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Gendered Effects of Nudges to Boost Youth Training Enrollment: Evidence from Côte d'Ivoire

Jeannie Annan ® Estelle Koussoubé ® Joséphine Tassy ® Léa Rouanet ® Clara Delavallade ® David K. Evans ®

Abstract

Despite evidence of positive returns, many youth training programs in Sub-Saharan Africa have low take-up. Behavioral interventions, or nudges, have been proposed as low-cost tools to influence such decisions. This study reports on a randomized experiment in Côte d'Ivoire testing a behavioral nudge—varying the content and recipient of text message reminders—to increase enrollment in a youth employment program. We compare two framings—highlighting the free cost of the program versus the long-term career benefits—sent either to youth alone or to both youth and their nominated social contacts. Messages sent to youth alone have no impact. In contrast, targeting both youth and contacts significantly affects enrollment, with gendered effects: among young men, both messages reduce enrollment, while among young women, enrollment decreases when the message highlights free cost. These impacts are driven by youth with male contacts. Qualitative data suggest that trust and perceived program quality shape responsiveness, particularly among those unfamiliar with the program. The findings underscore how message framing and social context influence program take-up, and how misaligned messaging can discourage participation.

KEYWORDS
youth employment, text message incentives, program take-up, gender

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1 Introduction

By 2050, Sub-Saharan Africa's working-age population is expected to reach 1.3 billion, comprising 25% of the global labor force (World Bank, 2023). Yet 20%-30% of youth are currently not in employment, education, or training (UNICEF, 2022), underscoring the urgent need to equip young people with the skills necessary to secure meaningful employment. Technical and vocational education and training (TVET) programs have shown positive, though heterogeneous, effects on employment outcomes in both high- and lower income countries (Hanushek et al. 2017; Tripney and Hombrados 2013). However, low take-up rates likely limit their impact (McKenzie and Woodruff, 2014). Understanding and addressing the behavioral and social barriers that shape youth enrollment decisions is thus essential to improving the cost-effectiveness and reach of TVET in Sub-Saharan African countries. Yet few studies explore how these behavioral and social factors, particularly gendered social influences, shape program take-up in the context of youth training in Sub-Saharan Africa.

This paper examines whether a behavioral nudge can increase program participation by targeting informational and social barriers to enrollment. By lightly reframing program benefits and expanding the reach of reminders to trusted contacts, the intervention aims to shift perceptions and salience around enrollment decisions. Using a randomized controlled trial conducted in Côte d'Ivoire, we test the impact of two types of SMS messages — one emphasizing the program's free cost (Free SMS), and one highlighting its long-term career benefits (Career SMS) — sent to youth and, for a random subset, to a trusted adult contact identified by the youth. The design is informed by qualitative fieldwork conducted in 2019, which revealed that familial and peer networks play a central role in shaping youth aspirations and decision-making, and which confirmed that family approval carries significant weight in a collectivist context such as Côte d'Ivoire (Akosah-Twumasi et al., 2018, 2021). Youth reported receiving both moral and financial support from family members and encouragement from peers and siblings in deciding whether to apply to training programs. These findings motivated the inclusion of trusted contacts in the intervention, consistent with the homophily

hypothesis, which posits that individuals are more influenced by peers similar to themselves (Grácio and Vicente, 2021).

The mechanism is hypothesized to operate through perceptions and social influence. Message content may affect how youth and their contacts perceive the program's quality and expected returns. These perceptions can influence the information, advice, or encouragement that contacts provide to youth, which may in turn shape youth enrollment decisions.

While prior work has documented gender gaps in training outcomes, little evidence exists on how social networks and behavioral responses, shaped by gender norms, affect the decision to enroll in the first place. In many low- and middle-income countries, including Côte d'Ivoire, young women face specific barriers to labor market participation and may be subject to distinct familial and societal expectations. Gendered perceptions of opportunity and mobility shape not only youth aspirations but also the type and degree of support they receive from others. Recent evidence shows that parental influence over education choices is more prescriptive for boys than for girls, who report greater autonomy and broader parental approval across fields of study (Boring, 2025). Data from the Pro-Jeunes program highlights striking disparities: approximately 30% of respondents aspired for boys to take over family agricultural activities — a path almost never considered for girls — while stable careers in professional fields, government, or the private sector were more frequently desired for girls. Moreover, the gender of the contact matters: women were 54.6% more likely than men to aspire for girls to pursue professional or government careers, whereas men were 80.6% more likely than women to support aspirations for girls in the private sector or artistic domains. By contrast, occupational aspirations for boys did not vary by the respondent's gender. These patterns suggest that the perceived opportunity cost and expected return of vocational training are interpreted differently depending on the gender of both the youth and the contact influencing them — further motivating our design to test not only message content but also recipient identity and gender interactions.

We test five interrelated hypotheses that explore how message content, recipient identity

and gender interact to shape enrollment decisions: (i) responses to program information vary by the youth's gender; (ii) contacts' preferences matter in youth decision-making, with stronger effects when both youth and contacts receive information; (iii) contacts' preferences depend on the youth's gender, with different responses to program information for young men versus young women; (iv) contacts' preferences differ by the gender of the contact, with male and female contacts potentially evaluating program opportunities differently; and (v) the content of the SMS affects enrollment, with messages emphasizing free costs sending a different signal than those highlighting career benefits.

Our findings indicate that SMS messages impact program enrollment only when both the youth and their nominated contact are targeted. The Career SMS reduces enrollment among young men but has no impact on young women. That gendered variation is particularly pronounced when the trusted contact is male, suggesting complex interactions between message framing, gender dynamics, and social influence. In contrast, the Free SMS discourages enrollment across genders. These results are consistent with theoretical literature suggesting that pricing can act as a signal of quality, with zero cost potentially interpreted as lower value (Bagwell and Riordan, 1991). The intervention builds on growing evidence that low-cost nudges can shift behavior by increasing the salience of existing information (Rodríguez and Saavedra, 2019; Bettinger et al., 2021), particularly in settings with rising mobile phone penetration. However, our results add to mixed findings in this literature (Mills and Whittle, 2024), highlighting that SMS effectiveness depends on alignment between message content, recipient expectations, and social context.

