Make me believe: Self-efficacy and human capital investments among young women in Ghana

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Abstract

Programs aimed at fostering development typically target external constraints, such as limited access to education, credit, or social protection. However, engagement with these programs often remains low. Internal psychological constraints may influence individuals' ability to take advantage of these programs and represent a barrier for investment decisions. I implemented a pre-registered randomized testimonial campaign designed to boost self-efficacy – beliefs about one's ability to succeed – among young women in Ghana who registered for a free training program. The testimonials significantly raised self-efficacy and training completion rates, driven by enhanced training performance and a shift in the characteristics of participants who initiated the training. Consistent with a model of behavioral investment traps, effects are concentrated among women with intermediate education levels and lower self-efficacy. These findings suggest that addressing both internal and external constraints can improve human capital investments. (JEL: C93, D83, I25)

Keywords: self-efficacy, training participation, women, experiment.

1. Introduction

Poverty can create self-reinforcing cycles that trap individuals in poverty. Traditional economic theories attribute these "poverty traps" to constraints that are external to the individual, such as limited opportunities for human capital development, restricted access to credit, inadequate infrastructure, or market imperfections (Azariadis and Drazen 1990; Banerjee and Newman 1993; Dasgupta and Ray 1986; Galor and Zeira 1993). More recent economic theories broaden this perspective and argue that internal, psychological constraints, such as aspirations, norms, or values, also play a key role in shaping decision-making and behavior.[1] They propose that while behavioral biases (internal constraints) are universally present, under conditions of poverty (external constraints), these biases result in worse outcomes (e.g., Bertrand et al. 2004; Dalton et al. 2016). One of these internal factors is the belief about one's capacity to successfully accomplish specific tasks or goals and cope with challenges—commonly referred to as self-efficacy (Bandura 1978, 1997; Schwarzer and Jerusalem 1995).

Development cooperation efforts primarily address external constraints to foster economic growth and reduce poverty. Public projects invest in areas such as public administration, infrastructure, social protection, transportation, education, and health, among others. However, focusing solely on external constraints to development may not be sufficient. Many initiatives aimed at addressing these external constraints, such as social protection and free training programs, frequently experience low participation and completion rates, often falling below 50%. Given the substantial benefits offered and effectiveness of these particular programs, it seems unlikely that cost-benefit calculations alone can rationalize the low engagement (Bandiera et al. 2020; Banerjee et al. 2021, 2024; Bhattacharya et al. 2015; Carneiro et al. 2019; Dupas and Jain 2024; Frohnweiler et al. 2024; Hardy and McCasland 2023).[2] Moreover, interventions addressing misperception of the program benefits (Alzúa et al. 2021; Finkelstein and Notowidigdo 2019; Hastings et al. 2015; Jensen 2010) or reducing application costs (Banerjee et al. 2021; Carneiro et al. 2019) have only partially bridged the gap. Beyond the unrealized opportunities for individuals, low engagement also leads to unused capacity, program delays, or costly repetitions of enrollment processes.

In this pre-registered study, I assess whether engagement with a standard development program focused on external constraints can be enhanced by incorporating an intervention targeting internal constraints. I randomly assigned young women in Ghana, who registered for free vocational skills training, to receive a testimonial campaign delivered through videos

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1.   These newer economic theories pick up ideas from early models within anthropology that define internal constraints as a potential source for behavioral biases that create a culture of perpetuating poverty (e.g., Appadurai 2004; Lewis 1966). Small et al. (2010) summarize the literature on culture as potential explanation for the behavior of the poor.

2.   Appendix Table A.I.1 provides an overview of program benefits as well as participation and completion rates as reported by recent evaluation studies of training and welfare programs.

and text messages. The campaign aims to increase women's self-efficacy through testimonials of women with similar backgrounds who narrate how goal-setting, finding role models, building confidence, and developing resilience helped them to overcome challenges and succeed in life. Descriptively, self-efficacy has been shown to regulate aspirations, motivations, and achievements (Bandura 1993), and is recognized as an important component of psychological empowerment (Zimmerman 2000). For adolescents in Ghana, Ansong et al. (2019) show that self-efficacy is an important correlate of educational aspirations and actual achievements.[3] Applying a random forest with all individual-level baseline characteristics, I can confirm the the critical role of self-efficacy for training engagement also in my setting. Self-efficacy has the third highest relative importance for predicting training start and completion. Exploiting the randomized assignment of the testimonial campaign, I study the effects on training engagement using self-reported and administrative records on training start, completion, and participation intensity.

In 2021, women in the Ghanaian cities of Accra, Kumasi, and Tamale could enroll in a free vocational skills training program. The training exclusively targeted women aged 16 to 24 years. The program design integrated a variety of features identified in previous evaluations as being most beneficial to participants' subsequent labor market outcomes (Agarwal and Mani forthcoming; Carranza and McKenzie 2023; Kluve et al. 2017, 2019). Moreover, a comprehensive registration process, which included career and counseling services aimed at screening interested women, and the payment of monthly stipends during the training largely minimized pre-identified external constraints to training participation and completion. Frohnweiler et al. (2024) provide a detailed description and analysis of the program. Exploiting the randomized allocation of training opportunities, they show that the training significantly increased the probability of employment in participants' field of specialization, enhanced job quality in terms of formality and access to medical benefits, and improved participants' mental health.[4] Nevertheless, only 53.2% of the invited women started the training. To address anticipated challenges with training engagement, the training program was combined with the testimonial campaign studied in this paper.

The testimonial campaign consisted of two three-minute videos delivered via links embedded in text messages and 30 follow-up text messages, i.e., delivered completely remote. The first video was sent before the training started. The second video and follow-up messages were sent during the training. Women were randomly assigned to one out of three experimental arms. One third (N=362) received testimonials of women describing how self-efficacy and related concepts like perseverance, resilience, and goal-setting helped them to achieve their dreams. One third (N=362) received placebo testimonials in which alike women talked about their experience

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3.   Roy et al. (2018) find similar evidence for young women in India.

4.   The training program was evaluated through a randomized control trial, in which only a random subset of registered and eligible women were invited to the training. The testimonial campaign was cross-randomized across training treatment assignment. In this study, I concentrate on the women who were invited to start the training.

with vocational training, thereby reiterating the information that had already been shared with all study participants during the registration process. Another third (N=385) received no testimonials.

The testimonial campaign was successfully delivered: 35.0% of women assigned to the self-efficacy testimonials clicked on the sent video links and they are 19.9 percentage points more likely than women assigned to the control group to report having watched the self-efficacy videos eight months after receiving the last text message. Notably, most participants who report having watched the videos also recall their content. These rates are comparable to or even higher than other message-based interventions (e.g., Bahety et al. 2021; Banerjee et al. 2020).

The self-efficacy testimonials significantly increased treated women's self-efficacy levels by 0.13 SD relative to untreated women, which is comparable to effect sizes found by intensive face-to-face interventions (John and Orkin 2022; McKelway 2024). Women's overall probability of starting the training program was not affected by the testimonials, but they significantly increased the probability of completing the training by 8.1 percentage points among women who started the training, which is an increase of 10.5% compared to untreated women.

While the self-efficacy testimonials successfully boosted self-efficacy levels, other psychological outcomes remained unchanged. Treated and untreated women do not significantly differ in terms of mental health, self-esteem, conscientiousness, or life satisfaction. To further rule out that the effect of the self-efficacy testimonials is explained by a simple reminder mechanism, I make use of the placebo testimonials. The placebo group received the same number of videos and text messages, and their delivery was equally successful. Consistent with a placebo interpretation, I find no effect of these testimonials on women's self-efficacy or their perceptions of the benefits of vocational training. Most importantly, the placebo testimonials did not significantly affect training take-up or completion rates, supporting the interpretation that it was the increase in self-efficacy that affected training engagement.

Additional analyses indicate a more motivated engagement with the training. Women who were sent the self-efficacy testimonials reported a higher perceived usefulness of the training and were more likely to be among the best performing trainees, as reflected in selection for a nationally accredited skills examination and job placement offers upon training completion. Moreover, compositional analyses suggest that the self-efficacy testimonials changed who started the training. Employed women working fewer hours, with higher educational attainment, stronger present bias, higher levels of depression, and lower stress levels were more likely to start the training in response to the self-efficacy testimonials.

To guide the analysis of treatment effect heterogeneity, I draw on the theoretical framework for behavioral poverty traps of Dalton et al. (2016), adapting it to the present context of human capital investment decisions. This concept of a behavioral trap proposes that individuals may remain at lower levels of human capital not solely due to their initial conditions but also because they set low aspirations, which can discourage investments. For instance, lower aspirations might

reduce the likelihood of starting or fully engaging in a training program. This limited engagement then perpetuates a cycle: without investment, individuals miss the potential benefits that could elevate their aspirations, reinforcing their initial low aspirations and limiting future engagement. Based on the extensive literature showing a strong interplay between self-efficacy and aspirations (e.g., Ansong et al. 2019; Bandura 1993; Roy et al. 2018; Zimmerman 2000), I expect that an increase in self-efficacy will lead individuals to set higher aspirations and ultimately positively affect their decision to start and complete a training. The theoretical framework suggests that the impact of the campaign on individuals' training investment decisions depends not only on their baseline self-efficacy levels but also on their initial levels of human capital. Consistent with these predictions, the effects on training attendance and completion are concentrated among women with lower self-efficacy levels and medium levels of baseline education. The effects are also stronger among women likely to face higher external constraints, such as marital status, childcare responsibilities, lower household wealth, or linguistic barriers.

The study stands out from previous literature in three main ways. First, I add to the literature on how internal constraints shape the behavior of disadvantaged individuals. The recent theoretical literature on poverty traps argues that, in addition to the long-standing focus on external constraints, individuals also face internal constraints that might perpetuate poverty (Dalton et al. 2016; Genicot and Ray 2017; La Ferrara 2019). An increasing number of empirical studies confirms that interventions targeting aspirations (Bernard et al. 2023), personal initiative (Campos et al. 2017), hope (Rojas Valdes et al. 2022), patience (Alan and Ertac 2018; Blattman et al. 2017), grit (Alan et al. 2019), and mental health (Baranov et al. 2020) can affect behavior in terms of labor market performance, future-oriented investments, and saving behavior, among others. However, these studies exclusively address internal constraints. The only studies that jointly address external and internal constraints are Bandiera et al. (2020) and Orkin et al. (2023), but in the first, everyone was offered both components. Instead, Orkin et al. (2023) cross-randomized an unconditional cash transfer with a workshop about aspirations and long-term planning in Kenya. My campaign design allows to examine the role of self-efficacy as potential internal constraints in influencing individuals' ability to capitalize on training opportunities that aim to alleviate external constraints. The setting is particularly relevant because, first, individuals are exposed to the campaign exactly at the time when they are to make their investment decision, i.e., shortly before and during the training. Second, the study sample consists of women who initially were committed to participating in the training express but might be especially prone to unexpected events. Third, at the level of the training program design external constraints are minimized as much as possible through free provision and monthly stipends. And lastly, an accompanying program evaluation shows that the training benefited participants in terms of job quality and mental health but less than 50% started the training (Frohnweiler et al. 2024).

