estimates of causal impacts with parsimonious models without controls. For greater precision, we also report the results with a full set of baseline controls. The coefficients of interest are the β_j .

In the model regressing the dummy variable for uptake on treatments, without controls, β_0 equals the average take-up in the control group (i.e., the group that only heard the conventional speech). As the dependent variable *uptake* is binary, we also present logit regressions:

$$D_{it} = \frac{1}{1 + e^{-\left(\beta_0 + \sum_{j=1}^7 \beta_j T_j + \beta_8 X_{it=0}\right)}} + \varepsilon_{jit}. \quad (2)$$

The models explaining usage (and impact) refer to intention to treat (ITT) effects from the post-treatment usage data for the period 6–10 months (usage data for the months March to June 2018) after the intervention (no respondents in the sample had pre-existing savings accounts with Meezan Bank). For the different outcomes, we also estimate so-called local average treatment estimates (LATE). These

regressions are specified as:

$$D_{it} = \beta_0 + \sum_{j=1}^7 \beta_j T_j + \beta_8 X_{it=0} + \varepsilon_{it}, \text{ and } Y_{it} = \gamma_0 + \gamma_1 \widehat{D}_{it} + \gamma_2 X_{it=0} + \varepsilon_{it}, \quad (3)$$

where \widehat{D}_{it} is the predicted opening of saving accounts. These LATE regressions are presented at the end of the Online Appendix B.10. For all regressions, we cluster the standard errors at the branch level.¹⁸

It is worth noting here that sample sizes change across the regression specifications mainly due to two reasons: depending on the type of estimate for the usage regressions (ITT versus usage conditional on uptake), we utilize either the full sample or the sub-sample of those who opened the account (e.g., Table B4 (1) versus (2)); other, more minor sample size changes are due to missing data. In a robustness exercise in Online Appendix B.3, we also present separate estimates for the sub-samples of branches allocated to the religious speech and the conventional speech treatment arms.

6. Results

6.1. Uptake

From the initial sample of 2220 individuals, we gathered account information for 2145 individuals, among whom 626 opened a savings account, constituting an uptake rate of approximately 30%. Comparing uptake rates across studies, Prina (2015) notes that they vary enormously, from 5 to 90%; the uptake rate for this study is close to the median of the results from Prina (2015). Table 2 further details the uptake rates across treatments. The ordinary least squares (OLS) and Logit results are very similar, and the results also are similar with and without controls (the change in sample size across columns is due to the addition of controls and corresponding missing observations). In the first column (OLS without controls), the value of the constant reflects uptake by the control group that only received the conventional speech, which averages about 12%. A significant positive coefficient for any treatment dummies indicates a statistically higher uptake relative to this group. According to Karlan et al. (2014), uptake rates that exceed 20% are rare for new products (such as the Asaan savings account, which as noted earlier was introduced in the same year as our study began), and Cole et al. (2011) find uptake rates of approximately 10% for unbanked households in Indonesia, if they did not attend financial literacy training and received just a small account opening subsidy. Thus, our estimates for the control group seem to be in line with evidence from prior studies.

Encouraging uptake by providing the religious speech (RS) alone increases uptake by 7–8 percentage points on average—not significantly different from zero in our estimates. Encouraging uptake by either subsidizing (CS + S) or providing assistance with filling in the account opening form (CS + A) has positive, statistically significant effects on the likelihood of opening Asaan savings accounts, each with increases of about 5 percentage points. The impact of the subsidy is in line with Cole et al.'s (2011) findings that the likelihood of opening bank accounts increases by 5–10 percentage points if households receive medium or large price subsidies, rather than the small subsidy mentioned above. The combination of the subsidy and assistance (CS + S + A) increases uptake likelihood considerably, by 15–16 percentage points. Notably, these latter point estimates are greater than the sum of the point estimates of the effect of only a subsidy and only assistance.

Even more notably, the point estimates of assistance, subsidy, and the two combined become far greater when combined with the religious

¹⁸ Because there are only 24 branches in the sample, clustering at the branch level may underestimate standard errors. We calculated standard errors with a wild cluster bootstrap technique, but it did not change any results (see Online Appendix Table B2). Moreover, we also calculated randomized inference p -values.

speech. Religious speech combined with assistance (RS + A) leads to an increase of approximately 15 percentage points; religious speech combined with a subsidy (RS + S) leads to an increase of approximately 31 percentage points; and religious speech combined with both (RS + S + A) leads to the most substantial increase, of approximately 60 percentage points. The average uptake rate for this group is similar to those cited by Dupas and Robinson (2013a) among a sample of Kenyan, rural micro-entrepreneurs (87%). In terms of significance, we find similar results if we use randomized inference *p*-values (see Table 2).

To interpret these results, it may be useful to recall the characteristics of our experimental treatments. The novel RS treatment differs from the control CS treatment only in the way it highlighted the purposes, benefits, and desirability of savings in general, as well as the dispelling the misconception that all formal savings is not permissible: The religious speech directly quotes verses from the Quran to highlight these, while the conventional speech highlights the same elements without quoting the Quran. Thus, the key feature of the religious speech treatment is that it makes the information about these four elements religiously salient (Malhotra, 2010).

Our results suggest that increasing religious salience (RS) cannot significantly increase uptake by itself, seemingly due to the presence of binding financial as well as educational/administrative constraints, and high cognitive load. When these barriers are lifted (individually, and then

in combination), we find statistically significant increases in uptake - considering the poverty levels of the participants, waiving account opening fees seems crucial; noting their lack of banking experience and low literacy levels, assistance with filling in the account opening form also turns out to be relevant. Yet the magnitudes of the effects are relatively modest, indicating that about 5% of our participants are subject to each form of constraint (financial only, educational/administrative/cognitive only, or both), possibly in addition to what is being addressed by the conventional speech. This can be seen from the treatment effects for S and A each being about 5 percentage points, and the treatment effect from the two combined being roughly 15 percentage points.

