Turning Inward and/or Outward: Which Socioemotional Skills Pay for Agribusiness Entrepreneurs in Nigeria?*

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Abstract

Socioemotional skills (SES) programs are widely used to promote economic empowerment, yet their returns may vary by skill-type and gender. This paper evaluates an SES intervention for 4,500 agribusiness owners in a large-scale government program in Nigeria. Using a randomized controlled trial we examine whether trainings focused on *interpersonal skills* yield higher economic returns when combined with *intrapersonal skills* among men and women. SES trainings overall enhance women's economic outcomes, raising business profits by over 50%, with some firms brought into activity and others growing on the intensive margin. The interpersonal and combination treatments yield similar economic impacts. However, we find that the interpersonal skills training improves women's interpersonal skills (e.g., negotiation, empathy and collaboration), while the combination training improves men's intrapersonal skills (e.g., emotional awareness and perseverance). The positive impacts on women's business performance are strongest in norm supportive environments — where there is little perceived judgment from the community for defying traditional gender roles — with no evidence of an effect on their agency or decision-making power. Our results suggest that while SES programs are effective at improving women's economic outcomes, accelerating broader empowerment may require complementary programs to help relax gender norms.

Keywords: Gender, Agriculture, Entrepreneurship, Socioemotional skills, Firms, Nigeria
JEL: J16, J24, O12, Q12, L26

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1 Introduction

Socioemotional skills (SES) — such as self-efficacy, assertiveness, and negotiation — are increasingly recognized as critical drivers of labor market success.[1] Seminal work by Heckman et al. (2006) demonstrated that cognitive ability explains only a small fraction of the variation in earnings, emphasizing the importance of broader skill sets in shaping economic performance. While substantial evidence from high-income countries highlights their economic returns (Borghans et al., 2008; Almlund et al., 2011; Lindqvist and Vestman, 2011; Heckman and Kautz, 2012; Deming, 2017; Edin et al., 2022), the role of SES in shaping economic performance in low- and middle-income countries (LMICs) remains less understood. Emerging evidence suggests that psychology-based programs that strengthen SES can improve economic outcomes in LMICs (Campos et al., 2017, 2025; Bossuroy et al., 2022). However, little is known about which types of SES generate the highest economic returns and how these returns vary by gender and social norms (Lippman et al., 2015).

In this paper we use a randomized controlled trial (RCT) to examine the impact of different types of SES training on economic outcomes and agency for men and women in the context of a large-scale government program in Nigeria.[2] *Interpersonal* skills, such as negotiation and collaboration, are outward-facing and facilitate social awareness and relationship-building, while *intrapersonal* skills, such as self-control and perseverance, are inward-facing and focus on self-awareness and self-regulation. As many existing SES trainings focus on intrapersonal skills alone, a central debate in SES interventions is whether interpersonal skills matter for economic outcomes, and whether intrapersonal skills serve as a foundation for developing interpersonal skills. In the experiment we randomly assign 4,500 aspiring agribusiness owners participating in the government program to receive: (i) a four-day training on interpersonal skills training alone, or (ii) a four-day training on interpersonal skills in combination with intrapersonal skills, or (iii) no SES training (control group). The SES interventions were delivered through classroom-based trainings and reinforced with mobile video messages ("emovis") to support behavior change.[3] The program targets men and women

[1] Socioemotional skills are also often referred to as non-cognitive skills, soft skills, or life skills.

[2] The Agro-Processing, Agricultural Productivity Enhancement and Livelihood Improvement Support (APPEALS) project's Women and Youth Empowerment Program (WYEP) promotes entrepreneurship in agribusiness by providing business and value-chain specific technical training, mentorship, and an in-kind grant (approximately US$5,000 to US$10,000). Embedding the SES intervention within the APPEALS WYEP helps isolate the impact of SES, holding financial and technical skill constraints constant. In theory, APPEALS WYEP offers an opportunity for beneficiaries to immediately use SES to harness program benefits for labor market outcomes.

[3] Prior research suggests that well-designed reminders can enhance adoption of new behaviors in areas such as health, savings, and technology adoption (Grabowska, 2020; Tomlinson et al., 2013; Aranda-Jan et al., 2014; Orkin, 2020).

equally, allowing direct gender comparisons and the wide study coverage across northern and southern Nigerian states enables analysis of how returns vary with social norms.[4]

Furthermore, social role theory suggests that societal expectations shape and reward skill development differently for men and women, with women traditionally acquiring more communal skills (such as empathy and collaboration) and men more agentic skills (such as personal initiative, negotiation, and expressiveness) (Eagly, 1987; Eagly and Wood, 2012a). These gendered skill patterns may influence how individuals respond to SES training, influencing both their economic outcomes and the extent to which the training reinforces or challenges existing gender norms. In the paper we conduct heterogeneity analysis of the results by gender norms using a measure that captures perceptions of their community's beliefs towards men's traditional role as the breadwinner in the household.

Eighteen months after the intervention, the SES training significantly improves women's economic outcomes, with business profit increases exceeding 50%, on average. While both the interpersonal-only and combined trainings yield similar positive gains, the impacts of the combined training are overall more robust. Part of the profit gain is driven by businesses who were previously inactive, beginning to generate positive profits at the extensive margin. However, profits also increase on the intensive margin, rising by 32% on average, among existing businesses. By contrast, we find no evidence of an effect on women's empowerment or decision-making power. SES training induces women to report higher interpersonal skills, while men gain intrapersonal skills from the combination training. We find no evidence of an impact of the SES training on the number of employees hired. However, SES training shifts labor market dynamics. Women's employment increases slightly and shifts towards farm-based employment with less diversification between farm and non-farm work. Women-led businesses hire more female workers, while men-led businesses hire fewer, suggesting a redistribution of female labor but also potential occupational segregation.

In general, we do not find significant differences between the interpersonal-only and combined training treatment arms on women's economic outcomes. Both trainings substantially raise women's business profits, primarily by increasing productivity within existing businesses. The interpersonal-only training delivers larger gains in women's interpersonal skills, while the combined training uniquely improves their marital satisfaction, but neither shifts women's agency or decision-making power, highlighting a persistent gap between women's enhanced economic performance and their empowerment. For men, effects are more selective: only the combined training improves profitability, and only in norm-supportive settings, consistent with its stronger impact on intrapersonal skills such as perseverance and emotional

[4]Note that in a forthcoming companion paper, we utilize a quasi-experimental evaluation method (regression discontinuity design) to estimate the impact of the overall APPEALS WYEP program.

awareness. Overall, SES training works differently for women and men, and its effectiveness varies not only with skill content but also with prevailing gender norms.

Our study contributes to the literature in several ways. First, this paper adds to the growing body of evidence on the impact of SES training in LMICs. SES training is increasingly included in programs aimed at economic empowerment, such as vocational, technical, and business training, microfinance, and graduation programs. Despite its widespread integration, the independent impact of SES training has only recently been rigorously evaluated in LMICs. Our paper adds to the emerging evidence base showing that SES-focused programs can significantly improve economic outcomes. For instance, a training in Togo focused on personal initiative (PI), tripled the impact of traditional business training on profits in the short run (Campos et al., 2017) with effects persisting for men in the long-run (Campos et al., 2025). The Skills for Effective Entrepreneurship Development (SEED) program in Uganda, which integrated SES into a high school "mini-MBA," led to a 30% increase in profits (Chioda et al., 2021). Similarly, the STEP program, designed to enhance self-efficacy among college students, resulted in 34% more business startups in Uganda, Kenya, and Mexico (Gielnik et al., 2012). In Zambia, a training focused on negotiation skills improved the educational outcomes of girls (Ashraf et al., 2018); and in Malawi, farmers' SES is positively associated with their adoption of cash crops (Montalvao et al., 2017). Our paper provides evidence on the cost-effectiveness of a SES training that was delivered at scale in Nigeria. The program cost about US$137 per participant, which is substantially lower than comparable SES trainings (McKenzie, 2021), suggesting that such interventions can be delivered affordably within government programs using open source training materials.

Second, our paper leverages novel disaggregated measures of SES, and goes beyond self-reported outcomes to assess behavioral changes too. We employ the Effective Socioemotional Skills to Gain Economic Empowerment (ESTEEM) framework, a validated socioemotional skills assessment tested in several Sub-Saharan African countries, including Nigeria (Marsh et al., 2025; Delavallade et al., 2025). In addition to self-reported SES levels, we implement objective behavioral measures such as situational judgment tests (SJTs) to estimate skill acquisition and its economic impact across 14 distinct socioemotional skills.

Third, our paper provides evidence on the gendered returns to SES training, and how skill acquisition interacts with social norms. While a few studies have shown that women can exhibit higher returns to investment in SES than men (Heckman et al., 2006; Campos et al., 2017), there is limited research systematically comparing the relative benefits of SES for men and women, especially in terms of profit growth. SES may affect women's economic outcomes more than men's through intrahousehold dynamics. For example, if SES training enhances self-efficacy, assertive communication, and perseverance, it may improve women's bargaining

power, leading to more efficient resource allocation within the household and higher economic success.[5] We find an increase in business profits for women (on average for both interpersonal and combination SES) and men (only for the combination in a norm supportive environment). Our results indicate that the positive impacts of the SES training on women's business profits are not mediated through gains in bargaining power, agency, and decision-making. Furthermore, we examine whether SES training reinforces or disrupts pre-existing gendered skill development patterns, as predicted by social role theory (Eagly, 1987; Eagly and Wood, 2012a). Our findings indicate that men tend to develop more intrapersonal skills while women develop more interpersonal skills, which are broadly, but not always, consistent with the agentic-communal framework.[6] Interpersonal skills do not appear to be rewarded with higher profits for men, but the training shows signs of improving personal responsibility, with higher savings, reduced spending on temptation goods, and greater marital satisfaction.

Finally, our paper offers important insights for policymakers designing SES programs. Our study examines impacts by gender and explores the returns to intra- and interpersonal skills. On the one hand, interpersonal skills may help women negotiate deviations from more restrictive gender norms, build networks, integrate into male-dominated sectors, and mobilize community backing for their businesses (Farnworth et al., 2024). On the other hand, intrapersonal skills may foster creativity, risk-taking, and perseverance, particularly in contexts where women face capital and network constraints. While intrapersonal skills may help women set goals, regulate emotions, and build resilience, interpersonal skills (especially communal skills) may be better rewarded for conforming to societal expectations. Our findings suggest that training returns may be optimized by tailoring SES curricula to gender but also that without complementary efforts to address structural barriers, the economic gains from SES training may have limited effects on broader women's empowerment.

The remainder of this paper is organized as follows. Section 2 describes the intervention, Section 3 the theory of change and outcomes, Section 4 the sources of data and sample description, while Section 5 describes the empirical strategy. Section 6 presents impact results, and we provide a conclusion and discussion in Section 7.

[5]This, in turn, could have broader development impacts, as evidence suggests that increasing women's bargaining power improves household welfare (Duflo, 2003; Qian, 2008; Thomas, 1990).

[6]While both interpersonal-only and the combined trainings increase profits for women, the interpersonal-only training is more effective at strengthening their interpersonal skills such as empathy, communication, and negotiation. For men, the combined training is more effective, enhancing intrapersonal skills such as emotional awareness and perseverance and raising profits, but only for those that perceive more liberal gender norms in their community.

2 Background and Intervention

The impact evaluation was implemented within the government of Nigeria's (GoN) program called the Agro-Processing, Agricultural Productivity Enhancement and Livelihood Improvement Support (APPEALS) project from 2018–2024. The APPEALS project aims to enhance the agricultural productivity and commercialization of small and medium scale farmers and improve value addition along eleven priority value chains (poultry, cassava, rice, aquaculture, cashew, maize, wheat, tomatoes, ginger, dairy and cocoa) across six states (Lagos, Enugu, Kano, Cross River, Kaduna and Kogi). A component of the APPEALS project — the Women and Youth Empowerment Program (WYEP) — promotes entrepreneurship in the agribusiness sector and targets young men (aged between 18 and 40 years) and women (over 18 years). APPEALS WYEP provides beneficiaries with business and value-chain specific technical training, mentorship, and a labeled in-kind grant (approximately US$5,000 to US$10,000) to support the start-up of the beneficiary's agribusiness. The SES interventions evaluated in this paper are offered to APPEALS WYEP beneficiaries allowing us to estimate the impact of SES training after relaxing both capital and technical skill constraints.

We contracted an experienced firm, Alkimia Consulting, which specializes in SES training for youth in Sub-Saharan Africa, to design the curriculum and training materials, and provide training facilitation support. The materials were specifically designed for low-literacy learners and adapted for use in low-resource settings. The training was tailored to the gender, language, and cultural context of each state. The Effective Socioemotional Skills to Gain Economic Empowerment (ESTEEM) framework was used as a starting point to design the SES training curriculum.[7] Aligned with the ESTEEM framework, the curriculum was organized into two modules depending on whether the skills targeted self-awareness and self-regulation or interactions with others. The "Inward" module covered the seven intrapersonal skills: emotional awareness, self-awareness, emotional regulation, self-control, perseverance, personal initiative, and problem-solving and decision-making (PSDM). The "Outward with Others" module focused on the seven interpersonal skills: listening, empathy, expressiveness, interpersonal relatedness, interpersonal influence, negotiation, and collaboration.

While skills are organized into these two categories, our impact evaluation compares the effects of interpersonal skills training alone with a combined program of interpersonal and intrapersonal skills. Since both training types were of equal duration, we can assess whether allocating the same amount of training time to seven interpersonal skills alone

[7]The ESTEEM framework and SES measures were developed to facilitate understanding of which SES matter the most for men and women's economic empowerment. More information on the ESTEEM research agenda, framework and measures can be found at: https://poverty-action.org/socio-emotional-skills..

yields better outcomes than dividing the time across 14 skills (seven interpersonal and seven intrapersonal). The interpersonal-only training thus can be considered to deliver a higher dosage per skill. Detailed definitions of all skills and details on the training modules are provided in Appendix B.2.

The SES interventions were delivered through classroom-based trainings between September 2021 and February 2022 in local state training centers. All individuals assigned to treatment were invited to four consecutive days of classroom training. The interventions also included one-minute reinforcement video messages of training material referred to as "emovis" that were sent via WhatsApp and SMS messages to reinforce skills taught in the classroom and to increase accountability among training participants. The control group received a placebo message to reduce the potential risk of sharing training material. Videos were available in English or Hausa.

Training facilitators were selected within each state and interviewed by the research team and implementing partner for their ability to speak clearly and translate SES concepts, previous training experience, and thoughts on mobilization and motivation to help reduce dropout of trainees (a common issue in training programs, particularly among women). Where possible, facilitators' experience in agriculture and entrepreneurship was also considered. In each of the six states, four facilitators were selected, for a total of 24. All facilitators attended 8 days of training which included 4 days of Training-of-Trainers and 4 days of Facilitation Experience (here facilitators did mock facilitation and were provided feedback by the lead trainers). During the actual training of beneficiaries, each training facilitator was assigned to a classroom of no more than 30 individuals at a time, and the training ran for 4 days per batch. On average, each state had 4 batches and 4 parallel classes per batch. The locations of the training were organized using the support of the GoN APPEALS project coordinators in each state, and the training typically took place in a training institute or hotel.

The reinforcement of training material via messages ("emovis") over the phone was delivered approximately one year after the classroom training. The frequency of the messages included 2-3 messaging touchpoints per week. These messages were interactive and incorporated behavioral change exercises into the messages to make the information more participatory rather than passive (Lubega et al., 2021).[8] Most beneficiaries had access to a smart phone and approximately 85% received the emovis via WhatsApp and the remaining 15% received the same information via SMS.

The average take-up rate of the classroom training across all 6 states was 79%. This

[8]Interactive messages take the form of reflective questions, offer reminders/encouragement, encourage planning and the selection and commitment to goals, and games or exercises to encourage the practice of any skills learned.

is very high compared to other business training impact evaluations (McKenzie, 2020). On average, we find no significant statistical differences on take-up across the two treatment arms (T1 versus T2). In Table A3 in the Appendix we show the correlates of take-up by estimating differences in baseline characteristics between those who took up the training and those who did not.[9] We find that on average, those who attend the training are slightly older, less likely to be married, less likely to be active on their own farm in the past 30 days, and have lower average household income, relative to those who did not attend a training. Our study sample size was selected assuming only 70% training take-up. However, we successfully achieved closer to 80% take-up.

3 Theory of Change and Outcomes

Our intervention builds on the idea that SES shape how entrepreneurs navigate both their professional and personal lives. We distinguish between two broad sets of skills. Interpersonal skills – such as negotiation, empathy, and collaboration – are outward-facing. They help entrepreneurs connect with others, build networks, and mobilize resources. Intrapersonal skills – such as perseverance, emotional regulation, and initiative – are inward-facing. They strengthen self-control and resilience, and help individuals set and pursue long-term goals.

In our design, one group of participants (T1) received training only on interpersonal skills, while another group (T2) received a combination of both interpersonal and intrapersonal skills. This allows us to ask whether focusing exclusively on outward-facing skills delivers higher economic returns, or whether these skills are more effective when anchored in a foundation of inward-facing abilities.

The SES training was layered onto the APPEALS WYEP program. By improving business assets and access to input and sales markets, APPEALS WYEP aims to foster firm creation and growth. The addition of SES training was expected to help beneficiaries take fuller advantage of these opportunities by improving self-management, strengthening relationships with customers and suppliers, and supporting decision-making within households. Figure 2 in the Appendix summarizes the overall theory of change.

We expect SES training to matter through three main pathways. First, by raising participants' SES directly, the training should change how they think, behave, and interact. Interpersonal skills may help entrepreneurs negotiate contracts, build trust with clients, or tap into networks, while intrapersonal skills may allow them to persist when faced with

[9] Table A3 column 2 indicates the characteristics of those who were invited but did not attend the training, and column 3 indicates those who did attend; and in (2)-(3) we show the test for a difference in the means across these groups.

shocks or obstacles. Second, these changes should spill into the economic domain, improving business practices, mental models, and ultimately firm performance. Third, SES could shift intrahousehold dynamics, strengthening decision-making power and bargaining, particularly for women. This last pathway may be constrained by prevailing gender norms e.g., in settings where women's work is less accepted, providing skills may not translate into greater empowerment.

Gender and social norms therefore play a central role in our theory of change. SES training may reinforce existing gender patterns or disrupt them. Either way, the impact is likely to vary by gender, and to be stronger in communities where social norms are more supportive of women's economic participation. In the paper we conduct heterogeneity analysis by gender and a measure of social norms.

From this framework, we derive five hypotheses. First, SES training should improve participants' economic outcomes, especially business profits. Second, it should enhance SES, with the interpersonal-only arm strengthening outward-facing skills and the combination arm adding gains in inward-facing ones. Third, SES may increase women's decision-making power. Fourth, impacts are likely to differ by gender. Fifth, impacts should be larger in communities with less restrictive gender norms where we expect greater freedom to go against societal expectations.

To test these hypotheses, we focus on three sets of outcomes. Our primary economic outcomes are business performance and practices, and labor supply. We also measure changes in SES using the ESTEEM framework, which combines self-reports with behavioral measures across 14 dimensions aggregated into interpersonal and intrapersonal indices. Finally, we assess agency and empowerment, including decision-making power, bargaining, and indices of gender attitudes and perceived community norms. Secondary outcomes capture shifts in household well-being, financial inclusion and mental models. More information on outcome variables is available in the published pre-registration report.[10]

4 Data and Sample

4.1 Program and Study Sample Selection

The Women and Youth Empowerment Program (WYEP) component of the APPEALS project targeted both men and women. Men had to be 18-40 years, unemployed graduates of universities or colleges of agriculture, or have completed secondary education with a minimum of 18 months experience in any agricultural value chain. Women had to be older

[10] Link to JDE Stage 1 Pre-Results Manuscript.

than 18 years (without an upper age limit) with the same education and work experience requirements.[11] Persons with disabilities were also encouraged to apply.

The program was advertised in newspapers, social media, radio, and TV. Applicants submitted paper or online applications depending on the state. In total, 133,584 applications were received and screened by the program across all 6 states. About 10% were invited to face-to-face interviews at state offices, and 6% (10,300) were selected for the program.

As part of a listing exercise (August 2019-February 2020), we conducted a short 15-minute survey with 11,691 applicants (5,469 men and 6,222 women) during the interview stage in 5 states. The APPEALS WYEP interview included questions from a panel of officials and agribusiness owners. Applicants scoring at least 7 on a 0-10 scale in the interview were deemed eligible; those below 7 were not. This cutoff was largely adhered to by the implementer.[12] In total, about 50% of interviewed applicants were selected for WYEP, representing less than 1% of the eligible population per state.[13] We conducted analysis of the value chain choice using the screening and baseline survey data in Das et al. (2023).

4.2 Study Sampling and Surveys

The eligible sample for the SES intervention and study is the 10,300 APPEALS WYEP beneficiaries that receive input grants and technical training to start an agribusiness. We collected individual-level and enterprise-level data from three main sources: (i) the pre-intervention screening survey, (ii) baseline and endline surveys, and (iii) administrative program data on training take-up.

The baseline survey (45 minutes by phone) was conducted between June-July 2020 with 7,796 beneficiaries who consented to be surveyed over the phone and opted into the SES training.[14] For the impact evaluation, we randomly selected 4,500 individuals stratified by state and gender (2,250 men and 2,250 women) using power calculations. At the time of the baseline survey, COVID-19 restrictions meant a phone-based survey was required which prevented the collection of the full set of 14 SES measures at baseline.

As per the impact evaluation design, the 4,500 agribusiness owners (50% men and 50% women) surveyed at baseline were randomly assigned to one of the following groups:

[11] Women above 40 years of age with experience in the agricultural value chain who did not meet the education criteria were also eligible for the program.

[12] In a forthcoming paper we use the eligibility criteria cutoff to exploit a sharp regression discontinuity design (RDD) to estimate the local average treatment effect (LATE) of the overall APPEALS WYEP program in 3 states.

[13] See Table A3 in the Appendix for estimates of the number of APPEALS WYEP beneficiaries versus the total eligible population.

[14] Note that most APPEALS WYEP beneficiaries who were reached by phone said they were interested in taking the SES training intervention.

- **T1:** Interpersonal SES training only (classroom + reinforcement message)
- **T2:** Interpersonal and intrapersonal SES training (classroom + reinforcement message)
- **Control Group:** Placebo COVID-19 prevention messaging, without SES training.[15]

SES trainings were delivered in all six states between September 2021 and February 2022. We also collected surveys from training facilitators before each training. The endline data collection with the panel surveyed at baseline was conducted approximately 18 months to 2 years after the training (September to October 2023), with some respondents surveyed later during a mop-up round in April to June 2024. Endline surveys were in-person and lasted 1.5 hours, on average.[16] Trained enumerators collected data privately from respondents.

4.3 Baseline and Endline Survey Content

The baseline survey covered demographic characteristics, employment, income, business performance, mental health, quality of spousal relationships, household demands (childcare, elder care, time use, household chores), decision-making, intimate partner violence attitudes, and gender attitudes and norms. Household modules included a household listing, food security, and assets. A subset of the self-reported socioemotional skill index measures were collected at baseline including generalized self-efficacy, perseverance, problem solving and decision making, emotional regulation, relatedness, influence, and empathy.

The endline survey repeated these modules and added questions on household duty sharing, family support, women's empowerment, business practices linked to SES (goal setting, opportunity search, negotiation, networking), consumption of food and temptation goods, time use, and APPEALS WYEP program participation.[17] The endline survey also included self-reported and behavioral SES measures such as situational judgment tests (SJTs): seven self-reported SES (6–12 Likert items each) and behavioral measures of all 14 SES, validated in Nigeria (Marsh et al., 2025; Delavallade et al., 2025).[18] At endline we measure seven intrapersonal skills: emotional awareness, self-awareness, emotional regulation, self-control, perseverance, personal initiative, and problem-solving and decision-making (PSDM); and seven interpersonal skills: listening, empathy, expressiveness, interpersonal relatedness, interpersonal influence, negotiation, and collaboration. Further details on SES measure development, scoring and measure examples are available in Appendix B.1.

[15] COVID-19 messaging was disseminated well into the pandemic, when many government-led educational campaigns had already occurred and much of the information was public knowledge.

[16] Note, that the endline survey was originally proposed for one year post-training but was slightly delayed to ensure all in-kind grants were disbursed.

[17] Administrative data from the implementing partner is used to estimate program participation.

[18] Measures are open-source and can be found at www.poverty-action.org/ses.

4.4 Randomization Balance and Attrition

In Table 1 we conduct tests to assess experimental balance on observable baseline characteristics across the treatment and control groups by gender. We present statistical tests for mean differences across groups and in the last six columns of Table 1 we display the normalized differences between treatment groups, providing a scale-invariant measure of disparity. Following a commonly accepted threshold, differences of 0.25 or smaller indicate an acceptable degree of balance (see Imbens and Rubin, 2015). A few variables (number of employees, generalized self-efficacy, male breadwinner attitudes, and norms) showed t-test differences, but normalized differences are small. Overall, Table 1 shows that the treatment assignment was balanced on observable characteristics, and that the F-test for joint significance of covariates by treatment assignment is not statistically significant.