Second, I contribute to the scarce knowledge on determinants of low participation in post-secondary training. Extensive literature exists on the effectiveness of vocational training in both

developed and developing countries (Adoho et al. 2014; Alzúa et al. 2021; Attanasio et al. 2011; Bandiera and Goldstein 2010; Bandiera et al. 2020; Carranza and McKenzie 2024; Chakravarty et al. 2019; Frohnweiler et al. 2024; McKenzie 2017). Even though many of these training programs continue to report low take-up rates, little is known about determinants of training participation and knowledge is especially scarce for developing countries. The limited evaluations considering determinants of participation in low-income countries primarily focus on external constraints, such as unanticipated adverse shocks or competing opportunities (Ambler et al. 2021; Cho et al. 2013). Interventions trying to increase participation and completion are rare and rather concentrate on the recruitment process (Ambler et al. 2021; Osman and Speer 2024). This is despite the fact that results from Bandiera et al. (2020) suggest that the effects of an empowerment program for young women in Uganda might be most impactful for those who are least likely to take up the program. My contribution is twofold. First, I apply machine learning techniques to identify the relative importance of variables in a rich individual-level dataset, including both internal and external factors, for predicting training participation. And second, I design an intervention aimed at alleviating internal constraints to participation and completion.

Third, I add to the limited causal evidence on the effects of self-efficacy on individual decision-making. Aside from multiple descriptive studies (Ansong et al. 2019; Bandura 1993; Zimmerman 2000; Roy et al. 2018), causal evidence on the relevance of self-efficacy for individuals' decision-making is scarce. Interventions that rigorously evaluate the effects of self-efficacy are mostly limited to intensive and costly face-to-face sessions. In India, McKelway (2024) shows that a 7.5-hour psychosocial intervention spread over nine sessions increased women's self-efficacy and translated into an increased employment probability. Eden and Aviram (1993) targeted self-efficacy among a small sample of 66 unemployed vocational workers in Israel and show that increased self-efficacy raised job search activity and reemployment among participants with low initial self-efficacy. With a slightly less intensive intervention of two in-person sessions, John and Orkin (2022) were able to increase self-efficacy and subsequently increase preventive health investment among young women in rural Kenya. Because of persistent gender gaps in educational attainment (Bentaouet Kattan et al. 2023; Encinas-Martín and Cherian 2023), aspirations (Molina and Usui 2023), earnings expectations (Reuben et al. 2024), as well as job search behavior and earnings (Cortés et al. 2023) women, especially young women, are the primary target group for self-efficacy and related psychological interventions. The present testimonial campaign was delivered entirely remotely through videos and text messages, and my results show that such a low-cost and scalable intervention format can be effective in increasing self-efficacy.

The remainder of the paper is organized as follows: Section 2 provides the theoretical framework motivating the intervention and subsequent analysis. Section 3 describes the study setting, intervention design, randomization, and sample characteristics. Section 4 describes the measurement of self-efficacy and provides descriptive analysis of which individual-level baseline characteristics predict training participation and completion. Section 5 outlines the empirical

specification and reports the impact of the testimonials on training engagement. Section 6 discusses the potential effect mechanisms, and Section 7 concludes.

2. Theoretical framework

Like most decisions, educational investment decisions depend on the associated costs and benefits. Individuals have different levels of human capital and have the option to invest in additional human capital, for example through training participation. According to human capital theory, a rational agent will only invest if the benefits of the final human capital level acquired through training, for example in terms of employment probability and employment quality, outweigh the costs, comprising aspects like training fees, transportation, and opportunity costs (Becker 1962).

For any given initial level of human capital k_0, a rational agent's utility u will thus only depend on the benefits $b(\cdot)$ derived from reaching a final human capital level k and the costs $c(\cdot)$ of training participation and completion t. This individual utility function can be described as

$$u(t|k_0) = b(k) - c(t) \tag{1}$$

with $k = (1 + t)k_0$.

Following Dalton et al. (2016), I make the following assumptions on the components' functional form. [5] First, the benefits of the final human capital level $b(\cdot)$ are continuously differentiable, strictly increasing and strictly concave with $b(0) = 0$. Second, individuals' risk aversion with respect to changes in human capital $r(k) = kb''(k)/b'(k)$ must be smaller than one. And third, the costs of training participation and completion $c(\cdot)$ are strictly increasing with $c(0) = 0$, convex and continuously differentiable.

The production function of k generates a complementarity between investments and initial human capital levels resulting in a lower productivity of investments at lower initial human capital levels. At the same time, the concavity and strictly increasing function of $b(\cdot)$ stated in the first assumption implies that the benefit from marginal increases in investments are higher at lower human capital levels. Finally, the second assumption ensures that the first assumption never dominates the complementarity. The impact evaluation of the training program for which participants of this study registered and got access to confirms that program benefits were more pronounced for individuals with higher educational levels at baseline (Frohnweiler et al. 2024).

Individuals choose their human capital investments such that they maximize utility. Under the three assumptions one can show that for each initial human capital level there exists a unique rational solution. One can further show that there exists a level of initial human capital k^* such that for all $k_0 > k^*$ the unique utility maximizing solution is to invest in training and have

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5. Dalton et al. (2016) provides a detailed description of the more comprehensive assumptions which are however not necessary for my broader motivation of aspirational failures.

high aspirations. In contrast, whenever $k_0 < k^*$ the unique rational solution is to not invest and have low expectations. Figure 1 illustrates this maximization process for simplicity relaxing the assumptions of concavity and convexity and instead assuming a linear form of the utility function and investments being binary with $t \in \{0,1\}$. The utility function reduces to $b(k)$, if rational agents choose not to invest, i.e., $t = 0$. If rational agents choose to invest the utility function is $b(k) - c(t)$. Given the functional form of k the slope is higher for $t \neq 0$. Then, k^* is the level of initial human capital at which a rational agent will shift from the low investment-aspiration pair to the high investment-aspiration pair, indicated by the green dashed line. For all $k_0 < k^*$, agents are trapped at low educational levels caused by initial low human capital levels.
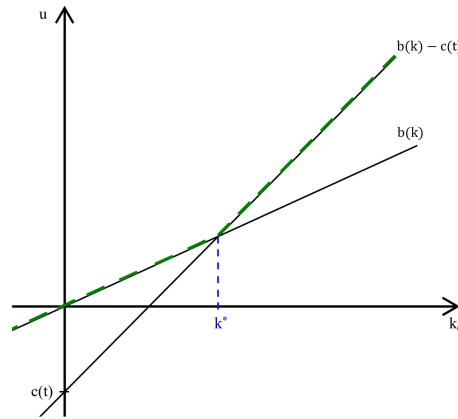
FIGURE 1. Decision of rational agents.
Notes: The graph describes the utility maximization process of rational agents at different initial human capital levels. The green dashed line indicates rational agents' unique utility maximizing investment-aspiration pair.

However, apart from the costs and benefits associated with educational investments that are largely external to, i.e., cannot be influenced by, the individual, behavioral theory suggests that economic decisions are also influenced by aspirations. Some behavioral economic models integrate aspirations into formal decision-making models related to poverty and show that misaligned aspirations can culminate in an aspirational failure that enlarges the standard poverty trap (e.g., Dalton et al. 2016; Genicot and Ray 2017; La Ferrara 2019). The underlying idea is that individuals possess different aspirational levels, shaped by their individual experience and the social environment, that work as reference points. The difference between an individual's aspired future achievement level and their current circumstances, called "aspirations gap" (Ray 2006), affects how much an individual will invest. Easterlin (2001) shows that people do not anticipate that their aspirations grow along with their income, also known as *Easterlin Paradox*. Instead, they expect their aspiration to be fixed. As a consequence, individuals might remain trapped at low achievement levels not (only) because of their initial low, e.g., human capital levels but because of their low aspirations. At the same time this implies that for a certain range of initial achievement levels, it is possible to break this trap by addressing aspirations – or in my setting self-efficacy – alone.

This expands the above utility function to be

$$u(t, a | k_0) = b(k) - c(t) + v\left(\frac{k-a}{k}\right) \tag{2}$$

where $v(\cdot)$ relates to the utility derived from reaching a certain human capital level relative to an aspired human capital level a which can also be understood as a "milestone utility" or a loss function for unmet aspirations due to misaligned investment-aspiration pairs. Again following Dalton et al. (2016), I assume $v(\cdot)$ to be continuously differentiable with $v'(0) > 0$ and fulfills $v'(x) - v''(x)(1-x) \geq 0$ for all feasible values of x. This ensures that $\partial^2 u(t, a, k_0)/\partial t \partial a \geq 0$ such that aspirations and investments are complements. It further implies that individuals prefer to overachieve rather than underachieve relative to their aspired levels of final human capital.[6] Empirical evidence confirms that higher aspirations generate changes in individuals' financial and educational investment decisions (e.g., Field et al. 2010; Carlana et al. 2022).

For behavioral agents, one can show that there exist lower (k_l) and higher (k_h) initial human capital levels such that if $k_0 > k_h$ the unique behavioral solution is to invest and have high aspirations. Instead, if $k_0 < k_l$, the unique behavioral solution entails no investments and low aspirations. However, for all $k_l \leq k_0 \leq k_h$, two investment–aspirations pairs are behavioral solutions and the decision depends on agents' initial aspirations. Behavioral agents with low initial aspirations would chose to not invest, whereas agents with high initial aspirations would invest. This implies that for behavioral agents the risk of ending up in a low investment trap exists not only for $k_0 < k^*$ but expands by an aspirational failure to all $k^* < k_0 < k_h$. Aspirational failure causes behavioral agents to choose the sub-optimal low investment levels not because of a lack of initial human capital but only because of their lower initial aspirations which are influenced by (i) the lower productivity of investments at lower initial human capital levels, i.e., the complementarity between investments and human capital and (ii) the delayed feedback from investments to aspirations. Figure 2 presents the decision process graphically for two types of behavioral agents: one has low initial aspirations (orange dashed line), one has high initial aspirations (violet dashed line). I again assume utility to have a linear form and investments and aspirations to be binary.

Integrating aspirations into the theoretical decision-making framework shows that policy interventions can target educational investments decisions through (1) reducing the costs involved with training investments or (2) addressing individuals' human capital aspirations. Section 3.2 provides a detailed description of the testimonial campaign's content and how it speaks to these two components. The theory further reveals that the effect of changing aspirations on investment decisions and utility is unclear a priori and depends on individuals' initial human capital level. For individuals with $k_0 < k_l$ or $k_0 > k_h$, raising aspirations will neither change the investment decision nor utility in equilibrium. For individuals with $k_l < k_0 < k^*$, raising aspirations will increase

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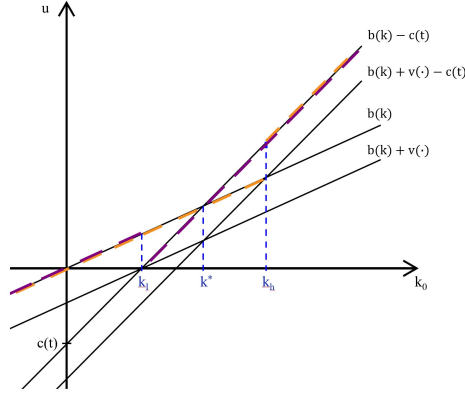6. This is shown in the proofs provided by Dalton et al. (2016).