The treatment effect magnitudes of the combinations involving religious speech (e.g., RS + S, RS + A) are always notably larger than the corresponding conventional speech treatments, i.e., increasing religious salience has a positive effect. The relative magnitudes of the estimates for these treatments (RS + S + A being greater than the sum of RS + S and RS + A) are consistent with the notion that subsets of the sample face financial only, educational/administrative/cognitive only, or both constraints (in addition to what is addressed by the religious speech). The greatest differences in estimate magnitudes pertain to the comparison of the different RS treatments with their corresponding CS treatments. This finding suggests that there is a large number of people who are constrained by financial and educational/administrative/cognitive hurdles for whom a religiously framed speech - that enhances religious salience of certain points mainly by quoting from the Quran (specifically: the purposes, benefits, and desirability of savings in general; and dispelling the common misconception that all formal saving is impermissible in Islam by emphasizing the Sharia-compliance of the offered account), in comparison to conventional framing of the same - has significant effects. In other words, while religiously salient messaging fails to have much impact when practical barriers bind, such messaging is *extremely* effective once practical barriers are lifted. Therefore, interventions to increase formal savings account uptake in religious contexts will likely benefit from the adoption of a holistic approach, directly engaging with religious texts, while simultaneously addressing practical barriers.

Since the comparison of the religious versus conventional speech treatment arms are the main novelty of our intervention, the underlying channels/mechanisms deserve further discussion. For both our speech interventions, two mechanisms/channels may be at play. It may be that participants would like to save, but face a religious constraint that prevents them from taking up a formal savings account, so that lowering such a constraint increases uptake. This mechanism may work through the parts of both speeches that dispel the common misconception that all formal saving is impermissible in Islam. It may also be that both speeches create additional demand for saving, since they both discuss some benefits (e.g., safety) of formal over informal savings (without quoting the Quran) and both discuss the purposes, benefits, and desirability of savings in general (whether formally or informally), with the religious speech adding religious salience. Note that these two channels, which relate to the analysis of Rabin (1995) on moral constraints and mortal preferences, are not mutually exclusive, i.e., both lowering of

Table 2
Uptake regressions.

| VARIABLES | (1) | (2) | (3) | (4) |
|-------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | OLS without controls | OLS with controls | Logit without controls | Logit with controls |
| RS + S + A | 0.589*** (0.066) [0.001] | 0.581*** (0.063) [0.000] | 0.618*** (0.059) [0.001] | 0.618*** (0.057) [0.001] |
| RS + S | 0.306*** (0.066) [0.001] | 0.292*** (0.058) [0.001] | 0.391*** (0.083) [0.000] | 0.378*** (0.077) [0.003] |
| RS + A | 0.146*** (0.051) [0.010] | 0.151*** (0.049) [0.005] | 0.220*** (0.083) [0.013] | 0.223*** (0.080) [0.007] |
| RS | 0.076 (0.062) [0.248] | 0.082 (0.060) [0.202] | 0.125 (0.103) [0.218] | 0.130 (0.098) [0.199] |
| CS + S + A | 0.156*** (0.026) [0.000] | 0.149*** (0.028) [0.000] | 0.232*** (0.035) [0.000] | 0.222*** (0.037) [0.000] |
| CS + S | 0.048*** (0.014) [0.003] | 0.066*** (0.022) [0.004] | 0.083*** (0.031) [0.012] | 0.106** (0.042) [0.016] |
| CS + A | 0.055*** (0.019) [0.003] | 0.057** (0.021) [0.008] | 0.094*** (0.033) [0.006] | 0.094*** (0.036) [0.009] |
| Constant | 0.119*** (0.029) | -0.105 (0.124) | | |
| Controls | No | Yes | No | Yes |
| WY <i>p</i> -values | 0.004 | 0.002 | 0.002 | 0.001 |
| Observations | 2145 | 1946 | 2145 | 1946 |
| Adjusted R ² | 0.157 | 0.157 | | |

Notes: Cluster robust standard errors are in parentheses (branch codes). ****p* < 0.01, ***p* < 0.05, **p* < 0.10. Randomization inference *p*-values are in brackets, below the robust standard errors (based on *t*-version of Alwyn Young randomization *p*-values; 1000 iterations). Columns 2 and 4 include the following controls: Age; Female; Married; Household size; Grades passed; Income >30 K; Recite Quran; Religious programs; Religious schooling; Offer prayers; First loan; Formal savings; Informal savings; Self-employed; Not working; Orator dummy. Columns 3 and 4 contain marginal effects instead of estimated coefficients. The randomization inference *p*-values for Columns 3 and 4 refer to estimated coefficients of Logit estimates. The WY *p*-values refer to the randomization *p*-values (based on *t*-version; 1000 iterations) of Westfall-Young multiple testing of treatment significance. The Young Westfall-Young *p*-value of the joint test across equations, as a test of the null prediction of complete irrelevance, equals 0.001.

constraints and additional demand may be at play.¹⁹ However, disentangling the two mechanisms is not relevant to the interpretation of the effects of the religious speech treatment arms, since those added religious salience to both mechanisms, mainly by adding pertinent quotes from the Quran. In addition, note that religious salience was not added to the part of (both) speeches that dealt with the benefits of formal over informal savings.²⁰

The large effects found for the religious speech arms are unlikely to be driven by other channels such as differing logistics between the two speeches, coercion, or peer effects: The logistics for the religious speech arms and the conventional speech arms were exactly the same (as described in Section 3). We can also be confident that our results regarding the religious speech treatment arms are not driven by coercion: as noted earlier, we did not use any Quranic verse that advises individuals to save formally. Further, the religious speech was not delivered by a religious scholar, but by the same study team member(s) who also delivered the conventional speech. In addition, we clearly informed the participants that the speech was being given as part of a European research study. Thus, we have no reason to assume that the Islamic quotes used during our intervention, and their delivery, were perceived as coercive and that is driving the observed effects. We further remind the reader that the logistics of the intervention, which we described in Section 3, were such that the meeting where the speech was delivered was the first time that the participants had come together as a group, and that the decision to open a bank account was fully private. Thus, peer effects are also unlikely to play a role in explaining the effects that we observe for the religious treatment groups.