At baseline, participants were on average 33 years old (men 31 years and women 34 years) and 73% had secondary or higher education. Most (60%) were married (67% women, 54% men) and economically active where 86% worked for pay in the past 30 days (84% women and 88% men) and over half owned a business, mostly in agriculture (55% men, 40% women). While employment and business ownership rates were similar by gender, men had higher levels of financial decision-making: 70% of men versus 25% of women were identified as main income earners in their household; and 51% of men versus 18% women made financial decisions alone. Women spent more time on unpaid domestic work, despite participating in the workforce. At endline, almost all study participants were employed with most as farmers (62% men, 53% women), marketers, (23% men, 29% women), or processors (14% men, 18% women). The most common value chain chosen was poultry (42% men, 47% women), followed by rice (13%), aquaculture (12%) and cassava (9%). These patterns are consistent with application data, especially women's concentration in poultry, which offers flexibility, modest land requirements, and shorter production cycles (Das et al., 2023).

4.5 Survey attrition

Of the 4,500 study respondents across the six states, 3,890 were surveyed at endline, corresponding to a 86.4% completion rate. Attrition rates were not significantly different across groups — 13.1% in the control group, 14.0% in T1 and 13.5% in T2. Furthermore, a joint significance test indicates that treatment status does not significantly influence survey attrition at the 5 percent significance level. Consequently, we do not adjust estimates for survey attrition. Several factors contributed to successful completion rates, including detailed tracking information, up-to-date contact information, and persistent follow-up where each individual was contacted at least six times using multiple phone numbers.

5 Empirical Strategy

5.1 Main estimation model

For all results tables in Panel A, we estimate the intention-to-treat (ITT) effects for the full sample of men and women. As specified in the pre-registration report, we use an analysis of covariance (ANCOVA) estimator to assess the impact of the interpersonal only SES training and any marginal impacts of the foundational intrapersonal skills on outcomes of interest for which we have both baseline and follow-up data. We estimate the treatment effect for individuals in the following regression specification:

$$Y_{i,t} = \beta_0 + \gamma_1 Women_i + \beta_1 InterSES_i + \beta_2 InterIntraSES_i + \beta_3 InterSES_i \times Women_i$$
$$+ \beta_4 InterIntraSES_i \times Women_i + \beta_5 Y_{i,0} + \beta_6 X'_{i,0} + \lambda_s + \varepsilon_{i,t} \qquad (1)$$

where $Y_{i,t}$ is the outcome variable for individual i measured at time t (t = 1 at endline), and $Y_{i,0}$ is the baseline value of the outcome variable. $InterSES$ is a dummy variable for random assignment to the T1: Interpersonal Only SES training, and $InterIntraSES$ is a dummy variable for random assignment to the T2: Combination Interpersonal and Intrapersonal SES training. β_1 and β_2 measure the treatment effects relative to the control group (i.e., those who were not assigned to receive any SES training) among men. To estimate the impact by gender, we interact the treatment dummy variables in equation 1 with a dummy variable for $Women$ equal to 1 if the individual is female and 0 if male. β_3 and β_4 are the marginal treatment effects for T1 and T2, respectively, among women.

$X'_{i,0}$ is a vector of baseline controls (e.g., age, married, and education), λ_s are randomization strata fixed effects, and $\varepsilon_{i,t}$ is the error term. Huber-White robust standard errors are used throughout. We report the total T1 and T2 effect and significance level for women; and estimates and significance to test the null hypothesis that there is no difference in the effect of the $InterSES$ and $InterIntraSES$ trainings for men and women at the bottom of the results tables.

Equation 1 provides the intention-to-treat (ITT) estimates, which is the effect of being assigned to the T1 or T2 training sessions among the sample. Note, that for some outcome variables that were only collected during the endline survey, we rely on the random assignment of treatment status and use ordinary least squares (OLS) estimation to compare outcomes for treatment and control groups.

5.2 Heterogeneity analysis by Gender Norms

$$Y_{i,t} = \beta_0 + \gamma_1 Norms_i + \beta_1 InterSES_i + \beta_2 InterIntraSES_i + \beta_3 InterSES_i \times Norms_i$$
$$+ \beta_4 InterIntraSES_i \times Norms_i + \beta_5 X'_{i,0} + \lambda_s + \varepsilon_{i,t} \quad (2)$$

As before, $InterSES$ is a dummy variable equal to 1 if individual i is randomly assigned to T1 and $InterIntraSES$ for random assignment to T2. In equation 2 we examine heterogeneity in treatment effects based on baseline gender norms. $Norms$ is a pre-specified measure of gender norms. We estimate heterogeneous treatment effects by interacting treatment status with the norms measure at baseline. To test interaction effects, we utilize multiple variable regression analyses and include the product of centered variables as the interaction term (Aiken et al., 1991). In this heterogeneity analysis we split the sample for women (in Panel B) and men (in Panel C) for all the results tables.

The $Norms$ variable represents perceived community norms that is defined using responses to the question: *"Out of 10 people in your community, how many do you think believe that if a woman earns more than her husband, it will almost certainly cause problems?"* The variable ranges from 0 (most norm supportive environment) to 10 (most norm conservative environment). Where a response of zero means that they perceive none of their community would believe upsetting the traditional gender role of the male breadwinner would cause problems.

Note, for outcome variables measured as a value, such as profits, household income, and the value of assets, we apply the inverse hyperbolic sine (IHS) transformation on monetary outcomes in our main tables to address issues of skewness and the presence of zero-valued observations. The implementation and interpretation of the IHS transformation requires careful attention as detailed in Chen and Roth (2023). We document the number of zero observations to examine the magnitude of the extensive margin effect before interpretation of the IHS transformation as a percentage change. We only interpret the coefficients as a percentage change for outcomes where the proportion of zeroes for the outcome are small (i.e., less than 10% of zeroes). For robustness, regression results for value outcomes expressed in levels, winsorized at the 95th percentile, are presented in the Appendix. Since this winsorization still leaves a very dispersed long tail, it results in lower power.

We also conduct several robustness checks for our main treatment results: in the regression analysis for SES we control for a social desirability scale (SDS).[19] We include a set of core demographic variables such as age, marital status, and education throughout the

[19]We use the short-form Balanced Inventory of Desirable Responding (BIDR) which assesses the potential social desirability bias in respondents' answers.

regressions. Results are also found to be robust to using post-double selection lasso (PDS Lasso) method of Belloni et al. (2014) to select baseline control variables (not shown).

Our survey instrument includes several questions related to a single skill, behavior or dimension, therefore we account for multiple hypothesis testing by creating index measures by combining several related indicators into a single standardized index to reduce the total number of individual statistical tests, thereby minimizing the likelihood of false positives (Anderson, 2008). In addition, for the main outcome tables, we adjust the statistical significance of each hypothesis test using sharpened False Discovery Rate (FDR) q-values which are calculated using the two-stage procedure proposed by Benjamini et al. (2006), which provides a simple and robust method for controlling the expected proportion of false discoveries. Specifically, the q-value represents the smallest false discovery rate at which the null hypothesis can be rejected, as outlined in Anderson (2008). The sharpened q-values are reported in Appendix Tables C.1 and C.2 for the key outcomes and primary hypotheses.

Detailed information on outcomes, mediators and their measurement is available in the pre-registration report published by the *Journal of Development Economics* in 2023 and as an online appendix to this paper.

6 Results

We begin by examining the impacts of the interpersonal only (T1) and combination inter- and intrapersonal (T2) skills trainings on labor supply and business performance outcomes. We then turn to the impacts on business practices, socioemotional skill constructs (self-reported and behavioral index measures) and intra-household decision-making and mental models, hypothesized to mediate the effects on economic outcomes. This is followed by further downstream impacts of the program, with an emphasis on women's economic empowerment outcomes, household income, consumption, marital satisfaction, and savings and investments. In the following results tables we present the full impact estimates for both women and men in the same regression in Panel A (as described in equation 1 in the empirical strategy section) and conduct heterogeneity analysis based on social norms among women (in Panel B) and men (in Panel C) separately as per equation 2.

6.1 Labor Supply

The SES intervention was designed to influence labor supply outcomes along both the extensive and intensive margins. In Table 2 we measure *employment* through participation of the respondent in any income-generating activities (IGA) over the past 30 days. To

capture heterogeneity in economic activity, we classify IGAs into three mutually exclusive categories: farming (including livestock rearing), non-farm activities (such as enterprise and wage employment), and a combination of both. In addition, we assess the intensive margin by examining the number of paid work hours per day.

In Table 2 Panel A we show that men in the control group have an overall high employment rate of 97% and the coefficient on *Women* indicates that women in the control group have a slightly lower rate at 93%. For men, the SES training does not significantly impact overall employment or the type of activity undertaken, except for a slight shift toward diversification (significant at 10%). For women, employment rates rise significantly under both treatments, about 3 percentage points (pp). We note a pattern of specialization rather than diversification, with some shifts toward either farming-only or non-farm-only activities, and away from engaging in both types of activity simultaneously.[20] We do not find significant effects of the SES interventions on the number of hours worked for both men and women.

In panels B and C we show interesting patterns with respect to perceived norms. The higher the level of the norm index, the more the individual perceives the community to be restrictive or conservative regarding women's work. For women who perceive no judgment from their community of a woman earning more than their husband, the SES training has a strong significant impact on employment (corresponding to a 5-6% increase in employment rates) and specialization, especially under T2, while in restrictive contexts impacts are muted (Panel B). For men, no systematic heterogeneity by norms is observed (Panel C). These patterns are robust to controlling for social desirability bias.

6.2 Business Performance

In Table 3 panel A we assess the impact of SES training on business performance outcomes: current business ownership, annual profits and revenues, profits calculated from revenues minus costs, the number of workers employed, as well as the value of business capital.[21] The likelihood of having a business in operation is already high in the control group (87% for both men and women), as APPEALS beneficiaries were given resources to start an agribusiness. In terms of firm size, women operate smaller businesses than men — the coefficient on *Women* suggests women-owned firms have lower profits, fewer workers, and lower levels of capital than men-owned firms in the control group.

[20]The classification of the income-generating activities into farming, non-farm, wage etc are self-reported by the respondent. In Table 3 we go on to examine business performance outcomes (e.g., profits and capital) for all respondents who can be classified as owning any agribusiness at the time of the endline survey. We do not distinguish between those who perceive the agribusiness as a farming or non-farm activity.

[21]Note that business ownership is defined as having an active business, including operational but temporarily closed businesses.

While SES training does not influence the likelihood of having an operational business at endline, it has significantly positive effects on women's business profits. Both T1 and T2 treatments increase women's annual profits (column 2), with the interpersonal only (T1) increasing profits by 46% and the combined interpersonal and intrapersonal skills training (T2) leading to a 51% increase in women's annual profits, relative to the control group. Both trainings generate large and statistically significant profit gains for women, and results are robust after MHT correction (see Appendix Table C.2). Effects on women's annual revenues are positive but insignificant (Table 3, column 3) and the calculated profits from subtracting business costs from revenues are positive but significant only for T1. Effects on total employment and capital stock are null (columns 5 and 7).

In column 6 we observe gendered spillovers in hiring practices. Men who receive the combined SES training (T2) are significantly less likely to hire female employees, whereas women who receive the same training are more likely to employ women in their business. The magnitude of these shifts points to labor reallocation rather than net job creation in female-owned businesses. In the control group, men-owned businesses employ an average of 0.86 female workers which is similar to women-owned businesses (0.74), on average. Following SES training, men-owned businesses reduce their number of female employees by -0.20 (approximately 20%) while women-owned businesses increase their number of female employees by 0.16 which is approximately 25%. This finding is consistent with the hypothesis that investing in female entrepreneurship yields downstream labor market benefits for women. It also highlights potential unintended consequences of training, such as reinforcing occupational gender segregation if men become less inclined to hire women.

Turning to panels B and C we show that profit gains for women under T1 and T2 are concentrated among those in less restrictive, more gender liberal environments, suggesting that SES skills yield higher returns for women where social norms are supportive rather than constraining. For men, we find the combination treatment (T2) having a significant impact on the likelihood of operating a business and correspondingly higher business profits in the most gender liberal environments. Their perception of an additional 10 percent of persons being more gender-conservative in the community translates into a 2 pp lower effect size of the combined SES training among men. This suggests that similar to women, SES skills yield higher returns for men where social norms are more supportive. Since the measured norm is related to traditional gender roles we speculate that a more gender-liberal environment allows men greater freedom to benefit from the T2 training providing tools to better handle emotions or interact with women.

In Appendix Table C.3, we provide robustness checks of the impact of SES training

on business profits by presenting alternative outcomes and transformations.[22] Women who receive either of the SES trainings are more likely to report earning positive profits (column 1) at the extensive margin (outcome is a binary variable equal to 1 if the firm made positive profits). That is, the SES training leads to a 3-4 pp higher likelihood that the firms owned by women are both active and profitable at endline. We also show profits are positive and statistically significant conditional on being in operation (Table C.3 column 4), suggesting profits are also higher on the intensive margin. Results on monthly profits are also positive but marginally insignificant, which may reflect greater short-term fluctuations in agribusiness income. A standardized profits aggregate index measure in column 10 that combines the different profit (unconditional) measures in the table shows that both T1 and T2 training significantly increase women's profits.

In Appendix Table C.4, we also report impacts on other business outcomes, including annual costs, new business creation, and share of household income from the business. We find that women in the interpersonal training (T1) are 4 pp more likely to start a new business, and that the combination training (T2) leads to an increase in business costs. This is consistent with the main finding that SES training can influence women's business activities on both the intensive and extensive margins.

In the next section we turn to examining the results on business practice outcomes before exploring potential mediating effects through changes in SES in Tables 5-7.

6.3 Business Practices

In Table 4 we analyze the effects on key business practices, including an aggregate index (column 1) and its decomposition to measure record keeping, marketing, stock control, and financial planning.[23] Overall, the results do not indicate significant improvements in these practices due to SES training.[24] Null impacts are also observed when examining the number of business ideas, entrepreneurial activity, introduction of new products, and improved aspirations (not shown). The absence of effects could suggest that while SES training improves business profitability for women, it does not lead to measurable changes in management or operational strategies. While indices did not improve, it is of note that among men, several individual business practices were found to improve with the interpersonal skills training (See Appendix Table C.5). These involved problem solving, personal initiative, and net-

[22] While in the main paper tables we show the IHS transformation, in the Appendix we also present the outcomes in log transformation for self-reported annual and monthly profits, as well as profit constructed using reported annual revenues and costs and create an aggregated index.

[23] The index measures of business practices follow guidance from McKenzie and Woodruff (2016).

[24] Note that a forthcoming companion paper shows significantly positive effects of the overall APPEALS program (technical training and input grants) on business practices using a regression discontinuity design.

working techniques such as asking for feedback from employees and customers, analyzing sales, looking for new markets, and reaching out to others for advice. That these behaviors are largely agentic and only improved for men, begs the question of whether women face different barriers to exhibiting these behaviors.

We find evidence of impact heterogeneity: in the most gender-liberal environments. Both T1 and T2 have a positive impact on women's record keeping practices and financial planning practices (Panel B). Among men, the combination training (T2) has a positive impact on record keeping and marketing practices for men.

The evidence on business practices overall suggests that profitability gains are not mediated by systematic enhancements in the business management pathway.

6.4 Socioemotional Skills

We hypothesize that the positive impacts of SES training occur via increases in SES. To explore this, we first analyze self-reported SES measures, which capture an individual's perceived skill level, value for a skill, and perceived value of others for a skill. We then turn to behavioral measures, often situational judgment tests (SJTs) that focus on specific applications of skills for economic empowerment.[25]

6.4.1 Self-Reported SES

In Table 5 we present the SES treatment effects on standardized index measures of empathy, relatedness, and negotiation (interpersonal skills) and emotional regulation, perseverance, PI, and PSDM (intrapersonal skills).[26] The coefficient on *Women* indicates that women score significantly lower than men in the control group across six of the seven self-reported SES indices. Interestingly, a gender difference is no longer observed when using behavioral SES measures of the same skills (see Tables 6 and 7 in the following subsection). Overall, in Table 5 we find SES training has modest effects on self-reported SES measures, concentrated under T1. T1 significantly improves specific interpersonal skills (negotiation for men, both empathy and negotiation for women), and significantly more so than T2 (See Appendix Table C.3).[27]

These average impacts mask substantial heterogeneity effects among women. Perceived normative disapproval (neighbors disapproving of women earning more than her husband)

[25]In the Appendix B and B.1 we provide detailed definitions of each SES measure.

[26]Only a subset of the 14 skills were captured through self-reports to reduce the length of the endline questionnaire and avoid survey fatigue.

[27]Baseline measures of skills also indicate that women score significantly lower than men across self-reported SES domains in the Nigeria sample and other contexts (Ajayi et al., 2022).

negatively moderates the effect of both treatments on all self-reported SES measures among women (Table 5 Panel B). Both T1 and T2 produce significant positive effects on most self-reported SES in the least restrictive norm settings (i.e., when the perceived community norm equals zero). For example, T1 increases *Empathy* by 0.38 standard deviations (sd), and T2 raises *Negotiation* scores by 0.41 sd in the most norm supportive environments. However, a one-point increase in neighbors' disapproval reduces the effect of T2 on *Negotiation* by 0.08 sd, effectively reversing the treatment impact in communities with above-average normative constraints. Women under both T1 and T2 report significant improvements in most SES domains — except for *Emotional Regulation* — in accepting norm settings, with the magnitude of the effect diminishing in more disapproving communities. In contrast, impact estimates on men's self-reported SES scores are not significantly affected by gender norms (Panel C). These results suggest that environments with gender-restrictive norms substantially weaken women's ability to utilize, express, and/or value improved SES following the SES training, which does not appear to be the case for men.

Finally, results for self-reported SES indicate how interpersonal and intrapersonal skills are intertwined. While the treatment focused on interpersonal skills (T1) improved only those skills for women overall, the results for less restrictive environments (Panel B) demonstrate that both T1 and T2 improved both intrapersonal and interpersonal skills.

6.4.2 Behavioral SES

We present treatment effects on the full set of seven interpersonal skills in Table 6 and on the seven intrapersonal skills in Table 7.

Behavioral assessments of interpersonal SES in Table 6 reveal that women's scores are largely similar to men's in the control group except for *Expressiveness* and *Collaboration*, despite significant gender gaps in self-reported levels, in line with Cassidy et al. (2024). Overall, T1 has significant impacts on women's empathy and collaboration, while no such effects are observed for men (Panel A).

Regarding intrapersonal skills, the combined training T2 significantly improves emotional awareness for men (Table 7). Both T1 and T2 have a marginally significant negative effect on self-control, possibly indicating increased risk-taking for men. For women, no significant effects on intrapersonal skills are observed on average, except for a marginally significant negative effect of T2 on problem-solving and decision-making.

In terms of training content, T1 has significantly stronger effects than T2 on women's on expressiveness, influence, collaboration and self-awareness, whereas for men, the only significant difference points to T2 having a stronger effect on emotional awareness.

Turning to impact heterogeneity by norms, training impacts on behavioral SES vary sig-

nificantly with the norm environment for only a few skills (Tables 6 and 7 Panels B and C).[28] In the fully norm supportive environments, T1 and T2 positively affect women's emotional regulation (Table 7, Panel B). Greater normative judgment from the community negatively moderates the treatment effects.[29] Among men, the combination treatment arm T2 positively influences *Perseverance* when gender norms are more liberal (Panel C). The negative interaction terms indicate a small decline in the effects as norm disapproval increases. There is a marginally significant negative effect of T1 on *Self-control*, a skill not included in the T1 curriculum. Taken together, the lack of consistent patterns suggests that behavioral SES may be less sensitive to normative constraints than self-reported SES for women.

Overall, the trends described for individual skills are observed with aggregate measures of SES shown in Appendix Table C.6. The evidence points to the interpersonal training (T1) improving self-reported interpersonal skills for women (Panel A), and the combination training (T2) improving (behavioural) intrapersonal skills for men in the most norm-liberal settings (Panel C). Additionally, T1's impact on interpersonal self-reports outperforms T2 for both men and women, though the difference is only marginally significant (Panel A, column 2). This suggests that higher dosage of the skill may be important for observing direct shifts in SES measures for women. The decrease in SES training returns in more gender conservative environments highlights the critical importance of considering social norms in SES program design.

6.5 Mental Models, Wellbeing, and Women's Empowerment

Next, we turn to examining a third potential set of mediators through which SES training could affect outcomes, including indices of intra-household decision-making, mental models, and subjective well-being. These measures capture perceptions of social norms, agricultural self-efficacy, anxiety, happiness, and life satisfaction. We also examine changes in the share of time women devote to household versus economic activities relative to their spouse (see Appendix Table C.7 which restricts the analysis on empowerment and decision-making to women only). Our measure of women's empowerment uses a modified *Pro-WEAI* index following guidance from the Women's Empowerment in Agriculture Index (WEAI) toolkit

[28]The limited improvements in behavioral outcomes contrast with some modest self-reported gains, especially in norm-liberal environments. Reported skill gains may reflect greater confidence in skills, perceived social value for skills, or increased willingness to report, rather than substantial behavioral change. The focus of the behavioral measures on specific scenarios tied to economic empowerment may also potentially be more resistant to change.

[29]There is a small negative and marginally significant interaction of T2 with norms for *Listening* among women in Table 6 and for *Perseverance* and *Personal initiative* among men in Table 7, possibly suggesting that the intrapersonal add-on training may be less effective or even counterproductive in normatively restrictive environments.

(see Alkire et al., 2013).[30] We find no significant treatment effects (column 1) on the index measure of empowerment. This null effect suggests that even when SES training improves women's business performance, structural barriers such as restrictive gender norms and intra-household dynamics may constrain the translation of economic gains into greater bargaining power or autonomy.

We also examine decision-making power by creating an index of the number of decisions the female respondent is able to make solely or jointly in their household and a binary variable equal to one if she makes any decision solely. There is no evidence of an impact on the index of decision-making power. However, we find weak evidence that T1 increases women's likelihood of making a sole decision by 2 pp and the time spent on chores and care by 0.34 hours. Across all of these intrahousehold dimensions, we find little evidence of a treatment impact of either T1 or T2 SES training. This pattern reinforces our interpretation that SES training alone may be insufficient to shift deeper intrahousehold dynamics or mental models, even if it strengthens economic performance.[31]

6.6 Household Income and Consumption

In Table 8 we find evidence of an increase in men's report of household income in T1 (significant at the 10% level). This effect may be driven by the 46% reduction in men's spending on temptation goods induced by both trainings (column 3). These results suggest that SES training may influence men's financial decision-making, leading to more prudent household budgeting and increased food security (column 4). The SES training may also help men reduce their reliance on alcohol and cigarettes for emotional wellbeing. These impacts do not vary with the norm environment. In terms of women, we find no evidence of a treatment impact on household income, consumption, or food security.

6.7 Marital Satisfaction

In theory, an intrahousehold bargaining channel suggests that SES gains for women may have stronger effects on their economic outcomes than for men. In Sub-Saharan Africa, where formal credit is often scarce, married women often rely on husbands for business capital. Interpersonal skills such as persuasive communication or negotiation may therefore be

[30]The modified WEAI for project use (pro-WEAI) captures important dimensions of intra-household models of bargaining power, including production, productive resources, income, leadership, and time use, plus additional psychosocial factors, including acceptance of gender-based violence, self-efficacy, and respect among household members (Malapit et al., 2019).

[31]Note that results tables for outcomes related to mental models are not shown in the paper but are available on request.

especially valuable in restrictive gender-norm settings, where women may need to negotiate support to pursue business opportunities.

In Table 9, we examine the impact of the SES training on the quality of the respondent's marital relationship, conditional on being married at endline. Specifically, we present treatment effects on the acceptability of intimate partner violence (IPV), and indices related to satisfaction with their married life, trust, and conflict resolution behaviors. SES training leads to an improvement in attitudes towards IPV (column 1), for both men (with T1) and women (with T2). Overall, tolerance of violence towards women is low in the control group with only 4% of men reporting that a husband hitting their wife is justified.[32] Therefore, the SES training leads to a near universal intolerance towards IPV. In addition, men and women also report greater satisfaction with married life (column 2), and an improvement in their conflict resolution behavior within their marriage, significant with T2 (column 4). There is no evidence of a marginal difference between the interpersonal and combination treatments.[33] Surprisingly, we find no significant heterogeneity by norms. Column 5 is an explicit measure of whether they communicate about business or household responsibilities with their spouse, and we find no evidence of a treatment impact on direct communication.

6.8 Financial Inclusion, Savings, and Investment

In Table 10 we turn to outcomes related to savings and investment behavior. Among women, we find a significant increase in savings for both T1 and T2, highest in norm-liberal environments (column 2).[34] While there is no effect of the training on the overall number of assets owned, there is a significant improvement in the value of productive assets owned by women, as a result of T1 (corresponding to a 31% increase). The effect appears to be driven primarily by farming assets, as shown in Appendix Table C.8 (column 2), which reports treatment effects on the value of assets further disaggregated into livestock, farming, household, and other productive assets. The treatment effect for T2 women is positive but marginally insignificant.[35] Our measure of capital stock shown in Table 3 includes machinery and equipment in the business where we find no evidence of an impact. However,

[32]We follow the DHS measure where we ask if a husband is justified in hitting or beating his wife in any of the three situations: goes out without telling him, neglects the children, or burns the food.

[33]Interestingly, effects are significant for the combination training (T2) for women, suggesting an importance of intrapersonal skills to potentially navigate intrahousehold dynamics. For men, interpersonal training significantly reduces acceptability of violence but the combination training significantly improves conflict resolution.

[34]Column 1 suggests that 90% of men and 86% of women in the sample have access to a formal bank account. We find no treatment impact on financial inclusion. The interventions also had null results on whether credit was received in the past year (not shown).

[35]We find some suggestive evidence that women reduce the likelihood of owning small animal assets and increase ownership of large livestock which could reflect more risk-taking behavior.

our measure of productive assets shown in Table 10 is a broader measure capturing land, transport, livestock, machinery, and equipment suggesting some evidence of an increase in business-related asset investment. Taken together, the results in Table 10 suggest that the SES training program leads women to either save or invest the increase in business profits, rather than transfer to their household or husband as is often found in the literature on the impact of capital grants (Bernhardt et al., 2019). Effects are not significant for men.