We complement our experimental evidence with qualitative interviews conducted with youth contacts, which shed light on the mechanisms behind the observed behavioral responses. These interviews reveal that perceptions of program quality and opportunity cost are central to the decision to enroll, not only for youth but also for the trusted adults in their networks. This is particularly salient in contexts like Côte d'Ivoire, where TVET programs vary widely in quality, cost, and perceived labor market relevance (Van Lieshout and

Mehtha, 2017). While a substantial literature shows that reducing or eliminating user fees increases uptake of health and education services (Cohen and Dupas, 2010; Kremer and Miguel, 2007; Duflo et al., 2023), our findings suggest that such interventions may carry unintended signaling effects. Specifically, emphasizing the program's free cost may inadvertently lower perceived value among both youth and their contacts, especially when quality is uncertain. This finding contributes to the literature by highlighting the role of pricing signals in shaping educational investment decisions in LMICs and by showing how these effects interact with gendered aspirations. As our data indicate, the perceived returns to vocational training — both social and economic — are mediated by gender norms and differ systematically across male and female contacts, pointing to the need for more nuanced, context-sensitive messaging strategies in efforts to expand access to TVET.

2 Intervention, Empirical Strategy and Data

This study evaluates the impact of an SMS intervention to increase interest and take-up in the PRO-Jeunes youth employment program, which was implemented in urban and peri-urban Côte d'Ivoire by the International Rescue Committee. The PRO-Jeunes program was extensively publicized through a comprehensive communication strategy, including a public relations campaign, direct marketing, media activities, and community mobilization. The public relations campaign engaged local authorities, professional training centers, employment agencies, social centers, and private enterprises. Media activities included press releases, advertisements, and direct broadcasts on the PRO-Jeunes website and on social media platforms (Twitter, YouTube, Facebook), as well as on local and regional television and radio. Additionally, community mobilization initiatives involved meeting with community leaders, distributing flyers, and informing communities about the project launch and enrollment sites.

Recruitment for the PRO-Jeunes program was carried out in two stages: (i) interested

youth first registered, expressing their interest in the program; (ii) after screening all the applications, the project team invited eligible applicants to come to an "enrollment meeting." According to data from the first two cohorts from the program, a significant share of eligible applicants who had expressed their interest in stage 1 did not attend the subsequent enrollment meeting in stage 2. The intervention evaluated in this study targeted the next cohort, and took place between the two stages, aiming to increase the transition from pre-registration to enrollment.

Eligible applicants were randomly selected to receive one of two SMS messages: the Free SMS highlighted that the program was free; the Career SMS focused on long-term benefits of the program. Youth had already been informed that the program was free and beneficial to their careers at pre-registration: these messages served as reminders. In order to develop the SMS content, we conducted formative work with youth applicants from previous cohorts in Abidjan and Grand-Bassam in early 2019, aiming to identify the key drivers of their enrollment decisions. Randomization was stratified by gender and geographic area. The Free SMS read as follows: "Join an information session on PRO-Jeunes, a program offering free training and support for self-employment and employment." The Career SMS read as follows: "Join an information session on PRO-Jeunes, a training program offering support for self-employment and employment, to help you build your future." Each type of SMS had two treatment groups. In the first treatment, the SMS was randomly sent to the youth only. In the second treatment, the SMS was sent to the youth and the contact person they had listed. At pre-registration, youth were asked to list a person to contact in case they could not be reached. It was specified that youth who did not live by themselves should provide the name of a person they lived with. The intervention design is described in Figure 1.

Our study uses administrative data collected in 2019 on a sample of 3,908 eligible applicants to the PRO-Jeunes program who had completed the pre-registration stage, during which they provided identification and contact information for their contact person, as described in Table 2. This sample of 3,908 only includes applicants with non-missing data.

The data include a limited number of variables: date of birth, phone number, gender and geographic location for youth; for contacts, relationship to the youth and phone number. Listed relationships were: mother, father, uncle, aunt, brother, sister, cousin (male), cousin (female), spouse, friend, grandparent. We inferred contact gender from these values (and youth's gender for spouse) and excluded observations where the relationship was gender-neutral (e.g., friend or grandparent)[1].

The average age of youth in our sample is 23 years (25th percentile: 20 years; 75th percentile: 26 years), and half of the sample are women. In terms of contacts, 56.5% of the youth listed a parent as their contact; another 9.2% provided a spouse as a contact. Women are 24.8% more likely than men to choose women as contacts. 16.6% of women choose their husband as a contact, compared to only 2.1% of men choosing their wife (Table 1). These statistics are balanced across treatment groups (Table 2).

To complement the quantitative data, we conducted a qualitative survey to better understand the quantitative findings, including 12 individual interviews and 4 focus group discussions among youth and their contacts in August-September 2023. In the focus group discussions, each consisting of 6 participants, men and women were interviewed separately to better understand the gender differences in the observed results.

We use the following specification for our main estimates:

$$\begin{aligned} Enrolled_i = \beta_0 + \beta_1 Woman_i + \beta_2 T_{1i} + \beta_3 T_{1i} \cdot Woman_i + \\ \beta_4 T_{2i} + \beta_5 T_{2i} \cdot Woman_i + \beta_6 T_{3i} + \beta_7 T_{3i} \cdot Woman_i \\ + \beta_8 T_{4i} + \beta_9 T_{4i} \cdot Woman_i + X_i' + \varepsilon_i \end{aligned} \tag{1}$$

Where $Enrolled_i$ is a binary variable indicating whether individual i has completed the enrollment process. T_{1i} is a binary variable indicating whether the individual was in the first treatment group, where the Career SMS was sent to youth only. T_{2i} is a binary variable indicating whether the individual was in the second treatment group, where the Career SMS

[1]Results are robust to including these 483 dropped observations, as described in section 3.3

was sent to youth and their contact. T_{3i} is a binary variable indicating whether the individual was in the first treatment group, where the Free SMS was sent to youth only. T_{4i} is a binary variable indicating whether the individual was in the second treatment group, where the Free SMS was sent to youth and their contact. $Woman_i$ is a binary variable taking the value of one when the potential enrollee is a woman. X_i' is a vector of control variables, including age (continuous variable) and geographic location. We also run a heterogeneity test with the same specification, comparing two sub-groups: youth with male contacts versus youth with female contacts, to shed light on hypothesis 4. Table 3 lists empirical tests of our five hypotheses. We discuss the results of our tests of Hypotheses 1, 2, 3, and 5 in Section 3.1, and we discuss the results of our test of Hypothesis 4 in Section 3.2.