While these features of the logistics and the speech mean that, ex-ante peer effects/coercion were unlikely to be at work, we also find that, ex-post, only 3 borrowers out of the 626 who opened the account did not use it afterwards. This offers additional support for the claim that peer effects/coercion were not at work (the idea being that participants who felt peer pressure/coerced into opening the account would have been less likely to ultimately make use of it).

6.2. Usage

As is well known, those who open bank accounts do not always become active bank account users (Karlan et al., 2014). According to

¹⁹ Indeed, evidence from focus group discussions that we conducted one month prior to the intervention (see beginning of Section 3 for more details about the logistics of these focus groups) showed that, while virtually all Akhuwat borrowers saved in some form and many were very interested in formal savings accounts, they perceived some key constraints on their savings behavior. Specifically, borrowers voiced concerns whether formal savings products are in line with Sharia principles, i.e., they perceived a religious constraint (that was addressed by both speeches). This was supported by our baseline, where out of the 234 individuals who did not save formally and responded to our question enquiring about the reasons for not doing so, almost 20 percent say that religious reasons are among their three most important reasons for not saving in a formal institution. In addition, they expressed concerns regarding lack of transparency regarding terms and conditions (addressed by both speeches), high fees (addressed by our subsidy intervention), distance to banks (not addressed by our interventions), restrictions on withdrawals (does not apply to the Asaan savings account), and formal requirements/paperwork/lack of understanding (addressed by our assistance intervention). It is conceivable that the additional demand channel might have also been at work, as both speeches discuss some benefits of formal over informal savings (without quoting the Quran), and both state the purposes, benefits, and desirability of savings (including of formal savings). To summarize, both possible mechanisms (lowering of the constraint and additional demand) might have been at play for both speeches.

²⁰ To control for branch-level stratification in the analysis, we re-estimated the uptake (and usage) regressions with branch dummies. These regressions did not change the results, and are therefore, for reasons of space, presented in the Online Appendix Table B3.

Dupas and Robinson (2013a), only 41% of the entrepreneurs in their study who were part of the treatment group and got offered an account, used it actively (i.e., made at least two transactions within six months), whereas Schaner (2018) identifies only 22% of account owners who deposited at least one time. In contrast, Prina (2015) indicates higher account usage: 80% of those who were allowed to open an account, and 95% of those who actually opened an account, made at least two deposits in a year. On average, these account owners made 0.8 deposits per week over a period of 12 months.

To learn whether respondents in our study who opened a bank account use it, we collect administrative data from Meezan Bank, including the number and value of transactions made over the period 6–10 months after the treatment.²¹ This information detailed: (1) the total number of deposits made; (2) total number of withdrawals; and (3) the total value of deposits in PKR and withdrawals in PKR, items (1)–(3) being for a 4-month period (March–June 2018); and (4) the total amount of savings at the end of June 2018.

Table 3 summarizes the usage results. On average, account holders make 3.6 deposits and 1 withdrawal during the 4-month period (March–June 2018), i.e., the period 6–10 months after the intervention. Slightly more than 60% of the account holders actively use their accounts, defined as making more than three deposits over this 4-month period. The average monthly total value of deposits equals 3420 PKR (13,676.5 PKR/4); note that the total value of deposits over this 4-month period exceeds the monthly personal income for over 42.5% of our participants. The average monthly value of withdrawals is much lower, at 559 PKR per month (2237.4 PKR/4). Because withdrawals averaged just 1 over the 4-month period, the average value of withdrawals equals 2237 PKR. Recall that there are no fees associated with such withdrawal, except the implicit fee of using a check.

Next, we examine the impact of the different encouragements on usage. Perhaps not surprisingly, the usage regression results match those of our uptake regressions: Religious speech by itself does not increase usage compared with conventional speech. However, subsidy and assistance, each in combination with a conventional speech (i.e., CS + S and CS + A), mostly produce positive and significant effects. Note that the conventional speech combined with subsidy and assistance has larger effects than the conventional speech being combined with either subsidy or assistance by themselves. Furthermore, the combination of religious speech with subsidy, assistance or both, leads to consistently larger and statistically significant effects on usage than the corresponding combinations of subsidy and assistance with conventional speech. The combination of religious speech, subsidy, and assistance exerts the greatest impact. As it appears that everyone who takes up the account uses it in the same way, these results do not provide additional insights beyond our results on uptake, and are therefore moved to the Online Appendix B.4 (see Table B4 (1) and Table B4 (2)).

6.3. Heterogeneous treatment effects

We test heterogeneity for both uptake and usage of Islamic savings accounts.²² We consider whether there are heterogeneous treatment effects related to the following (mostly binary) variables, measured at baseline: (1) the respondent makes financial decisions, (2) the respondent deems Islamic products important, (3) the respondent is a man, (4)

²¹ As a reminder: for our usage analysis, we run the regressions on the data stemming from those who provided the bank statements to us directly as well as from those for whom we received the data from Meezan Bank, for the same 4-month period (i.e., statements from April–July 2018 that included usage data from March–June 2018, which was period 6–10 months after the treatment). See Section 4.1.