6.9 Heterogeneity Analysis by Other Key Variables

In this section, we examine whether the impact of SES training varies with marital status (Table C.9), region (Table C.10), selected value chain (Table C.11), and segment of the value chain (Table C.12) across a few primary outcome variables. Tables are in the Appendix and we split the sample by gender with women in Panel A and men in Panel B.

Married individuals may utilize SES to navigate different household or societal constraints. At baseline, 67% of women were married and 54% of men. In Table C.9 we find significantly positive effects on profits concentrated among married individuals. Notably, the impact of training on SES outcomes for married men is significantly higher than for unmarried men. In Table C.10 we examine heterogeneity in effects by southern (Lagos, Cross River, and Enugu) and northern (Kano, Kaduna, Kogi) states. In Nigeria, states in the South are often considered more gender liberal, and we find that impacts on profits among women are largely concentrated there. We find no evidence of an impact on profits of women in the Northern states, but income is higher under T2. For men in the North, we find a positive impact on profits and income (and interpersonal skills) for those receiving T1. Turning to value chain in Table C.11, we find that 58% of women and 52% of men selected to operate in the poultry value chain relative to the ten other value chains available to select through the APPEALS program. Among those who selected poultry, both T1 and T2 trainings are effective at increasing profits for women. We find no evidence of an effect on profits for men in poultry. For those who selected non-poultry value chains, T2 was effective for women leading to a significant increase in the value of business capital investment. T1 leads to an increase in income, savings and interpersonal SES among men in non-poultry value chains. Finally in Table C.12, in terms of segment of the value chain both women and men (70%, 77% respectively) planned businesses in the production segment, rather than processing or marketing. Among processing or marketing, positive effects are observed among women who are more likely to be employed (both T1 and T2), with increases in capital and savings (T2). Both T1 and T2 trainings significantly increases women's profits in production. T1 benefit men in production in terms of employment and income; and T2 leads to higher savings.

6.10 Exploratory associations between mediators and outcomes

To complement our analysis, we examine residual–residual associations between mediators and outcomes in Appendix D, following (Zhou and Wodtke, 2019).[36] The results are shown graphically in Appendix Figure 5.1-5.4 with mostly positive associations. That is, the slope of the lines are generally positive, indicating that participants who scored higher on indices of SES and intrahousehold dynamics tend to achieve better-than-expected economic outcomes. Moreover, slopes are, if anything, steeper in the treatment groups than in the control, suggesting a stronger alignment between SES gains and economic performance when training was received. While these associations are purely descriptive and should not be interpreted as causal, they are consistent with the idea that SES improvements and intrahousehold dynamics are linked to stronger performance in agribusiness.[37]

7 Conclusion and Discussion

SES training has emerged as a promising tool for policymakers to improve labor market outcomes. However, the question of which skills matter most for earnings and empowerment, especially in the context of low- and middle-income countries, remains largely unexplored. In this paper we ask whether focusing exclusively on outward-facing skills (interpersonal) delivers higher economic returns, or whether these skills are more effective when anchored in a foundation of inward-facing abilities (intrapersonal) for participants of a large-scale government program that promotes agribusiness in Nigeria.

We show that SES trainings yield differential effects on labor market outcomes, with heterogeneous impacts based on skill content, gender, and the normative context. Findings suggest that both the interpersonal and combined trainings increase women's business performance, raising their business profits by over 50%. While both trainings deliver significant returns for women, the impacts of the combined training are overall more robust. These substantial profit gains partly reflect women whose businesses were previously inactive starting to earn profits, yet even among women already operating profitable businesses, profits rise by approximately 30%, underscoring robust improvements on both extensive and intensive margins. However, SES training does not increase women's decision-making power, highlighting a persistent gap between economic performance and women's agency. Our re-

[36] We estimate residuals for both endline mediators and outcomes regressed on their baseline values, covariates, and strata fixed effects, and then regress outcome residuals on mediator residuals, with robust standard errors. These correlations are descriptive and do not identify causal mediation, but they provide suggestive evidence on whether variation in mediators aligns with variation in outcomes within our sample.

[37] Business practices (M2) were not measured in full at baseline, so are excluded in the family of mediators.

sults underscore that profit growth alone is not synonymous with women's empowerment. Women report higher interpersonal skills, especially empathy, collaboration, and negotiation, primarily under the training solely focused on interpersonal skills. The strongest impact is witnessed among women who face no perceived judgment from its community from defying traditional gender roles. Therefore, the social environment appears to enable or limit the development of particular skills. Women also report greater satisfaction in marriage and ability to resolve conflicts within their marriage, especially under the combined training. This suggests that the emotional and relational dynamics between women and their spouses may mediate how economic opportunities are negotiated.

For men, SES training does not affect overall employment, but it contributes to some diversification across income sources and reduces household spending on temptation goods and leads to modest increases in household income. A boost to men's business profitability is only evidenced among those receiving training that combines both interpersonal and intrapersonal skills, and in a context of less restrictive gender norms. For men, gains are more focused on behavioral intrapersonal skills, such as improvements in emotional awareness and perseverance, under the combined skills training.

Our findings have two main implications for policy. First, although impact differences between the trainings are modest, the results suggest that which training works best depends on gender and social norms, with important lessons for SES curriculum design. For men, only the combined training (T2) proved effective – mainly in norm-supportive environments – by strengthening intrapersonal skills and translating them into higher profits. For women, both trainings increased profits, as well as savings and investment. The interpersonal-only training delivered the most consistent improvements in women's self-reported SES, and significantly larger gains than T2 in several behaviorally measured skills, whereas only T2 improved women's marital satisfaction. Overall, for women, focusing training time on a smaller set of interpersonal skills may deepen skill acquisition, but including intrapersonal skills as well could matter more for shifting intra-household dynamics.

Second, while SES training enhances economic outcomes, it does not shift agency or decision-making power of women, at least in the short term.[38] Complementary interventions that directly address restrictive gender norms, and gender-sensitive SES training, may be necessary to improve individuals' ability to use SES in practice. This may allow them the freedom to increase returns to SES training and minimize possible backlash and ensure that SES gains translate into broader shifts in women's empowerment. Men's ability to respond to SES training is also sensitive to gender norms. The combined SES training proved the most

[38]Related experimental evidence highlights that addressing gender norms through community-based outreach can relax constraints that limit young women's participation and learning (Delavallade et al., 2021).

effective for men in the gender liberal environment that were more accepting of the defiance of traditional gender roles. Therefore, enabling an environment that encourages greater expression and sharing of emotions with others could benefit both sexes to get the best out of SES programs. Tailoring SES training content to gender and normative context may be critical to ensure effectiveness. Importantly, we also find that the SES training was relatively inexpensive to deliver (US$137 per participant), below the cost of comparable programs. This suggests that integrating open-source SES modules into large-scale government programs can be a cost-effective way to encourage firm growth and strengthen women's economic performance.

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Table 1: Randomization Balance Table

	(1)	(2)	(3)	(4)	(5)	(6)	t-test Difference						Normalized Differences					
	Control Male	Interpersonal Only Male	Combination inter_intra Male	Control Female	Interpersonal Only Female	Combination inter_intra Female												
							(1)-(2)	(1)-(3)	(2)-(3)	(4)-(5)	(4)-(6)	(5)-(6)	(1)-(2)	(1)-(3)	(2)-(3)	(4)-(5)	(4)-(6)	(5)-(6)
Age of respondent	31.50	31.27	31.35	34.61	34.25	34.56	0.22	0.15	-0.08	0.36	0.05	-0.31	0.04	0.03	-0.01	0.04	0.01	-0.03
	(0.19)	(0.20)	(0.19)	(0.35)	(0.34)	(0.33)												
Married (Yes = 1)	0.56	0.53	0.54	0.68	0.65	0.69	0.03	0.03	-0.01	0.03	-0.02	-0.04*	0.06	0.05	-0.01	0.06	-0.04	-0.09*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Worked for pay in past week (Yes = 1)	0.63	0.63	0.64	0.54	0.51	0.49	0.00	-0.01	-0.01	0.03	0.05*	0.02	0.00	-0.03	-0.03	0.06	0.10*	0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Owns a Business (Yes = 1)	0.78	0.76	0.77	0.78	0.78	0.80	0.02	0.01	-0.01	0.01	-0.01	-0.02	0.05	0.02	-0.03	0.01	-0.03	-0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Average monthly business profits unconditional (NGN)	34,518.83	31,446.35	29,925.07	17,160.35	17,788.90	20,100.26	3072.48	4593.76	1521.28	-628.55	-2939.91	-2311.36	0.04	0.07	0.03	-0.02	-0.08	-0.06
	(2,791.98)	(2,340.81)	(2,009.93)	(1,078.19)	(1,147.50)	(1,543.45)												
Number of Employees in Business unconditional (Number)	1.38	1.50	1.25	0.60	0.67	0.76	-0.12	0.13	0.25**	-0.07	-0.16*	-0.08	-0.05	0.06	0.10**	-0.04	0.09*	-0.05
	(0.08)	(0.09)	(0.08)	(0.06)	(0.06)	(0.07)												
Generalized self-efficacy (1-5)	4.20	4.18	4.20	4.14	4.16	4.12	0.02	0.00	-0.01	-0.02	0.02	0.038*	0.04	0.01	-0.03	-0.05	0.04	0.09*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Participated in Own Farm Activity in past 30 days	0.55	0.58	0.58	0.39	0.39	0.40	-0.03	-0.02	0.01	0.00	-0.01	-0.01	-0.06	-0.05	0.02	0.00	-0.03	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Participated in Non-Farm Enterprise Activity in past 30 days	0.53	0.54	0.53	0.54	0.54	0.53	-0.02	0.00	0.01	-0.01	0.00	0.01	-0.03	0.00	0.03	-0.01	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Participated in Livestock Activity in past 30 days	0.36	0.38	0.37	0.33	0.32	0.31	-0.02	-0.02	0.01	0.02	0.02	0.01	-0.05	-0.04	0.01	0.03	0.05	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Participated in Wage Employment Activity in past 30 days	0.13	0.11	0.14	0.07	0.09	0.08	0.02	-0.01	-0.03*	-0.02	-0.01	0.01	0.06	-0.03	-0.09*	-0.08	-0.04	0.04
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)												
Average monthly household income (NGN)	65,234.03	61,281.33	61,167.87	58,128.35	54,106.39	56,990.53	3952.70	4066.15	113.45	4021.96	1137.82	-2884.14	0.03	0.03	0.00	0.03	0.01	-0.03
	(5,624.59)	(3,643.11)	(3,210.99)	(5,413.50)	(3,297.45)	(4,558.77)												
Hours spent on work for pay in a day (number)	7.03	7.15	7.00	5.82	5.69	5.77	-0.12	0.03	0.15	0.13	0.05	-0.08	-0.04	0.01	0.05	0.04	0.02	-0.03
	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)	(0.11)												
Hours spent on care in a day (number)	3.93	3.78	4.04	5.29	5.44	5.31	0.15	-0.11	-0.26**	-0.14	-0.02	0.13	0.06	-0.04	-0.10**	-0.04	0.00	0.04
	(0.10)	(0.09)	(0.10)	(0.13)	(0.13)	(0.12)												
Hours spent on household chores in a day (number)	1.99	1.95	2.05	3.13	3.17	3.20	0.05	-0.06	-0.10	-0.03	-0.06	-0.03	0.04	-0.05	-0.08	-0.02	-0.04	-0.02
	(0.05)	(0.05)	(0.05)	(0.06)	(0.07)	(0.06)												
Personally agree with the male breadwinner norm? (Agree = 1)	0.37	0.41	0.38	0.30	0.29	0.26	-0.04	-0.02	0.02	0.02	0.04*	0.02	-0.08	-0.03	0.05	0.04	0.09*	0.05
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)												
Perceived male breadwinner norm (Out of 10 neighbors, agree)	5.17	5.44	5.33	4.68	4.58	4.40	-0.27*	-0.16	0.11	0.10	0.28**	0.18	-0.10*	-0.06	0.04	0.04	0.10**	0.07
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)												
Number of observations	750	750	750	750	750	750												
F-test of joint significance (P-value)							0.47	0.96	0.48	0.80	0.30	0.67	0.47	0.96	0.48	0.80	0.30	0.67

Notes: ***, **, and * indicate significance at the 1, 5, and 10 percent critical level. The value displayed for t-tests are the differences in the means across the groups. The value displayed for F-tests are p-values. All variables are measured during the baseline.

Table 2: Impact on Labor Supply

	(1) Employment (Yes=1; No=0)	(2) Engaged in farming only (Yes=1; No=0)	(3) Engaged in non-farm act. only (Yes=1; No=0)	(4) Engaged in both farming and non-farm act. (Yes=1; No=0)	(5) Hours worked for pay in a day (number)
Panel A: ITT estimate - Full sample					
Women (0/1)	-0.04***	-0.08***	0.06**	-0.02	-0.75***
	(0.01)	(0.03)	(0.02)	(0.03)	(0.16)
T1: Interpersonal only	0.01	-0.01	0.01	0.00	0.11
	(0.01)	(0.03)	(0.02)	(0.03)	(0.16)
T2: Combination Inter Intra	0.01	-0.05*	0.02	0.04	0.13
	(0.01)	(0.03)	(0.02)	(0.03)	(0.16)
T1 x Women	0.02	0.04	0.03	-0.05	-0.01
	(0.02)	(0.04)	(0.03)	(0.04)	(0.22)
T2 x Women	0.02	0.11***	-0.00	-0.10***	-0.20
	(0.02)	(0.04)	(0.03)	(0.04)	(0.22)
Observations	3890	3890	3890	3890	3890
R-squared	0.041	0.045	0.059	0.052	0.113
Control group mean	0.97	0.40	0.23	0.32	7.45
Treatment effect of T1 | Women	0.03**	0.03	0.04*	-0.05**	0.11
P-value: T1 + T1 x Women = 0	(0.05)	(0.22)	(0.10)	(0.03)	(0.50)
Treatment effect of T2 | Women	0.03**	0.06**	0.02	-0.06**	-0.06
P-value: T2 + T2 x Women = 0	(0.02)	(0.03)	(0.47)	(0.02)	(0.69)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.82)	(0.10)	(0.76)	(0.13)	(0.89)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.67)	(0.33)	(0.35)	(0.83)	(0.29)
Panel B: Heterogeneity by Norms - Women sample					
Perceived community norm	0.00	0.01	-0.00	-0.00	-0.06
	(0.00)	(0.01)	(0.01)	(0.01)	(0.04)
T1: Interpersonal only	0.05**	0.02	0.07	-0.06	0.10
	(0.03)	(0.05)	(0.05)	(0.05)	(0.30)
T2: Combination Inter Intra	0.06**	0.19***	-0.01	-0.12***	-0.88***
	(0.02)	(0.05)	(0.05)	(0.05)	(0.30)
T1 x Perceived community norm	-0.01	0.00	-0.01	0.00	-0.00
	(0.00)	(0.01)	(0.01)	(0.01)	(0.06)
T2 x Perceived community norm	-0.01	-0.03***	0.01	0.01	0.18***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.06)
Observations	1943	1943	1943	1943	1943
R-squared	0.056	0.050	0.043	0.063	0.168
Control group mean (Perceived community norm = 0)	0.92	0.31	0.25	0.35	7.05
Panel C: Heterogeneity by Norms - Men sample					
Perceived community norm	0.00	-0.00	-0.00	0.01	-0.04
	(0.00)	(0.01)	(0.01)	(0.01)	(0.04)
T1: Interpersonal only	0.02	-0.01	0.01	0.02	-0.21
	(0.02)	(0.06)	(0.05)	(0.06)	(0.35)
T2: Combination Inter Intra	0.03	-0.12**	0.06	0.11*	0.04
	(0.02)	(0.06)	(0.05)	(0.06)	(0.35)
T1 x Perceived community norm	-0.00	0.00	0.00	-0.00	0.06
	(0.00)	(0.01)	(0.01)	(0.01)	(0.06)
T2 x Perceived community norm	-0.00	0.01	-0.01	-0.01	0.01
	(0.00)	(0.01)	(0.01)	(0.01)	(0.06)
Observations	1947	1947	1947	1947	1947
R-squared	0.019	0.065	0.091	0.048	0.053
Control group mean (Perceived community norm = 0)	0.96	0.40	0.19	0.32	7.89

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are defined as follows: *Employment* equals 1 if the respondent engaged in any income-generating activity in the past 30 days; *Engaged in farming only* equals 1 if the respondent engaged exclusively in farming activities (including livestock rearing); *Engaged in non-farm activities only* equals 1 if the respondent engaged exclusively in non-farm activities (including wage employment); and *Engaged in both farm and non-farm activities* equals 1 if the respondent engaged in both types of activities at endline.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses; q-values are reported in the Appendix.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 3: Impact on Business Performance Outcomes

	(1) Business in operation (Yes=1; No=0)	(2) Total annual profits (IHS)	(3) Total annual revenues (IHS)	(4) Annual business profits (Est.) (IHS)	(5) No. of workers employed	(6) No. of female workers employed	(7) Value of business capital (IHS)
Panel A: ITT estimate - Full sample							
Women (0/1)	0.00	-0.97***	-0.85***	-2.08***	-0.35**	-0.12	-0.97**
	(0.02)	(0.24)	(0.25)	(0.67)	(0.16)	(0.09)	(0.35)
T1: Interpersonal only	-0.01	0.05	0.16	-0.60	0.04	-0.11	0.20
	(0.02)	(0.22)	(0.23)	(0.67)	(0.17)	(0.10)	(0.37)
T2: Combination Inter Intra	0.01	-0.06	-0.10	0.26	-0.03	-0.20**	0.02
	(0.02)	(0.22)	(0.24)	(0.65)	(0.17)	(0.10)	(0.36)
T1 x Women	0.00	0.41	0.13	2.32**	-0.01	0.19	-0.24
	(0.03)	(0.32)	(0.34)	(0.93)	(0.22)	(0.12)	(0.50)
T2 x Women	-0.01	0.57*	0.37	0.27	0.11	0.35***	0.44
	(0.03)	(0.32)	(0.35)	(0.94)	(0.22)	(0.13)	(0.50)
Observations	3890	3756	3756	3756	3756	3756	3756
R-squared	0.016	0.031	0.047	0.036	0.076	0.027	0.167
Control group mean	0.87	12.73	13.42	6.93	2.29	0.86	6.37
Treatment effect of T1 | Women	-0.00	0.46**	0.29	1.72***	0.03	0.08	-0.04
P-value: T1 + T1 x Women = 0	0.84	0.05	0.25	0.01	0.81	0.30	0.91
Treatment effect of T2 | Women	-0.01	0.51**	0.27	0.53	0.07	0.16*	0.46
P-value: T2 + T2 x Women = 0	0.76	0.03	0.28	0.43	0.60	0.07	0.19
P-value (Marginal effect intrapersonal skills | Men = 0)	0.57	0.60	0.28	0.19	0.65	0.26	0.63
P-value (Marginal effect intrapersonal skills | Women = 0)	0.92	0.81	0.94	0.07	0.78	0.38	0.16
Panel B: Heterogeneity by Norms - Women sample							
Perceived community norm	0.00	0.11*	0.11	0.21	0.00	-0.00	0.09
	(0.00)	(0.07)	(0.07)	(0.18)	(0.04)	(0.02)	(0.09)
T1: Interpersonal Only	0.03	0.98**	0.78	1.91	-0.04	-0.01	0.34
	(0.04)	(0.50)	(0.52)	(1.31)	(0.28)	(0.14)	(0.68)
T2: Combination Inter Intra	0.00	0.87*	0.74	2.33*	-0.02	0.07	0.70
	(0.04)	(0.46)	(0.50)	(1.32)	(0.28)	(0.14)	(0.68)
T1 x Perceived community norm	-0.01	-0.11	-0.11	-0.03	0.01	0.02	-0.08
	(0.01)	(0.09)	(0.10)	(0.24)	(0.05)	(0.03)	(0.13)
T2 x Perceived community norm	-0.00	-0.08	-0.11	-0.41	0.02	0.02	-0.05
	(0.01)	(0.08)	(0.09)	(0.25)	(0.05)	(0.03)	(0.13)
Observations	1943	1870	1870	1870	1870	1870	1870
R-squared	0.020	0.036	0.046	0.040	0.089	0.048	0.183
Control group mean (Perceived community norm = 0)	0.86	12.06	13.02	4.37	1.76	0.79	6.28
Panel C: Heterogeneity by Norms - Men sample							
Perceived community norm	0.00	0.07	0.05	0.11	-0.02	-0.00	0.04
	(0.00)	(0.06)	(0.07)	(0.18)	(0.05)	(0.04)	(0.10)
T1: Interpersonal Only	0.02	0.37	0.28	0.59	0.23	-0.11	0.57
	(0.04)	(0.49)	(0.54)	(1.49)	(0.38)	(0.24)	(0.81)
T2: Combination Inter Intra	0.09**	0.94**	0.74	2.69*	-0.36	-0.32	0.17
	(0.04)	(0.46)	(0.51)	(1.41)	(0.38)	(0.22)	(0.79)
T1 x Perceived community norm	-0.00	-0.06	-0.02	-0.23	-0.03	0.00	-0.08
	(0.01)	(0.08)	(0.09)	(0.25)	(0.06)	(0.04)	(0.14)
T2 x Perceived community norm	-0.02**	-0.19**	-0.15*	-0.46*	0.06	0.02	-0.04
	(0.01)	(0.08)	(0.09)	(0.24)	(0.06)	(0.04)	(0.13)
Observations	1947	1886	1886	1886	1886	1886	1886
R-squared	0.025	0.029	0.047	0.036	0.073	0.031	0.157
Control group mean (Perceived community norm = 0)	0.92	12.25	12.95	3.79	2.78	1.31	5.62

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are defined as follows: *Business in operation* equals 1 if the respondent reports the business is operational at endline; *total annual profits*, *total annual revenues*, *annual business profits (Estimated)*, and *business capital* (machinery and equipment) are recorded in Nigerian naira and transformed using the inverse hyperbolic sine (IHS); *number of employees* and *number of female employees* refer to those employed by the business at endline.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable; column (7) for the value of business capital uses OLS because it was measured only at endline. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses; q-values are reported in the Appendix.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 4: Impact on Business Practices

	(1) Business practices - Aggregate	(2) Record keeping	(3) Marketing practices	(4) Stock control practices	(5) Financial planning
Panel A: ITT estimate – Full sample					
Women (0/1)	-0.01	0.02	0.02	-0.03	-0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T1: Interpersonal only	0.09	0.05	0.07	0.04	0.06
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T2: Combination Inter Intra	0.03	0.00	0.03	-0.03	0.01
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T1 x Women	-0.04	0.00	-0.03	-0.03	0.03
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
T2 x Women	0.03	0.09	0.00	0.08	0.09
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Observations	3610	3610	3610	3610	3610
R-squared	0.045	0.019	0.041	0.046	0.051
Control group mean	0.02	0.02	0.01	0.03	0.03
Treatment effect of T1 | Women	0.05	0.05	0.03	0.01	0.09
P-value: T1 + T1 x Women = 0	(0.40)	(0.36)	(0.54)	(0.90)	(0.11)
Treatment effect of T2 | Women	0.06	0.09*	0.03	0.05	0.09*
P-value: T2 + T2 x Women = 0	(0.31)	(0.09)	(0.63)	(0.35)	(0.09)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.31)	(0.42)	(0.49)	(0.27)	(0.38)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.86)	(0.43)	(0.89)	(0.42)	(0.89)
Panel B: Heterogeneity by Norms – Women sample					
Perceived community norm	0.04**	0.05***	0.03**	0.03**	0.03**
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
T1: Interpersonal Only	0.15	0.31***	0.07	0.12	0.18*
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
T2: Combination Inter Intra	0.21*	0.35***	0.11	0.18*	0.24**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
T1 x Perceived community norm	-0.02	-0.06***	-0.01	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.03*	-0.06***	-0.02	-0.03	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1818	1818	1818	1818	1818
R-squared	0.067	0.042	0.064	0.060	0.073
Control group mean (Perceived community norm = 0)	-0.16	-0.20	-0.14	-0.13	-0.07
Panel C: Heterogeneity by Norms – Men sample					
Perceived community norm	-0.01	0.01	-0.00	-0.01	-0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
T1: Interpersonal Only	-0.11	-0.04	-0.06	-0.10	-0.23*
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
T2: Combination Inter Intra	0.15	0.15	0.21*	0.05	0.02
	(0.12)	(0.12)	(0.13)	(0.12)	(0.12)
T1 x Perceived community norm	0.04*	0.02	0.02	0.03	0.05**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.02	-0.03	-0.03	-0.01	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1792	1792	1792	1792	1792
R-squared	0.040	0.019	0.034	0.044	0.044
Control group mean (Perceived community norm = 0)	0.29	-0.11	0.17	0.29	0.39

Notes: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

(1) All business-practice items are standardized (Kling z-scores) based on averaged 1–3 frequency responses (1 = less often, 2 = sometimes, 3 = more often) across both IGAs. The aggregate *business practices index* is the average of all practice items across the following domains: record keeping, marketing, stock control, and financial planning, following McKenzie and Woodruff (2017). Higher values indicate more frequent adoption of good practices.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use OLS since business practices were measured in full only at endline. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 5: Impact on Socioemotional Skills (Self-Reported Measures)

	Interpersonal			Intrapersonal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Empathy	Relatedness	Negotiation	Emotional Regulation	Perseverance	Personal Initiative	Problem Solving Decision Making
Panel A: ITT estimate - Full sample							
Women (0/1)	-0.12**	-0.08	-0.13**	-0.10*	-0.11**	-0.13**	-0.12**
	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
T1: Interpersonal only	0.06	0.06	0.10*	0.00	0.07	0.03	0.03
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
T2: Combination Inter Intra	-0.04	-0.03	0.01	0.02	0.02	-0.07	0.02
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
T1 x Women	0.06	0.03	0.02	-0.02	-0.01	0.02	0.01
	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
T2 x Women	0.04	0.03	0.06	0.03	0.02	0.11	0.00
	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Observations	3610	3610	3610	3610	3610	3610	3610
R-squared	0.091	0.079	0.082	0.250	0.107	0.094	0.109
Control group mean	0.02	0.00	0.00	0.04	0.01	0.04	0.01
Treatment effect of T1 | Women	0.12**	0.09	0.12**	-0.02	0.05	0.05	0.04
P-value: T1 + T1 x Women = 0	(0.02)	(0.11)	(0.03)	(0.74)	(0.33)	(0.37)	(0.49)
Treatment effect of T2 | Women	-0.00	0.00	0.07	0.04	0.04	0.03	0.02
P-value: T2 + T2 x Women = 0	(0.97)	(0.97)	(0.21)	(0.40)	(0.44)	(0.57)	(0.75)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.07)	(0.14)	(0.08)	(0.83)	(0.35)	(0.07)	(0.80)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.02)	(0.12)	(0.36)	(0.24)	(0.84)	(0.75)	(0.71)
Panel B: Heterogeneity by Norms - Women sample							
Perceived community norm	0.05***	0.04***	0.05***	-0.01	0.03**	0.04***	0.03**
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal only	0.38***	0.27**	0.27**	0.02	0.26**	0.30***	0.18*
	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)
T2: Combination Inter Intra	0.34***	0.33***	0.41***	0.01	0.32***	0.39***	0.31***
	(0.11)	(0.10)	(0.10)	(0.10)	(0.11)	(0.11)	(0.10)
T1 x Perceived community norm	-0.05***	-0.04*	-0.03	-0.01	-0.04**	-0.06***	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.07***	-0.07***	-0.08***	0.00	-0.06***	-0.08***	-0.06***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1818	1818	1818	1818	1818	1818	1818
R-squared	0.083	0.076	0.076	0.264	0.094	0.083	0.098
Control group mean (Perceived community norm = 0)	-0.33	-0.28	-0.36	-0.18	-0.21	-0.22	-0.20
Panel C: Heterogeneity by Norms - Men sample							
Perceived community norm	0.01	-0.00	0.01	-0.01	0.00	0.02	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal only	0.12	-0.06	-0.02	0.14	-0.01	0.13	0.09
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
T2: Combination Inter Intra	0.05	0.06	0.11	-0.03	0.05	0.11	0.08
	(0.13)	(0.13)	(0.13)	(0.12)	(0.12)	(0.12)	(0.12)
T1 x Perceived community norm	-0.01	0.02	0.02	-0.02	0.01	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.02	-0.02	-0.02	0.01	-0.01	-0.03*	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1792	1792	1792	1792	1792	1792	1792
R-squared	0.113	0.100	0.100	0.241	0.127	0.121	0.130
Control group mean (Perceived community norm = 0)	-0.17	-0.04	-0.19	-0.12	-0.13	-0.14	-0.12

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are standardized, variance-weighted indices (Anderson, 2008) of socioemotional skills based on self-reported measures. *Interpersonal skills* include empathy, relatedness, and negotiation; *intrapersonal skills* include emotion regulation, perseverance, personal initiative, and problem-solving/decision-making (PSDM).