FIGURE 2. Decision of behavioral agents.
Notes: The graph describes the utility maximization process of behavioral agents at different initial human capital levels. The orange line indicates behavioral agents' utility maximizing investment-aspiration pairs if they started with low aspirations after allowing for aspirations to adjust. The violet line indicates behavioral agents' utility maximizing investment-aspiration pairs if they started with high aspirations after allowing for aspirations to adjust.

investments but decrease utility. Only for individuals with $k^* < k_0 < k_h$, raising aspirations will increase educational investments and utility.

3. Setting and experimental design

3.1. Vocational training and the N4G program

Vocational training programs are among the most frequently implemented labor market interventions in development cooperation. Global organizations such as the World Bank, ILO, and UNESCO advocate for well-functioning Technical and Vocational Education and Training (TVET) systems, recognizing their potential to address the high levels of youth un(der)employment, widespread informality, skill shortages, and low job quality in Sub-Saharan Africa (ILO 2022; World Bank 2012, 2019; World Bank et al. 2023). Aligned with this vision, the fourth Sustainable Development Goal calls for expanded and equitable access to TVET (United Nations and Development 2015) and the Africa's Development Dynamics 2024 report highlights improved TVET access as a core policy priority for addressing skills shortages and changing skills demand in African countries (AUC and OECD 2024).

In Ghana, vocational training is delivered primarily in two formats: formal TVET and informal apprenticeships. Approximately 10-20% of vocational training takes place within formal TVET institutions, which typically follow a school-based approach, though they vary widely in ownership, accreditation, program length, and costs. Government-owned TVET institutions are nationally accredited and offer programs that last around three years without tuition fees, though students must cover costs for exams, uniforms, and materials. These institutions are frequently criticized for their weak alignment with industry needs and the low quality of instruction (CTVET 2020; Dadzie et al. 2020; AUC and OECD 2024). Programs at private institutes often run by establishments in the specific occupations, offer shorter programs, and charge high fees.

The informal apprenticeship model, accounting for the remaining 80-90% of basic skills training in Ghana, is by far the most common. Regardless of training type, everyone can register for National Vocational Training Institute (NVTI) examinations, which only assess practical skills and provide nationally recognized occupation-specific certification at various proficiency levels, starting at a fee of around GHS 180 (approx. USD 20) (CTVET 2020).

From 2021 to 2023, the German Agency for International Cooperation (GIZ) in Ghana, in partnership with the Ghanaian non-profit organization Samira Empowerment and Humanitarian Projects (SEHP), launched a vocational skills training program called N4G.[7] N4G incorporated a range of program elements that previous evaluations identified as most effective in benefiting participants (Agarwal and Mani forthcoming; Carranza and McKenzie 2023; Kluve et al. 2017). It stands out from other training opportunities in Ghana by combining the practical, hands-on approach typical of informal apprenticeships with the structured, formalized elements of institutionalized training programs, all delivered in a highly condensed format. N4G offered training in three occupations – Dressmaking, Hairdressing, and Beauty Therapy – across the cities of Accra, Kumasi, and Tamale, with program durations ranging from two to six months. Training providers varied by occupation and location. The training was provided for free and provided monthly stipends of GHS 200 to cover transportation and food expenses (see Frohnweiler et al. 2024, for a more detailed program description).

Eligible women could sign up at community events held between April and November 2021 for a chance to get access to N4G. The program's main target group were head porters, and communities were selected based on project partners' local knowledge of where many head porters live and work. Head porters work in marketplaces, carrying goods for traders and shoppers using buckets or baskets balanced on their heads. They often work for minimal fees and endure harsh and unstable working and living conditions. Many of them (temporarily) migrated from more rural areas to the cities to accumulate savings to enable a living at home. They are commonly perceived as a vulnerable group frequently facing exploitation and violence. The registration process involved two interviews: a shorter interview to assess eligibility and an in-depth interview covering socioeconomic status, employment, and other aspects.[8] Between interviews, career and counseling sessions informed women about the program details. In total, 1,575 eligible women registered, out of which 1,109 were randomly selected and invited to N4G. The remaining 466 women were not invited and were excluded from the subsequent analysis.

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7.   N4G is the abbreviation for *Network for Enterprise Development Learning through Sewing for Girls*.

8.   Only women aged 16 to 24 years with at most a completed senior high school degree, no prior training participation within the fashion industry, and no childcare responsibilities were eligible. These eligibility criteria were defined by GIZ Ghana and SEHP. Upon registration, study participants were asked for their written consent to participate in the survey, allow their contact details be used for follow-up interviews, and permit the use of anonymized data for research purposes. Everyone who registered was informed that only a random subset will get access to the N4G training program.

A rigorous impact evaluation of N4G showed that while N4G had muted effects on overall employment and income, it led to occupational sorting, substantially improved job quality, and enhanced quality of life. Women invited to N4G were more than twice as likely to work in their field of specialization, more likely to hold written labor contracts (7.4 pp) and access to medical benefits (5.4 pp) and reported reductions in anxiety (3.4 pp) and stress (0.9 pp). Additional outcomes included delayed marriage (8.0 pp) and increased bank account ownership (6.8 pp) (Frohnweiler et al. 2024).

3.2. The testimonial campaign

The testimonial campaign contained two videos and up to 30 follow-up text messages. The first video was sent after the registration but before the N4G training started and aimed at affecting women's decision to start the training. The second video and follow-up text messages were sent during the training period and targeted women's decision to continue and complete the training. Since the registration events took place on different days across communities, the gap between receiving the first video and the scheduled training start ranged from two weeks to six months (median: 72 days) and the gap between the two videos spanned from five weeks to five months (median: 82 days). Figure 3 outlines the intervention sequence and Appendix Figure A.II.3 details the exact timing of every campaign component for each individual study participant.
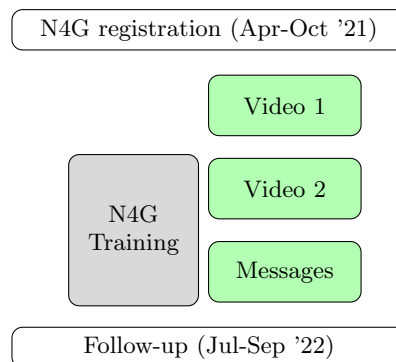
FIGURE 3. Intervention timeline

The videos had a duration of three minutes and were delivered through text messages containing a brief introduction to the video and a personalized link to a private YouTube channel.[9] To ease access to the videos, individuals received a mobile money transfer of GHS 2 shortly after the messages with the video link, to cover mobile data expenses.[10] The videos had a duration of three minutes and were available in basic English, Dagbani, and Twi, and participants received the video in the language that matched their language proficiency reported

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9. Videos could only be accessed with a personalized link and could not be accessed through the search function.

10. Money was transferred in form of airtime for individuals who reported to have a smartphone and in form of phone credit for individuals without smartphone. Even though the control group did not receive any videos, they also received the two money transfers.

during the registration. The text messages were written in basic English, addressed women by their first name, and were sent at 6am on Wednesdays, Fridays, and Sundays. Treated individuals received a minimum of two and a maximum of 30 follow-up messages (median: 26). The lower number of text messages can largely be explained by some trainings lasting only 2 months and the message delivery stopped once the training period ended.

Appendix II shows screenshots from the videos and examples of the text messages. The videos were produced by a professional Ghanaian filmmaker and featured Ghanaian women of similar socioeconomic background to the N4G registrants. The self-efficacy videos presented two women — a welder and a business owner for organic-beauty products — who described how perseverance, role models, and setting small goals helped them achieve bigger dreams. They acknowledge that everyone sometimes faces setbacks, anxiety, and worries, but emphasized that these challenges can often be overcome and that seeking advice from others can be beneficial.

In addition to the self-efficacy testimonials, I also designed a neutral testimonial version in which four women working as a fashion designer, baker, hairdresser, and car sprayer shared their experience with vocational training. The videos were designed to be as comparable as possible to those of the self-efficacy testimonials, only their content differed. Women talked about their decision to pursue training and how it provided them with skills and a certificate, enabling them to find employment or start their own business. This content closely mirrored the information shared with all women during the career and counseling sessions that formed part of the N4G registration process. Thus, I refer to this arm as the neutral testimonials group. The follow-up messages repeated or expanded the respective video content and occasionally included again the personalized video links.

3.3. Randomization and sample characteristics

The 1,109 women invited to participate in the N4G training program form the study sample and were randomly assigned to one out of three experimental arms. One third, the treatment group, received the videos and messages on self-efficacy. Another third, serving as a placebo or neutral treatment group, received the videos and messages on vocational training. The last third, the pure control group, received no videos or text messages. Randomization was stratified by baseline characteristics, including registration city, selected training occupation, employment status, educational level, self-efficacy, and smartphone access. For the analysis, the sample is limited to subjects interviewed both at baseline and follow-up, resulting in a final study sample of 1,009 observations (see Table 1).[11]

The focus on study participants who received access to the N4G training program is based on two interrelated considerations. First, due to the mechanically induced difference in training access, the intervention's effects on vocational training participation could not be meaningfully

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11.   In Section 5.6, I discuss the results of an attrition analysis.

TABLE 1. Intervention sample across treatment arms and survey waves.

	Testimonials			
	Self-efficacy (1)	Neutral (2)	None (3)	Total (4)
Baseline (2021)	362	362	385	1,109
Follow-up (2022)	328	332	349	1,009

Note: Table shows the distribution of study participants across treatment arms and data collections.

analyzed across participants with and without access to N4G. Only 6.8% of those without N4G access started alternative training programs, and only 1.0% completed such a program. Second, the substantially smaller sample size of those not invited to N4G provides insufficient variation in training engagement outcomes to serve as a basis for robust analysis.

Appendix Table A.III.1 shows that key demographic characteristics, personality traits, pretreatment outcomes, and training-related information are balanced across the three experimental groups. The program's age restriction of 16 to 24 years was strictly enforced, with an average age of 20.6 years. At baseline, i.e., at the time of registration, 39% of the participants were married and 19% had at least one child. The majority had either completed junior high school (30%) or senior high school (46%). Regular employment was low among participants (78% were not regularly employed), resulting in a low average monthly income of 8.59 USD and average weekly working hours of 10.6. Geographically, the majority of participants were located in Accra (63%), and most registered for Dressmaking (48%). Confirming the status of head porters as vulnerable group, 26% reported that they know someone who had transactional sex, 6% reported that they themselves had transactional sex, and 18% had limited knowledge about reproductive health.

4. Descriptive analysis

Take-up of the N4G training was low. Appendix Figure A.III.1 shows that among invited women, only 49.0% started the N4G training and 40.0% completed it. The majority of participants who discontinued did so within the first 10 days of training (Appendix Figure A.III.2). The second most common reason for not starting, and the most common reason for dropping out, was no longer being available due to to starting a job, enrolling in other education format, or having to fulfill family obligations (Appendix Figure A.III.3).[12]

These low take-up rates and drop-out reasons may suggest that some women chose not to start or complete the N4G training because better alternatives became available. However, the

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12. Logistic difficulties in terms of women not knowing about their invitation to the N4G program were the most frequent response for why women invited to the N4G training did not start. Women were informed about their invitation via text messages and follow-up calls by training providers.

rigorous impact evaluation by Frohnweiler et al. (2024), summarized in Section 3.1, indicates that participating in the N4G program was a welfare-improving decision on average. Additionally, women hold very positive perceptions of vocational training and its benefits, suggesting that low perceived benefits are not a primary bottleneck in this context. At registration, women expected substantial monetary gains from completing vocational training (+USD 34 in monthly income, at median), with 94.8% believing it improves employment opportunities and 93.7% believing it increases social status. This underscores the importance of identifying the key predictors of training engagement in a setting where beliefs about vocational training are generally very optimistic.