²² We run the same regressions without control variables – see online appendix, Tables B5 (3) and B5 (4) – but find little difference between estimates with and without control variables.

Table 3

Usage of savings accounts by account holders.

| | N | Mean | SD | Min | Max |
|-----------------------------|-----|----------|----------|--------|--------|
| Total number of deposits | 615 | 3.6 | 0.53 | 2 | 4 |
| Actively using account | 615 | 0.62 | 0.49 | 0 | 1 |
| Total value of deposits | 615 | 13676.46 | 6142.33 | 1800 | 30,700 |
| Total number of withdrawals | 615 | 1.04 | 0.84 | 0 | 2 |
| Total value of withdrawals | 615 | 2237.4 | 1768.96 | 0 | 5000 |
| Total value of savings | 615 | 25303.24 | 13195.38 | 221.22 | 68,000 |

Notes: Total number of deposits and total number of withdrawals are for the 4-month period March–June 2018. Total value of deposits and total value of withdrawals are in PKR for the 4-month period March–June 2018. Actively using account represents more than 3 deposits during the 4-month period March–June 2018. Total value of savings is in PKR and represents the account balance at the end of June 2018.

borrower income is above 30,000 PKR, (5) household income is above 30,000 PKR, (6) grades passed (number of grades passed), (7) education level (bottom 25th percentile), (8) education above median, (9) formal education, (10) information availability, and (11) banking access. For reasons of space, we present the regression results in the Online Appendix B.5. The heterogeneous treatment regressions show that the main results remain unchanged, and for most variables, we did not find strong heterogeneity effects. Overall, no clear patterns emerge from the heterogeneity analysis.²³

6.4. Do overall savings increase?

Another important question relates to whether the experimental treatments increase overall savings or instead just crowd out other types of savings. To address this question, we start by considering whether the encouragements exert distinct effects for participants who had formal savings before the experiment started—approximately 14% of the participants in our study—compared with those who did not. As can be seen in Table 4a, the effects of the different treatments on uptake do not differ according to whether people had formal savings before the experiment. Thus, the treatments have similar effects regardless of whether people already had formal savings, which strongly suggests that, on average, account opening increased both for those with existing savings accounts and those without.

Next, we examine if the encouragements had different effects for participants who had prior Islamic formal savings, compared with those who did not. These results are presented in Table 4b. Intuitively, having prior Islamic formal savings made uptake of the (Sharia-compliant) Asaan savings account less likely; however, the RS + S + A treatment had a larger effect on those already having Islamic formal savings.

Among participants who opened an account, we are able to test whether opening the account changed their savings in other savings categories. Although we lack precise data about the amounts saved in other savings categories, we asked participants who opened an account the following two questions during the follow-up survey: “If you consider all your savings, informal as well as formal, is the total amount that you save per week/month/year higher now that you have a bank account?” and “Are you saving less per week/month/year in other ways, formal and informal, now that you have a bank account?” Both questions could be answered with a simple “Yes” or “No”. Table 5 contains simple OLS and Logit estimates where the dependent variable are the binary dummies, “More total savings” and “Less other savings,” and the

Table 4a

Uptake by participants with or without formal savings before experiment.

| VARIABLES | (1) | (2) |
|-------------------------------|---------------------|---------------------|
| | Account opened | Account opened |
| RS + S + A | 0.580*** (0.066) | 0.574*** (0.064) |
| RS + S | 0.312*** (0.068) | 0.293*** (0.062) |
| RS + A | 0.148*** (0.055) | 0.150** (0.054) |
| RS | 0.066 (0.053) | 0.074 (0.053) |
| CS + S + A | 0.167*** (0.027) | 0.149*** (0.032) |
| CS + S | 0.065** (0.026) | 0.068** (0.029) |
| CS + A | 0.075*** (0.017) | 0.068*** (0.017) |
| Formal savings | −0.019 (0.040) | −0.041 (0.045) |
| (RS + S + A) * Formal savings | 0.130 (0.114) | 0.110 (0.138) |
| (RS + S) * Formal savings | −0.082 (0.128) | −0.013 (0.152) |
| (RS + A) * Formal savings | −0.033 (0.122) | 0.010 (0.148) |
| RS*Formal savings | 0.091 (0.166) | 0.087 (0.144) |
| (CS + S + A) * Formal savings | −0.047 (0.052) | 0.004 (0.048) |
| (CS + S) * Formal savings | −0.068 (0.076) | −0.007 (0.067) |
| (CS + A) * Formal savings | −0.087 (0.060) | −0.056 (0.055) |
| Constant | 0.122*** (0.029) | −0.094 (0.122) |
| Controls | No | Yes |
| Observations | 2144 | 1946 |
| Adjusted R-squared | 0.157 | 0.155 |

Notes: Cluster robust standard errors are in parentheses (branch codes). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. The table includes the following controls: Age; Female; Married; Household size; Grades passed; Income >30 K; Recite Quran; Religious programs; Religious schooling; Offer prayers; First loan; Formal savings; Informal savings; Self-employed; Not working; Orator dummy.

regressions are estimated with a constant and the different treatment groups, among participants who opened an account. On average, the experiment increased total savings (constant = 0.31), such that 31% of the sample increased their total savings, across treatment conditions. However, these participants who opened an account appeared to reduce savings in other forms. Note that the regression results may be biased by selection effects, which arise because we only consider participants who opened savings accounts. Overall, this analysis suggests that participants increased total savings, but increased savings in the newly opened account did not lead to a commensurate increase in total savings, revealing some crowding out of other savings. Our finding of partial crowding out makes intuitive sense since both speeches were highlighting the benefits of formal savings at a bank over other forms of savings. Recall that these benefits were couched in general terms (e.g., safety) in both speeches and we did not use any quote from the Quran for specifically highlighting the benefits of formal savings in the religious speech. However, it should be noted once again that the information provided in Table 5 is only suggestive, and hence that the effects on overall savings should be interpreted with caution.