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain. Results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 6: Impact on Interpersonal Socioemotional Skills (Behavioral Measures)

	(1) Listening	(2) Empathy	(3) Expressiveness	(4) Relatedness	(5) Influence	(6) Negotiation	(7) Collaboration
Panel A: ITT estimate - Full sample							
Women (0/1)	-0.02	-0.02	-0.12**	0.01	-0.03	0.04	-0.10*
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)
T1: Interpersonal only	-0.06	0.05	-0.05	0.02	-0.04	0.07	0.01
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)
T2: Combination Inter Intra	-0.02	0.06	0.00	0.02	-0.01	0.04	-0.02
	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
T1 x Women	0.09	0.10	0.09	-0.02	0.07	0.02	0.09
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
T2 x Women	0.01	0.00	-0.07	0.02	-0.06	-0.04	0.01
	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Observations	3610	3872	3595	3875	3597	3879	3592
R-squared	0.094	0.066	0.032	0.100	0.080	0.037	0.091
Control group mean	0.04	-0.04	0.06	-0.03	0.02	-0.04	0.03
Treatment effect of T1 | Women	0.03	0.15***	0.04	-0.00	0.03	0.08	0.09*
P-value: T1 + T1 x Women = 0	(0.63)	(0.01)	(0.51)	(0.94)	(0.58)	(0.13)	(0.10)
Treatment effect of T2 | Women	-0.02	0.06	-0.07	0.04	-0.08	0.01	-0.00
P-value: T2 + T2 x Women = 0	(0.75)	(0.29)	(0.21)	(0.50)	(0.17)	(0.92)	(0.93)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.54)	(0.91)	(0.37)	(1.00)	(0.57)	(0.64)	(0.68)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.42)	(0.11)	(0.07)	(0.47)	(0.06)	(0.15)	(0.09)
Panel B: Heterogeneity by Norms - Women sample							
Perceived community norm	0.00	-0.00	0.01	0.01	0.01	0.00	-0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
T1: Interpersonal only	0.11	0.13	0.11	-0.03	-0.01	0.16	0.03
	(0.11)	(0.11)	(0.12)	(0.10)	(0.11)	(0.11)	(0.11)
T2: Combination Inter Intra	0.15	0.15	-0.03	0.06	0.01	0.07	0.07
	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)
T1 x Perceived community norm	-0.02	0.00	-0.02	0.01	0.01	-0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.04*	-0.02	-0.01	-0.00	-0.02	-0.01	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1818	1935	1810	1935	1810	1938	1809
R-squared	0.103	0.068	0.040	0.100	0.093	0.043	0.097
Control group mean (Perceived community norm = 0)	0.03	-0.03	-0.20	-0.02	-0.01	-0.09	-0.06
Panel C: Heterogeneity by Norms - Men sample							
Perceived community norm	-0.02	0.00	-0.00	-0.01	-0.00	-0.00	-0.01
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal only	-0.15	0.11	-0.09	0.03	-0.00	0.10	0.03
	(0.13)	(0.12)	(0.12)	(0.11)	(0.13)	(0.11)	(0.12)
T2: Combination Inter Intra	-0.06	0.13	0.03	0.05	0.06	0.09	-0.00
	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)
T1 x Perceived community norm	0.02	-0.01	0.01	-0.00	-0.01	-0.01	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1792	1937	1785	1940	1787	1941	1783
R-squared	0.099	0.073	0.038	0.114	0.080	0.042	0.093
Control group mean (Perceived community norm = 0)	0.08	0.19	-0.03	0.09	-0.04	0.14	0.22

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are standardized indices of interpersonal socio-emotional skills based on situational judgment tests (SJTs). The behavioral measures include listening, empathy, expressiveness, relatedness, influence, negotiation, and collaboration.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain. Results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 7: Impact on Intrapersonal Socioemotional Skills (Behavioral Measures)

	(1) Emotional Awareness	(2) Self Awareness	(3) Emotional Regulation	(4) Self Control	(5) Perseverance	(6) Personal Initiative	(7) Problem Solving Decision Making
Panel A: ITT estimate - Full sample							
Women (0/1)	0.03	0.03	0.02	-0.03	0.03	0.03	0.01
	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)
T1: Interpersonal only	-0.01	0.09	-0.01	-0.10*	-0.00	0.03	0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)
T2: Combination Inter Intra	0.11**	0.04	-0.02	-0.10*	0.02	-0.03	0.02
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
T1 x Women	0.04	-0.06	-0.04	0.09	-0.07	-0.00	-0.05
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)
T2 x Women	-0.14*	-0.12	-0.05	0.10	-0.04	0.00	-0.11
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)
Observations	3597	3886	3606	3890	3876	3888	3886
R-squared	0.030	0.053	0.066	0.009	0.112	0.063	0.091
Control group mean	-0.04	-0.03	0.00	0.04	-0.00	-0.02	-0.00
Treatment effect of T1 | Women	0.02	0.02	-0.04	-0.00	-0.08	0.03	-0.01
P-value: T1 + T1 x Women = 0	(0.69)	(0.68)	(0.43)	(0.95)	(0.16)	(0.63)	(0.86)
Treatment effect of T2 | Women	-0.03	-0.08	-0.06	0.00	-0.02	-0.02	-0.09*
P-value: T2 + T2 x Women = 0	(0.65)	(0.15)	(0.27)	(0.94)	(0.69)	(0.66)	(0.10)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.02)	(0.43)	(0.89)	(0.97)	(0.60)	(0.29)	(0.65)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.40)	(0.06)	(0.75)	(0.89)	(0.30)	(0.37)	(0.15)
Panel B: Heterogeneity by Norms - Women sample							
Perceived community norm	0.00	-0.00	0.04**	-0.01	-0.01	-0.01	0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
T1: Interpersonal only	0.10	0.07	0.21*	-0.06	-0.02	0.05	0.05
	(0.11)	(0.11)	(0.11)	(0.12)	(0.10)	(0.11)	(0.11)
T2: Combination Inter Intra	-0.04	0.01	0.23**	-0.07	-0.12	-0.05	0.02
	(0.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.10)
T1 x Perceived community norm	-0.02	-0.01	-0.06***	0.01	-0.01	-0.00	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	0.00	-0.02	-0.06***	0.02	0.02	0.01	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1810	1941	1816	1943	1937	1943	1941
R-squared	0.034	0.048	0.062	0.017	0.106	0.068	0.089
Control group mean (Perceived community norm = 0)	0.19	0.05	-0.18	-0.06	0.06	0.09	0.09
Panel C: Heterogeneity by Norms - Men sample							
Perceived community norm	0.01	-0.01	0.01	-0.01	0.02	0.00	-0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal only	0.04	0.06	-0.05	-0.22*	0.16	0.07	-0.02
	(0.13)	(0.12)	(0.14)	(0.13)	(0.12)	(0.12)	(0.12)
T2: Combination Inter Intra	0.13	0.03	0.01	-0.08	0.26**	0.15	0.10
	(0.12)	(0.11)	(0.13)	(0.12)	(0.12)	(0.12)	(0.11)
T1 x Perceived community norm	-0.01	0.00	0.01	0.02	-0.03	-0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.00	0.00	-0.01	-0.00	-0.04**	-0.03*	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1787	1945	1790	1947	1939	1945	1945
R-squared	0.036	0.069	0.088	0.011	0.128	0.074	0.103
Control group mean (Perceived community norm = 0)	0.15	0.13	-0.01	0.21	-0.18	0.01	0.09

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are standardized indices of intrapersonal socioemotional skills based on situational judgment tests (SJTs). The behavioral measures include emotional awareness, self-awareness, emotion regulation, self-control, perseverance, personal initiative, and problem-solving/decision-making (PSDM).

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain. Results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 8: Impact on Household Income and Consumption

	(1) Total household income (IHS)	(2) Food consumption (daily adult equiv)	(3) Temptation goods (daily adult equiv)	(4) Food security index (Yes=1; No=0)
Panel A: ITT estimate – Full sample				
Women (0/1)	0.06	10.05	-43.11***	-0.00
	(0.08)	(42.81)	(11.17)	(0.02)
T1: Interpersonal only	0.12*	40.26	-24.84**	0.06**
	(0.06)	(48.03)	(11.85)	(0.02)
T2: Combination Inter Intra	0.01	12.18	-25.14**	0.01
	(0.07)	(42.30)	(12.29)	(0.02)
T1 x Women	-0.23**	-45.16	22.50*	-0.04
	(0.11)	(64.78)	(12.55)	(0.03)
T2 x Women	0.08	-14.74	30.42**	0.03
	(0.11)	(59.78)	(13.44)	(0.03)
Observations	3890	3610	3610	3890
R-squared	0.033	0.075	0.068	0.034
Control group mean	12.16	879.27	56.06	0.75
Treatment effect of T1 | Women	-0.11	-4.90	-2.35	0.02
P-value: T1 + T1 x Women = 0	(0.21)	(0.91)	(0.61)	(0.39)
Treatment effect of T2 | Women	0.09	-2.56	5.28	0.04
P-value: T2 + T2 x Women = 0	(0.24)	(0.95)	(0.30)	(0.12)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.10)	(0.57)	(0.97)	(0.03)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.02)	(0.96)	(0.07)	(0.51)
Panel B: Heterogeneity by Norms – Women sample				
Perceived community norm	-0.00	12.13	-0.89	0.01
	(0.02)	(11.42)	(0.98)	(0.01)
T1: Interpersonal only	-0.13	10.76	-6.94	0.06
	(0.16)	(84.59)	(7.90)	(0.05)
T2: Combination Inter Intra	0.00	-1.93	6.60	0.06
	(0.15)	(81.65)	(10.49)	(0.05)
T1 x Perceived community norm	0.01	-1.95	1.05	-0.01
	(0.03)	(15.89)	(1.28)	(0.01)
T2 x Perceived community norm	0.02	1.43	-0.59	-0.00
	(0.03)	(16.13)	(1.74)	(0.01)
Observations	1943	1818	1818	1943
R-squared	0.039	0.069	0.053	0.034
Control group mean (Perceived community norm = 0)	12.43	839.17	13.12	0.68
Panel C: Heterogeneity by Norms – Men sample				
Perceived community norm	0.00	-2.20	-2.33	-0.01
	(0.02)	(11.84)	(4.79)	(0.01)
T1: Interpersonal only	0.12	146.84	-29.43	0.03
	(0.14)	(126.85)	(34.67)	(0.05)
T2: Combination Inter Intra	0.06	20.61	-28.89	-0.04
	(0.14)	(94.55)	(38.11)	(0.05)
T1 x Perceived community norm	-0.00	-20.06	0.81	0.00
	(0.02)	(20.28)	(5.04)	(0.01)
T2 x Perceived community norm	-0.01	-1.61	0.61	0.01
	(0.03)	(15.46)	(5.58)	(0.01)
Observations	1947	1792	1792	1947
R-squared	0.046	0.091	0.079	0.048
Control group mean (Perceived community norm = 0)	12.46	1181.79	94.73	0.79

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables include: *total household income*, measured in Nigerian naira and transformed using the inverse hyperbolic sine (IHS); *food consumption*, defined as the household's daily adult-equivalent (AE) expenditure on food; and *expenditure on temptation goods*, defined as the household's daily AE expenditure on cigarettes, alcohol, and gambling. The *food security index* is a binary variable equal to 1 if, in the past 7 days, the respondent reported that either a household member skipped a meal or an adult worried about not having enough food.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use OLS since these outcomes were measured in full only at endline. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 9: Impact on Marital Satisfaction and Attitudes toward Intimate Partner Violence

	(1) Acceptability of violence (Yes=1; No=0)	(2) Satisfaction with married life index	(3) Trust within marriage index	(4) Conflict resolution index	(5) Communication with spouse (Yes=1; No=0)
Panel A: ITT estimate - Full sample					
Women (0/1)	-0.00	-0.08	-0.02	-0.03	-0.00
	(0.01)	(0.07)	(0.07)	(0.07)	(0.03)
T1: Interpersonal only	-0.02*	0.14**	0.05	0.11	-0.02
	(0.01)	(0.07)	(0.07)	(0.07)	(0.03)
T2: Combination Inter Intra	0.00	0.16**	0.08	0.16**	-0.00
	(0.01)	(0.07)	(0.07)	(0.07)	(0.03)
T1 x Women	0.00	-0.03	-0.12	-0.07	-0.00
	(0.02)	(0.10)	(0.10)	(0.10)	(0.04)
T2 x Women	-0.03	-0.05	-0.06	-0.05	-0.02
	(0.02)	(0.09)	(0.09)	(0.09)	(0.04)
Observations	2610	2610	2610	2610	2610
R-squared	0.014	0.019	0.023	0.012	0.033
Control group mean	0.04	-0.05	-0.00	-0.06	0.68
Treatment effect of T1 | Women	-0.02	0.11	-0.07	0.04	-0.02
P-value: T1 + T1 x Women = 0	(0.11)	(0.14)	(0.32)	(0.57)	(0.54)
Treatment effect of T2 | Women	-0.03**	0.11*	0.02	0.11*	-0.02
P-value: T2 + T2 x Women = 0	(0.03)	(0.10)	(0.78)	(0.09)	(0.51)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.06)	(0.74)	(0.60)	(0.44)	(0.69)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.53)	(0.95)	(0.18)	(0.26)	(0.96)
Panel B: Heterogeneity by Norms - Women sample					
Perceived community norm	0.00	-0.02	-0.03	-0.00	-0.00
	(0.00)	(0.02)	(0.02)	(0.02)	(0.01)
T1: Interpersonal only	-0.02	0.10	-0.13	-0.01	-0.04
	(0.02)	(0.15)	(0.15)	(0.14)	(0.06)
T2: Combination Inter Intra	-0.03	0.11	-0.10	0.09	-0.01
	(0.02)	(0.13)	(0.12)	(0.13)	(0.06)
T1 x Perceived community norm	0.00	-0.00	0.01	0.01	0.00
	(0.00)	(0.03)	(0.03)	(0.03)	(0.01)
T2 x Perceived community norm	0.00	-0.00	0.02	0.01	-0.00
	(0.00)	(0.03)	(0.03)	(0.03)	(0.01)
Observations	1337	1337	1337	1337	1337
R-squared	0.022	0.027	0.034	0.024	0.042
Control group mean (Perceived community norm = 0)	0.02	-0.03	0.01	-0.03	0.66
Panel C: Heterogeneity by Norms - Men sample					
Perceived community norm	0.00	-0.02	0.02	0.01	-0.01
	(0.00)	(0.02)	(0.02)	(0.02)	(0.01)
T1: Interpersonal only	-0.02	0.15	0.16	0.20	-0.02
	(0.02)	(0.15)	(0.18)	(0.16)	(0.07)
T2: Combination Inter Intra	0.03	0.11	0.16	0.20	0.03
	(0.03)	(0.14)	(0.20)	(0.14)	(0.07)
T1 x Perceived community norm	-0.00	-0.00	-0.02	-0.02	0.00
	(0.00)	(0.03)	(0.03)	(0.03)	(0.01)
T2 x Perceived community norm	-0.01	0.01	-0.02	-0.01	-0.01
	(0.01)	(0.02)	(0.03)	(0.02)	(0.01)
Observations	1273	1273	1273	1273	1273
R-squared	0.036	0.023	0.023	0.016	0.056
Control group mean (Perceived community norm = 0)	0.06	0.17	-0.41	-0.02	0.69

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are defined as follows: (i) *Acceptability of violence index* is a binary variable equal to 1 if intimate partner violence is not accepted in any listed scenario (0 otherwise); (ii) *Satisfaction with married life*, *Trust within marriage*, and *Conflict resolution* are standardized indices; (iii) *Communication with spouse* is a binary variable equal to 1 if the respondent reports that they at least fairly often discuss either their employment/business or the division of household responsibilities with their spouse.

(2) The sample in Table 8 is restricted to married respondents (N = 2,610) at endline only. Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table 10: Impact on Financial Inclusion, Savings and Investment

	(1) Access to bank account (Yes=1; No=0)	(2) Amount of savings (NGN)	(3) Index of assets owned (number)	(4) Value of all productive assets owned ('000 NGN)	(5) Value of all household assets owned ('000 NGN)
Panel A: ITT estimate - Full sample					
Women (0/1)	-0.04**	-61980.84***	-0.53***	-829.98**	184.72
	(0.02)	(17127.32)	(0.12)	(333.76)	(582.96)
T1: Interpersonal only	-0.01	29135.32	0.09	231.89	-131.80
	(0.02)	(21468.66)	(0.13)	(395.65)	(594.71)
T2: Combination Inter Intra	-0.01	27456.71	0.13	-231.36	-260.69
	(0.02)	(20388.46)	(0.12)	(367.05)	(564.75)
T1 x Women	0.02	-1877.85	-0.22	492.56	565.12
	(0.03)	(26583.06)	(0.17)	(526.44)	(869.52)
T2 x Women	0.02	9477.69	-0.25	676.65	649.48
	(0.03)	(25698.96)	(0.17)	(479.36)	(848.47)
Observations	3610	3610	3890	3890	3890
R-squared	0.038	0.019	0.074	0.033	0.017
Control group mean	0.90	175607.07	5.00	3198.47	4265.32
Treatment effect of T1 | Women	0.01	27257.47*	-0.13	724.45**	433.32
P-value: T1 + T1 x Women = 0	(0.51)	(0.08)	(0.28)	(0.04)	(0.50)
Treatment effect of T2 | Women	0.01	36934.40**	-0.13	445.29	388.79
P-value: T2 + T2 x Women = 0	(0.50)	(0.02)	(0.29)	(0.15)	(0.54)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.99)	(0.94)	(0.77)	(0.23)	(0.82)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.98)	(0.58)	(0.97)	(0.45)	(0.95)
Panel B: Heterogeneity by Norms - Women sample					
Perceived community norm	-0.01	316.70	-0.02	-53.44	60.03
	(0.00)	(3367.93)	(0.03)	(75.43)	(171.79)
T1: Interpersonal Only	-0.03	55318.97*	-0.16	107.72	386.98
	(0.04)	(31304.44)	(0.24)	(771.68)	(1463.08)
T2: Combination Inter Intra	-0.03	45780.94	-0.16	-470.57	-71.79
	(0.04)	(29784.93)	(0.24)	(616.65)	(1286.92)
T1 x Perceived community norm	0.01	-6253.81	0.01	138.55	13.99
	(0.01)	(5719.88)	(0.05)	(150.43)	(285.57)
T2 x Perceived community norm	0.01	-2285.14	0.01	209.52	103.59
	(0.01)	(5869.33)	(0.04)	(130.26)	(261.19)
Observations	1818	1818	1943	1943	1943
R-squared	0.043	0.020	0.067	0.042	0.024
Control group mean (Perceived community norm = 0)	0.90	113968.23	4.49	2245.99	3929.48
Panel C: Heterogeneity by Norms - Men sample					
Perceived community norm	-0.00	6596.68	0.00	78.96	313.32*
	(0.00)	(5648.49)	(0.03)	(103.68)	(172.32)
T1: Interpersonal Only	-0.02	94127.43**	-0.24	1292.76	-135.39
	(0.04)	(47954.37)	(0.28)	(962.21)	(1104.02)
T2: Combination Inter Intra	0.02	67602.66	0.09	242.75	2036.98
	(0.04)	(44745.15)	(0.27)	(807.19)	(1268.69)
T1 x Perceived community norm	0.00	-12082.28	0.06	-204.37	-26.42
	(0.01)	(8185.99)	(0.05)	(156.43)	(213.58)
T2 x Perceived community norm	-0.01	-7769.33	0.01	-94.90	-440.52**
	(0.01)	(7803.92)	(0.05)	(141.11)	(223.01)
Observations	1792	1792	1947	1947	1947
R-squared	0.041	0.016	0.062	0.035	0.026
Control group mean (Perceived community norm = 0)	0.92	205190.20	5.25	4352.90	4379.79

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.
(1) Outcome variables include: *access to a bank account* (1 = yes, 0 = no); *total savings* (NGN, winsorized at the 99th percentile); *number of assets owned index* (count of assets owned solely or jointly); and *value of productive and household assets* (NGN, both winsorized at the 99th percentile).
(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.
(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.
(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.
(5) Robust standard errors are reported in parentheses.
(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Appendix

A Further Details on Research Design

A.1 Impact Evaluation Design

The research design is summarized in Figure 1. This impact evaluation is an individual-level randomized controlled trial (RCT), designed to identify the effects of interpersonal and combination (inter- and intra-personal) SES training. As the goal of the evaluation is to also understand the gender-disaggregated impact of the program, the eligible beneficiaries are stratified by gender. Note, the participants in the control group are still beneficiaries of the APPEALS WYEP bundled program but are not offered SES training. The use of randomization allows us to attribute differences between groups to the SES intervention itself. Comparing outcomes for the treatment and control group arms provides rigorous evidence on whether the program can generate impact.