The decision to participate in a training program may be influenced by a multitude of interlinked factors. Rigorous impact evaluations often dispose of rich, yet often relatively small datasets of individuals' baseline characteristics, with strong inter-dependencies between variables and potential interactions in the relation of these variables with the outcome. Linear models are unlikely to provide a good fit for such data. Machine learning (ML) techniques, while not ideal to identify the relevance of single parameters, are powerful tools to flexibly investigate relationships based on data with complex interactions by showing the relative importance of variables (Mullainathan and Spiess 2017; Baiardi and Naghi 2024). In settings with a large number of covariates relative to sample size, ML models can outperform traditional methods as they apply regularization techniques to identify the most predictive covariates (Baiardi and Naghi 2024).[13]

I apply the *random forest* algorithm, introduced by Breiman (2001), and include all individual baseline characteristics as covariates to identify the most important predictors of training participation. For missing values I impute zero together with a missingness indicator. Figure 4 presents the prediction results. The importance measure illustrates how much each baseline variable improves the accuracy of predicting training start and completion. Baseline self-efficacy is the third highest-ranking variable for predicting both training start and completion. This provides ex-post descriptive evidence for the relevance of self-efficacy for individuals' decision to invest in post-secondary training. Other covariates that may also reflect individuals' internal constraints, such as risk tolerance, patience, and mental health factors such as anxiety and depression also rank highly in explaining training participation. The same holds true when applying the random forest only to the subset of control individuals who did not receive any testimonials.

To further examine these predictions and to get an intuition about the direction of the relationship, I use the 14 most important variables identified by random forest in an OLS regression to predict the probability of training start (Appendix Table A.III.2) and completion

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13. Existing studies apply ML to household and individual-level data to predict poverty (McBride and Nichols 2015), labor market performance (Yamada and Otchia 2022; McKenzie and Sansone 2019), optimal labor hiring (Chalfin et al. 2016), or high school dropout (Sansone 2019).
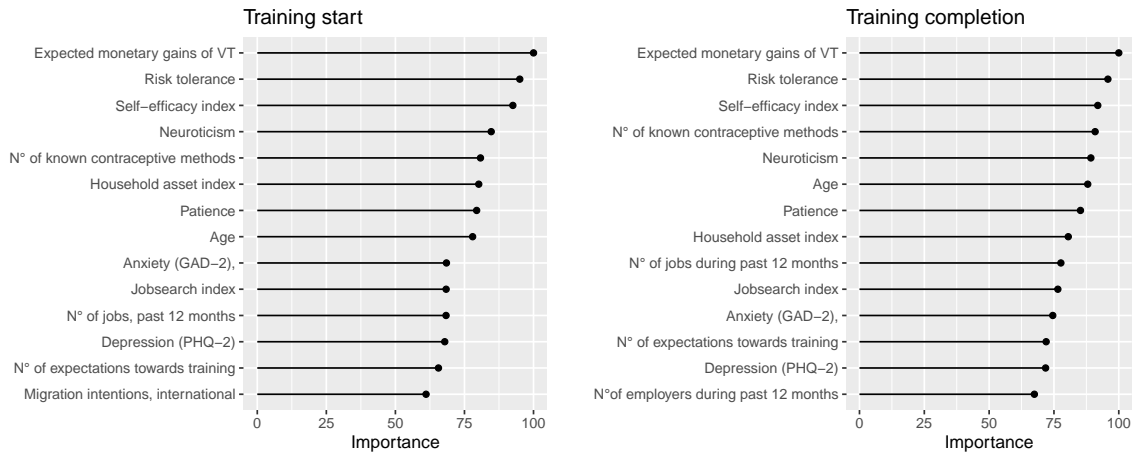
FIGURE 4. Determinants of training participation.
Notes: The figure shows the relative importance of baseline characteristics of study participants in explaining the decision to start (left) and to complete the N4G training (right) identified through random forest.

of (Appendix Table A.III.3) the N4G training. Alongside random forest (column 1), I apply four alternative methods for variable selection, allowing comparison of random forest with common approaches used in the literature to identify determinants of training participation. Column (2) uses a logit adaptive lasso estimation over all baseline characteristics. Column (3) applies a logit elastic net estimation with cross-validation to obtain the optimal α and λ. Column (4) considers external constraints on training participation as identified in the existing literature. Column (5) combines the baseline variables selected by all four methods.

Adaptive Lasso and Elastic Net each select only three variables. Notably, self-efficacy, along with other psychological and personality traits, is selected only by random forest. A one standard deviation increase in the self-efficacy index is associated with a 4.1 percentage point increase in the probability of starting the training, equivalent to an 8.4% increase relative to the overall N4G take-up rate of 49%. Other baseline variables significantly associated with training start include age, risk preferences, self-esteem, and expectations towards the N4G training which only partly overlaps with the top predicted identified by random forest. The models, however, exhibit only limited explanatory power for training participation. Combining the variables by all three models in column (5) accounts for only 12.5% of the variance in training start. I also compare the predictive accuracy of random forest, adaptive lasso, and elastic net in Appendix Table A.III.4. The predicted probabilities of training start (Panel A) and training completion (Panel B) obtained via random forest (column 1) show greater precision and explanatory power than those from adaptive lasso (column 2) and elastic net (column 3).

In sum, the descriptive and ex-post random forest analysis highlights the importance of internal constraints, particularly self-efficacy, in driving training participation, a factor that would likely remain overlooked by alternative methods commonly used in the literature.

5. Effects of the testimonials

In light of theoretical framework outlined in Section 2 and the literature showing the strong linkage between self-efficacy and aspirations (Ansong et al. 2019; Bandura 1993; Bandura et al. 2001; Roy et al. 2018), the design of the testimonial campaign and subsequent analysis relies on the following theory of change. First, I expect the self-efficacy testimonials to increase treated women's self-efficacy level. Second, I expect the higher self-efficacy levels to translate into an increased aspiration of women to invest in their human capital, which I expect to materialize in an enhanced participation in the N4G training. However, I expect effects on participation only for a subsample of the treated women. For women with very low or very high initial human capital levels, the theoretical framework predicts unique behavioral solutions which cannot be altered by a boost in aspirations. Instead, for women in the middle of the human capital distribution, the framework predicts that the increased aspirational level will lift them out of an aspirational trap and induce more women to opt for the high investment-aspiration pair, i.e., to participate in the training. The analysis will identify whose investment decisions were influenced by the testimonials and whose were not, though it will not assess the welfare implications of these changes.

5.1. Empirical specification

I estimate the intent-to-treat (ITT) effects of the testimonials on training participation, employment, and quality-of-life outcomes using the following ANCOVA specification:

$$Y_{i,1} = \beta T_i + \gamma Y_{i,0} + \delta_{r(i),o(i)} + \varepsilon_i, \tag{3}$$

where $Y_{i,1}$ is the outcome of individual i at post-intervention time $t = 1$ and T_i is an indicator for whether the individual was assigned to the testimonials on self-efficacy or the control group. I always control for region-occupation fixed effects $\delta_{r(i),o(i)}$ and, when available, the baseline outcome $Y_{i,0}$.[14] For each hypothesis test, I report robust standard errors to account for heteroskedasticity and the p-value from a standard Wald test.[15]

Treatment delivery relies on treated participants reading the text messages, clicking on the links, and watching the videos. In addition, treated participants might have told their peers about the content of the videos and messages, causing control participants to also receive the treatment. To address imperfect compliance with treatment assignment, I employ an instrumental variables approach to estimate complier average causal effects (CACE). In the

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14. Whether or not the baseline outcome is included, is reported in the bottom row of each regression table.

15. The pre-analysis plan registered clustered standard errors at the location level. However, in the end the training was only implemented in three different regions and across seven different providers. Due to the very limited number of clusters, I use robust standard errors instead.

follow-up survey, participants self-reported whether they received messages with video links, watched the videos, and recall the videos' content. For the CACE estimations, I instrument the latter indicator with treatment assignment

The main outcome variables are self-efficacy and training participation. I measure self-efficacy using the four-point Generalized Self-Efficacy (GSE) scale introduced by Schwarzer and Jerusalem (1995). The GSE scale is based on separate survey items which are then used to generate an index that varies between zero and one.[16] The follow-up survey included four items referring to the following statements for which respondents had to indicate their level of (dis-)agreement: (1) I can always manage to solve difficult problems if I try hard enough, (2) When I am confronted with a problem, I can usually find several solutions, (3) It is easy for me to stick to my aims and accomplish my goals, and (4) I am confident that I could deal efficiently with unexpected events. The GSE scale is frequently used to measure self-efficacy, including in developing country contexts (e.g., John and Orkin 2022; McKelway 2024; Roy et al. 2018, in India and Kenya).

For training participation, I rely on a set of indicators based on self-reported and administrative data. The self-reported data was collected in a follow-up survey six months after the N4G training ended. Participants were asked whether they started and completed the N4G training or any other training program. They further responded to questions about the usefulness of the training, their manual and soft skills, participation in a NVTI examination, whether they received and accepted a placement offer by the training provider, their employment status and job search efforts during the past 12 months, and aspects of their mental health. Administrative data is drawn from attendance sheets submitted by training providers, on which participants confirmed daily attendance with a signature.

I pre-registered the full experiment through the AEA RCT Registry (AEARCTR-0007968), which specified the implementation of the intervention, the outcome categories, potential mechanisms, and the OLS and CACE estimations. I deviate from the pre-analysis plan by excluding women who registered for the N4G program but were not invited to participate due to the reasons outlined above. Additionally, I use only the self-efficacy testimonials as active treatment and categorize the group that received vocational training information as "neutral testimonials". This adjustment, justified by participants' pre-existing positive views on vocational training and absence of any effect, supports a more targeted analysis of the mechanisms behind the self-efficacy testimonials' effects.

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16. Schwarzer and Jerusalem (1995) define generalized self-efficacy as an individual's general belief in their ability to "respond to and control environmental demands and challenges".

5.2. Success of testimonial delivery

Table 2 assesses the take-up of the self-efficacy testimonial campaign.[17] Column (1) examines the effect on the probability of ever clicking on one of the sent video links, column (2) shows the effect on the number of clicks, and columns (3) and (4) assess whether participants indicated that they watched and remembered at least two specific components of the self-efficacy videos, respectively. Columns (5) and (6) focus on the number of follow-up text messages as reported by the participants and recorded in our system, respectively.

The intervention was successfully delivered. Tracking the clicks of the individualized video links shows that 35.0% of the treated women ever clicked on one of the videos. On average, each individualized link was used 0.78 times. Women assigned to the self-efficacy testimonial group are 19.9 percentage points more likely to report having watched the videos and nearly everyone who reported to have watched the videos also recalled their content even after eight months. The self-reported take-up of the campaign aligns with other message-based interventions (Bahety et al. 2021). However, the click-through rate significantly exceed that of other interventions that delivered videos via text messages (Banerjee et al. 2020). The delivery of the neutral testimonials was equally successful (Appendix Table A.IV.1).