3 Results

We first examine overall effects across treatment groups, then analyze heterogeneous impacts by the gender of youth's contact persons. Throughout, we analyze how these effects align with our five hypotheses regarding the influence of message content, youth gender, and social networks on program take-up.

3.1 Overall impact on enrollment

Table 4 presents the treatment effects of sending either of the two SMS types – the Free SMS and the Career SMS – to youth only or to youth and their contact. To correct for multiple hypothesis testing, we report both p-values and sharpened q-values, following the procedure in Anderson (2008). This correction limits the expected proportion of Type I errors (false positives) among the hypotheses we reject (false discovery rate). Our key results remain robust under this adjustment.

We find that neither SMS intervention has a statistically significant impact on enrollment, regardless of youth gender. This result does not support our hypothesis that responses to

program information vary by youth's gender independently of contact influence (Hypothesis 1).

However, the results strongly support our second hypothesis, that contact's preferences matter in youth decision-making (Hypothesis 2).When both youth and contacts receive messages, we observe significant effects that vary by message content and youth gender. Sending the Career SMS to both youth and their contact has different effects depending on gender: enrollment decreases by 8.5 percentage points for men (19.1% decrease), but is not significantly impacted for women. In contrast, sending the Free SMS to both youth and their contact decreases the probability of enrolling for both men and women, with a stronger effect on men (40.4% decrease) than on women (21.7% decrease). The difference in impact between the two SMS treatments is statistically significant for both men and women.

The significant impacts observed only when contacts are included in the SMS outreach supports our hypothesis that contacts' preferences matter in youth decision-making (Hypothesis 2). The impact of sending messages to youth and contact is also significantly different from the impact of sending messages to youth only. Qualitative interviews confirm this interpretation: youth frequently select contacts based on close personal relationships (family members or friends) or professional experience and expect them to provide significant guidance. About half of the youth listed a parent as their contact (Table 2). This underscores the pivotal role contacts play in decision-making processes, reinforcing the idea that their preferences and judgments can override those of the youth themselves.

The gender differences in impacts support our hypothesis that contacts' preferences depend on the youth's gender (Hypothesis 3). This is evident in two ways: the Career SMS has different effects on men and women, with men being discouraged by the same message and women not being impacted, and the Free SMS, while negative for both genders, has a significantly stronger discouraging effect on men (-40.4% decrease) than on women (-21.7% decrease). These patterns suggest that contacts evaluate program opportunities differently based on the youth's gender, with potentially different quality standards or opportunity cost

considerations.

The large and significant difference in impact between the two SMS is in line with our final hypothesis: the content of the SMS itself affects enrollment (Hypothesis 5). Highlighting that the program is free has a stronger discouraging effect compared to focusing on long-term career benefits.

Qualitative interviews provide additional insights into these findings. Regarding the contact's influence (Hypothesis 2), interviews reveal that trust in the program organization plays a crucial role. Contacts may have been more likely to discourage youth from enrolling because they probably had no prior knowledge of the program or the implementing organization. While youth had already attended a pre-registration information session and were thus more familiar with the program, contacts had no direct interaction with the organization. When asked what could improve the messages' perception, interviewees suggested that messages should illustrate the reputability of the organization providing the program. In the absence of prior knowledge or engagement, some contacts expressed skepticism about the program's credibility and reliability, which could have led them to advise youth against enrolling.

Regarding message content effects (Hypothesis 5), our qualitative evidence suggests that emphasizing that the program was free could have raised concerns about the program's quality. Although the free nature of the program was initially perceived positively by both youth and contacts, some contacts interpreted the emphasis on "free" as a potential signal of low quality or even fraud. This perception helps explain the more discouraging effect of the Free SMS compared to the Career SMS. Messages that highlighted long-term career benefits appeared to generate less skepticism, which also connects to the gender-differentiated responses we observed (Hypothesis 3).

3.2 Impact on enrollment by gender of contact

Table 5 presents evidence on our fourth hypothesis that contacts' preferences differ by the gender of the contact. The table shows the treatment effects of sending SMS to youth only or to youth and their contact on program enrollment for two subsamples: column (1) shows the impact on youth whose contacts are male, and column (2) shows the impact on youth whose contacts are female. Results are presented graphically in Figure 2.

Considering the gender of the contact provides a more nuanced picture. Impacts of the Career SMS are driven by youth with male contacts. Sending the Career SMS to youth and their contacts significantly decreases enrollment for men with male contacts (by 23.5%), while it increases enrollment for women with male contacts (by 19.1%). In contrast, youth with female contacts were not significantly impacted by the Career SMS.

Sending the Free SMS to young men and their contact always has a negative impact, regardless of the contact's gender: the effect corresponds to a 31.3% decrease in enrollment for men with male contacts and to a 52.3% for men with female contacts. The impact of the Free SMS to youth and their contact on women's enrollment is driven by women with male contacts, who are 35.9% less likely to enroll, whereas women with female contacts do not exhibit a significant decrease in enrollment.

The stark contrast between the consistent significant effects among youth with male contacts versus the generally non-significant effects among youth with female contacts provides evidence for our fourth hypothesis that contact gender plays a critical role in how message information is processed and acted upon. Male contacts are consistently associated with significant impacts, for both men and women applicants and both types of SMS. In contrast, female contacts are not associated with significant impact for any of the subgroups, with the notable exception that women who were sent the Free SMS alongside their female contacts did not experience the enrollment decrease observed in other groups.