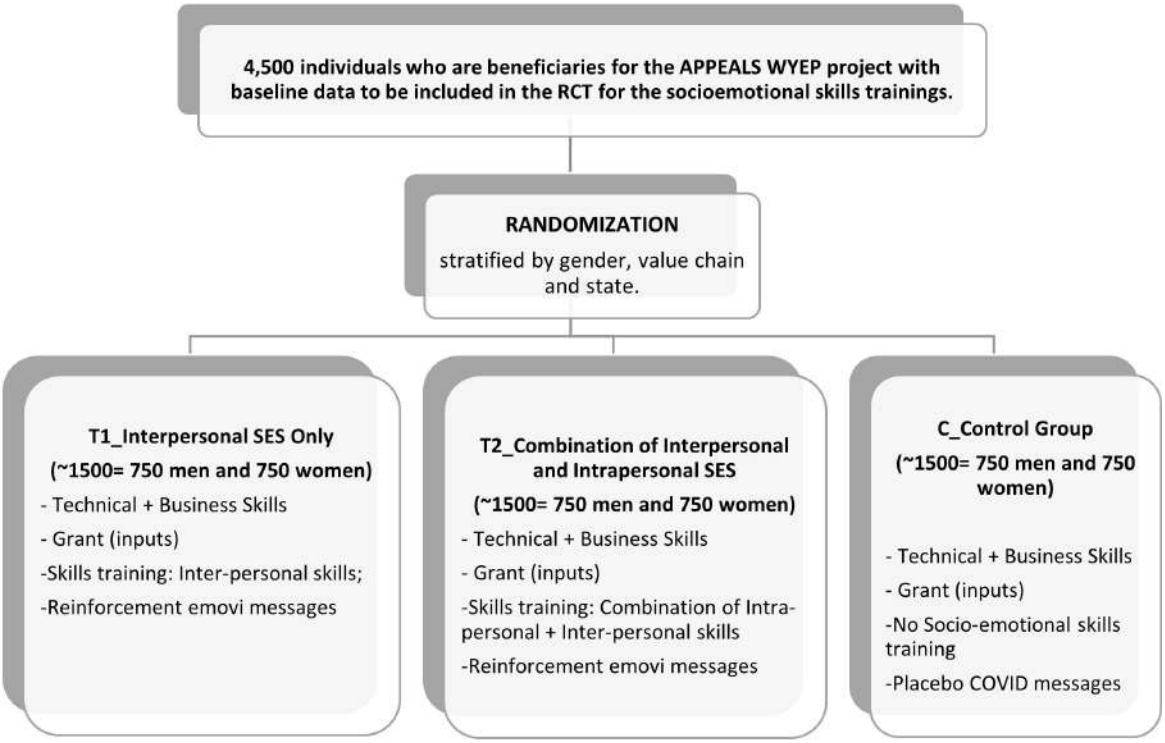


Figure 1: Impact Evaluation Design

The experimental design is a stratified randomized controlled trial (RCT) impact evalua-

tion of the SES trainings. Beneficiaries were assigned to three distinct groups, with individual random assignment stratified by gender of the business owner, by value chain selected for the APPEALS WYEP project, and by state geographic location:[39]

- T1: Treatment 1: Receives interpersonal SES only through classroom instruction and reinforcement messages.
- T2: Treatment 2: Receives a combination of intrapersonal and interpersonal SES through classroom instruction and reinforcement messages.
- C: Control Group: Receives no classroom SES training and receives placebo messaging on COVID-19 information.

The treatment arms are mutually exclusive. Comparing average outcomes for the treatment and control group arms post-intervention provides rigorous evidence on whether each program can generate impact. In each stratum, the sample is randomly assigned to one of the treatment arms. We randomly allocate the APPEALS WYEP beneficiaries into T1 (1/3), T2 (1/3), and C (1/3). The impact of T1 (interpersonal skills only) is assessed by comparing T1 outcomes to C outcomes while the marginal impact of T2 (intrapersonal + interpersonal skills) is estimated by comparing T2 outcomes to T1 outcomes. The combined impact of the combination of intra- and inter-personal skills is estimated by comparing T2 outcomes to C outcomes. This experiment enables us to identify the impact of offering interpersonal skills; plus the marginal impact of intrapersonal skills to aspiring agribusiness owners.

The control group was not invited to attend any SES training for the duration of the study. Since the reinforcement messages are to be sent over the phone, in order to minimize sharing of video content between treatment and control groups, the research team also developed placebo video messages containing information about COVID-19 to send to the control group and treatment group who did not attend a classroom-based training. The treatment group who did attend the classroom training gets specific skills-related content depending on the treatment assignment i.e., T1 receives only the interpersonal skills content and T2 receives both inter- and intra-personal skills content.

[39]Our sample comprises both men and women agribusiness owners across 6 states. The eligibility criteria to the APPEALS WYEP for men included being aged 18 to 40 years, unemployed or underemployed, graduates of universities or colleges of agriculture or completed secondary education with minimum of 18 months experience in agricultural value chains. The same criteria were set for women with the following exceptions: women above 40 years with less than senior secondary education but with experience in the agricultural value chain were also eligible for the program. The randomization is stratified by state, gender, and value chain. Value chain is that selected for their APPEALS WYEP agribusiness out of eleven priority value chains identified by the project.

A.2 Hypotheses

The study investigates how each training program affects business performance and productivity, measuring key enterprise-level outcomes such as annual and monthly profits and sales, capital investment, employment, and hours worked. It also examines changes in the business owner's SES, household income, consumption, intrahousehold power relations, and women's empowerment and decision-making within the household. The theory behind the SES training is that investment in SES leaves the respondent with a greater ability to make more effective use of the capital and technical skills provided by the APPEALS WYEP program. This leads to an improvement in business practices, and/or increased women's decision-making power and agency. This in turn improves business performance, making them and their household wealthier.

There are five key hypotheses to test:

Hypothesis 1: Neither interpersonal SES training (T1) nor the combination of interpersonal + intrapersonal SES training (T2) has an impact on economic outcomes, well-being outcomes, and decision-making power.

Hypothesis 2: Neither the interpersonal SES training (T1) nor the combination training (T2) has an impact on socioemotional skill constructs.

Hypothesis 3: The interpersonal SES training (T1) and combination training (T2) has no differentiated impact on SES, decision-making power, economic outcomes, and well-being outcomes.

Hypothesis 4: The impact of either treatment arm does not vary by gender.

Hypothesis 5: The impact of either treatment arm does not vary with gender norms at baseline.

A.3 Theory of Change

The SES intervention is expected to impart social and emotional skills such that beneficiaries profit more effectively from the economic components of the APPEALS WYEP program.

The APPEALS WYEP aims to address major constraints to market entry faced by potential agribusiness entrepreneurs, thereby providing business opportunities for women and young men as well as combating unemployment and low agricultural output. The combination of in-kind grants, training and business registration certificates gives beneficiaries improved access to both inputs and sales markets for the beneficiary to start their business activity. Beneficiaries may potentially obtain (additional) credits or grants from informal or formal sources to expand their business(es) and employ additional workers, making use of their improved access to inputs and sales markets. Sales generated by the firm's outputs

result in profits which can be either re-invested in the firm or used as income to support household consumption or investments, thus improving economic well-being. Higher household income might furthermore lead to an improvement in social welfare indicators, such as access to health services or children's school attendance. By employing additional workers, the new enterprises may also contribute to employment creation in the local community.

The set of SES included in the curricula was designed to span a range of skills while capturing and differentiating between skills that have previously been found to matter for labor market outcomes. Training on intrapersonal skills may improve: (1) awareness and emotional regulation, such that individuals can set goals, determine obstacles and areas for growth, and remain calm in the face of obstacles, (2) confidence and ability to persevere and focus despite obstacles, (3) self-control to better manage attention, time, and funds, and (4) personal initiative and problem-solving and decision-making, to plan for opportunities, innovate and pro-actively tackle challenges, and search and access available resources. Training on interpersonal skills may improve beneficiaries' (1) sense of empathy, and thus improve their ability to build trust and resolve issues with collaborators and customers, (2) social perceptiveness and discovery of opportunities, (3) ability to listen and communicate clearly and assert their needs and wants, (4) ability to proactively initiate relationships and grow business networks, and (5) ability to persuade, negotiate, and collaborate with competitors for market share, with suppliers and customers for pricing and synergies, and with household members for access to inputs, assets, capital, and time. The Theory of Change is summarized in Figure 2.

A.4 Implementation Costs of the SES Training

The intervention cost of the SES training is estimated from research and government budgets. To hire a consultant for the curriculum design and support for facilitation cost a total US$105,000. A total cost of US$306,000 was paid for implementation of the trainings across all six states. These variable costs for delivering the trainings include trainer salaries, travel, venue hire, transport costs for participants, and refreshments for trainers and participants. This comes to a total cost of US$411,000 and since 3,000 were trained across the six states that is equivalent to $137 per participant trained.

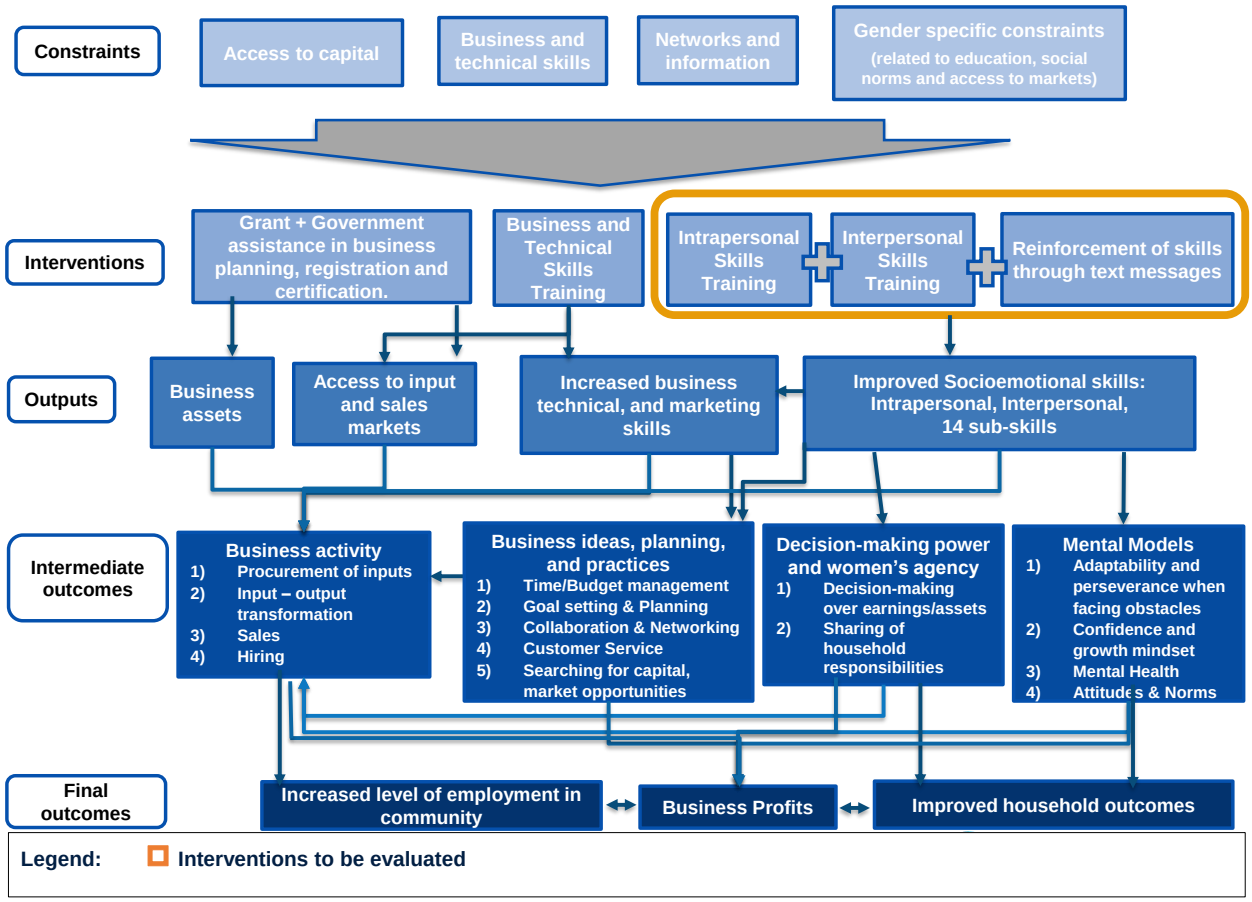


Figure 2: Theory of Change

Table A.1: Training Take-up Rates

Take-up Rate of SES Training By State	***Numbers and Percentage Trained in Each State***				***Percentage Trained by Treatment Assigment and Gender***			
	Numbers Trained in Each State			***Total Percentage Trained***	**T1 Inter only Male**	**T2 Combination inter_intra Male**	**T1 Inter only Female**	**T2 Combination inter_intra Female**
State	**No**	**Yes**	**Total**	**% Trained out of those Assigned**				
CrossRiver	87	413	500	82.6%	80.0%	86.4%	83.2%	80.8%
Kaduna	79	421	500	84.2%	86.4%	86.4%	87.2%	76.8%
Kano	132	368	500	73.6%	74.4%	72.8%	72.8%	74.4%
Kogi	103	397	500	79.4%	80.0%	78.4%	78.4%	80.8%
Lagos	133	367	500	73.4%	67.2%	73.6%	75.2%	77.6%
Enugu	96	404	500	80.8%	79.2%	84.0%	76.8%	83.2%
Total	630	2,370	3,000	**79.0%**	77.9%	80.3%	78.9%	78.9%

Notes: Take-up rates calculated using administrative data collected by the implementing partner and beneficiary surveys collected during the trainings.

Table A.2: Training Take-up Correlates

	(1)	(2)	(3)						
	Control Group (Not Invited to a Training)	Treatment and **Did Not Attend** Training	Treatment and **Attended** the Training	t-test Difference			Normalized difference		
Variable	Mean/SE	Mean/SE	Mean/SE	(1)-(2)	(1)-(3)	(2)-(3)	(1)-(2)	(1)-(3)	(2)-(3)
Gender of respondent (Female = 1 / Male = 0)	0.500	0.502	0.500	-0.002	0.000	0.002	-0.003	0.001	0.004
	[0.013]	[0.020]	[0.010]						
Age (Number)	33.054	31.456	33.231	1.598***	-0.177	-1.776***	0.209	-0.023	-0.232
	[0.200]	[0.289]	[0.158]						
Married (Yes =1)	0.618	0.569	0.610	0.049**	0.008	-0.041*	0.100	0.016	-0.084
	[0.013]	[0.020]	[0.010]						
Worked for pay in the last week (Yes = 1)	0.585	0.552	0.573	0.032	0.012	-0.021	0.065	0.024	-0.042
	[0.013]	[0.020]	[0.010]						
Business (Yes =1)	0.779	0.768	0.775	0.011	0.005	-0.006	0.027	0.011	-0.015
	[0.011]	[0.017]	[0.009]						
Average Monthly Profits Unconditional (Naira)	25839.589	26703.746	24313.112	-864.157	1526.476	2390.634	-0.016	0.028	0.048
	[1512.672]	[1889.867]	[1043.482]						
Number of Employees	0.987	1.056	1.038	-0.069	-0.051	0.018	-0.034	-0.025	0.008
	[0.051]	[0.085]	[0.043]						
Generalized self-efficacy score	4.168	4.169	4.162	-0.001	0.006	0.007	-0.003	0.014	0.016
	[0.011]	[0.018]	[0.009]						
Farming activities on your own farm (Yes = 1)	0.469	0.424	0.502	0.045*	-0.033**	-0.078***	0.090	-0.066	-0.155
	[0.013]	[0.020]	[0.010]						
Farming activities on someone else's farm (Yes = 1)	0.127	0.118	0.129	0.009	-0.002	-0.011	0.027	-0.007	-0.034
	[0.009]	[0.013]	[0.007]						
Non-farm activities (Yes = 1)	0.531	0.528	0.538	0.003	-0.007	-0.010	0.006	-0.015	-0.020
	[0.013]	[0.020]	[0.010]						
Livestock rearing (Yes = 1)	0.343	0.358	0.340	-0.014	0.003	0.018	-0.030	0.007	0.037
	[0.012]	[0.019]	[0.010]						
Wage Employment (Yes = 1)	0.099	0.089	0.109	0.010	-0.010	-0.020	0.035	-0.032	-0.066
	[0.008]	[0.011]	[0.006]						
Household Income (Naira)	61681.186	68528.084	55693.729	-6846.898	5987.457	12834.355***	-0.048	0.049	0.126
	[3903.042]	[4634.560]	[2000.579]						
Number of observations	1500	630	2370						

*Note: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.*

Table A.3: Estimated Percentage of Beneficiaries out of Eligible Population

	Percentage who met the eligibility criteria out of total population			Projected Population in 2019 (NBS, 2020)			Target Population (NBS & NLSS)			Number of APPEALS WYEP supported beneficiaries			Percent of APPEALS WYEP out of eligible population			Percent of APPEALS WYEP out of total population		
State	Male	Female	Both	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Both	Male	Female	Both
Cross River	4.1%	5.3%	4.7%	2,129,260	2,045,760	4,175,020	88,107	107,852	196,785	751	949	1,700	0.9%	0.9%	0.9%	0.04%	0.05%	0.04%
Enugu	5.2%	9.2%	7.4%	2,242,010	2,154,088	4,396,098	115,893	198,381	325,018	757	943	1,700	0.7%	0.5%	0.5%	0.03%	0.04%	0.04%
Kaduna	3.9%	7.9%	6.0%	4,245,386	4,078,899	8,324,285	165,708	324,165	496,906	723	993	1,716	0.4%	0.3%	0.3%	0.02%	0.02%	0.02%
Kano	3.9%	9.0%	6.5%	7,269,310	6,984,239	14,253,549	283,404	626,957	926,040	997	705	1,702	0.4%	0.1%	0.2%	0.01%	0.01%	0.01%
Kogi	4.9%	7.8%	6.4%	2,118,404	2,035,330	4,153,734	104,262	158,579	266,889	851	893	1,744	0.8%	0.6%	0.7%	0.04%	0.04%	0.04%
Lagos	8.6%	13.2%	10.8%	6,514,171	6,258,713	12,772,884	559,763	823,030	1,383,012	753	985	1,738	0.1%	0.1%	0.1%	0.01%	0.02%	0.01%
	5.1%	8.7%	7.0%										0.5%	0.4%	0.4%	0.03%	0.03%	0.03%

Notes: Data Sources: Eligibility statistics are from the National Bureau of Statistics (NBS) National Living Standard Survey (NLSS) 2020. Criteria used to estimate target population: for male: age -18 to 40, education - secondary secondary and above, unemployed in the last 7 days, and female: age - 18-70 years, education- junior secondary and above, unemployed in the last 7 days. Census Figures NBS Projected Census 2019 https://nigerianstat.gov.ng/download/1241121. Number of Beneficiaries from the APPEALS project.

A.5 Treatment-on-the-treated (TOT)

The take-up rates for the SES training were high at 79% across all 6 states (see Table A.1). In addition to estimating the ITT effects shown in equation 1, we estimate the treatment-on-the-treated (TOT) effect using instrumental variable (IV) estimation to estimate the local average treatment effect (LATE). The LATE can be interpreted as the average treatment effect (ATE) for compliers (i.e., those assigned to the treatment group who actually attend the SES trainings and those in the control group who do not receive treatment). We instrument attendance in the SES training with the random assignment to the treatment groups. This estimate enables us to control for non-compliance with treatment assignment as not everyone who is offered to attend the SES training attends (79% take-up). The LATE is only valid under the assumption that the very act of being invited to the SES trainings has no impact on outcomes even if you do not end up attending the training. Since for most respondents in our sample this assumption is likely to hold true we will estimate the LATE in addition to the ITT. The ToT results are similar to the ITT results so they are not shown.

A.6 Timeline of the Study



Figure 3: Timeline of the Study

B Definitions of SES and Categorization

ESTEEM Framework Effective Socio-emotional skills To gain Economic EMpowerment		
	Intrapersonal	**Interpersonal**
Awareness	**Emotional Awareness:** identifying and accepting one's emotions **Self-Awareness:** identifying and interpreting one's own thoughts and behaviors and evaluating one's strengths and weaknesses	**Listening:** attending to what other people are saying, taking time to understand other's point of view, asking clarifying questions and not interrupting at inappropriate times **Empathy:** understand another's viewpoint or thoughts and having emotional concern for another's situation or experience
Management	**Emotional Regulation:** maintaining or changing one's own emotions by controlling one's thoughts and behavioral responses **Self-Control:** focusing one's attention, staying on task, breaking habits, restraining impulses and keeping good self-discipline **Personal Initiative:** developing long-term goal, seeking opportunities to improve oneself and being motivated to put these plans and goals into action **Perseverance:** sustaining effort despite setbacks **Problem-Solving & Decision-Making:** approaching a problem by gathering information, generating a number of solutions and evaluating the consequences of these solutions before acting	**Expressiveness:** explaining ideas in a way that others will understand and openly expressing one's opinion **Interpersonal Relatedness:** taking actions intended to build trust and benefit others, initiating and maintaining relationships and being respectful, encouraging and caring for others **Interpersonal Influence:** communicating in a manner that changes other's perspectives and adapting one's behavior in situationally appropriate ways to influence others **Negotiation:** identifying one's own and others' interests and changing one's behaviors as a strategy for resolving interpersonal problems and achieving one's goals **Collaboration:** considering different perspective, listening and communicating in groups of two or more people, identifying situations involving group problem-solving and decision-making, and organizing and coordinating team members to create shared plans and goals

Figure 4: Definitions of Intrapersonal and Interpersonal SES

B.1 Socioemotional Skills Measures

B.1.1 Measure Development

This appendix provides additional details on the development of the SES measures.

Conceptual framework. The measurement team, including some of the authors, developed a framework of 14 socio-emotional skills (SES) (see Figure 4). The skills were designed to align with established frameworks (Collaborative for Academic, Social, and Emotional Learning, 2020; Goleman, 1998), be exhaustive and mutually exclusive, focus on skills tied to labor outcomes (Marsh et al., 2025; Delavallade et al., 2025), and incorporate social role theory to examine gender differences (Eagly and Wood, 2012b). Unlike the Big Five, which often perform poorly in LMIC contexts (Laajaj and Macours, 2021), this framework emphasizes mutable, economically relevant skills.

Cultural adaptation of framework. The framework was refined through ethnographic studies in Tanzania (Jukes et al., 2018, 2021; Ariapa and Akongo, 2021), focus groups in Nigeria, and interviews with African SES curriculum developers. These inputs emphasized how skills are intertwined, highlighted awareness skills and interpersonal skills (often excluded from SES curricula), and examined which behaviors were locally associated with each skill. Here, we excluded desirable behaviors with unclear policy implications (e.g., obedience, humor, being well-dressed).

Design and piloting of measures. The measurement team conducted an extensive review of existing measures and consulted with psychologists and practitioners. Development involved qualitative and cognitive interviews, and extensive translation process, expert reviews, piloting in three Sub-Saharan African countries, and enumerator protocols for low-literacy contexts. Self-report scales included 6–12 Likert items. Behavioral measures were selected or designed to be short ($\leq$5 minutes), offline-compatible, and open source.

In order to develop these measures, the team underwent an extensive process involving qualitative interviews, cognitive interviews, reviews by psychologists and SES trainers, and psychometric testing in several countries. Testing included an examination of inter-item reliability, exploratory and confirmatory factor analysis, the relationship between skills, and concurrent and predictive validity with employment variables. The development and results are shared in detail in Marsh et al. (2025) and Delavallade et al. (2025), and an overview of the design and scoring can be found in Appendix B.1.2.

Self-reported measures. Among the self-report scales in the ESTEEM framework, five skills are measured using original items developed by the measurement team based on theory, and nine are adapted from existing scales with the addition of selected original items. The sources for these items can be found in Marsh et al. (2025), and include influential papers

such as Schutte et al. (1998), Schwarzer and Jerusalem (1995), Duckworth and Quinn (2009), and Frese et al. (1997). These measures underwent several changes during the cognitive interview, content validity, and translation process.

Due to limited time, only seven of these measures were used in the endline of this study, two of which were original and five were adapted from existing measures, though two of these had a few original items. These seven measures were selected to include more of the management and composite (skills that often depend on other skills) skills that were expected to directly affect labor outcomes. The selection decision was also based on analysis, available at the time, of concurrent data of SES and labor outcomes. Self-reported measures included six to 12 items with a five-point Likert response scale.

Situational judgment tests (SJTs). While additional behavioral SES measures were collected, the analysis here includes one measure per skill. Here we share results for SJTs whenever possible such that results are as consistent and the theoretical concept captured is similar to that of self-reported measures. Each locally-sourced and tested scenario is followed by a series of actions associated with a given skill and respondents indicate "how likely" they are to take the action using a five-point scale.

SJTs are increasingly used in work settings and medical school admissions (Webster et al., 2020). SJTs avoid several key pitfalls of self-reported measures including domain ambiguity, reference bias, and social desirability bias. In practice, individuals were more likely to reflect on responses and predict "correct" responses. The only skills not represented by an SJT were *self-control* and *listening* which involved enumerator observation and a short task. They also capture broader constructs than many task-based measures, while remaining contextually relevant.

Behaviors associated with a given SES may differ with the domain; for example, one's expressiveness may differ based on whether they are interacting with employers, customers, employees, or household members. Thus, two to three scenarios are included per skill, each with a focus on economic empowerment. The scenarios were designed to examine SES in the context of economic empowerment, and to constrain the context in which individuals reported their likely behaviors in order to improve the comparability of responses from individuals with differing socioeconomic and demographic backgrounds. Measures utilize an adapted format that allows them to be administered verbally while minimizing cognitive load for respondents.

Task-based measures. Two skills were assessed using tasks: self-control (post-survey rating), and listening (listening prompt with comprehension questions and enumerator ratings).

Time cost Administering all 7 self-reports took 15 to 20 minutes; administering all 14

behavioral measures took 45 minutes, on average. Enumerator training time was approximately 7 hours for self-reports and 14 hours for behavioral measures.

B.1.2 Scoring

Self-report measures.

The score for each skill using the self-report measures was calculated as a simple average of item responses.[40] We use standardized variance-weighted indices, following Anderson (2008), of socio-emotional skills indices based on the self-reported measures. The measures of interpersonal skills include empathy, relatedness, and negotiation; and the intrapersonal skills include emotion regulation, perseverance, personal initiative, and problem- solving decision making (PSDM).

Behavioral measures.

Each scenario was followed by several possible actions; each was rated on a one to five scale of the individuals *likelihood* of taking the action. For example, one SJT examining *problem solving and decision-making* presented a scenario in which the individual owns a convenience store and profits have gone down because the price of lotion has increased. The individual is given some possible solutions and then asked how likely they are to "Calculate the effect of each solution on your profits".