7. Consumption expenditures

To extend the implicative value of this research, we also conduct a preliminary analysis of the impact of encouraging Islamic savings

²³ We performed some additional heterogeneity analysis for which we used: measures of passive literacy and literacy; an income measure where we defined a lower income threshold in terms of personal income (10,000 PKR); and two different religiosity indices. However, similar to the results presented in Online Appendix B.5, no clear patterns emerge. These results are available upon request from the authors.

Table 4b

Uptake by participants with or without islamic formal savings before experiment.

| VARIABLES | (1) Account opened |
|---------------------------------------|-----------------------|
| RS + S + A | 0.568*** (0.065) |
| RS + S | 0.287*** (0.059) |
| RS + A | 0.141** (0.052) |
| RS | 0.074 (0.059) |
| CS + S + A | 0.147*** (0.031) |
| CS + S | 0.067*** (0.023) |
| CS + A | 0.059** (0.023) |
| Islamic Formal savings | -0.117*** (0.040) |
| (RS + S + A) * Islamic Formal savings | 0.402*** (0.076) |
| (RS + S) * Islamic Formal savings | 0.047 (0.286) |
| (RS + A) * Islamic Formal savings | 0.467 (0.306) |
| RS*Islamic Formal savings | 0.144 (0.098) |
| (CS + S + A) * Islamic Formal savings | -0.038 (0.049) |
| (CS + S) * Islamic Formal savings | -0.035 (0.049) |
| (CS + A) * Islamic Formal savings | 0.036 (0.050) |
| Constant | -0.081 (0.123) |
| Controls | Yes |
| Observations | 1946 |
| Adjusted R-squared | 0.158 |

Notes: Cluster robust standard errors are in parentheses (branch codes). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. The table includes the following controls: Age; Female; Married; Household size; Grades passed; Income >30 K; Recite Quran; Religious programs; Religious schooling; Offer prayers; First loan; Formal savings; Informal savings; Self-employed; Not working; Orator dummy.

accounts on consumption expenditures.²⁴

With regard to the impacts on total consumption expenditures, in the endline survey, we asked participants to provide information about total household spending, in a typical month, on 14 spending items (Table A2, appendix). We proxy total expenditures by i) the total value (in PKR) of spending on all items (*tExpenditure*) and ii) the inverse hyperbolic sine of the sum of the value of all household expenditures (*iExpenditure*).²⁵

Table 6 summarizes the ITT estimates. If we control for multiple hypothesis testing, none of the provided encouragements significantly affects consumption (*tExpenditure* and *iExpenditure*).²⁶

The reasons for these sobering effects are unclear. As noted

²⁴ While we intended to consider impacts on children's education in the initial study design, the majority of our respondents did not answer these questions, because many did not have children that attended school in the first place. Thus, we focus on expenditures ("consumption"). In the online appendix (B.7 and B.8) we also provide a preliminary analysis of the impact on women's empowerment.

²⁵ To account for skewness in expenditures, we use the inverse hyperbolic sine distribution. In Online Appendix B.6, we present estimates per consumption item. The encouragements never exert significant impacts.

²⁶ In Online Appendices B.9 and B.10, we compute the impact of opening the savings account, using LATE regressions. They provide qualitatively similar results as obtained in the ITT regressions.

Table 5

Increase in total savings.

| VARIABLES | (1) More total savings? | (2) More total savings? | (3) Less other savings? | (4) Less other savings? |
|--------------|----------------------------|----------------------------|----------------------------|----------------------------|
| RS + S + A | 0.182 (0.149) | 0.188 (0.155) | -0.062 (0.121) | -0.062 (0.116) |
| RS + S | 0.197 (0.151) | 0.203 (0.156) | -0.081 (0.131) | -0.082 (0.123) |
| RS + A | 0.044 (0.133) | 0.048 (0.148) | 1.374 (1.409) | -0.026 (0.128) |
| RS | 0.065 (0.130) | 0.071 (0.144) | 0.249* (0.135) | 0.246* (0.138) |
| CS + S + A | 0.093 (0.133) | 0.100 (0.148) | 1.442 (1.481) | 0.022 (0.100) |
| CS + S | 2.051 (1.977) | 0.081 (0.109) | -0.005 (0.117) | -0.005 (0.114) |
| CS + A | -0.073 (0.083) | -0.087 (0.091) | 0.009 (0.148) | 0.009 (0.146) |
| Constant | 0.313*** (0.100) | | 0.355*** (0.109) | |
| Observations | 626 | 626 | 563 | 563 |
| Method | OLS | Logit | OLS | Logit |

Notes: Cluster robust standard errors are in parentheses (branch codes). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. For the Logit estimates, we present marginal effects. The difference in the number of observations is due to missing values for the question "Less other savings."

previously, our intervention might have resulted in a shift of savings, rather than an increase in total savings, though we find some increase in total savings. A more likely explanation might be that the null results reflect the relatively short impact period we study. Savings might enhance downstream outcomes like expenditures only after some time, so we might be underestimating the true impact if we collect data before these effects have time to emerge. More research is needed to identify when and in which conditions access to savings can enhance consumption expenditures, in various forms.