In the context of Côte d'Ivoire's collectivist culture, these patterns suggest that male contacts may have greater decision-making authority or that their opinions carry more weight

in youth career decisions. This influence is notably gender-differentiated: female youth with male contacts are less likely to be discouraged and can even be encouraged to enroll when presented with career-focused messaging. This pattern reflects how contacts may perceive different opportunity structures depending on the youth's gender.

Female contacts are more likely to discourage young men from enrolling, compared to young women when receiving the Free SMS. This may suggest that female contacts perceive the opportunity cost of the program as higher for young men than young women — either because they are less likely to discount the expected quality of the program based on the SMS, or because they are more aware of the limitations young women face in the job market.

These patterns highlight interesting differences by the contact's gender that warrant further investigation. To better understand the underlying dynamics, we conducted exploratory analyses disaggregating results by the specific relationship between the youth and their contact. These analyses, though based on smaller sample sizes, reveal nuanced family dynamics consistent with our main findings. The influence of male contacts appears to be primarily driven by fathers and brothers, with fathers' influence particularly pronounced. For instance, Career SMS sent to youth and their fathers showed opposite effects by gender - negative for young men but positive for young women. Similarly, young women with brothers as contacts responded positively to Career SMS. These relationship-specific patterns align with our broader results on gendered responses while suggesting that specific family relationships may mediate message impacts differently. Results are presented in Appendix Table A1.

As with our primary analysis, potential selection bias in contact choice remains a concern, and these disaggregated results should be interpreted with appropriate caution. Future studies could address potential selection bias in contact choice through research designs that randomly assign suggested contacts or collect more detailed information on family decision-making structures. Given our data limitations, we are unable to delve deeper into the underlying mechanisms driving these patterns.

Finally, when testing the equality of coefficients between youth with male contacts and

youth with female contacts (column 3 of table 5), we cannot reject the null hypothesis that the effects are equal for most groups. It is only rejected for women who were sent the Free SMS alongside their contact, where the difference between having a male versus female contact is statistically significant at 10%. This reinforces the need to interprets these findings with caution.

3.3 Robustness checks

We conducted several checks to ensure the robustness of our main findings. Our findings remain consistent when estimating the model on the full sample, including individuals with missing contact gender information. Results are presented in Appendix Table A2. We also examined whether SMS delivery rates differed systematically across treatment groups (Figure 3) and found no evidence that variations in SMS delivery rates explain the observed treatment effects.

4 Discussion

Low take-up is a major barrier to the effectiveness of a large number of development programs and social policies. In some cases, this low take-up may reflect insufficient information regarding the program. While this challenge is sometimes attributed to insufficient information, the channels through which information is delivered and how it is framed may be equally important. This study sought to boost the uptake of a youth employment program by sending SMS reminders to both applicants and their contacts, and varying message content between highlighting the program's free cost versus emphasizing its long-term career benefits.

The findings of this study offer nuanced insights into the five hypotheses proposed in the introduction. First, we find no evidence that responses to program information vary by youth's gender when youth are targeted alone. Regardless of gender, there is no signif-

icant impact on enrollment when SMS are sent to youth only. This suggests that direct communication to youth without addressing their broader social context may be insufficient to influence behavior. Relying solely on direct-to-youth messaging strategies to increase program take-up may not be an effective approach.

Second, contacts' preferences matter in youth decision-making: when both youth and their contacts are targeted, the messages result in significant effects. Qualitative interviews reinforce this finding, revealing that youth frequently rely on their contacts – often close family members – for guidance. This underscores the importance of engaging not only potential beneficiaries but also their social networks in the recruitment process.

Third, we find that contacts' preferences differ according to the youth's gender. For young men, both messages had a discouraging effect when they were contacted along with a person of reference. However, targeting young women and their contact has no impact on enrollment when the SMS highlights future benefits, and a negative one when highlighting that the program is free. These findings point to the need for gender-sensitive communication strategies that account for differing perceptions of opportunity and program quality. Policy makers should consider refining message content to better address how young men and young women, as well as their networks, may perceive program opportunities.

Fourth, contacts' preferences differ by the gender of the contact. Male contacts are consistently associated with effects, whether encouraging or discouraging enrollment, contrary to female contacts. This heterogeneity suggests that the perception and impact of the program's promotional messages are influenced by broader social and cultural factors. This result is in line with gender-differentiated aspirations we observed on a comparable sample from the same youth employment program. However, this finding should be interpreted with caution given the potential selection bias in contact choice. Future research could address this by randomly assigning suggested contact gender to establish causal relationships, collecting more detailed data on reasons for contact selection, and exploring the interaction between youth characteristics and contact gender.

Finally, the content of the SMS itself plays a role in shaping enrollment outcomes. Messages that highlight the free cost of the program appear to generate skepticism, particularly among men and their contacts. In contrast, the Career SMS – emphasizing long-term benefits – produces less skepticism and, in the case of young women with male contacts, encourages enrollment. These findings align with economic theory on price signaling, which suggests that free or low-priced services may be perceived as lower quality (Bagwell and Riordan, 1991). Qualitative interviews corroborate these findings: recipients often viewed the emphasis on "free" as a potential indicator of low quality or even fraud, especially when they lacked familiarity with the organization delivering the program. This finding underscores the value of building trust in the program before promoting it, ensuring that recipients are familiar with and confident in its value.

These results illustrate that light-touch interventions can have unintended consequences when message content or delivery does not align with recipients' expectations or social context. In this case, well-intentioned reminders were associated with lower enrollment among men, which may reflect a lack of trust or perceived program quality. However, an alternative interpretation is that contacts helped youth make more informed choices, filtering out those who were less likely to benefit from the program. From this perspective, lower enrollment may reflect improved targeting rather than disengagement.