For the SJTs, item lists for "good" actions—associated with utilizing a given skill—were separated into scenario-based dimensions. An arithmetic mean was used to combine actions within a scenario, and a geometric mean was used to combine scores across scenarios.

Final scores for individuals' skills were standardized by subtracting the mean and dividing by the standard deviation of the scores from the male sample. Scores for each skill category were then aggregated by calculating the geometric mean of the included individual skills. A modified geometric mean was utilized to prevent scores from zeroing out in the event that the score from one skill was zero.

The scores for task-based measures were based on simple averages. For listening, measures of active listening and listening comprehension were combined using a geometric mean.

[40]The team also ran the analysis using factor scores, available on request, but results were similar, and the simple average scores were considered simpler to utilize and interpret.

B.1.3 Examples of socioemotional skill measures from ESTEEM

Skill	Self-reported measure examples	Behavioral measure examples
Emotional awareness	"I know why my feelings change from one moment to another." / "I can usually describe what I am feeling at the moment in great detail."	SJT: Responding to a boss who criticizes you harshly (e.g., "How likely are you to notice how your boss's words made you feel?")
Self-awareness	"I understand my own behaviors." / "I monitor my thinking to ensure it is accurate."	SJT: Responding to poor performance review at work (e.g., "How likely are you to take time to think about how you can improve?")
Emotional regulation	"When I feel nervous, I know what to do to feel more relaxed." / "When I get upset, I can calm myself quickly."	SJT: Handling an employee who failed to deliver items for a client event (e.g., "How likely are you to take time to calm down before talking to your employee?")
Self-control	"I say inappropriate things." / "I do things that feel good in the moment, but I will regret later on."	Enumerator observation: e.g. "Respondent was able to pay close attention to questions, such that I rarely had to repeat myself."
Perseverance	"I finish whatever I begin." / "Setbacks don't discourage me."	SJT: You have a business in which you face several obstacles. (e.g., With each obstacle "How likely are you to let go of the business?")
Personal initiative	"I actively tackle problems." / "I take action immediately even when others don't."	SJT: Opening a shop without experience (e.g., "How likely is it that you will look for relevant training?")
Problem-solving and decision-making	"I solve most problems if I put in the necessary effort." / "I can find creative solutions to unplanned problems."	SJT: Workplace decision under ambiguity (e.g., "How likely are you to ask others for advice?")
Listening	"I ask questions to understand the other person's position on an issue." / "I begin talking before the other person finishes talking."	Task/Enumerator observation: Listening prompt followed by comprehension questions – enumerator rates attentiveness
Empathy	"If others are happy, I feel good." / "I can quickly sense when someone in the group is uncomfortable."	SJT: Employee is repeatedly late and you are frustrated (e.g., "How likely is it that you will ask them why they have been late?")
Expressiveness	"I am effective in communicating my ideas." / "I ask for what I need when I need it."	SJT : Community meeting on infrastructure (e.g., "How likely is it that you will share your idea with the group?")
Relatedness	"I find it easy to get people to trust me." / "I stay connected with people who are important to me."	SJT: You have a new shop and attend a party (e.g., "How likely are you to talk to at least 10 people about your new shop?")
Influence	"People like to follow my ideas." / "I evaluate social situations to decide the best way to act."	SJT: Convincing family to support a new business (e.g., "How likely are you to ask questions to understand why your family opposes you?")
Negotiation	"When I disagree with someone, I try to understand how that person feels." / "I convince people to change their mind without considering their needs when they disagree with me."	SJT: Persuading a family member to help with chores (e.g., "How likely are you to explain that if he helps, the whole family will benefit?")
Collaboration	"When I work with others, I tell others my ideas and ask for theirs in return." / "I can tell when a problem should be solved by a team of many people instead of one person alone."	SJT: Meeting to organize a local festival (e.g., "If some in the group are quiet, how likely is it that you will encourage them to speak?")

Note that not all examples were included in the measures used for this study.

B.2 Training modules

In this subsection we provide additional detail on the intervention described in Section 2. The intervention was designed by Alkimia Consulting and took place from September 2021 to February 2022. In order to examine which skills mattered most, the research team requested that the curricula follow a few criteria: function in a low-literacy setting, be open-source (now available at www.poverty-action.org/ses), dedicate a similar amount of time to each skill, and align with the definition of the 14 skills in the ESTEEM framework (Marsh et al., 2025). The list of skills was designed to be as exhaustive and mutually exclusive as possible and includes four sub-categories: self-awareness skills (emotional awareness, self-awareness); social awareness skills (listening, empathy); self-management skills (emotional regulation, self-control, perseverance, personal initiative, problem-solving, and decision making); and relationship management skills (expressiveness, interpersonal relatedness, influence, negotiation, and collaboration). The Intrapersonal (Inward) modules focused on the seven self-awareness and self-regulation skills. The Interpersonal modules focused on the seven social awareness and relationship management skills (see Appendix Figure 4).

One set of training included the Interpersonal modules, and one set of training included both the Intrapersonal and Interpersonal modules. Each set of training totaled 4 days, 7.5 hours per day including breaks. The training is based on an experiential learning approach, involving self-reflection and continuous engagement through open-ended questions, case studies, role-playing, and powerful visuals. Example exercises for the intrapersonal modules include a self-awareness exercise in which one uses a tree of life to identify their values and dreams, an overfilled jug used to symbolize emotional regulation, and stones in a river to symbolize goal setting and achievement. Example exercises for the interpersonal modules included using African proverbs to reflect on relationship building, role playing as one listens with the head and heart, and using "I" statements to develop expressiveness and influence. Each participant received a workbook to complete their reflection exercises. Participants received a certificate for training completion.

Facilitators first received the training themselves, which also served as a training pilot. They were then trained on facilitation skills, which included instruction on using the materials, managing groups, and challenging participants, as well as teach-back and feedback sessions. Several facilitators reported conducting this training in other settings after the APPEALS WYEP training.

C Additional tables

Table C.1: Impact on Labor Supply, Income and Consumption: MHT-adjusted

Outcome	Treatment group	Model p-value	Sharpened q-value
Employment (Yes=1)	T1 on men	0.21	1.00
	T2 on men	0.14	0.31
	T1 on women	0.05**	0.13
	T2 on women	0.02**	0.04‡
Engaged in farming only	T1 on men	0.80	1.00
	T2 on men	0.06*	0.31
	T1 on women	0.22	0.20
	T2 on women	0.03**	0.04‡
Engaged in non-farm act. only	T1 on men	0.62	1.00
	T2 on men	0.43	0.31
	T1 on women	0.10*	0.13
	T2 on women	0.47	0.31
Engaged in both farming and non-farm act.	T1 on men	0.98	1.00
	T2 on men	0.12	0.31
	T1 on women	0.03**	0.13
	T2 on women	0.02**	0.04‡
Hours worked for pay in a day	T1 on men	0.48	1.00
	T2 on men	0.39	0.31
	T1 on women	0.50	0.25
	T2 on women	0.69	0.38
Total household income (IHS)	T1 on men	0.06*	0.07†
	T2 on men	0.88	1.00
	T1 on women	0.21	1.00
	T2 on women	0.24	0.68
Food consumption (Daily adult equivalence)	T1 on men	0.40	0.11
	T2 on men	0.77	1.00
	T1 on women	0.91	1.00
	T2 on women	0.95	0.68
Temptation goods (Daily adult equivalence)	T1 on men	0.04**	0.06†
	T2 on men	0.04**	0.20
	T1 on women	0.61	1.00
	T2 on women	0.30	0.68
Food security index	T1 on men	0.01***	0.06†
	T2 on men	0.75	1.00
	T1 on women	0.39	1.00
	T2 on women	0.12	0.68

Notes: The q-values are calculated by aggregating hypotheses across the outcomes and treatments contained within a family of outcomes related to employment; and a family of outcomes related to income and consumption. Stars denote p-value significance: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Daggers denote q-value thresholds: $^{\dagger}q < 0.10$, $^{\ddagger}q < 0.05$, $^{\ddagger\ddagger}q < 0.01$.

Table C.2: Impact on Business performance (unconditional): MHT-adjusted

Outcome	Treatment group	Model p-value	Sharpened q-value
Business in operation	T1 on men	0.78	1.00
	T2 on men	0.77	1.00
	T1 on women	0.84	1.00
	T2 on women	0.76	0.62
No. of workers employed	T1 on men	0.80	1.00
	T2 on men	0.85	1.00
	T1 on women	0.81	1.00
	T2 on women	0.60	0.62
No. of female workers employed	T1 on men	0.25	1.00
	T2 on men	0.04^{**}	0.20
	T1 on women	0.30	1.00
	T2 on women	0.07^{*}	0.39
Value of business capital (IHS)	T1 on men	0.59	1.00
	T2 on men	0.95	1.00
	T1 on women	0.91	1.00
	T2 on women	0.19	0.39
Total annual profits (IHS)	T1 on men	0.82	1.00
	T2 on men	0.78	1.00
	T1 on women	0.05^{**}	$0.05^{\ddagger}$
	T2 on women	0.03^{**}	$0.09^{\dagger}$
Total annual revenues (IHS)	T1 on men	0.50	1.00
	T2 on men	0.69	1.00
	T1 on women	0.25	$0.09^{\dagger}$
	T2 on women	0.28	0.39
Total annual profits – estimated (IHS)	T1 on men	0.37	1.00
	T2 on men	0.69	1.00
	T1 on women	0.01^{**}	$0.03^{\ddagger}$
	T2 on women	0.43	0.40

Notes: The q-values are calculated by aggregating hypotheses across the outcomes and treatments contained within a family of outcomes related to profits and sales; and a family of outcomes related to job creation and capital investment. Stars denote p-value significance: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Daggers denote q-value thresholds: $^{\dagger}q < 0.10$, $^{\ddagger}q < 0.05$, $^{\ddagger\ddagger}q < 0.01$.

Table C.3: Impact on Business Profits

	(1) Business made positive profits at endline (Yes=1; No=0)	(2) Log of Annual Profits (Unconditional)	(3) Log of Annual Profits (Conditional)	(4) Log of Monthly Profits (Unconditional)	(5) Log of Annual Revenues minus Costs (Unconditional)	(6) Profits Standardized Index
Women (0/1)	-0.03*	-0.95***	-0.84***	-0.41**	-1.43***	-0.18***
	(0.02)	(0.23)	(0.18)	(0.19)	(0.36)	(0.04)
T1: Interpersonal only	0.01	0.04	-0.03	0.18	-0.25	0.02
	(0.02)	(0.21)	(0.16)	(0.18)	(0.35)	(0.04)
T2: Combination Inter Intra	0.01	-0.06	-0.10	0.24	0.13	-0.03
	(0.02)	(0.21)	(0.16)	(0.18)	(0.35)	(0.06)
T1 × Women	0.02	0.39	0.34	0.02	1.20**	0.05
	(0.02)	(0.30)	(0.23)	(0.26)	(0.50)	(0.05)
T2 × Women	0.03	0.55*	0.45*	0.04	0.30	0.10
	(0.02)	(0.30)	(0.23)	(0.26)	(0.50)	(0.07)
Observations	3756	3756	2532	3756	3756	3756
R-squared	0.022	0.032	0.039	0.035	0.038	0.031
Control group mean	0.92	12.09	12.86	10.00	9.52	0.09
Treatment effect of T1 | Women	0.03**	0.43**	0.31*	0.20	0.95***	0.07**
P-value: T1 + T1 × Women = 0	(0.05)	(0.05)	(0.07)	(0.28)	(0.01)	(0.04)
Treatment effect of T2 | Women	0.04**	0.48**	0.34**	0.28	0.44	0.06*
P-value: T2 + T2 × Women = 0	(0.02)	(0.03)	(0.04)	(0.13)	(0.22)	(0.07)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.74)	(0.60)	(0.61)	(0.76)	(0.27)	(0.33)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.78)	(0.82)	(0.80)	(0.67)	(0.13)	(0.78)

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are defined as follows: Business made positive profits at endline is a binary variable equal to 1 if the respondent reports positive profits and 0 otherwise; Annual business profits, Monthly business profits, and Calculated profits (revenues minus costs) are measured in Nigerian naira and transformed using a logarithmic transformation. For the annual profits measure, we report both unconditional (profits set to zero if the business is not operational) and conditional on being operational (profits set to missing if the business is not operational) versions. Profits Index is a standardized index that aggregates across all profit measures and transformations (including winsorization at the 95th percentile, logarithmic and IHS transformations).

(2) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effects for women and the p-value for the marginal effect of intrapersonal skills for men and for women are shown at the bottom of the tables.

(3) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(4) Robust standard errors are reported in parentheses.

Table C.4: Impacts on Business and Household Outcomes

	(1) Annual business costs (IHS)	(2) Started a new business (Yes=1; No=0)	(3) Share of income contributed to household
Panel A: ITT estimate - Full sample			
Women (0/1)	-0.67***	-0.03	-18.90***
	(0.23)	(0.02)	(1.68)
T1: Interpersonal only	0.13	0.01	2.67
	(0.21)	(0.02)	(1.67)
T2: Combination Inter_Intra	0.04	0.03	1.24
	(0.21)	(0.02)	(1.49)
T1 x Women	-0.16	0.03	-2.86
	(0.31)	(0.03)	(2.56)
T2 x Women	0.34	-0.01	-2.89
	(0.31)	(0.03)	(2.48)
Observations	3756	3610	3743
R-squared	0.045	0.019	0.122
Control group mean	12.95	0.20	71.78
Treatment effect of T1 | Women	-0.02	0.04**	-0.19
P-value: T1 + T1 × Women = 0	(0.92)	(0.05)	(0.92)
Treatment effect of T2 | Women	0.37*	0.02	-1.66
P-value: T2 + T2 × Women = 0	(0.09)	(0.33)	(0.40)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.65)	(0.54)	(0.38)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.07)	(0.34)	(0.48)
Panel B: Heterogeneity by Norms - Women sample			
Perceived community norm	0.11*	0.01	-0.24
	(0.06)	(0.01)	(0.46)
T1: Interpersonal Only	0.36	0.01	-0.32
	(0.49)	(0.04)	(4.87)
T2: Combination Inter_Intra	0.67	0.06	1.23
	(0.44)	(0.04)	(4.05)
T1 x Perceived community norm	-0.08	0.01	-0.03
	(0.09)	(0.01)	(0.86)
T2 x Perceived community norm	-0.06	-0.01	-0.63
	(0.08)	(0.01)	(0.78)
Observations	1870	1818	1836
R-squared	0.055	0.019	0.092
Control group mean (Perceived community norm = 0)	12.62	0.18	55.85
Panel C: Heterogeneity by Norms - Men sample			
Perceived community norm	-0.05	0.01	0.30
	(0.05)	(0.01)	(0.39)
T1: Interpersonal Only	-0.21	0.04	7.12
	(0.44)	(0.05)	(4.64)
T2: Combination Inter_Intra	0.33	0.04	1.34
	(0.42)	(0.05)	(3.06)
T1 x Perceived community norm	0.07	-0.01	-0.82
	(0.07)	(0.01)	(0.74)
T2 x Perceived community norm	-0.05	-0.00	-0.03
	(0.08)	(0.01)	(0.53)
Observations	1886	1792	1907
R-squared	0.047	0.037	0.024
Control group mean (Perceived community norm = 0)	13.66	0.08	67.41

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Robust standard errors in parentheses.

(1) Outcome variables are: (i) annual business costs (IHS transformed); (ii) binary indicator for whether the respondent started a new business in the last 3 months; and (iii) percentage share of income contributed to the household.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by perceived community norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table C.5: Impact on Individual Business Practices

	(1) Requested customer satisfaction feedback	(2) Asked for employee ideas/feedback	(3) Analyzed sales of the main product/service	(4) Looked for new markets	(5) Sought mentor/ expert guidance
Panel A: ITT estimate - Full sample					
Women (0/1)	0.08	-0.04	0.03	0.00	-0.00
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T1: Interpersonal only	0.09	0.16***	0.10*	0.09	0.14**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T2: Combination Inter Intra	0.10*	0.09	0.04	0.01	0.02
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
T1 x Women	-0.08	-0.10	-0.05	-0.04	-0.08
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
T2 x Women	-0.07	-0.04	-0.02	0.09	0.04
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Observations	3610	3610	3610	3610	3610
R-squared	0.042	0.018	0.053	0.029	0.030
Control male mean	-0.02	0.03	-0.01	0.01	0.01
Treatment effect of T1 | Women	0.01	0.05	0.05	0.05	0.06
P-value: T1 + T1 × Women = 0	(0.91)	(0.35)	(0.41)	(0.40)	(0.30)
Treatment effect of T2 | Women	0.03	0.05	0.01	0.09	0.06
P-value: T2 + T2 × Women = 0	(0.59)	(0.43)	(0.83)	(0.11)	(0.26)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.86)	(0.26)	(0.28)	(0.18)	(0.05)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.68)	(0.87)	(0.55)	(0.45)	(0.93)
Panel B: Heterogeneity by Norms - Women sample					
Perceived community norm	0.03**	0.03*	0.02	-0.01	0.02
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
T1: Interpersonal Only	0.09	0.05	0.14	-0.06	0.05
	(0.11)	(0.11)	(0.11)	(0.12)	(0.11)
T2: Combination Inter_Intra	0.06	0.15	0.03	0.15	0.08
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
T1 x Perceived community norm	-0.02	0.00	-0.02	0.02	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.00	-0.02	-0.00	-0.01	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1818	1818	1818	1818	1818
R-squared	0.062	0.023	0.072	0.039	0.036
Control group mean (Perceived community norm = 0)	-0.09	-0.14	-0.13	-0.03	-0.06
Panel C: Heterogeneity by Norms - Men sample					
Perceived community norm	-0.00	-0.03*	-0.00	-0.01	-0.00
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)
T1: Interpersonal Only	0.05	0.03	-0.02	-0.04	-0.02
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
T2: Combination Inter_Intra	0.26**	0.12	0.15	-0.03	0.10
	(0.13)	(0.13)	(0.12)	(0.13)	(0.12)
T1 x Perceived community norm	0.01	0.02	0.02	0.02	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.03	-0.00	-0.02	0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1792	1792	1792	1792	1792
R-squared	0.039	0.028	0.047	0.026	0.037
Control group mean (Perceived community norm = 0)	0.07	0.25	0.23	0.17	0.25

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Robust standard errors in parentheses.

(1) Outcomes are standardized (KLING z-scores) based on averaged responses across both IGAs and capture how often, in the last three months, the respondent: (1) requested satisfaction feedback from clients/customers; (2) solicited ideas/feedback from employees; (3) analyzed sales of the main product/service; (4) explored new markets; and (5) sought guidance from a mentor/experienced person.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by perceived community norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table C.6: Impact on Socioemotional Skills - Aggregates

	(1) Self Reported SES	(2) Self Reported Interpersonal SES	(3) Self Reported Intrapersonal SES	(4) Behavioral SES	(5) Behavioral Interpersonal SES	(6) Behavioral Intrapersonal SES
Panel A: ITT estimate - Full sample						
Women (0/1)	-0.15***	-0.13**	-0.15***	-0.01	-0.04	0.04
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
T1: Interpersonal only	0.07	0.08	0.04	0.03	0.03	0.03
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
T2: Combination Inter Intra	-0.02	-0.02	-0.01	0.04	0.03	0.03
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
T1 x Women	0.02	0.04	-0.00	0.01	0.06	-0.05
	(0.07)	(0.08)	(0.07)	(0.07)	(0.08)	(0.07)
T2 x Women	0.05	0.05	0.05	-0.06	-0.02	-0.10
	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.07)
Observations	3610	3610	3610	3860	3863	3872
R-squared	0.163	0.101	0.208	0.115	0.085	0.132
Control group mean	0.06	0.05	0.07	0.01	0.03	-0.02
Treatment effect of T1 | Women	0.09*	0.13**	0.04	0.04	0.09*	-0.02
P-value: T1 + T1 x Women = 0	(0.08)	(0.02)	(0.42)	(0.41)	(0.10)	(0.71)
Treatment effect of T2 | Women	0.04	0.03	0.04	-0.02	0.01	-0.07
P-value: T2 + T2 x Women = 0	(0.49)	(0.64)	(0.39)	(0.65)	(0.83)	(0.19)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.12)	(0.07)	(0.33)	(0.96)	(0.98)	(0.95)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.31)	(0.08)	(0.96)	(0.20)	(0.15)	(0.36)
Panel B: Heterogeneity by Norms - Women sample						
Perceived community norm	0.05***	0.05***	0.03**	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal Only	0.32***	0.35***	0.25**	0.10	0.10	0.08
	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.10)
T2: Combination Inter Intra	0.40***	0.41***	0.34***	0.09	0.14	-0.00
	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)
T1 x Perceived community norm	-0.05**	-0.05**	-0.05**	-0.01	-0.00	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.08***	-0.08***	-0.07***	-0.02	-0.03	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1818	1818	1818	1926	1927	1934
R-squared	0.147	0.092	0.192	0.108	0.085	0.123
Control group mean (Perceived community norm = 0)	-0.30	-0.33	-0.24	0.00	-0.05	0.06
Panel C: Heterogeneity by Norms - Men sample						
Perceived community norm	0.01	0.01	0.01	-0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
T1: Interpersonal Only	0.07	0.02	0.12	0.05	0.07	0.01
	(0.12)	(0.12)	(0.12)	(0.11)	(0.11)	(0.12)
T2: Combination Inter Intra	0.08	0.08	0.07	0.13	0.08	0.17
	(0.12)	(0.13)	(0.12)	(0.11)	(0.11)	(0.11)
T1 x Perceived community norm	-0.00	0.01	-0.01	-0.00	-0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
T2 x Perceived community norm	-0.02	-0.02	-0.01	-0.02	-0.01	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1792	1792	1792	1934	1936	1938
R-squared	0.188	0.124	0.229	0.135	0.097	0.153
Control group mean (Perceived community norm = 0)	-0.13	-0.11	-0.14	0.13	0.16	0.08

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables are aggregates of standardized indices of interpersonal and intrapersonal socioemotional skills based on self-reported and situational judgment tests (SJTs) respectively.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity analysis by social norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain. Results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table C.7: Impact on Pro-WEAI and Decision-Making Power

	(1) Pro-WEAI index (modified)	(2) Decision-making power index	(3) Any sole decision making power (Yes=1; No=0)	(4) Hours per day on work (Female)	(5) Hours per day on chores and care (Female)	(6) Hours per day on work (Spouse)	(7) Hours per day on chores and care (Spouse)
Panel A: ITT estimate - Women sample							
T1: Interpersonal only	0.02	-0.08	0.02*	0.09	0.34*	0.11	0.07
	(0.06)	(0.11)	(0.01)	(0.15)	(0.19)	(0.21)	(0.20)
T2: Combination Inter Intra	0.07	-0.06	0.00	-0.07	0.14	0.30	-0.19
	(0.06)	(0.11)	(0.01)	(0.16)	(0.18)	(0.20)	(0.19)
Observations	1943	1943	1943	1943	1943	1432	1436
R-squared	0.045	0.041	0.017	0.163	0.042	0.067	0.028
Control group mean	6.84	3.77	0.94	6.54	6.47	6.51	2.93
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.40)	(0.83)	(0.09)	(0.30)	(0.30)	(0.35)	(0.16)
Panel B: Heterogeneity by Norms - Women sample							
Perceived community norm	-0.01	0.01	0.01**	-0.06	0.06	-0.07	-0.00
	(0.02)	(0.03)	(0.00)	(0.04)	(0.05)	(0.06)	(0.05)
T1: Interpersonal only	-0.08	0.02	0.06**	0.09	0.77**	-0.05	0.03
	(0.13)	(0.23)	(0.03)	(0.30)	(0.39)	(0.42)	(0.38)
T2: Combination Inter Intra	0.08	0.05	0.04	-0.88***	0.40	-0.48	-0.00
	(0.13)	(0.23)	(0.03)	(0.30)	(0.37)	(0.42)	(0.36)
T1 x Perceived community norm	0.02	-0.02	-0.01*	-0.00	-0.09	0.03	0.01
	(0.02)	(0.04)	(0.00)	(0.06)	(0.07)	(0.08)	(0.07)
T2 x Perceived community norm	-0.00	-0.03	-0.01	0.18***	-0.06	0.17**	-0.04
	(0.02)	(0.04)	(0.00)	(0.06)	(0.07)	(0.08)	(0.07)
Observations	1943	1943	1943	1943	1943	1432	1436
R-squared	0.045	0.041	0.020	0.169	0.042	0.072	0.027
Control group mean (Perceived community norm = 0)	6.82	3.43	0.89	7.05	5.97	7.51	2.41

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.
(1) Outcome variables include the pro-WEAI empowerment index, a measure of women's empowerment based on eight indicators in which the respondent is "adequate": self-efficacy; attitudes toward intimate partner violence (IPV); input into productive decisions; ownership of land and other assets; access to and decisions on financial services; control over use of income; work–life balance; and mobility (visiting important locations). Decision-making power index is the count of decisions for which the woman reports being the sole or a joint decision-maker. "Any sole decision-making power" is a binary variable equal to 1 if the respondent reports sole authority over any of the economic or household spending decisions at endline.
(2) T1: *Interpersonal only* is a binary variable for the interpersonal-skills-only treatment group, and T2: *Combination Inter Intra* is the combined interpersonal and intrapersonal skills training treatment group. The p-value for the marginal effect of intrapersonal skills for women is shown at the bottom of the table.
(3) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.
(4) Robust standard errors are reported in parentheses.