TABLE 2. Effect of treatment assignment on receiving the self-efficacy testimonials.

	Video click		Self-efficacy video		N° of SMS	
	Ever	N°	Watched	Remembered	Self-reported	Sent
	(1)	(2)	(3)	(4)	(5)	(6)
SE testimonials (assigned)	0.350^{***}	0.788^{***}	0.199^{***}	0.185^{***}	7.602^{***}	27.711^{***}
	(0.025)	(0.088)	(0.027)	(0.023)	(0.434)	(0.161)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	747	747	677	677	651	747
Control mean	0.000	0.000	0.054	0.017	0.000	0.000
Baseline outcome						

Note: Results from OLS estimations. The outcome variables indicate if respondents ever clicked on any of the individualized links (column 1), the number of recorded clicks for the individualized links (column 2), if respondents reported to have watched the videos or remembered at least two content components (columns 3 and 4), and self-reported and actual number of received follow-up SMS (columns 5 and 6). Estimations include region-occupation FE. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

Among the control group, a small share of individuals also indicated to have watched the self-efficacy videos (5.4%). The share reduces to 1.7% when looking at those who remembered the content. Similarly, some participants of the self-efficacy treatment arm indicated to have watched the neutral testimonials (6.7%) and remembered the content (1.5%). However, these shares are very small and were anticipated given that some of the study participants knew each other already at the time of registration, some live in the same communities, and some were assigned to the same training providers. To examine potential spillovers from treated participants in the same training program, I compare the treatment saturation across each region-occupation combination

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17.   The regressions compare outcomes of women assigned to the self-efficacy testimonials to outcomes of women assigned to the control group. Women assigned to the neutral treatment are excluded from the regressions.

with region-occupation specific spillovers. I measure spillovers using the share of women who indicated to have watched or to remember the content of the videos among untreated women or women assigned to the other testimonial group (Appendix Figure A.III.4). Assuming that participants watch each video only a limited number of times, I can also use the recorded clicks per individualized video link as a proxy for spillovers (Appendix Figure A.III.5). For none of the spillover measures I observe consistently higher spillovers in region-occupation combinations with higher treatment saturation. Moreover, the average number of clicks on the self-efficacy videos rarely exceeds one. I conclude that spillovers did occur, but only to a very small and therefore negligible degree.

5.3. Effect on self-efficacy

Table 3 presents results on the effect of the self-efficacy testimonials on self-efficacy and other psychological outcomes, measured approximately six months post-training and eight months after the last text message. Panel A shows OLS estimations representing the average treatment effect for women assigned to receive the self-efficacy testimonials. Panel B shows CACE estimates representing the average treatment effect among women who remembered at least two content components of the self-efficacy videos. For the interpretation, I will concentrate on the more conservative OLS estimates because they reflect the key challenge of such campaigns which is the (mis-)success of reaching the targeted population.

TABLE 3. Effect of the self-efficacy testimonials on psychological outcomes.

| | Self-efficacy index | Mental health | | | | Self-esteem | Conscien-tiousness | Life satisfaction |
| | | Index | Anxiety | Depression | Stress | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
[A] OLS estimations								
SE testimonials (assigned)	0.137*	-0.010	-0.024	-0.002	-0.004	-0.012	0.029	-0.003
	(0.072)	(0.013)	(0.022)	(0.020)	(0.004)	(0.010)	(0.023)	(0.018)
	[0.058]	[0.421]	[0.260]	[0.902]	[0.304]	[0.239]	[0.201]	[0.855]
[B] CACE estimations								
SE testimonials (remembered)	0.741*	-0.052	-0.122	-0.013	-0.022	-0.062	0.158	-0.018
	(0.398)	(0.066)	(0.111)	(0.101)	(0.022)	(0.053)	(0.125)	(0.098)
	[0.063]	[0.427]	[0.274]	[0.901]	[0.307]	[0.238]	[0.207]	[0.855]
1st stage F-stat	65.588	68.005	67.781	67.424	69.106	65.864	65.360	65.998
Observations	677	633	633	633	633	677	677	677
Control mean	-0.010	0.219	0.327	0.271	0.060	0.952	0.845	0.516
Baseline outcome	✓	✓	✓	✓	✓	✓	✓	

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. The outcome variable in column (1) is standardized with mean zero and standard deviation one, variables in columns (2) to (8) vary between zero and one. Estimations include region-occupation FE. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

The testimonials significantly increased the reported self-efficacy levels, while other psychological outcomes remained unaffected. Column (1) shows that treated women's self-efficacy index is 0.14 standard deviations higher than that of women in the control group.[18] The effect size closely resembles outcomes from other interventions that addressed self-efficacy through intensive in-person interventions. McKelway (2024) reports an effect size of 0.12 standard deviations for an intervention among women in India involving several in-person sessions and a comparable – if anything, shorter – time gap between the intervention and post-treatment outcome measurement.[19] John and Orkin (2022) conducted a two-session intervention with young women in Kenya and report an increase in self-efficacy between 0.11 and 0.15 standard deviations ten weeks later.

The self-efficacy testimonials might have also affected life satisfaction or mental health, for example, due to a better handling of stress. However, columns (2) through (6) of Table 3 reveal no significant differences across the additional psychological dimensions examined. I do not observe significant differences between women assigned to the self-efficacy testimonials and untreated women in terms of their mental health index, any of the individual mental health components (anxiety, depression, and stress), self-esteem, conscientiousness, or general life satisfaction.

5.4. Effect on training engagement

Next, I assess the effect of the self-efficacy testimonials on individuals' decision to participate in the N4G training, examining both the extensive and intensive margins. Table 4 summarizes the results, with columns (1) and (2) showing effects on women's self-reported participation in N4G, and columns (4) and (5) presenting effects on participation as recorded in the attendance sheets.

Receiving the self-efficacy testimonials did not significantly affect women's overall probability of starting the N4G training. This holds true for both self-reported and administrative measures of training participation. However, the self-efficacy testimonials significantly increased the probability to complete the training by 8.1 percentage points among women who started the training, an increase of 10.5% compared to the control mean. Women who started the training and received the self-efficacy testimonials also attended 3.6 more training days than untreated women, but the difference is not statistically significant.

Restricting the sample to women who started N4G in columns (2) and (4) might introduce a sample selection bias. I test whether results remain robust when instead predicting women's probability to start the N4G training based on their baseline characteristics and using this predicted starting probability as sample restriction. Appendix Table A.IV.3 shows the results

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18.   Appendix Table A.IV.2 disentangles the self-efficacy index into its separate items. The treatment coefficients are positive for all items, but the self-efficacy testimonials seem to have especially affected women's belief in being able to solve problems.

19.   McKelway (2024) measured self-efficacy five weeks, seven weeks, five months, and 13 months after baseline and she pools data across all follow-up surveys. Her intervention finished five-weeks after the baseline.

TABLE 4. Effect on training participation.

| | Self-reported | | Attendance sheets | |
	Started (1)	Completed if started (2)	Started (3)	N° of days (4)
[A] OLS estimations				
SE testimonials (assigned)	-0.027	0.081**	-0.039	3.573
	(0.037)	(0.040)	(0.033)	(2.638)
	[0.463]	[0.043]	[0.227]	[0.176]
[B] CACE estimations				
SE testimonials (remembered)	-0.146	0.365*	-0.213	21.205
	(0.201)	(0.186)	(0.187)	(13.715)
	[0.467]	[0.051]	[0.255]	[0.123]
1st stage F-stat	65.998	47.550	65.998	41.648
Observations	677	370	677	361
Control mean	0.559	0.774	0.547	49.387
Baseline outcome				

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. The outcome variables in columns (1) to (3) are binary. Training start in the admin data equals one if a study participants is listed at least once in the attendance sheets. The outcome in column (4) is integer. Columns (2) and (4) reduce the sample to women who started the training. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

for training completion and number of attended training days.[20] The positive effect found for completion increases in its magnitude and the coefficient for attended training days becomes significant.

I run the same regressions for the neutral testimonials that speak about other women's experience with vocational training. They had no significant effect on women's participation in any dimension. In Section 6 I discuss the analysis and results in more detail.

5.5. Heterogeneous treatment effects

So far, I presented the average effects of the self-efficacy testimonials on training participation. The theoretical framework suggests that changes in self-efficacy should only affect the participation decisions of a specific subset of individuals – namely, women with medium baseline human capital and low baseline aspirations. Therefore, I also assess potential treatment effect heterogeneities by conducting subsample analyses based on women's initial human capital and self-efficacy levels.

I first categorize women based on baseline education into three groups: (1) no formal education or primary education only, (2) junior high school (JHS), and (3) senior high school (SHS). I then re-estimate the effect of the testimonials on training participation for each group. Figure 5

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20.   In the subsample of women who did not receive any testimonials, I train a random forest based on all baseline individual characteristics and use it to predict N4G training start in the total sample.

displays the ITT coefficients and their 95% confidence intervals for the different outcomes and subsamples. The positive effect of the self-efficacy testimonials on completion is significant only for women with JHS, representing medium initial human capital. For this subgroup, I also observe a significant increase in attended training days as recorded by the attendance sheets. For women with education at the SHS level, the coefficients are close to zero across all outcomes, while for women with no formal education or only primary education, the effects on completion and attended training days are positive but not significant.
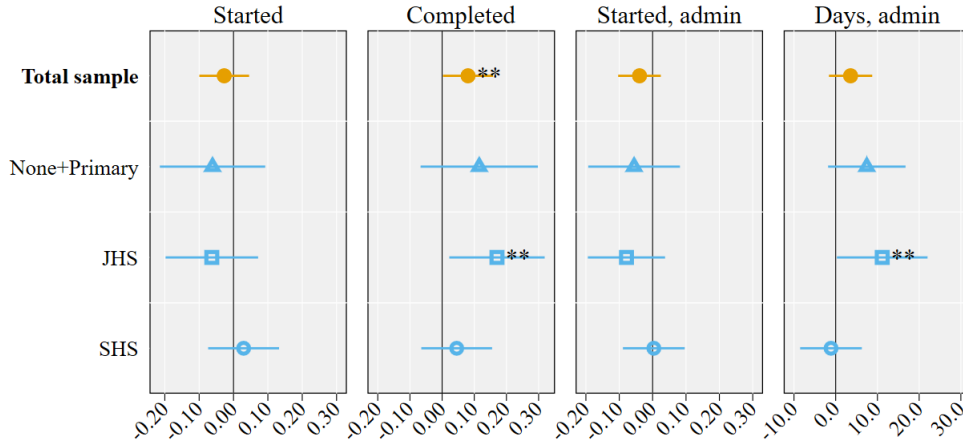
FIGURE 5. Effect on participation by baseline education.
Notes: The figure displays the ITT coefficients and their 95% confidence interval for the effect of the self-efficacy testimonials on N4G training participation by women's baseline education. The subgraphs refer to the different indicators of training participation and the different colors represent the different subsamples.