Future communication strategies should emphasize program quality and value to align with the expectations, aspirations, and preferences of youth and their contacts. Program implementers could actively build trust by providing detailed, transparent information and incorporating these elements into their messaging strategies. Messaging could also be tailored to align with the expectations of both youth and their social networks, potentially involving pre-engagement initiatives to build familiarity and trust prior to outreach.

Taken together, our mixed-methods study underscores the complex interplay between message framing, gender dynamics, and social influence in program enrollment decisions. Increasing youth enrollment in skills development programs is a critical challenge, often

hindered by mistrust and uncertain perceptions of program benefits. Outreach strategies should be tailored not only by gender but also by the social roles and expectations of key influencers. At the same time, lower enrollment should not always be interpreted as failure: if trusted contacts help youth make more informed decisions, it may signal improved targeting rather than disinterest. By addressing the complexities of trust, social networks, and gender norms, program organizers can develop more effective strategies to boost enrollment and, ultimately, youth employment outcomes.

These findings suggest a valuable agenda for future research: identifying the most cost-effective strategies to build trust in public campaigns aimed at promoting social good. As governments and development actors increasingly rely on informational outreach to encourage uptake of services ranging from education and training to health and vaccination, fostering credibility and confidence becomes essential. Promising avenues include identifying trusted messengers, co-designing messages with communities, and investing in early-stage engagement to build familiarity before attempting behavioral change. Deepening our understanding of how trust shapes responsiveness to messaging is critical to increasing the reach and effectiveness of light-touch interventions across sectors.

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Tables

Table 1: Descriptive statistics by gender

		(1) Men		(2) Women	(1)-(2) T-test
Variable	N	Mean/SE	N	Mean/SE	
Age	1984	23.10	1924	23.07	0.03
		[0.08]		[0.09]	
Contact is a woman	1984	0.44	1924	0.55	-0.11***
		[0.01]		[0.01]	
Contact is youth's mother	1984	0.31	1924	0.36	-0.05***
		[0.01]		[0.01]	
Contact is youth's father	1984	0.29	1924	0.18	0.10***
		[0.01]		[0.01]	
Contact is youth's mother or father	1984	0.59	1924	0.54	0.05***
		[0.01]		[0.01]	
Contact is youth's spouse	1984	0.02	1924	0.17	-0.15***
		[0.00]		[0.01]	

Notes: The value displayed for t-tests are the differences in the means across the groups. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: Descriptive statistics by treatment group

	(1) Control		(2) Career SMS to youth		(3) Career SMS to youth & contact		(4) Free SMS to youth		(5) Free SMS to youth & contact		F statistic
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	
Woman	1321	0.49	651	0.49	647	0.50	638	0.50	651	0.48	0.13
		[0.01]		[0.02]		[0.02]		[0.02]		[0.02]	
Age	1321	23.07	651	23.02	647	23.11	638	23.04	651	23.18	0.18
		[0.10]		[0.15]		[0.15]		[0.15]		[0.15]	
Contact is a woman	1321	0.51	651	0.50	647	0.50	638	0.48	651	0.50	0.36
		[0.01]		[0.02]		[0.02]		[0.02]		[0.02]	
Contact is youth's mother	1321	0.35	651	0.32	647	0.32	638	0.33	651	0.34	0.60
		[0.01]		[0.02]		[0.02]		[0.02]		[0.02]	
Contact is youth's father	1321	0.22	651	0.23	647	0.24	638	0.23	651	0.26	0.79
		[0.01]		[0.02]		[0.02]		[0.02]		[0.02]	
Contact is youth's mother or father	1321	0.57	651	0.55	647	0.56	638	0.55	651	0.59	0.82
		[0.01]		[0.02]		[0.02]		[0.02]		[0.02]	
Contact is youth's spouse	1321	0.10	651	0.09	647	0.08	638	0.10	651	0.09	0.56
		[0.01]		[0.01]		[0.01]		[0.01]		[0.01]	

Notes: The value displayed for t-tests are the differences in the means across the groups. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3: Hypotheses and empirical tests

Hypotheses	**Corresponding tests**
Hypothesis 1 *SMS effects vary by youth's gender*	$\beta_3 = 0$ (Career SMS); $\beta_7 = 0$ (Free SMS)
Hypothesis 2 *Contacts' preferences matter*	Men: $\beta_2 - \beta_4 = 0$ (Career); $\beta_6 - \beta_8 = 0$ (Free) Women: $\beta_2 + \beta_3 - \beta_4 - \beta_5 = 0$ (Career); $\beta_6 + \beta_7 - \beta_8 - \beta_9 = 0$ (Free)
Hypothesis 3 *Contacts' preferences depend on the youth's gender*	$\beta_5 = 0$ (Career SMS); $\beta_9 = 0$ (Free SMS)
Hypothesis 4 *Contacts' preferences differ by the contact's gender*	Comparing coefficients across subgroups by contact's gender: β_4 (men); $\beta_4 + \beta_5$ (women) for the Career SMS β_8 (men); $\beta_8 + \beta_9$ (women) for the Free SMS
Hypothesis 5 *SMS content matters*	Youth only: $\beta_2 - \beta_6 = 0$ (men); $\beta_2 + \beta_3 - \beta_6 - \beta_7 = 0$ (women) Youth & contact: $\beta_4 - \beta_8 = 0$ (men); $\beta_4 + \beta_5 - \beta_8 - \beta_9 = 0$ (women)