Table C.8: Impact on Asset Ownership

	(1) Value of livestock assets ('000 NGN)	(2) Value of farming assets ('000 NGN)	(3) Value of household assets ('000 NGN)	(4) Value of other productive assets ('000 NGN)
Panel A: ITT estimate - Full sample				
Women (0/1)	-136.44**	-429.82***	184.72	58.20
	(66.53)	(161.17)	(582.96)	(107.86)
T1: Interpersonal only	52.03	89.98	-131.80	-23.92
	(69.99)	(185.96)	(594.71)	(100.01)
T2: Combination Inter Intra	27.33	-33.00	-260.69	-171.67*
	(68.12)	(171.23)	(564.75)	(94.35)
T1 x Women	-94.54	211.32	565.12	131.96
	(89.85)	(245.87)	(869.52)	(155.49)
T2 x Women	-23.94	195.64	649.48	316.81**
	(90.15)	(226.98)	(848.47)	(149.46)
Observations	3890	3890	3890	3890
R-squared	0.061	0.031	0.017	0.025
Control group mean	481.85	1221.05	4265.32	927.50
Treatment effect of T1 | Women	-42.51	301.29*	433.32	108.03
P-value: T1 + T1 x Women = 0	(0.45)	(0.06)	(0.50)	(0.37)
Treatment effect of T2 | Women	3.38	162.64	388.79	145.13
P-value: T2 + T2 x Women = 0	(0.95)	(0.28)	(0.54)	(0.21)
P-value (Marginal effect intrapersonal skills | Men = 0)	(0.72)	(0.50)	(0.82)	(0.12)
P-value (Marginal effect intrapersonal skills | Women = 0)	(0.39)	(0.40)	(0.95)	(0.76)
Panel B: Heterogeneity by Norms - Women sample				
Perceived community norm	-7.67	2.64	60.03	-34.41
	(14.40)	(39.01)	(171.79)	(30.74)
T1: Interpersonal Only	-120.83	256.70	386.98	-114.63
	(103.12)	(342.38)	(1463.08)	(263.33)
T2: Combination Inter_Intra	-107.16	93.04	-71.79	-160.55
	(103.41)	(302.77)	(1286.92)	(239.34)
T1 x Perceived community norm	17.34	10.24	13.99	49.90
	(18.88)	(66.07)	(285.57)	(48.32)
T2 x Perceived community norm	25.33	14.53	103.59	68.95
	(20.55)	(58.97)	(261.19)	(45.83)
Observations	1943	1943	1943	1943
R-squared	0.058	0.027	0.024	0.025
Control group mean (Perceived community norm = 0)	385.15	584.25	3929.48	1109.17
Panel C: Heterogeneity by Norms - Men sample				
Perceived community norm	-6.25	46.48	313.32*	-6.09
	(19.88)	(50.17)	(172.32)	(30.94)
T1: Interpersonal Only	-65.23	845.63*	-135.39	-182.61
	(159.36)	(461.99)	(1104.02)	(228.59)
T2: Combination Inter_Intra	49.22	275.45	2036.98	-249.55
	(167.53)	(390.67)	(1268.69)	(212.15)
T1 x Perceived community norm	21.64	-140.68*	-26.42	26.39
	(26.26)	(74.47)	(213.58)	(39.90)
T2 x Perceived community norm	-3.57	-59.27	-440.52**	12.69
	(26.68)	(66.87)	(223.01)	(36.18)
Observations	1947	1947	1947	1947
R-squared	0.070	0.038	0.026	0.032
Control group mean (Perceived community norm = 0)	691.98	1609.77	4379.79	1600.48

Notes: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

(1) Outcomes include total value of assets owned by the respondent categorized as livestock, farming, household and other productive assets, denominated in '000 Nigerian Naira.

(2) Panel A reports intent-to-treat (ITT) estimates for the full sample; Panels B and C present heterogeneity by perceived community norms for women and men, respectively.

(3) T1: *Interpersonal only* is a binary indicator for the interpersonal-skills-only treatment group; T2: *Combination Inter Intra* is a binary indicator for the combined interpersonal and intrapersonal skills training group. *Women* equals 1 if the respondent is female and 0 if male. T1 and T2 effect for women and the p-value for the marginal effect of intrapersonal skills for men and women are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification where applicable, accounting for the baseline level of the outcome variable. All regressions include controls for age, marital status, and education. Randomization strata include fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

(6) *Perceived community norm* (Panels B and C) is measured on a 0–10 scale (integer increments) capturing the perceived number of community members (out of 10) who believe that if a woman earns more than her husband, it is almost certain to cause problems; 0 indicates the most gender-liberal environment and 10 the most gender-conservative. Interaction terms capture treatment-effect heterogeneity by norms; a negative coefficient signifies a decrease in the treatment effect size associated with perceiving that one additional community member holds this belief.

Table C.9: Heterogeneity Analysis by Marital Status

	(1) Employment (Yes=1; No=0)	(2) Total HH income (IHS)	(3) Business in operation (Yes=1; No=0)	(4) Annual business profits (IHS)	(5) Value of business capital (IHS)	(6) Amount of savings (NGN)	(7) Business practices – Aggregate	(8) Self Reported Interpersonal SES	(9) Self Reported Intrapersonal SES	(10) Behavioral Interpersonal SES	(11) Behavioral Intrapersonal SES
Panel A: Women Sample											
Married (0/1)	0.03	0.25*	-0.00	0.46	0.57	28222.64	0.09	0.03	-0.02	-0.07	-0.01
	(0.02)	(0.14)	(0.03)	(0.40)	(0.52)	(21737.38)	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)
T1: Interpersonal only	0.05*	-0.08	-0.03	0.29	0.49	26496.96	0.05	0.09	0.00	0.15	0.04
	(0.02)	(0.15)	(0.03)	(0.44)	(0.58)	(28253.31)	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)
T2: Combination Inter Intra	0.03	0.01	-0.02	0.32	0.64	44134.25	0.16	0.03	-0.03	0.04	-0.13
	(0.03)	(0.17)	(0.04)	(0.45)	(0.61)	(28149.60)	(0.11)	(0.10)	(0.09)	(0.10)	(0.09)
T1 × Married	-0.03	-0.02	0.03	0.23	-0.79	905.01	-0.00	0.06	0.06	-0.08	-0.08
	(0.03)	(0.19)	(0.04)	(0.52)	(0.71)	(34375.20)	(0.12)	(0.12)	(0.11)	(0.12)	(0.11)
T2 × Married	-0.00	0.12	0.02	0.22	-0.30	-11941.99	-0.14	-0.00	0.11	-0.04	0.10
	(0.03)	(0.19)	(0.04)	(0.53)	(0.75)	(34229.43)	(0.12)	(0.12)	(0.11)	(0.12)	(0.11)
Observations	1943	1943	1943	1870	1870	1818	1818	1818	1818	1927	1934
R-squared	0.056	0.039	0.020	0.034	0.183	0.018	0.060	0.083	0.186	0.084	0.123
Control group mean	0.91	12.10	0.87	11.50	4.47	101838.00	-0.01	-0.10	-0.14	0.00	-0.00
Treatment effect of T1 | Married	0.02	-0.11	0.01	0.52**	-0.31	27401.97	0.04	0.14**	0.06	0.06	-0.05
P-value: T1 + T1 × Married = 0	(0.27)	(0.33)	(0.77)	(0.05)	(0.46)	(0.15)	(0.50)	(0.03)	(0.33)	(0.33)	(0.47)
Treatment effect of T2 | Married	0.03**	0.13	-0.00	0.55**	0.35	32192.26*	0.02	0.03	0.08	0.00	-0.04
P-value: T2 + T2 × Married = 0	(0.03)	(0.12)	(1.00)	(0.04)	(0.41)	(0.09)	(0.70)	(0.68)	(0.19)	(0.95)	(0.57)
P-value (Marginal effect intrapersonal skills | Not married = 0)	(0.55)	(0.59)	(0.91)	(0.94)	(0.80)	(0.58)	(0.26)	(0.55)	(0.69)	(0.27)	(0.07)
P-value (Marginal effect intrapersonal skills | Married = 0)	(0.31)	(0.02)	(0.76)	(0.91)	(0.13)	(0.82)	(0.77)	(0.09)	(0.75)	(0.36)	(0.87)
Panel B: Men Sample											
Married (0/1)	0.01	-0.10	0.03	0.58*	0.45	5449.30	0.10	-0.18**	-0.07	-0.25***	-0.18**
	(0.01)	(0.10)	(0.03)	(0.34)	(0.56)	(31345.49)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)
T1: Interpersonal only	0.02	0.06	-0.00	0.21	0.09	26811.85	0.06	-0.01	-0.05	-0.04	-0.08
	(0.01)	(0.08)	(0.03)	(0.35)	(0.55)	(31898.74)	(0.09)	(0.08)	(0.08)	(0.07)	(0.08)
T2: Combination Inter Intra	0.02	-0.03	0.03	0.10	0.41	37860.44	0.05	-0.16*	-0.05	-0.06	-0.04
	(0.01)	(0.11)	(0.03)	(0.36)	(0.54)	(30741.42)	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)
T1 × Married	-0.02	0.10	-0.00	-0.26	0.13	4692.48	0.00	0.17	0.17*	0.13	0.19*
	(0.02)	(0.13)	(0.04)	(0.45)	(0.74)	(42873.54)	(0.11)	(0.11)	(0.10)	(0.10)	(0.11)
T2 × Married	-0.01	0.08	-0.04	-0.30	-0.79	-20439.78	-0.07	0.24**	0.09	0.17	0.13
	(0.02)	(0.15)	(0.04)	(0.46)	(0.72)	(41420.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.10)
Observations	1947	1947	1947	1886	1886	1792	1792	1792	1792	1936	1938
R-squared	0.018	0.047	0.022	0.026	0.157	0.015	0.035	0.125	0.230	0.097	0.153
Control group mean	0.96	12.23	0.85	12.47	6.11	171722.75	-0.00	0.09	0.04	0.12	0.06
Treatment effect of T1 | Married	0.00	0.16*	-0.01	-0.06	0.23	31504.33	0.06	0.16**	0.12*	0.08	0.11
P-value: T1 + T1 × Married = 0	(0.80)	(0.09)	(0.82)	(0.84)	(0.65)	(0.28)	(0.43)	(0.03)	(0.07)	(0.23)	(0.13)
Treatment effect of T2 | Married	0.01	0.05	-0.01	-0.19	-0.38	17420.66	-0.02	0.09	0.03	0.11	0.09
P-value: T2 + T2 × Married = 0	(0.42)	(0.64)	(0.62)	(0.49)	(0.42)	(0.53)	(0.80)	(0.25)	(0.65)	(0.12)	(0.19)
P-value (Marginal effect intrapersonal skills | Not married = 0)	(0.85)	(0.39)	(0.27)	(0.76)	(0.55)	(0.73)	(0.92)	(0.09)	(0.95)	(0.79)	(0.63)
P-value (Marginal effect intrapersonal skills | Married = 0)	(0.58)	(0.17)	(0.79)	(0.63)	(0.21)	(0.65)	(0.31)	(0.31)	(0.20)	(0.75)	(0.78)

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.
(1) Outcome variables include: *Employment* (Yes= 1; No= 0); *Total household income* (IHS); *Business in operation* (Yes= 1; No= 0); *Annual business profits* (IHS); *Value of business capital* (IHS); *Amount of savings* (NGN); *Business practices—aggregate*; *Self-reported interpersonal SES*; *Self-reported intrapersonal SES*; *Behavioral interpersonal SES*; and *Behavioral intrapersonal SES*.
(2) Panel A and B present heterogeneity analysis by marital status for women and men, respectively.
(3) T1: Interpersonal only is a binary variable for the interpersonal skills training only treatment group and T2: Combination Inter Intra is the combined interpersonal and intrapersonal skills training treatment group. Married is a binary variable equal to 1 if the respondent is married and 0 if not. T1 and T2 effect for the married subsample and the p-value for the marginal effect of intrapersonal skills for married and non-married respondents are shown at the bottom of the tables.
(4) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. For SES outcomes, results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects. Randomization strata includes fixed effects for state and APPEALS WYEP value chain.
(5) Robust standard errors are reported in parentheses.

Table C.10: Heterogeneity Analysis by Region

	(1) Employment (Yes=1; No=0)	(2) Total HH income (IHS)	(3) Business in operation (Yes=1; No=0)	(4) Annual business profits (IHS)	(5) Value of business capital (IHS)	(6) Amount of savings (NGN)	(7) Business practices – Aggregate	(9) Self Reported Interpersonal SES	(10) Self Reported Intrapersonal SES	(12) Behavioral Interpersonal SES	(13) Behavioral Intrapersonal SES
Panel A: Women Sample											
North (0/1)	-0.01	-0.33**	0.05	0.11	2.99***	-8363.75	0.16	0.41***	0.42***	0.36***	0.46***
	(0.02)	(0.14)	(0.04)	(0.45)	(0.66)	(27031.82)	(0.11)	(0.10)	(0.09)	(0.10)	(0.10)
T1: Interpersonal only	0.03**	-0.18**	0.00	0.83***	-0.13	34914.22	0.12	0.17**	0.03	0.14*	0.01
	(0.01)	(0.08)	(0.02)	(0.31)	(0.46)	(21315.31)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
T2: Combination Inter Intra	0.02	-0.10	-0.04	0.58*	0.30	47964.05**	0.05	0.05	0.01	-0.00	-0.13*
	(0.01)	(0.09)	(0.03)	(0.32)	(0.48)	(21092.60)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
T1 x North	-0.00	0.17	-0.02	-0.79*	0.17	-15463.90	-0.15	-0.09	0.02	-0.09	-0.05
	(0.03)	(0.18)	(0.04)	(0.46)	(0.68)	(31835.26)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)
T2 x North	0.02	0.37**	0.07*	-0.22	0.28	-23451.37	0.03	-0.04	0.08	0.03	0.13
	(0.03)	(0.16)	(0.04)	(0.46)	(0.70)	(31503.20)	(0.11)	(0.11)	(0.10)	(0.11)	(0.10)
Observations	1943	1943	1943	1870	1870	1818	1818	1818	1818	1927	1934
R-squared	0.055	0.041	0.022	0.035	0.182	0.019	0.061	0.083	0.186	0.085	0.123
Control group mean	0.96	12.46	0.88	11.88	5.90	120665.64	0.16	-0.17	-0.18	-0.06	0.06
Treatment effect of T1 | North	0.02	-0.02	-0.01	0.04	0.04	19450.32	-0.03	0.08	0.05	0.05	-0.04
P-value: T1 + T1 x North = 0	(0.27)	(0.92)	(0.63)	(0.90)	(0.94)	(0.41)	(0.71)	(0.27)	(0.46)	(0.53)	(0.55)
Treatment effect of T2 | North	0.04*	0.28**	0.02	0.36	0.58	24512.67	0.08	0.01	0.08	0.03	-0.00
P-value: T2 + T2 x North = 0	(0.06)	(0.03)	(0.34)	(0.27)	(0.25)	(0.29)	(0.30)	(0.92)	(0.21)	(0.69)	(0.96)
P-value (Marginal effect intrapersonal skills | South = 0)	(0.60)	(0.34)	(0.09)	(0.35)	(0.38)	(0.59)	(0.35)	(0.14)	(0.72)	(0.09)	(0.08)
P-value (Marginal effect intrapersonal skills | North = 0)	(0.48)	(0.05)	(0.16)	(0.33)	(0.29)	(0.84)	(0.16)	(0.34)	(0.65)	(0.80)	(0.57)
Panel B: Men Sample											
North (0/1)	0.02	-0.19	-0.00	0.41	3.76***	38534.70	0.09	0.53***	0.49***	0.48***	0.64***
	(0.02)	(0.13)	(0.04)	(0.41)	(0.70)	(37410.43)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)
T1: Interpersonal only	-0.01	-0.00	-0.03	-0.43	-0.47	40130.80	0.00	0.05	0.05	0.03	0.04
	(0.01)	(0.08)	(0.03)	(0.32)	(0.52)	(32136.35)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)
T2: Combination Inter Intra	0.00	-0.09	0.02	-0.09	-0.22	22330.02	-0.03	0.04	0.02	0.03	0.04
	(0.01)	(0.10)	(0.02)	(0.28)	(0.50)	(28882.02)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)
T1 x North	0.03*	0.23*	0.05	0.96**	1.23*	-21210.93	0.10	0.07	-0.01	-0.01	-0.03
	(0.02)	(0.13)	(0.04)	(0.44)	(0.74)	(43149.29)	(0.11)	(0.11)	(0.10)	(0.10)	(0.11)
T2 x North	0.02	0.20	-0.02	0.06	0.38	7936.17	0.08	-0.11	-0.04	0.01	-0.02
	(0.02)	(0.15)	(0.04)	(0.44)	(0.71)	(40896.42)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)
Observations	1947	1947	1947	1886	1886	1792	1792	1792	1792	1936	1938
R-squared	0.020	0.048	0.023	0.029	0.158	0.015	0.035	0.124	0.228	0.096	0.151
Control group mean	0.98	12.43	0.89	13.12	6.94	179187.51	0.16	-0.11	-0.10	-0.06	-0.05
Treatment effect of T1 | North	0.03**	0.23**	0.02	0.53*	0.76	18919.87	0.11	0.12*	0.04	0.02	0.01
P-value: T1 + T1 x North = 0	(0.03)	(0.02)	(0.47)	(0.08)	(0.15)	(0.51)	(0.18)	(0.10)	(0.59)	(0.72)	(0.90)
Treatment effect of T2 | North	0.02	0.11	-0.00	-0.03	0.17	30266.19	0.05	-0.07	-0.03	0.04	0.02
P-value: T2 + T2 x North = 0	(0.11)	(0.31)	(0.92)	(0.93)	(0.75)	(0.30)	(0.53)	(0.33)	(0.70)	(0.59)	(0.72)
P-value (Marginal effect intrapersonal skills | South = 0)	(0.35)	(0.38)	(0.08)	(0.27)	(0.62)	(0.58)	(0.65)	(0.87)	(0.64)	(0.92)	(0.97)
P-value (Marginal effect intrapersonal skills | North = 0)	(0.54)	(0.19)	(0.41)	(0.06)	(0.24)	(0.71)	(0.49)	(0.01)	(0.37)	(0.86)	(0.83)

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(1) Outcome variables include: *Employment* (Yes= 1; No= 0); *Total household income* (IHS); *Business in operation* (Yes= 1; No= 0); *Annual business profits* (IHS); *Value of business capital* (IHS); *Amount of savings* (NGN); *Business practices—aggregate*; *Self-reported interpersonal SES*; *Self-reported intrapersonal SES*; *Behavioral interpersonal SES*; and *Behavioral intrapersonal SES*.

(2) Panel A and B present heterogeneity analysis by region for women and men, respectively.

(3) T1: Interpersonal only is a binary variable for the interpersonal skills training only treatment group and T2: Combination Inter Intra is the combined interpersonal and intrapersonal skills training treatment group. North is a binary variable equal to 1 if the respondent is in the northern states (Kaduna, Kano, or Kogi) and 0 if the respondent is in the southern states (Cross River, Lagos, or Enugu). T1 and T2 effects for the northern subsample, and the p-value for the marginal effect of intrapersonal skills for northern and southern respondents, are shown at the bottom of the tables.

(4) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. For SES outcomes, results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects. Randomization strata includes fixed effects for state and APPEALS WYEP value chain.

(5) Robust standard errors are reported in parentheses.

Table C.11: Heterogeneity Analysis by Value Chain

	(1) Employment (Yes=1; No=0)	(2) Total HH income (IHS)	(3) Business in operation (Yes=1; No=0)	(4) Annual business profits (IHS)	(5) Value of business capital (IHS)	(6) Amount of savings (NGN)	(7) Business practices – Aggregate	(8) Self Reported Interpersonal SES	(9) Self Reported Intrapersonal SES	(10) Behavioral Interpersonal SES	(11) Behavioral Intrapersonal SES
Panel A: Women Sample											
Poultry (0/1)	-0.03	-0.17	0.01	0.21	-1.46**	30300.24	0.15	-0.17*	-0.14	-0.09	0.08
	(0.02)	(0.12)	(0.03)	(0.43)	(0.61)	(22175.04)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
T1: Interpersonal only	0.02	-0.08	-0.00	0.19	-0.01	33762.11	0.02	0.08	-0.02	0.02	-0.02
	(0.02)	(0.12)	(0.03)	(0.35)	(0.56)	(22565.25)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)
T2: Combination Inter Intra	0.03**	0.08	-0.00	0.39	1.25**	45231.39**	0.16*	-0.01	0.04	-0.05	-0.13
	(0.02)	(0.09)	(0.03)	(0.32)	(0.57)	(22819.98)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)
T1 x Poultry	0.02	-0.03	-0.00	0.43	-0.06	-11582.01	0.05	0.08	0.11	0.12	0.01
	(0.03)	(0.17)	(0.04)	(0.47)	(0.70)	(31550.42)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
T2 x Poultry	-0.00	0.03	-0.01	0.15	-1.40*	-16465.88	-0.16	0.07	0.02	0.12	0.11
	(0.02)	(0.15)	(0.04)	(0.45)	(0.72)	(31294.88)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)
Observations	1943	1943	1943	1870	1870	1818	1818	1818	1818	1927	1934
R-squared	0.055	0.039	0.019	0.034	0.185	0.018	0.062	0.083	0.186	0.085	0.122
Control group mean	0.94	12.24	0.88	11.95	6.31	106224.51	0.01	0.01	0.03	-0.00	0.01
Treatment effect of T1 | Poultry	0.03	-0.11	-0.00	0.62	-0.07	22180.10	0.06	0.16	0.09	0.14	-0.02
P-value: T1 + T1 x Poultry = 0	(0.06)	(0.37)	(0.86)	(0.04)	(0.88)	(0.31)	(0.39)	(0.03)	(0.19)	(0.05)	(0.81)
Treatment effect of T2 | Poultry	0.03	0.11	-0.01	0.53	-0.15	28765.51	-0.00	0.06	0.05	0.06	-0.02
P-value: T2 + T2 x Poultry = 0	(0.11)	(0.36)	(0.65)	(0.09)	(0.72)	(0.18)	(0.96)	(0.43)	(0.43)	(0.39)	(0.75)
P-value (Marginal effect intrapersonal skills | Other VCs = 0)	(0.27)	(0.21)	(0.92)	(0.54)	(0.03)	(0.66)	(0.08)	(0.32)	(0.47)	(0.38)	(0.19)
P-value (Marginal effect intrapersonal skills | Poultry = 0)	(0.80)	(0.06)	(0.78)	(0.76)	(0.84)	(0.78)	(0.36)	(0.17)	(0.61)	(0.29)	(0.94)
Panel B: Men Sample											
Poultry (0/1)	-0.00	0.07	-0.02	0.03	-2.10***	-6530.75	0.15	-0.14	-0.07	-0.09	-0.08
	(0.02)	(0.14)	(0.03)	(0.39)	(0.65)	(37034.71)	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)
T1: Interpersonal only	0.00	0.20**	-0.00	0.08	0.33	61910.56**	0.07	0.14	0.09	0.03	0.01
	(0.01)	(0.10)	(0.03)	(0.31)	(0.56)	(31557.99)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)
T2: Combination Inter Intra	0.00	0.06	0.01	0.17	0.68	20454.97	0.07	-0.08	-0.10	0.07	0.02
	(0.01)	(0.11)	(0.03)	(0.30)	(0.54)	(28665.45)	(0.08)	(0.09)	(0.08)	(0.07)	(0.07)
T1 x Poultry	0.02	-0.16	-0.00	-0.04	-0.32	-62553.72	-0.02	-0.09	-0.09	0.00	0.02
	(0.02)	(0.13)	(0.04)	(0.44)	(0.74)	(43386.11)	(0.11)	(0.11)	(0.10)	(0.10)	(0.11)
T2 x Poultry	0.02	-0.08	-0.00	-0.44	-1.35*	11240.66	-0.11	0.12	0.18*	-0.08	0.02
	(0.02)	(0.15)	(0.04)	(0.44)	(0.72)	(40795.14)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)
Observations	1947	1947	1947	1886	1886	1792	1792	1792	1792	1936	1938
R-squared	0.019	0.047	0.021	0.026	0.158	0.017	0.035	0.124	0.231	0.096	0.151
Control group mean	0.98	12.10	0.86	12.77	6.97	156907.67	-0.04	0.04	0.06	0.02	-0.04
Treatment effect of T1 | Poultry	0.02	0.04	-0.00	0.04	0.01	-643.16	0.05	0.04	-0.00	0.03	0.04
P-value: T1 + T1 x Poultry = 0	(0.16)	(0.65)	(0.86)	(0.89)	(0.98)	(0.98)	(0.52)	(0.58)	(1.00)	(0.67)	(0.63)
Treatment effect of T2 | Poultry	0.02	-0.02	0.01	-0.27	-0.67	31695.63	-0.04	0.03	0.08	-0.01	0.04
P-value: T2 + T2 x Poultry = 0	(0.09)	(0.81)	(0.83)	(0.40)	(0.16)	(0.28)	(0.59)	(0.65)	(0.27)	(0.93)	(0.59)
P-value (Marginal effect intrapersonal skills | Other VCs = 0)	(0.94)	(0.12)	(0.70)	(0.75)	(0.51)	(0.19)	(0.95)	(0.01)	(0.01)	(0.54)	(0.90)
P-value (Marginal effect intrapersonal skills | Poultry = 0)	(0.76)	(0.50)	(0.69)	(0.32)	(0.15)	(0.29)	(0.23)	(0.92)	(0.30)	(0.62)	(0.97)

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.
(1) Outcome variables include: *Employment* (Yes= 1; No= 0); *Total household income* (IHS); *Business in operation* (Yes= 1; No= 0); *Annual business profits* (IHS); *Value of business capital* (IHS); *Amount of savings* (NGN); *Business practices—aggregate*; *Self-reported interpersonal SES*; *Self-reported intrapersonal SES*; *Behavioral interpersonal SES*; and *Behavioral intrapersonal SES*.
(2) Panel A and B present heterogeneity analysis by value chain for women and men, respectively.
(3) T1: Interpersonal only is a binary variable for the interpersonal skills training only treatment group and T2: Combination Inter Intra is the combined interpersonal and intrapersonal skills training treatment group. Poultry is a binary variable equal to 1 if the respondent pursued poultry as the APPEALS value chain and 0 otherwise. T1 and T2 effects for the poultry subsample, and the p-value for the marginal effect of intrapersonal skills for poultry versus other value chains, are shown at the bottom of the tables.
(4) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. For SES outcomes, results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects. Randomization strata includes fixed effects for state and APPEALS WYEP value chain.
(5) Robust standard errors are reported in parentheses.