To also capture other dimensions of human capital apart from education, I construct a human capital index integrating the dimensions of women's educational attainment, personality traits, and language skills at baseline.[21] Using these three dimensions, I predict women's baseline income through a random forest model, treating the predicted income as a human capital index. This approach has the advantage of indexing human capital to an economic outcome with clear cardinal interpretation and avoids assumptions about weights, functional form, and inter-correlations between the baseline variables which would be necessary when aggregating the categoric variables in the three dimensions related to women's human capital level. Again, I divide women into terciles based on their human capital index and conduct separate regressions for each tercile (Appendix Figure A.IV.1). Confirming the heterogeneity by educational level, the positive effect on completion observed in the total sample is concentrated among women in the middle human capital tercile.

The theoretical framework further suggests that changes in participation decisions should only happen among women with initially lower aspirational levels. As a proxy for their initial

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21.   Educational attainment reflects the achieved formal educational level (none or primary, junior high school, and senior high school). Personality captures respondents' self-esteem, conscientiousness, neuroticism, anxiety, fear of not being skilled enough, present bias, and impatience.

aspirations, I split women into terciles based on their reported self-efficacy levels at the time of registering for N4G and Appendix Figure A.IV.2 plots the results. As expected, only women with low initial self-efficacy levels show positive effects from the campaign on training completion and attended training days. No significant effects are found for women with higher initial self-efficacy levels. Combining the baseline characteristics of education and self-efficacy confirms that it is women with medium education and low self-efficacy whose probability to complete the training is most affected by the self-efficacy testimonials (Appendix Figure A.IV.3).

Lastly, recent theoretical literature conceptualizes internal constraints as common behavioral biases, "except that in poverty (...) the same behaviors (...) can lead to worse outcomes" (Bertrand et al. 2004, p. 1). The design of the N4G training minimized common external constraints, and the strict eligibility criteria yielded a relatively homogeneous study sample. Nevertheless, minor differences in external constraints may still exist. Using baseline data, I constructed an index comprising five dimensions that likely present barriers to training participation: childcare responsibilities, marital or relationship status, English proficiency, household wealth, and pre-training concerns. Each dimension is represented by a binary variable, and I normalize the sum of these variables to range from zero to one, with higher scores indicating greater external constraints to participation. Appendix Figure A.IV.4 compares the treatment effects of women with lower (below median) and higher (above median) external constraints. The results indicate that the self-efficacy testimonials benefit training take-up only for women facing greater external constraints at registration. This aligns with the theoretical prediction that alleviating internal constraints is particularly impactful under heightened external constraints.

5.6. Robustness checks

I conduct several robustness checks to corroborate the main findings. The results are shown in Appendix Table A.IV.6. First, I evaluate the robustness of the findings to selective attrition. Sample attrition in the follow-up survey is balanced across treatment assignment (Appendix Table A.IV.7) but significantly related to several baseline characteristics (Appendix Table A.IV.8).[22] To account for selective attrition, I apply inverse probability weights and the findings remain unchanged.[23] Second, I investigate whether inference is sensitive to alternative assignments of treatment status. The p-values remain similar when I use the Fisher's permutation-based randomization inference test.[24] Third, I control for additional baseline characteristics selected based on the post-double selection Lasso (PDS Lasso) method (Alexandre Belloni 2014) and treatment coefficients and significance levels remain unchanged.

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22.   Women who left the sample are younger, more likely to have children, less educated, have lower self-efficacy and higher anxiety levels, more likely to be self-employed, and have higher monthly incomes.

23.   I predict participation in the six-months follow-up with treatment assignment and the same individual baseline characteristics as used for the balance checks.

24.   I use the Stata command `ritest` with 1,000 replications from Heß (2017).

Lastly, I correct for multiple hypothesis testing using the approaches suggested by Benjamini et al. (2006) to control for the false discovery rate. As a result, the coefficient for completion conditional on having started loses its significance.

6. Mechanisms and downstream outcomes

The results presented so far suggest that the self-efficacy testimonials increased the probability to complete the N4G training among women who started, with the effects concentrated among those in the middle of the human capital distribution, with lower initial levels of self-efficacy, and with relatively higher external constraints. In the following, I seek to shed light on the mechanisms through which the testimonial campaign affected women's participation decisions.

First, the testimonial campaign could have affected participation through a simple reminder effect of receiving multiple text messages. To assess this, I compare the effects of the self-efficacy testimonials to those of the neutral testimonials. Both testimonial sets consisted of the same number of video and follow-up messages and their delivery was equally successful. If the effects on participation observed among women who received the self-efficacy testimonials could solely be attributed to the fact that women received multiple messages which reminded them of the N4G training, one would expect to see the same effect among women who received the neutral testimonials even though they had no effect on women's perceptions about vocational training. However, I find that the neutral testimonials had no significant effect on participation in and completion of the N4G training, neither at the extensive nor the intensive margin (Appendix Table A.IV.4). Confirming the placebo interpretation, women who received the neutral testimonials do not associate higher monetary gains, higher employment probabilities, or higher social status with the completion of vocational training than women who did not receive any testimonials and do not differ in terms of their self-efficacy levels or any other of the psychological outcomes (Appendix Table A.IV.5). The effects observed among women who received the self-efficacy testimonials can thus not solely be attributed to a reminder effect.

Second, the testimonials could have encouraged women to participate more actively in the training. I assess women's (i) reported usefulness of the training, (ii) participation in an NVTI assessment, (iii) and the probability of having received a placement offer by the training provider. At the end of the N4G training, women had the opportunity to participate in an NVTI examination to get a nationally accredited certificate for their manual skills. The exam fees were covered by GIZ. Moreover, as part of the N4G program training providers offered job placements to their trainees upon successful completion of the training. However, the examination and placement components were only offered to a small share of trainees who were arguably the best performing ones. Table 5 shows that women who received the self-efficacy testimonials reported higher usefulness of the training, had an increased probability of being assessed for NVTI, and were more likely to be offered a job placement by their training provider.

TABLE 5. Effect on training outcomes.

	Training	NVTI	Placement
	usefulness (1)	Certificate (2)	Offered (3)
[A] OLS estimations			
SE testimonials (assigned)	0.445*	0.104**	0.073*
	(0.234)	(0.040)	(0.039)
	[0.059]	[0.010]	[0.061]
[B] CACE estimations			
SE testimonials (remembered)	2.058*	0.481**	0.336*
	(1.159)	(0.197)	(0.184)
	[0.077]	[0.015]	[0.069]
1st stage F-stat	46.979	46.979	46.979
Observations	377	377	377
Control mean	7.576	0.162	0.152
Baseline outcome			

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. Outcome variable in column (1) varies between 0 and 10. Outcome variables in columns (2) and (3) are binary. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

Third, even though the participation rate remained unchanged in the total sample, the testimonials may have encouraged some women to start the training while discouraging others, thereby inducing a compositional change in who started the N4G training. I have shown that the effects on training attendance and completion, conditional on training start, vary significantly by women's baseline characteristics. Although these sample splits by single baseline characteristics did not show significant effects on training start, the testimonials may still have had differential effects on training start for women with specific *combinations* of baseline characteristics. Therefore, I reduce the sample to women who started the N4G training and compare baseline characteristics between those who were sent the self-efficacy testimonials and those who were not sent any. This simple comparison relies on the following rationale: given the random assignment of the testimonials, women in the three experimental arms have identical baseline characteristics in the full sample. Any differences in baseline characteristics between treated and untreated women who started the N4G training should, therefore, be attributable only to the differential effects of the testimonial campaign. This comparison can thus reveal how women who started the N4G training due to the self-efficacy testimonials differ from those who started the training without them.

Column (1) of Table 6 shows that, when regressing self-efficacy treatment status on a set of key observable characteristics in the total sample, the regression coefficients are uniformly insignificant, and the p-value of a joint F-test indicates that, at baseline, both samples were jointly balanced. In column (2), I limit the sample to women who started the N4G training. The p-value of the joint F-test indicates that the self-efficacy testimonials attracted a significantly different subset of women to start the training, resulting in a compositional shift. Among women who started the training, those who were sent the self-efficacy testimonials had higher baseline

TABLE 6. Prediction of testimonial status in total sample and among women who started the training.

	Self-efficacy testimonials	
	Total sample (1)	Started (2)
Age	-0.004	-0.020
	(0.011)	(0.017)
Married	-0.006	0.036
	(0.041)	(0.056)
Has children	-0.016	0.026
	(0.053)	(0.076)
Education: Primary	0.118	0.303**
	(0.097)	(0.133)
Education: JHS	0.041	0.235*
	(0.092)	(0.124)
Education: SHS	0.038	0.224*
	(0.090)	(0.122)
Self-efficacy, 1st tercile	-0.007	0.054
	(0.051)	(0.070)
Self-efficacy, 2nd tercile	0.013	0.029
	(0.052)	(0.072)
Depression (PHQ-2)	0.046	0.233*
	(0.087)	(0.119)
Stress level	-0.608	-1.177**
	(0.422)	(0.587)
Anxiety (GAD-2)	-0.038	-0.008
	(0.089)	(0.127)
Present bias	0.059	0.153***
	(0.039)	(0.055)
Any employment	0.059	0.260**
	(0.103)	(0.132)
Monthly income (among all)	0.000	0.001
	(0.001)	(0.001)
Weekly working hours (among all)	-0.001	-0.005*
	(0.002)	(0.002)
Observations	678	341
Joint F-stat (p-val)	0.895	0.003

Note: Results from OLS estimations predicting treatment assignment based on baseline characteristics in the total sample (column (1)) and the subsample of women who started the training (column (2)). Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

education, greater levels of depression, a stronger present bias, lower stress levels, fewer working hours, and a higher likelihood of being employed compared to women who did not receive the testimonials.

An alternative approach to detect compositional differences in training start is to estimate heterogeneous treatments effects of the testimonials on training start by baseline characteristics, utilizing a fully interacted model of treatment status and baseline characteristics. Appendix Table A.IV.9 displays the treatment and interaction coefficients which largely confirm what we have seen earlier: the effect of the self-efficacy testimonials on training start is significantly more positive for employed women working fewer hours with higher levels of depression and lower stress levels. I do no longer observe significant differences regarding education but the interaction with self-efficacy shows that, in line with previous results, the effect of the self-efficacy on training start is significantly more positive for women with lower baseline self-efficacy levels.

Lastly, I assess several downstream effects of the improved training participation. Women who received the self-efficacy testimonials report higher levels of manual skills in the occupation

in which they received the training in, while no effects are found for soft-skills (Appendix Table A.IV.10). Moreover, the testimonials did not significantly affect the probability to be employed (Appendix Table A.IV.11), job quality (Appendix Table A.IV.12), job search behavior (Appendix Table A.IV.13), or living conditions (Appendix Table A.IV.14).

7. Conclusion

In 2021, women aged 16 to 24 from selected communities in the Ghanaian cities of Accra, Kumasi, and Tamale could register for a vocational skills training program. The setting was ideal to examine if addressing internal constraints to educational investments can improve training participation. Traditional external barriers by offering tuition free training and monthly stipends for transportation and food. An accompanying rigorous impact evaluation showed significant improvements in job quality and mental health among participants. Mandatory career and counseling sessions at registration helped ensure initial commitment to training – at least at registration. Nevertheless, only 49.0% started the training. Lastly, the training's focus on young, vulnerable women made a self-efficacy intervention particularly relevant.