Table 4: Treatment effects on enrollment rates

	Completed enrollment process
Respondent is a woman	-0.05**
p-value	*0.04*
sharpened q-value	*0.05*
T_1: Career SMS to youth	0.01
p-value	*0.76*
sharpened q-value	*0.52*
Career SMS to youth x Respondent is a woman	0.01
p-value	*0.78*
sharpened q-value	*0.52*
T_2: Career SMS to youth & contact	-0.09***
p-value	*0.01*
sharpened q-value	*0.02*
Career SMS to youth & contact x Respondent is a woman	0.14***
p-value	*0.00*
sharpened q-value	*0.01*
T_3: Free SMS to youth	-0.04
p-value	*0.23*
sharpened q-value	*0.18*
Free SMS to youth x Respondent is a woman	0.03
p-value	*0.47*
sharpened q-value	*0.37*
T_4: Free SMS to youth & contact	-0.18***
p-value	*0.00*
sharpened q-value	*0.00*
Free SMS to youth & contact x Respondent is a woman	0.10**
p-value	*0.04*
sharpened q-value	*0.05*
Linear combinations	
p(T_1 + T_1*W)=0	0.48
p(T_2 + T_2*W)=0	0.10
p(T_3 + T_3*W)=0	0.86
p(T_4 + T_4*W)=0	0.01
p(T_1 - T_2)=0	0.01
p(T_3 - T_4)=0	0.00
p(T_1 + T_1*W - T_2 - T_2*W)=0	0.42
p(T_3 + T_3*W - T_4 - T_4*W)=0	0.04
p(T_1 - T_3)=0	0.19
p(T_2 - T_4)=0	0.01
p(T_1 + T_1*W - T_3 - T_3*W)=0	0.45
p(T_2 + T_2*W - T_4 - T_4*W)=0	0.00
Control mean	0.45
R-squared	0.07
Observations	3908

Notes: The reported coefficients are estimated using the specification described in equation (1). W=Respondent is a woman. Sharpened q-values are p-values that have been adjusted for the False Discovery Rate (FDR). Controls: Age (continuous variable) and geographic location.

Table 5: Treatment effects on enrollment rates - by contact gender

	Completed enrollment process		
	Male contact	Female contact	T-test (1)=(2)
	(1)	(2)	
Respondent is a woman	-0.03	-0.08**	0.35
p-value	*0.45*	*0.03*	
sharpened q-value	*1.00*	*0.09*	
T_1: Career SMS to youth	0.01	0.01	0.99
p-value	*0.83*	*0.83*	
sharpened q-value	*1.00*	*0.75*	
Career SMS to youth x Respondent is a woman	-0.03	0.05	0.45
p-value	*0.70*	*0.47*	
sharpened q-value	*1.00*	*0.54*	
T_2: Career SMS to youth & contact	-0.11**	-0.06	0.46
p-value	*0.01*	*0.24*	
sharpened q-value	*0.03*	*0.40*	
Career SMS to youth & contact x Respondent is a woman	0.19***	0.09	0.30
p-value	*0.00*	*0.16*	
sharpened q-value	*0.02*	*0.31*	
T_3: Free SMS to youth	-0.03	-0.05	0.80
p-value	*0.47*	*0.31*	
sharpened q-value	*1.00*	*0.44*	
Free SMS to youth x Respondent is a woman	0.01	0.06	0.63
p-value	*0.86*	*0.39*	
sharpened q-value	*1.00*	*0.51*	
T_4: Free SMS to youth & contact	-0.14***	-0.23***	0.13
p-value	*0.00*	*0.00*	
sharpened q-value	*0.01*	*0.00*	
Free SMS to youth & contact x Respondent is a woman	-0.01	0.20***	0.01
p-value	*0.86*	*0.00*	
sharpened q-value	*1.00*	*0.01*	
Linear combinations			
p(T_1 + T_1*W)=0	0.75	0.18	0.28
p(T_2 + T_2*W)=0	0.10	0.42	0.47
p(T_3 + T_3*W)=0	0.66	0.86	0.67
p(T_4 + T_4*W)=0	0.00	0.48	0.05
p(T_1 - T_2)=0	0.02	0.23	
p(T_3 - T_4)=0	0.03	0.00	
p(T_1 + T_1*W - T_2 - T_2*W)=0	0.09	0.65	
p(T_3 + T_3*W - T_4 - T_4*W)=0	0.02	0.46	
p(T_1 - T_3)=0	0.42	0.29	
p(T_2 - T_4)=0	0.47	0.00	
p(T_1 + T_1*W - T_3 - T_3*W)=0	0.93	0.34	
p(T_2 + T_2*W - T_4 - T_4*W)=0	0.00	0.19	
Control mean	0.45	0.44	
R-squared	0.07	0.07	
Observations	1969	1939	

Notes: The reported coefficients are estimated using the specification described in equation (1), separately for individuals with male contacts (Column 1) and female contacts (Column 2). W=Woman. *** p < 0.01, ** p < 0.05, * p < 0.1. Sharpened q-values are p-values that have been adjusted for the False Discovery Rate (FDR). Controls: Age (continuous variable) and geographic location.