8. Conclusions

A significant proportion of impoverished people who adhere to the Muslim faith are unwilling to deposit their money into conventional banks, for religious reasons but also due to other important constraints, such as financial, and educational/administrative/cognitive hurdles that limit their access to banking facilities. Overall, these factors limit the pool of domestic savings and affect the long-run investment and economic growth of developing countries with sizable Muslim populations. Motivated by these issues, we examine the uptake, usage, and impact of Sharia-compliant savings accounts among poor, Muslim clients of an Islamic MFI in Pakistan. With a multistep randomization procedure, we allocate borrowers to different treatments, defined by three encouragements to save: a religiously framed speech that highlights the purposes, benefits, and desirability of savings and tries to dispel the misconception that all saving in formal institutions is *impermissible*, by quoting the Quran, versus a conventional speech that highlights the same elements without quoting the Quran; a subsidized savings account versus a non-subsidized one; and assistance with completing the account opening form versus no such assistance.

When we examine the effect of each form of encouragement, and their combination, on the uptake, usage, and impact of Islamic savings accounts, we find that religious speech by itself does not enhance savings, but religious speech in combination with a subsidy and assistance leads to a substantially higher uptake and usage, compared with the combination of conventional speech, assistance, and subsidy. Our results suggest that while religiously salient messaging fails to have much impact when practical barriers bind, such messaging is *extremely* effective once practical barriers are lifted. Therefore, interventions designed

Table 6
Impacts of savings encouragement on total consumption expenditures.

| VARIABLES | (1) | (2) | (3) | (4) |
|---------------------|---|---|-------------------------------------|-------------------------------------|
| | tExpenditure | tExpenditure | iExpenditure | iExpenditure |
| RS + S + A | 244.086 (757.925) [0.741] [1] | 140.985 (391.093) [0.732] [1] | 0.028 (0.066) [0.673] [1] | 0.021 (0.037) [0.591] [1] |
| RS + S | −40.977 (757.731) [0.955] [1] | 52.744 (418.178) [0.913] [1] | 0.006 (0.066) [0.943] [1] | 0.013 (0.039) [0.748] [1] |
| RS + A | −414.052 (790.721) [0.597] [1] | −237.440 (419.339) [0.582] [1] | −0.025 (0.069) [0.712] [1] | −0.009 (0.039) [0.805] [1] |
| RS | 20.134 (751.574) [0.984] [1] | 76.710 (420.444) [0.885] [1] | 0.005 (0.065) [0.924] [1] | 0.011 (0.039) [0.823] [1] |
| CS + S + A | −103.907 (253.606) [0.685] [1] | −329.285 (237.001) [0.181] [1] | −0.005 (0.022) [0.831] [1] | −0.023 (0.020) [0.272] [1] |
| CS + S | −64.235 (285.236) [0.822] [1] | −103.181 (263.638) [0.725] [1] | −0.000 (0.025) [0.994] [1] | −0.003 (0.022) [0.917] [1] |
| CS + A | −74.432 (188.595) [0.711] [1] | 79.192 (166.131) [0.661] [1] | −0.002 (0.016) [0.887] [1] | 0.009 (0.014) [0.559] [1] |
| Constant | 12,898.851*** (604.378) | 11,277.775*** (1078.115) | 10.119*** (0.053) | 9.950*** (0.098) |
| Controls | No | Yes | No | Yes |
| WY <i>p</i> -values | 0.988 | 0.632 | 0.995 | 0.773 |
| Observations | 2108 | 1910 | 2108 | 1910 |
| Adjusted R-squared | −0.000 | 0.385 | −0.001 | 0.350 |

Notes: Cluster robust standard errors are in parentheses (branch codes). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Randomization inference *p*-values are in brackets, below the cluster robust standard errors (based on t-version of Alwyn Young randomization *p*-values; 1000 iterations). The row below the randomization inference *p*-values then provides (in brackets, calculated for the three outcome variables simultaneously, but separately for estimates with and without controls) Anderson (2008) sharpened *q*-values. The table includes the following controls: Age; Female; Married; Household size; Grades passed; Income >30 K; Recite Quran; Religious programs; Religious schooling; Offer prayers; First loan; Formal savings; Informal savings; Self-employed; Not working; Orator dummy. The WY *p*-values refer to the randomization *p*-values (based on t-version; 1000 iterations) of Westfall-Young multiple testing of treatment significance. The Young Westfall-Young *p*-value of the joint test across equations, as a test of the null prediction of complete irrelevance, equals 0.669 for the estimates with controls and 0.994 without controls. *tExpenditure* is the total value (in PKR) of spending on all items, whereas *iExpenditure* is the inverse hyperbolic sine of the sum of the value of all household expenditures.

to increase formal savings account uptake should adopt a holistic approach and address religious (or cultural) misconceptions, at the same time as they help people overcome practical (e.g., financial constraints, low general or financial literacy) barriers. This application of religious speech is similar to approaches adopted successfully in the public health domain in Pakistan, signaling the virtues of an interdisciplinary approach to policy issues related to economic development. Our results speak to the benefits of looking beyond disciplinary boundaries for solutions in similar environments or when facing similar challenges (e.g., misconceptions related to religious belief).