I designed a video- and message-based testimonial campaign featuring women narrating how they overcame poverty, societal expectations, and personal fears through resilience, determination, goal-setting, perseverance, and self-belief. A random subset of registered women received these self-efficacy testimonials before and during the training, while others received neutral testimonials, or no testimonials at all.

While the testimonials did not increase overall participation rates, they led to a compositional shift and higher completion rates among women who started. Furthermore, women who began the training and received the self-efficacy testimonials reported a higher perceived usefulness of the training and were more likely to participate in a nationally accredited skills examination and to receive job placement offers upon completing the training — both indicators of high training performance. Recent theoretical frameworks suggest that, although all individuals are susceptible to behavioral biases, the impact of these biases can result in poorer outcomes under conditions of poverty. Policies that address such behavioral biases can, therefore, enhance welfare. I show that the testimonials increased treated women's self-efficacy levels, while other psychological factors remained unchanged. In line with theory, the testimonials' effects were concentrated among women with medium educational levels, low human capital, low self-efficacy, and higher external constraints at registration.

Overall, these findings show that standard development programs addressing external constraints, such as human capital development, can benefit from incorporating interventions that target self-efficacy, an important aspect of potential internal constraints on investment decisions. Although the effect sizes observed were modest, the behavioral intervention studied was relatively inexpensive, scalable, and easy to implement, making it a valuable complement to welfare and development cooperation programs. While the skills training program itself involved

substantial investment, totaling USD 1,348,000 — approximately USD 1,800 per training slot. In contrast, the testimonial campaign had a production cost of only USD 17 and the delivery amounted to costs of just USD 3 per participant. Nonetheless, key questions remain — for instance, concerning the differential effectiveness of such interventions by gender and the need for a deeper understanding of which specific content components are most impactful.

Accordingly, I propose that (1) program evaluations should assess both internal and external constraints on individuals' participation, and based on these insights, (2) program designs should be adjusted to jointly address these constraints to enhance welfare outcomes. Recent political developments are encouraging. In its Global Framework on core skills for life and work in the 21st century, the ILO (2021) proposes integrating core skills such as self-awareness and problem solving into education and training programs, both of which are fundamental elements of self-efficacy. This framework has also been incorporated into the Vocational Education and Training Toolbox, which now informs the program designs of the development cooperation agencies of Belgium, France, Germany, Luxembourg, and the United Kingdom (GIZ 2019).

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Make me believe. Self-efficacy and human capital investments among young women in Ghana

Online Appendix

Appendix I. Literature overview

TABLE A.I.1. Evaluation literature on training and social service programs.

Paper	Setting	Sample	Program benefits	Take-up	Completion
Skills training programs					
Bandiera et al. 2020	Uganda (2008) Young women Vocational and life skills training	4,888	Employment: + 4.9 ppt Earnings: n/a Having a child: - 3.8 ppt Non-consensual sex: - 5.3 ppt	53%	n/a
Bandiera et al. 2023	Uganda (2012) Disadvantaged youth Vocational training with matching service	1,431	Employment: + 9.4 ppt*** Formal contract in 1st job: + 5.9 ppt* Earnings: + 11.0 ***	68%	61%
Alfonsi et al. 2020	Uganda (2012) Disadvantaged youth Vocational training	1,714	Emloyment : + 9.0 ppt *** Earnings: + 6.1 **	68%	64%
Crépon and Premand 2021	Côte d'Ivoire (2011) Youth Dual apprenticeship program	1,842	Employment: + 1.25 ppt ** Earnings: + 15.0 ***	75%	53%
Frohnweiler et al. 2023	Ghana (2021) Disadvantaged young women Free vocational training with stipend	1,300	Employment: no significant effect Formal employment: + 7.4 ppt * Medical benefits: + 4.5 ppt ** Earnings: no significant effect	55%	45%
Hardy and McCasland 2023	Ghana (2012) Unemployed youth Apprenticeship program	621	Only look at firm-level outcomes	47%	n/a
Hardy et al. 2019	Ghana (2012) Unemployed youth Apprenticeship program	3,270	Employment: - 2.9 ppt * Earnings: - 0.7 **	76%	35%
Maitra and Mani 2017	India (2010) Low-income women Vocational training	878	Employment: + 6.4 ppt ** Earnings: + 23.6 **	n/a	56%
Chakravarty et al. 2019	Nepal (2010) Disadvantaged young adults Vocational training with placement service	4,677	Non-farm employment: + 10.0 ppt *** Earnings: + 4.2 **	70%	n/a
Shonchoy et al. 2018	Bangladesh (2014) Unemployed and low-income youth Vocational training with stipend and internship	2,142	Employment: + 5.6 ppt ** Earnings: + 74.8 ***	60%	45%
Alzua et al. 2016	Argentina (2005) Unemployed and low-income youth Vocational and life skills training with internships	407	Employment: no significant effect Earnings: + 53.0 **	66%	48%
Barrera-Osorio et al .2023	Colombia (2018) Low-income Vocational and social training	663	Employment: + 8 ppt ** Formal contract: + 14 ppt Earnings: no significant effect	81%	60%
Hirshleifer et al. 2016	Turkey (2010) Unemployed Vocational training	5,497	Employment: no significant effect Formal employment: + 2.0 ppt * Earnings: no significant effect	78%	69%
Alzua et al. 2021	Mongolia (2003) Low-income, unemployed, or vulnerable youth Vocational training	1,188	Employment: no significant effect Self-employment: + 4.0 ppt ** Earnings: + 31.9 **	57%	n/a
Social service programs					
Banerjee et al. 2021	Indonesia (2015) Nonpoor informal workers Full subsidy for government health insurance	4,550	Free universal health coverage Household monthly expenses: USD 6	31%	n/a
Bhattacharya et al. 2015	India (2013) Elderly, widows and disabled Monthly pension	8,749	Approx. USD 25 per month	16% (widows) 32% (elderly)	n/a
Carneiro et al. 2019	Chile (2002) 5% poorest families Child subsidy (Subsidio Único Familiar)	265,987	Approx. USD 22 per child per month	53%	n/a

Note: Non-exhaustive list of recently published program evaluations that mentioned take-up and completion rates of training programs and other social service programs. Earnings are always reported in USD per month. Stars indicated the significance levels based on p-values as reported in the studies (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

Appendix II. Implementation details

(A) Video 1   (B) Video 2

FIGURE A.II.1. Screenshots of the self-efficacy videos.

(A) Video 1   (B) Video 2
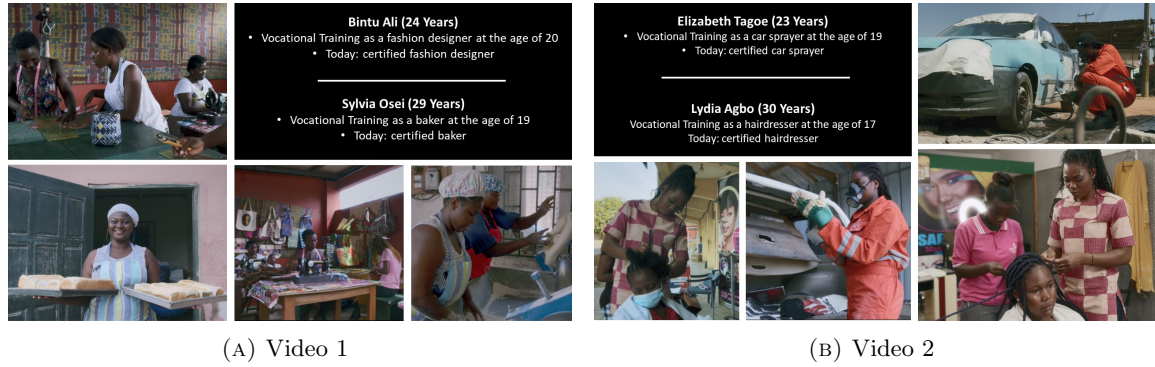
FIGURE A.II.2. Screenshots of the neutral videos.

The following are examples of the text messages sent as part of the **self-efficacy testimonials** campaign.

- Hi [NAME]! It is important to set goals in life and work so you stay on track for your journey. Even reaching small goals brings you closer to success!

- Hi [NAME]! Becoming successful is not easy and YOU are doing great! You may fail a few times. Just try to learn from it and continue!

- Hi [NAME]! It is normal to get tense at times. It is a good sign. It means you do something important. You will manage your fear. Don't let it stop you.

- Hi [NAME]! Some people around you had difficult times but now are successful. Ask them and learn how they made it. They have a lot to teach from experience.

- Hi [NAME]! Nobody is perfect. So do not doubt yourself! Focus on your strength and success will come. Always believe in yourself!

- Hi [NAME]! Life is a struggle. Don't dwell about how unfair life can be. You will overcome challenges if you focus on your gifts, talents take action!

The following are examples of the text messages sent as part of the **neutral testimonials** campaign.

- Hi [NAME]! Do you want to work based on a written contract just as Lydia Elizabeth? Having a certificate from vocational training will be of great help!

- Hi [NAME]! Bintu Sylvia are happy with their job from vocational skills training want to teach you how you can get that too. Click [personalized link].

- Hi [NAME]! The skills and certification you earn from vocational training will stay with you and benefit you for the rest of your life.

- Hi [NAME]! After vocational training Bintu found a fulltime employment with good salary. Click [personalized link] to see how she made it.

- Hi [NAME]! Do you want to follow Bintu's path? Complete a vocational training to find a job and receive a payment that supports your knowledge!

- Hi [NAME]! Would you like to be as happy as Bintu Sylvia who found their passion after completing their vocational training?
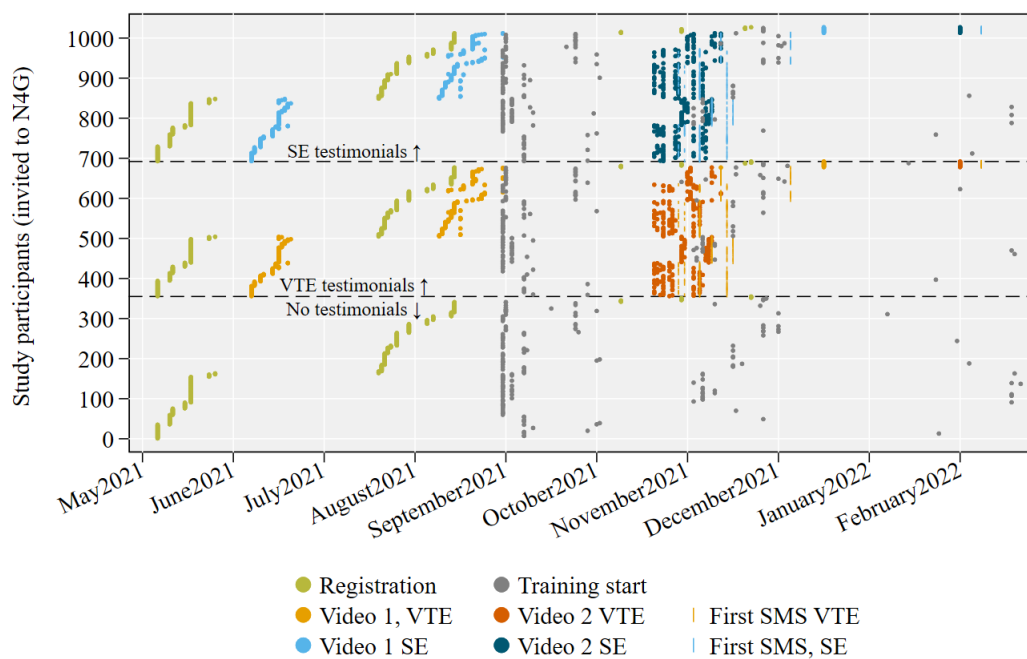
FIGURE A.II.3. Sequence of the testimonial campaign.
Notes: The figure shows the timing of the testimonial campaign for all study participants. The y-axis represents the number of study participants and the x-axis the timing of the different events, i.e., the registration for the N4G program, the delivery of the first video, the N4G training start, the delivery of the second video, and the delivery of the first follow-up text message.