Figures

Figure 1: Intervention Design

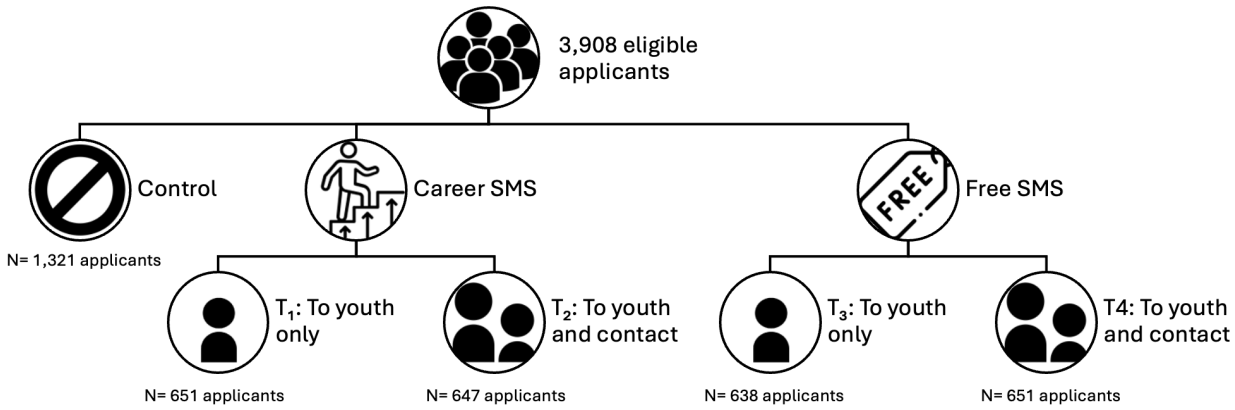


Figure 2: Treatment effects on enrollment rate - by contact gender

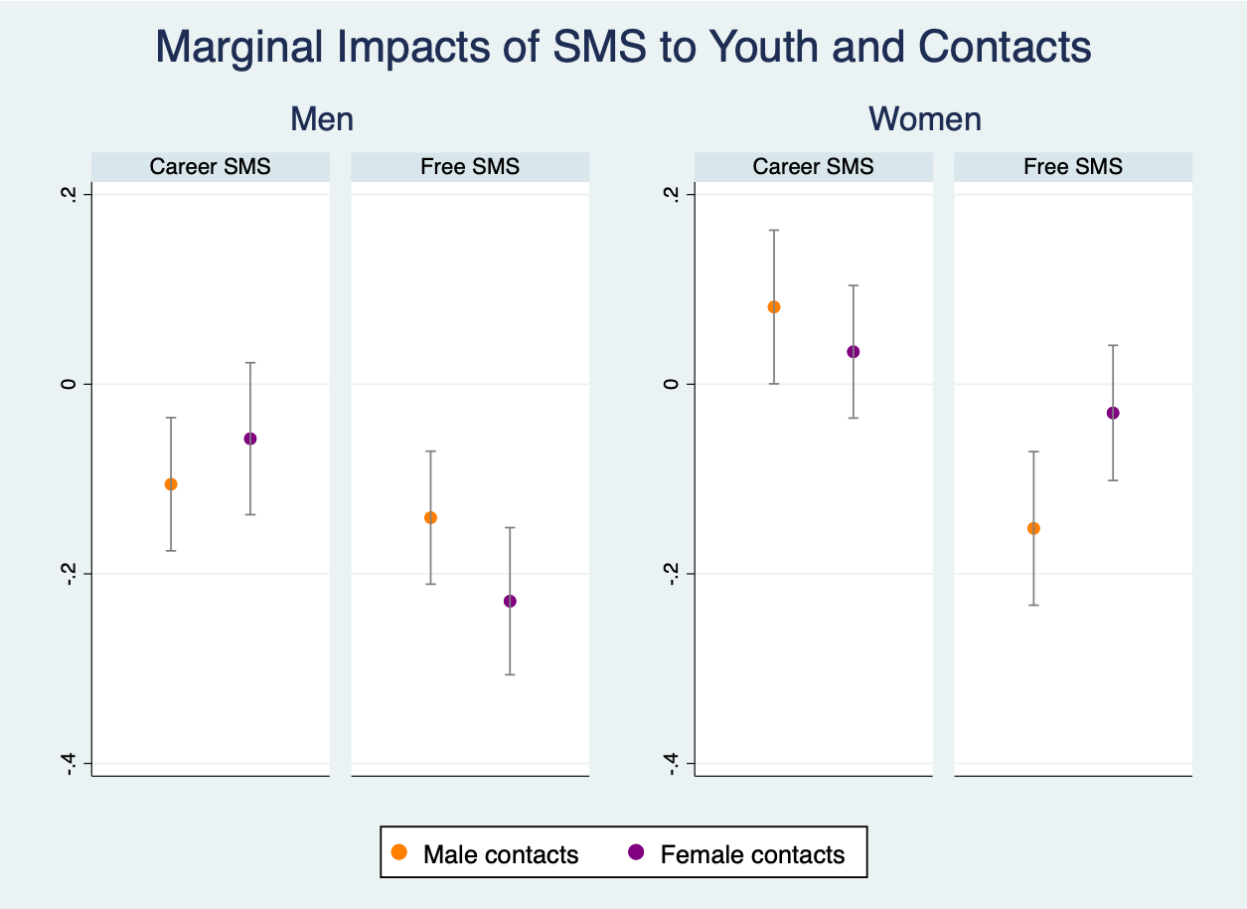
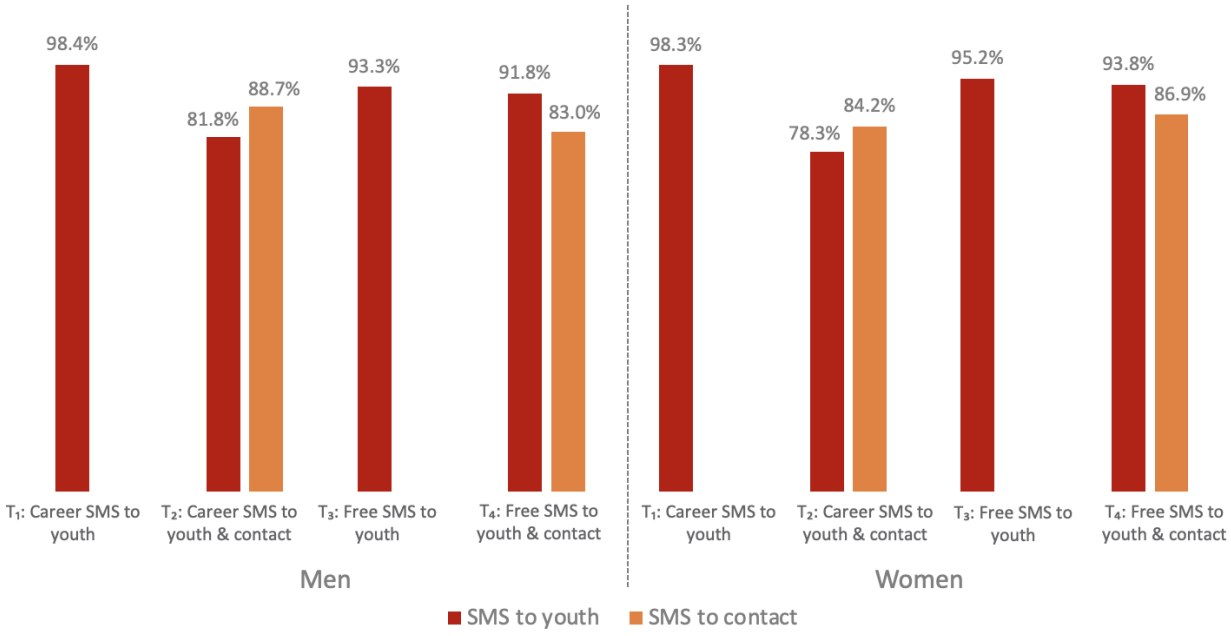