Overall, encouraging unbanked, poor, Muslim women could have substantial effects (at a small cost) for societal welfare, though we also note some caveats. The participants in our study consist primarily of poor Muslim women who are religious in their outlook, and are mostly illiterate and unbanked. This creates the potential for diminished external validity. However, our novel results pertain to the religious speech intervention, and in terms of two key measures of religiosity, our sample is comparable to populations in other Muslim-majority countries and Muslim populations in non-Muslim-majority countries. Thus, our

results are relevant for the design of national financial inclusion strategies. More generally, the intervention strategy that we implemented is inspired by one that has been used successfully in the public health domain in Pakistan. Our results suggest that drawing from this proven approach may be successful in other domains such as financial inclusion. Continued assessments of similar treatments among disadvantaged religious communities in other countries would make for interesting avenues for future research.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Supplementary material. Online Appendices A and B

Supplementary material to this article can be found online at <https://doi.org/10.1016/j.jdeveco.2023.103098>.

Appendix

Table A1

Variable Descriptions

| Name | Explanation | Source |
|--|--|--|
| Treatment Variables | | |
| Treatment1 = RS + S + A | Binary variable, 1 = group received religious motivational speech, a subsidy, and assistance and 0 = otherwise | |
| Treatment2 = RS + S | Binary variable, 1 = group that received religious motivational speech and a subsidy and 0 = otherwise. | |
| Treatment3 = RS + A | Binary variable, 1 = group that received religious motivational speech and assistance and 0 = otherwise. | |
| Treatment4 = RS | Binary variable, 1 = group that only received religious motivational speech and 0 = otherwise. | |
| Treatment5 = CS + S + A | Binary variable, 1 = group that received a standard motivational speech, a subsidy, and assistance and 0 = otherwise. | |
| Treatment6 = CS + S | Binary variable, 1 = group that received a standard motivational speech and a subsidy and 0 = otherwise. | |
| Treatment7 = CS + A | Binary variable, 1 = group that received a standard motivational speech and assistance and 0 = otherwise. | |
| Control Variables | | |
| Age | Age of the respondent. | Baseline survey |
| Female | Binary variable, 1 = female and 0 = male | Baseline survey |
| Married | Binary variable, 1 = married and 0 = otherwise. | Baseline survey |
| Household size ¹ | Number of people living in the house (excluding self). | Baseline survey |
| Grades passed ¹ | Highest grade of schooling that the respondent successfully passed. | Baseline survey |
| Income >30 K | Binary variable, 1 = if collective household income is above 30,000 PKR and 0 = otherwise. | Baseline survey |
| Recite Quran | Binary variable, 1 = respondent recites Quran at the least once per week and 0 = otherwise. | Baseline survey |
| Religious programs | Binary variable, 1 = respondent listens or watches a religious program at the least once per month and 0 = otherwise. | Baseline survey |
| Religious schooling | Binary variable, 1 = respondent prefers religious schooling over government schooling or values both equally and 0 = government schooling is preferred. | Baseline survey |
| Offer prayers | Binary variable, 1 = frequency of offering prayers is at the least once a day and 0 = less. | Baseline survey |
| First loan | Binary variable, 1 = first loan from Akhuwat and 0 = not. | Baseline survey |
| Formal savings | Binary variable, 1 = respondent has some formal savings before the experiment and 0 = otherwise. | Baseline survey |
| Informal savings | Binary variable, 1 = if respondent saves informally via ROSCAs, keep cash at home, buys jewelry/gold, invest in business, lend to friends/relatives or any other medium, and 0 = none. | Baseline survey |
| Self-employed ¹ | Binary variable, 1 = work that generates majority of income by being self-employed and 0 = otherwise. | Baseline survey |
| Not working ¹ | Binary variable, 1 = respondent answers question "how would you describe the type of work that generates the majority of your income" with "Not working". | Baseline survey |
| Orator dummy | Binary variable, 1 = if the motivational speech is delivered by Orator 1 and 0 = otherwise. | |
| Outcome Variables | | |
| <u>Uptake</u> | | |
| Account opened | Binary variable, 1 = opens the bank account and 0 = otherwise. | Follow-up survey, Meezan Bank |
| <u>Usage</u> | | |
| Total number of deposits | Total number of deposits made in the period of March–June 2018. | Administrative data, Meezan Bank |
| Actively using account | Indicator of active use i.e., more than 3 deposits made in the period of March–June 2018. | Calculated from total number of deposits |
| Total value of deposits | Total value of deposits in the period of March–June 2018 (in PKR). | Administrative data, Meezan Bank |
| Inverse of total value of deposits | Inverse hyperbolic sine of total value of deposits = $\log(\text{Total value of deposits} + (\text{Total value of deposits}^2 + 1)^{0.5})$. | Calculated from total value of deposits |
| Total number of withdrawals | Total number of withdrawals in the period of March–June 2018. | Administrative data, Meezan Bank |
| Total value of withdrawals | Total value of withdrawals in the period of March–June 2018 (in PKR). | Administrative data, Meezan Bank |
| Inverse of total value of withdrawals | Inverse hyperbolic sine of total value of withdrawals = $\log(\text{Total value of withdrawals} + (\text{Total value of withdrawals}^2 + 1)^{0.5})$. | Calculated from total value of withdrawals |
| Total value of savings | Total value of savings with Meezan Bank (in PKR), end June 2018. | Data from bank statements |
| Inverse of total value of savings | Inverse hyperbolic sine of total value of savings = $\log(\text{Total value of savings} + (\text{Total value of savings}^2 + 1)^{0.5})$. | Calculated from total value of savings |
| Heterogeneity Analysis Variables ² | | |
| Financial decisions | Binary variable, 1 = if majority decisions are made by the respondent or together with the spouse and 0 = otherwise. | Baseline survey |
| Islamic products importance | Binary variable, 1 = if the respondent deems it important for the financial product to be in line with Sharia principles and 0 = otherwise. | Baseline survey |
| Trust in bank | Binary variable, 1 = if the respondent trusts the bank and 0 = otherwise. | Follow-up survey |
| Borrower income >30 K PKR | Binary variable, 1 = if the borrower's income is above 30,000 PKR and 0 = otherwise. | Baseline survey |
| Education level (bottom 25 percentile) | Binary variable, 1 = if the respondent passed less than 8 grades and 0 = otherwise. | Calculated from grades passed |
| Education above median | Binary variable, 1 = if the respondent passed more than 3 grades and 0 = otherwise. | Calculated from grades passed |
| Formal education | Binary variable, 1 = if the respondent had formal education (irrespective of the number of grades passed) and 0 = otherwise. | Calculated from grades passed |
| Information availability | Binary variable, 1 = if the respondent had the information about Asaan savings account before experiment and 0 = otherwise. | Baseline survey |
| Banking access | Binary variable, 1 = if the respondent can easily visit the nearest Meezan Bank branch and 0 = otherwise. | Baseline survey |
| Other variables of interest | | |
| Islamic formal savings | Binary variable, 1 = respondent has some Islamic formal savings before the experiment and 0 = otherwise. | Baseline survey |
| More total savings | Binary variable, 1 = if respondent's total savings are higher after having a bank account and 0 = otherwise. | Follow-up survey |
| Less other savings | Binary variable, 1 = if respondent saves less after having a bank account and 0 = otherwise. | Follow-up survey |
| Impact variables | | |
| tExpenditure ¹ | Total value spent (in PKR) by household on all spending items in survey (14 items) (see Table A2). | End-line survey |
| iExpenditures ¹ | Inverse hyperbolic sine of the sum of the value of all household expenditures. | End-line survey |