Table C.12: Heterogeneity Analysis by Segment

	(1) Employment (Yes=1; No=0)	(2) Total HH income (IHS)	(3) Business in operation (Yes=1; No=0)	(4) Annual business profits (IHS)	(5) Value of business capital (IHS)	(6) Amount of savings (NGN)	(7) Business practices – Aggregate	(8) Self Reported Interpersonal SES	(9) Self Reported Intrapersonal SES	(10) Behavioral Interpersonal SES	(11) Behavioral Intrapersonal SES
Panel A: Women Sample											
Production (0/1)	0.01	-0.10	-0.02	-0.25	-0.47	5281.53	-0.13	-0.03	-0.10	0.10	0.12
	(0.02)	(0.11)	(0.03)	(0.39)	(0.56)	(24155.35)	(0.09)	(0.09)	(0.09)	(0.09)	(0.08)
T1: Interpersonal only	0.04*	-0.19*	0.01	0.05	0.07	20423.83	-0.05	0.10	-0.02	0.15	0.10
	(0.02)	(0.10)	(0.03)	(0.39)	(0.66)	(29023.16)	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)
T2: Combination Inter Intra	0.04*	-0.02	-0.02	0.01	1.31**	58350.21*	0.01	-0.04	-0.03	0.05	-0.07
	(0.02)	(0.12)	(0.03)	(0.38)	(0.66)	(31529.97)	(0.10)	(0.11)	(0.10)	(0.10)	(0.09)
T1 x Production	-0.02	0.13	-0.02	0.55	-0.14	9047.69	0.13	0.04	0.09	-0.09	-0.17
	(0.03)	(0.15)	(0.04)	(0.49)	(0.77)	(34769.60)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
T2 x Production	-0.01	0.17	0.02	0.67	-1.24	-32226.21	0.08	0.10	0.11	-0.05	0.01
	(0.03)	(0.16)	(0.04)	(0.47)	(0.78)	(36200.97)	(0.12)	(0.13)	(0.11)	(0.12)	(0.11)
Observations	1943	1943	1943	1870	1870	1818	1818	1818	1818	1927	1934
R-squared	0.055	0.039	0.020	0.035	0.186	0.019	0.061	0.083	0.186	0.085	0.124
Control group mean	0.94	12.31	0.90	12.22	6.42	127176.84	0.21	-0.02	0.02	-0.08	-0.00
Treatment effect of T1 | Production	0.02	-0.06	-0.01	0.60	-0.06	29471.52	0.08	0.14	0.07	0.07	-0.07
P-value: T1 + T1 x Production = 0	(0.18)	(0.59)	(0.72)	(0.04)	(0.87)	(0.12)	(0.21)	(0.03)	(0.26)	(0.31)	(0.27)
Treatment effect of T2 | Production	0.03	0.14	-0.00	0.68	0.07	26124.00	0.09	0.06	0.08	-0.00	-0.06
P-value: T2 + T2 x Production = 0	(0.07)	(0.15)	(0.93)	(0.02)	(0.87)	(0.14)	(0.18)	(0.37)	(0.19)	(0.99)	(0.31)
P-value (Marginal effect intrapersonal skills | Other Segments = 0)	(0.95)	(0.18)	(0.39)	(0.91)	(0.07)	(0.27)	(0.57)	(0.19)	(0.90)	(0.33)	(0.07)
P-value (Marginal effect intrapersonal skills | Production = 0)	(0.65)	(0.06)	(0.79)	(0.76)	(0.75)	(0.87)	(0.92)	(0.24)	(0.87)	(0.31)	(0.94)
Panel B: Men Sample											
Production (0/1)	-0.02	-0.18	0.01	0.29	-0.70	-68047.75	0.12	0.18*	0.25***	0.00	-0.05
	(0.01)	(0.11)	(0.03)	(0.42)	(0.72)	(42792.02)	(0.10)	(0.11)	(0.09)	(0.09)	(0.09)
T1: Interpersonal only	-0.02	-0.02	0.04	0.38	-0.27	31034.45	0.20*	-0.06	0.00	-0.08	-0.13
	(0.02)	(0.12)	(0.04)	(0.46)	(0.85)	(52545.22)	(0.12)	(0.13)	(0.10)	(0.11)	(0.11)
T2: Combination Inter Intra	0.01	-0.11	0.05	-0.08	0.26	-54737.27	0.15	0.12	0.07	0.06	0.00
	(0.01)	(0.13)	(0.04)	(0.47)	(0.82)	(44831.37)	(0.12)	(0.14)	(0.11)	(0.11)	(0.11)
T1 x Production	0.04*	0.17	-0.06	-0.41	0.54	-4096.75	-0.19	0.19	0.06	0.14	0.20*
	(0.02)	(0.14)	(0.04)	(0.52)	(0.94)	(57399.88)	(0.14)	(0.14)	(0.12)	(0.12)	(0.12)
T2 x Production	0.01	0.16	-0.05	0.03	-0.38	103879.25**	-0.18	-0.18	-0.10	-0.03	0.04
	(0.02)	(0.16)	(0.04)	(0.53)	(0.91)	(50590.03)	(0.14)	(0.15)	(0.13)	(0.13)	(0.12)
Observations	1947	1947	1947	1886	1886	1792	1792	1792	1792	1936	1938
R-squared	0.020	0.048	0.024	0.027	0.158	0.019	0.036	0.131	0.237	0.097	0.153
Control group mean	0.99	12.38	0.86	12.65	7.11	226592.42	-0.04	-0.15	-0.15	-0.02	-0.03
Treatment effect of T1 | Production	0.02	0.15	-0.02	-0.03	0.27	26937.70	0.01	0.14	0.06	0.06	0.07
P-value: T1 + T1 x Production = 0	(0.05)	(0.04)	(0.41)	(0.90)	(0.50)	(0.25)	(0.82)	(0.03)	(0.28)	(0.29)	(0.23)
Treatment effect of T2 | Production	0.01	0.05	-0.00	-0.05	-0.12	49141.98	-0.03	-0.06	-0.03	0.02	0.04
P-value: T2 + T2 x Production = 0	(0.20)	(0.58)	(0.83)	(0.84)	(0.76)	(0.03)	(0.65)	(0.34)	(0.64)	(0.67)	(0.50)
P-value (Marginal effect intrapersonal skills | Other Segments = 0)	(0.07)	(0.44)	(0.98)	(0.27)	(0.50)	(0.05)	(0.68)	(0.18)	(0.50)	(0.20)	(0.21)
P-value (Marginal effect intrapersonal skills | Production = 0)	(0.48)	(0.18)	(0.55)	(0.94)	(0.33)	(0.38)	(0.49)	(0.00)	(0.13)	(0.53)	(0.58)

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.
(1) Outcome variables include: *Employment* (Yes= 1; No= 0); *Total household income* (IHS); *Business in operation* (Yes= 1; No= 0); *Annual business profits* (IHS); *Value of business capital* (IHS); *Amount of savings* (NGN); *Business practices—aggregate*; *Self-reported interpersonal SES*; *Self-reported intrapersonal SES*; *Behavioral interpersonal SES*; and *Behavioral intrapersonal SES*.
(2) Panel A and B present heterogeneity analysis by production segment for women and men, respectively.
(3) T1: Interpersonal only is a binary variable for the interpersonal skills training only treatment group and T2: Combination Inter Intra is the combined interpersonal and intrapersonal skills training treatment group. Production is a binary variable equal to 1 if the respondent is engaged in the production segment and 0 if engaged in processing or marketing. T1 and T2 effects for the production subsample, and the p-value for the marginal effect of intrapersonal skills for production versus other segments, are shown at the bottom of the tables.
(4) Regressions use an ANCOVA specification, where applicable, controlling for baseline levels of the outcome variable. All regressions include controls for age, marital status, and education. For SES outcomes, results are robust to additionally controlling for a standardized social-desirability-bias index and enumerator-gender fixed effects. Randomization strata includes fixed effects for state and APPEALS WYEP value chain.
(5) Robust standard errors are reported in parentheses.

D Exploratory Residual–Residual Associations

In our pre-analysis plan, we had proposed mediation analysis to explore whether SES training affects economic outcomes through intermediate constructs (M1: SES, M2: business practices, M3: intra-household decision-making and mental models). In practice, however, all mediators and outcomes were measured simultaneously at endline, and no midline data were collected. This limits the credibility of sequential g-estimation (Acharya et al., 2016), which assumes a clear temporal ordering of treatment → mediator → outcome.

As an alternative, we implemented a residual–residual association analysis inspired by regression-with-residuals (Zhou and Wodtke, 2019). Specifically, we estimated residuals for both endline mediators and outcomes regressed on their baseline values, covariates, and randomization strata fixed effects, and then regressed outcome residuals on mediator residuals, with robust standard errors. These correlations are descriptive and do not identify causal mediation, but they provide suggestive evidence on whether variation in mediators aligns with variation in primary outcomes within our sample. For SES mediators we created baseline measures of generalized self-efficacy, emotional regulation, and maintaining relationships and constructed a standardized SES aggregate using these measures. For intra-household decision-making, time use, and mental models mediators we created sub-indices for decision-making, time use, mental models, and subjective well-being, then combined them into an index with equal weights. We present graphs showing binned scatters of rY vs rM for each mediator family (SES and intrahousehold dynamics) where pooled is for the combined treatment groups (T1 and T2). We present results for a number of outcomes.

Results are shown in Appendix Figure 5 which suggest mostly positive associations: higher-than-predicted SES scores and intra-household decision-making/mental models are generally associated with higher-than-predicted economic outcomes. Although magnitudes vary across mediator families and treatment arms, the fact that these correlations are broadly positive suggests that SES and household-level factors are linked to economic performance. Since business practices (M2) were not measured in full at baseline, we are unable to conduct the same analysis for that family of mediators.

Altogether, these patterns suggest that SES training is plausibly correlated with economic outcomes through improvements in SES and related constructs, even if the associations observed here are descriptive rather than causal.

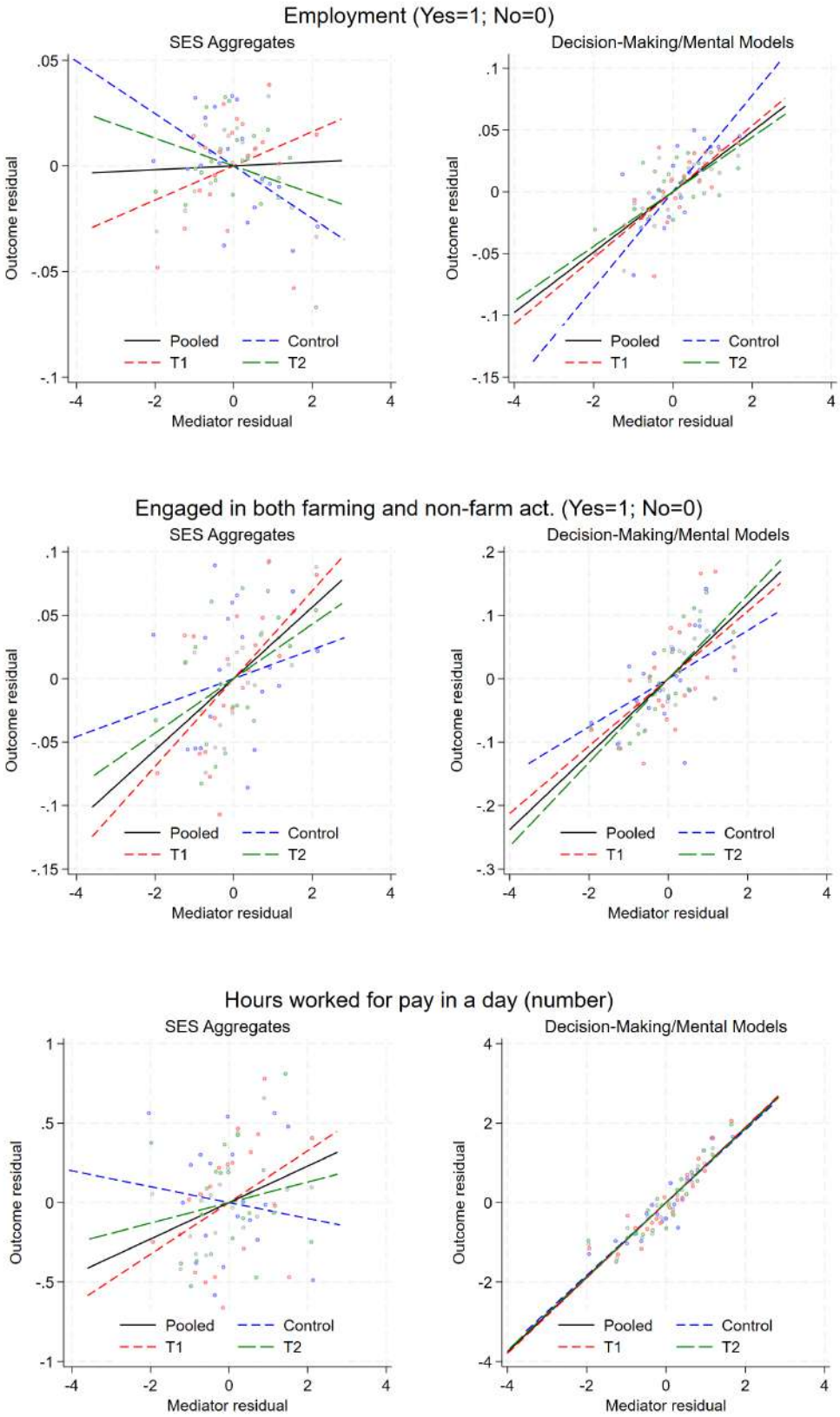


Figure 5.1: Residual–Residual plots

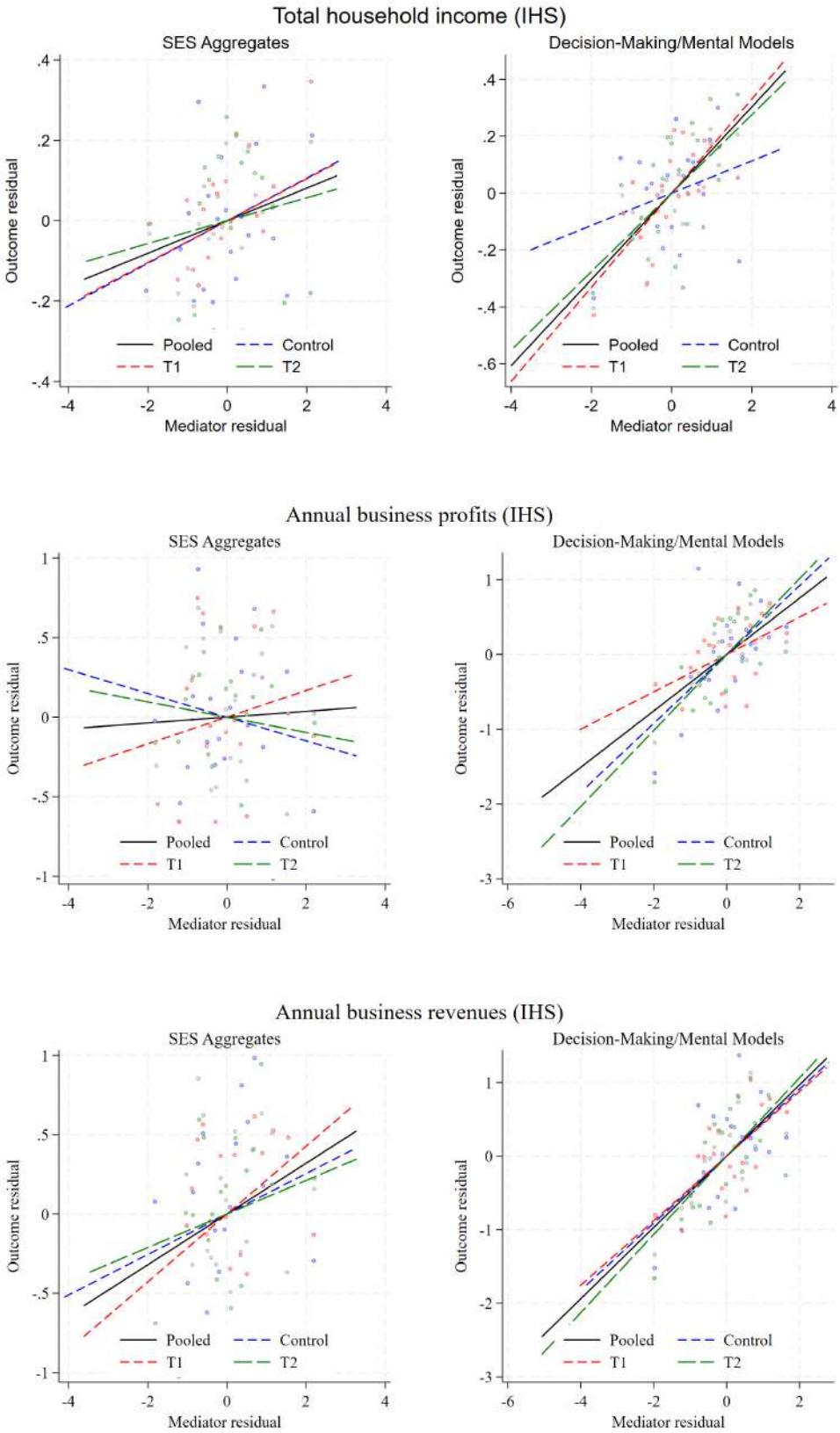


Figure 5.2: Residual–Residual plots

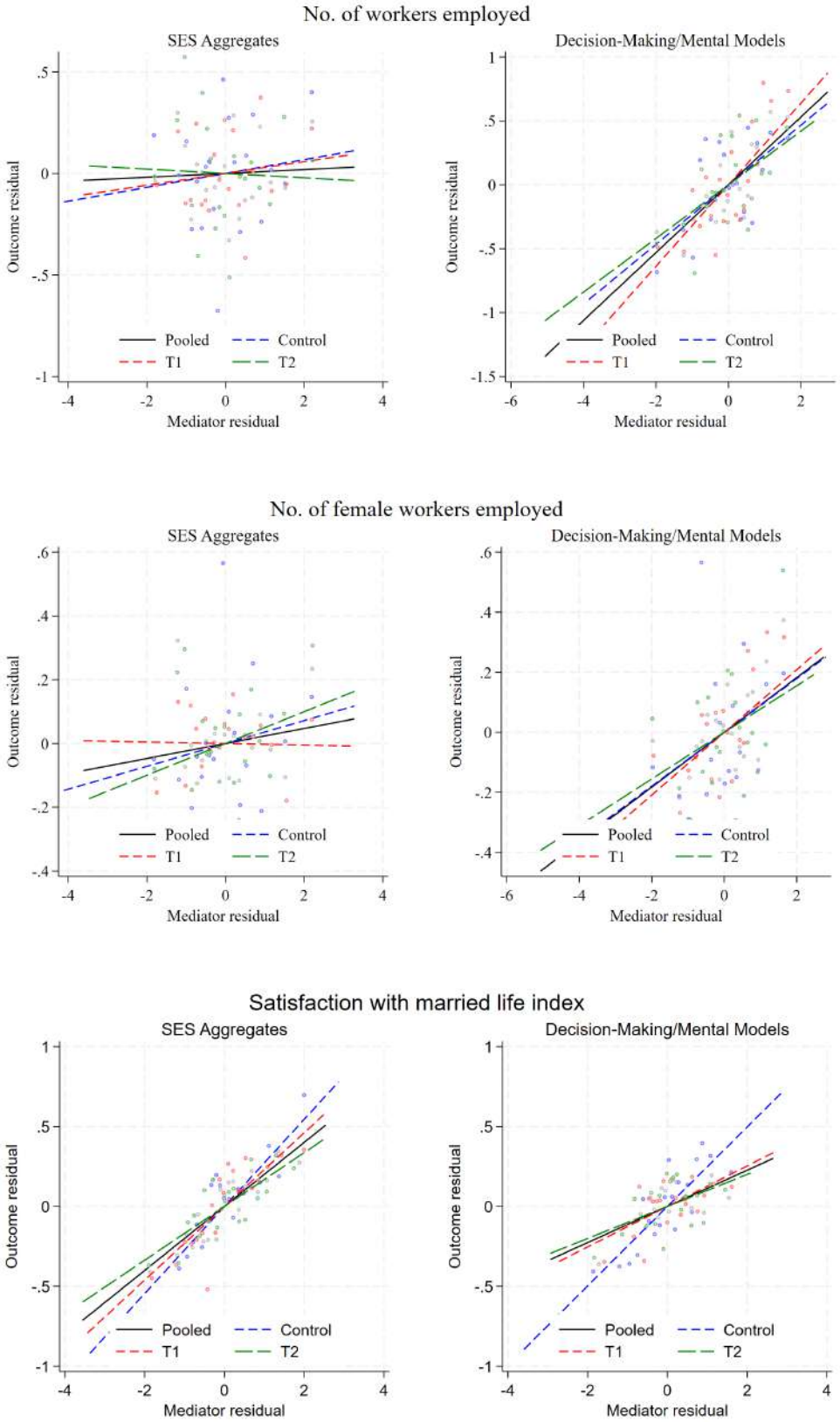


Figure 5.3: Residual–Residual plots

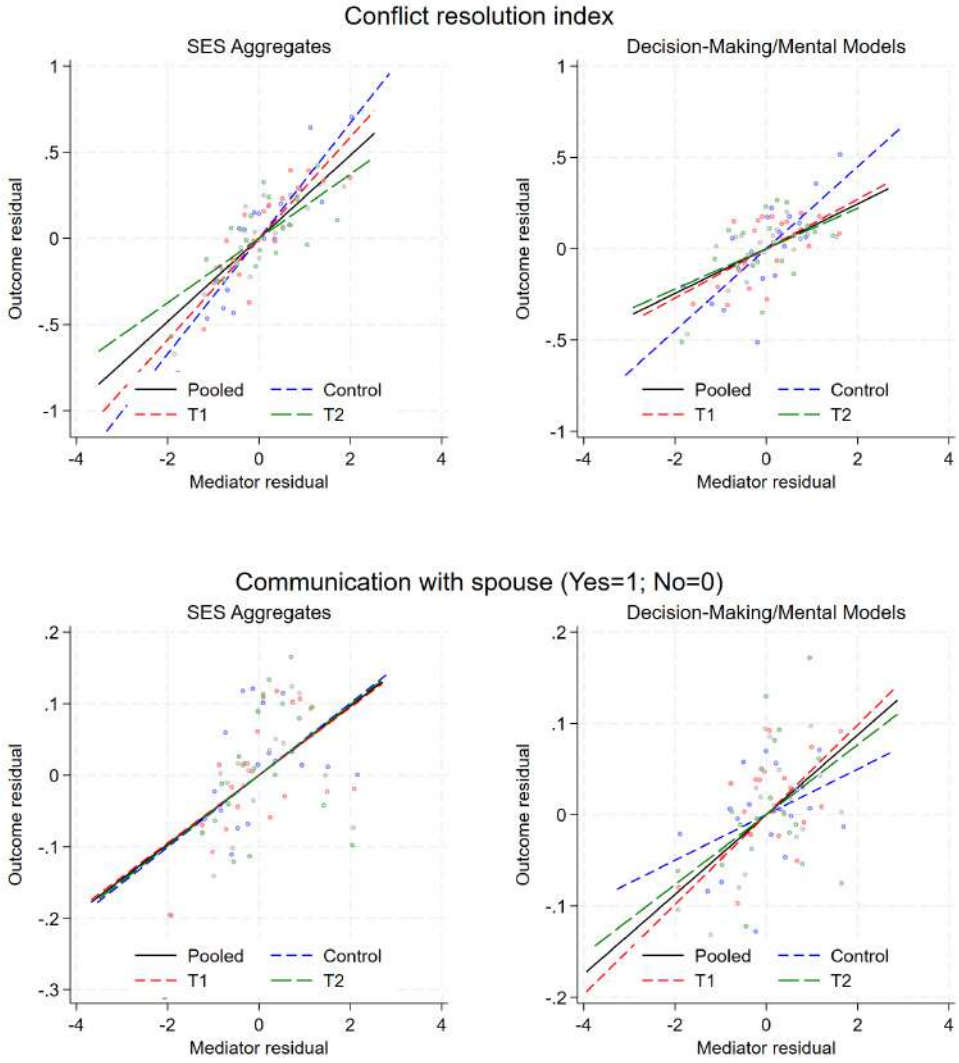


Figure 5.4: Residual–Residual plots