Figure 3: SMS Delivery Rates by Treatment Group



Appendix

Table A1: Treatment effects on enrollment rates - by specific relationship between youth and contact

	Completed enrollment process					
	Mother	Father	Sister	Brother	Wife	Husband
	(1)	(2)	(3)	(4)	(5)	(6)
Respondent is a woman	-0.05	-0.01	-0.19**	0.05		
	(0.04)	(0.06)	(0.08)	(0.08)		
T_1: Career SMS to youth	0.05	-0.07	-0.16	0.11	0.10	-0.07
	(0.06)	(0.06)	(0.12)	(0.07)	(0.23)	(0.08)
Career SMS to youth x Respondent is a woman	0.00	0.00	0.30**	-0.17		
	(0.08)	(0.10)	(0.15)	(0.15)		
T_2: Career SMS to youth & contact	-0.06	-0.14**	-0.14	-0.05	0.06	-0.02
	(0.06)	(0.06)	(0.12)	(0.07)	(0.40)	(0.08)
Career SMS to youth & contact x Respondent is a woman	0.03	0.22**	0.23	0.31**		
	(0.08)	(0.10)	(0.15)	(0.14)		
T_3: Free SMS to youth	-0.02	0.03	-0.12	-0.09	-0.23	-0.04
	(0.06)	(0.06)	(0.11)	(0.07)	(0.28)	(0.08)
Free SMS to youth x Respondent is a woman	0.04	-0.09	0.02	0.18		
	(0.08)	(0.10)	(0.15)	(0.13)		
T_4: Free SMS to youth & contact	-0.25***	-0.16***	-0.32***	-0.16**	0.00	-0.12
	(0.06)	(0.06)	(0.12)	(0.07)	(0.24)	(0.08)
Free SMS to youth & contact x Respondent is a woman	0.26***	-0.04	0.16	-0.08		
	(0.08)	(0.09)	(0.15)	(0.14)		
Linear combinations (p-values)						
p(T_1 + T_1*W)=0	0.36	0.39	0.10	0.62	0.67	0.40
p(T_2 + T_2*W)=0	0.58	0.30	0.30	0.03	0.88	0.84
p(T_3 + T_3*W)=0	0.68	0.40	0.34	0.44	0.41	0.58
p(T_4 + T_4*W)=0	0.78	0.01	0.09	0.05	1.00	0.17
p(T_1 - T_2)=0	0.11	0.29	0.91	0.06	0.93	0.59
p(T_3 - T_4)=0	0.00	0.01	0.14	0.44	0.44	0.45
p(T_1 + T_1*W - T_2 - T_2*W)=0	0.21	0.10	0.61	0.02	0.93	0.59
p(T_3 + T_3*W - T_4 - T_4*W)=0	0.91	0.10	0.54	0.01	0.44	0.45
p(T_1 - T_3)=0	0.29	0.18	0.78	0.02	0.25	0.78
p(T_2 - T_4)=0	0.00	0.72	0.20	0.19	0.88	0.32
p(T_1 + T_1*W - T_3 - T_3*W)=0	0.68	0.98	0.02	0.26	0.25	0.78
p(T_2 + T_2*W - T_4 - T_4*W)=0	0.47	0.00	0.02	0.00	0.88	0.32
Observations	1,299	910	386	551	41	319
R-squared	0.08	0.10	0.12	0.09	0.15	0.05
Control mean	0.45	0.45	0.45	0.45	0.45	0.45

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Controls: Age and geographic areas.

Table A2: Treatment effects on enrollment rates - Full sample

	Completed enrollment process
Respondent is a woman	-0.05**
p-value	*0.03*
sharpened q-value	*0.04*
T_1: Career SMS to youth	0.01
p-value	*0.86*
sharpened q-value	*0.62*
Career SMS to youth x Respondent is a woman	0.03
p-value	*0.52*
sharpened q-value	*0.42*
T_2: Career SMS to youth & contact	-0.08***
p-value	*0.01*
sharpened q-value	*0.01*
Career SMS to youth & contact x Respondent is a woman	0.14***
p-value	*0.00*
sharpened q-value	*0.00*
T_3: Free SMS to youth	-0.02
p-value	*0.44*
sharpened q-value	*0.42*
Free SMS to youth x Respondent is a woman	0.01
p-value	*0.74*
sharpened q-value	*0.59*
T_4: Free SMS to youth & contact	-0.19***
p-value	*0.00*
sharpened q-value	*0.00*
Free SMS to youth & contact x Respondent is a woman	0.11**
p-value	*0.01*
sharpened q-value	*0.02*
Linear combinations	
p(T_1 + T_1*W)=0	0.28
p(T_2 + T_2*W)=0	0.05
p(T_3 + T_3*W)=0	0.77
p(T_4 + T_4*W)=0	0.01
p(T_1 - T_2)=0	0.01
p(T_3 - T_4)=0	0.00
p(T_1 + T_1*W - T_2 - T_2*W)=0	0.46
p(T_3 + T_3*W - T_4 - T_4*W)=0	0.05
p(T_1 - T_3)=0	0.41
p(T_2 - T_4)=0	0.00
p(T_1 + T_1*W - T_3 - T_3*W)=0	0.24
p(T_2 + T_2*W - T_4 - T_4*W)=0	0.00
Control mean	0.44
R-squared	0.06
Observations	4391

Notes: W=Woman. *** p < 0.01, ** p < 0.05, * p < 0.1. Sharpened q-values are p-values that have been adjusted for the False Discovery Rate (FDR). Controls: Age (continuous variable) and geographic location.