¹ If the respondent does not know or refuses to answer, it is considered a missing value.

² Female, income >30 K, and grades passed are also used in the heterogeneity tests.

Table A2
Expenditures (in PKR)

| Number | Item |
|----------------------|--|
| Grains | Grains, e.g., wheat, rice, maize, oats, and food made from grains, e.g., rusks, naan |
| Non grain food | Non-grain food items, e.g., vegetables, fruit, meat, fish |
| Small HH appliances | Small household appliances, e.g., kitchen equipment |
| Major HH appliances | Major household appliances/household assets, e.g., TV, fridge, furniture |
| Decors | Decors (e.g., vases, wall hangings) |
| Necessary clothing | Necessary clothing items |
| Fashion items | Fashion items |
| Son's education | Education of sons (e.g., school fees and other expenses) |
| Daughter's education | Education of daughters (e.g., school fees and other expenses) |
| Health care | Preventive health care measures (e.g., insect repellents, vaccinations) |
| Medical expenses | Medical expenses (i.e., disease treatment) |
| Festivals | Festivals/recreation |
| Vehicle Maintenance | Vehicle maintenance |
| Transportation | Transportation (e.g., petrol, bus, auto) |

Notes: The items ask, "How much does your household spend in a typical month, in total, on the following items (in PKR)?" Expenditure is the sum of spending on the items.

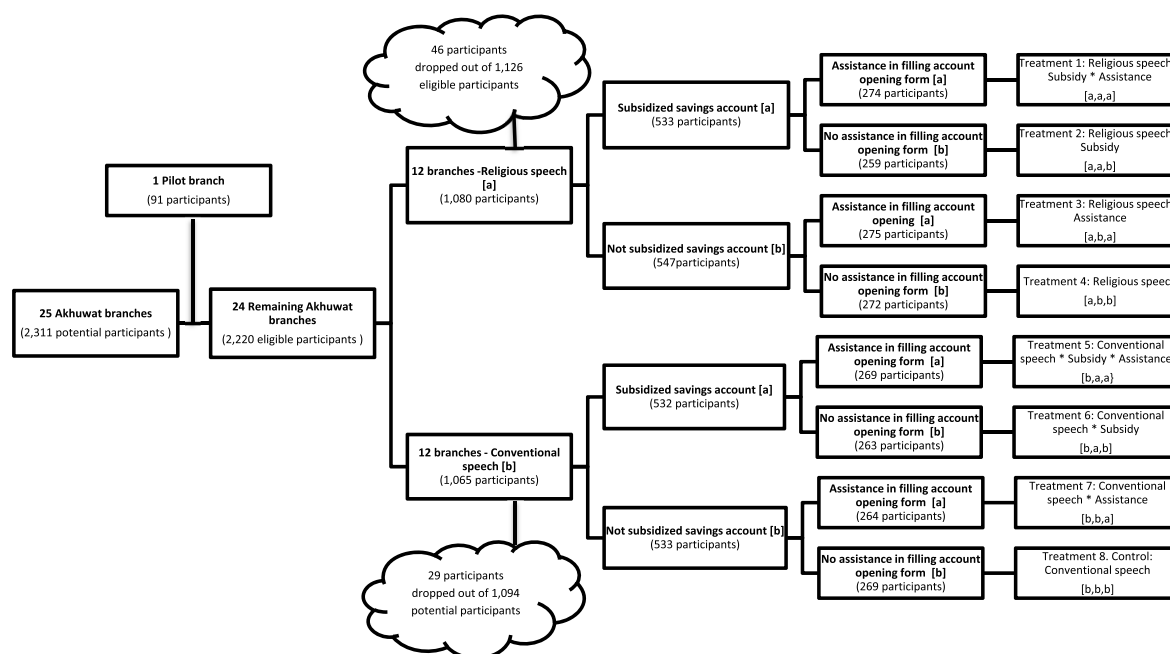


Figure A1. Flowchart diagram for treatment arms. Notes: This diagram depicts schematically the experimental design and randomization procedure at each step (left to right). For details of each step and timing, please see the Online Appendix A.4.

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