Appendix III. Additional descriptive statistics
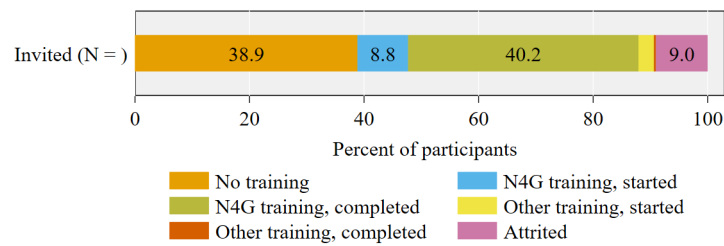
FIGURE A.III.1. Training participation.
Notes: The figure shows the share of eligible baseline study participants invited to the N4G training that (i) did not start any training, (ii) started but did not complete the N4G training, (iii) started and completed the N4G training, (iv) started but did not complete another training, (v) started and completed another training, and (vi) were not re-interviewed in the follow-up.
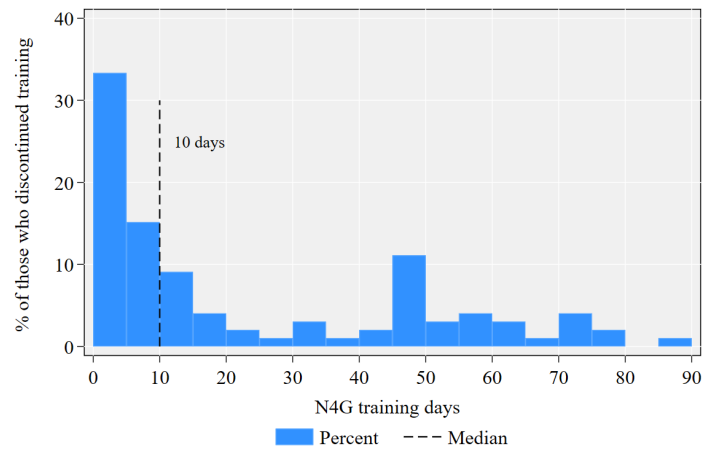
FIGURE A.III.2. Timing of drop-out.
Notes: The figure shows how many days participants attended the N4G training before they drop-out. The dashed line indicates the median. The information is based on the information recorded through the daily attendance sheets of training providers.

(A) Did not start   (B) Dropped out
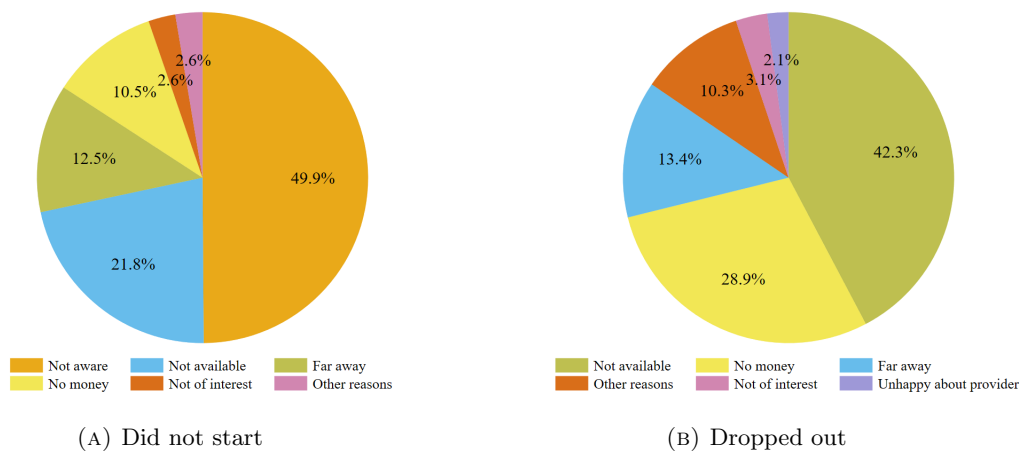
FIGURE A.III.3. Reasons for not starting and dropout.
Notes: The figures show the self-reported reasons why study participants (A) did not start and (B) drop out from the N4G training.
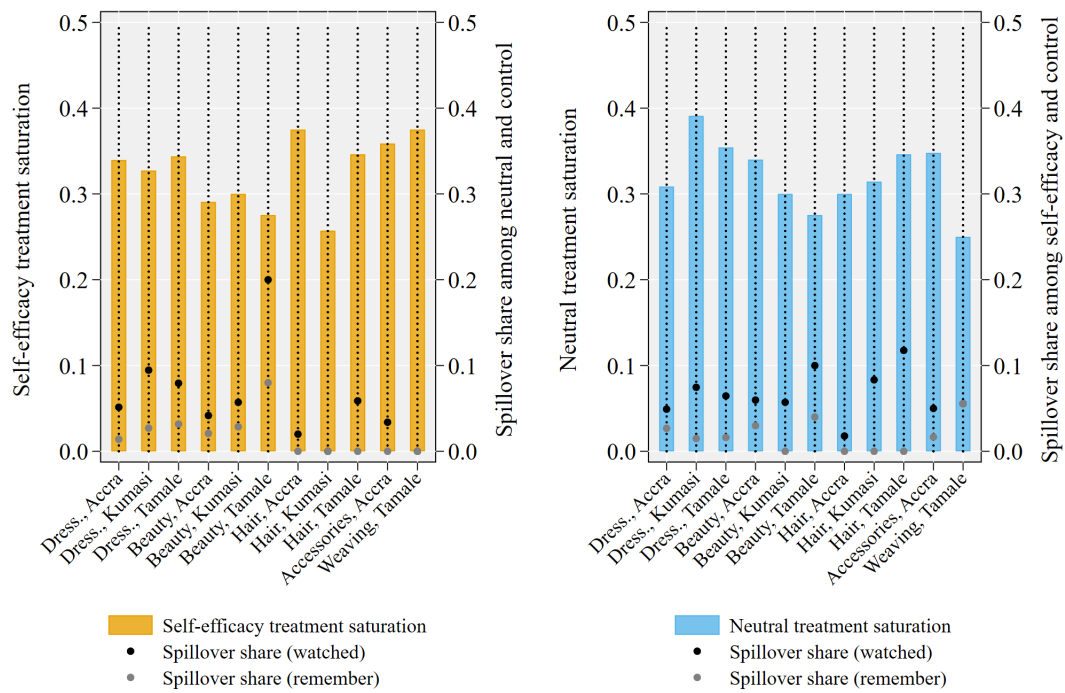
FIGURE A.III.4. Treatment saturation and number of self-reported spillovers.
Notes: The figure shows for each region-occupation combination the treatment saturation and spillover shares. The bars indicate the share of women within each region-occupation group that were assigned to the self-efficacy (left) and neutral (right) testimonials. The dots indicate the share of women who indicated to have watched (black) and remembered the content of the videos (gray) among women assigned to the neutral (left) or self-efficacy (right) testimonial group and the control group.
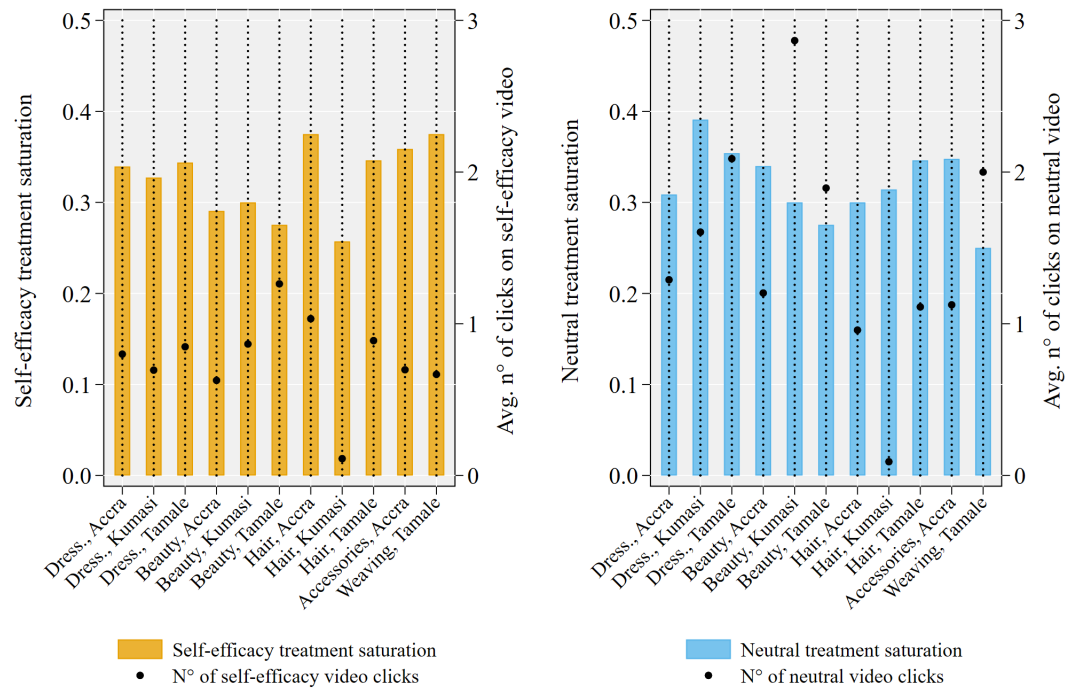
FIGURE A.III.5. Treatment saturation and video click rates.
Notes: The figure shows for each region-occupation combination the treatment saturation and the video click-rates. The bars indicate the share of women within each region-occupation group that were assigned to the self-efficacy (left) and neutral (right) testimonials. The black dots indicate the average number of clicks on each individualized video link.

TABLE A.III.1. Balance check across intervention arms at baseline.

	Self-efficacy (1)	Neutral (2)	Control (3)	Overall (4)	p-value (5)
Socioeconomic characteristics					
Age	20.61	20.52	20.65	20.60	0.65
	(0.11)	(0.11)	(0.11)	(0.06)	
Married	0.40	0.37	0.42	0.39	0.44
	(0.03)	(0.03)	(0.03)	(0.01)	
Has children	0.19	0.19	0.20	0.19	0.89
	(0.02)	(0.02)	(0.02)	(0.01)	
Education: None	0.05	0.04	0.06	0.05	0.44
	(0.01)	(0.01)	(0.01)	(0.01)	
Education: Primary	0.19	0.20	0.15	0.18	0.22
	(0.02)	(0.02)	(0.02)	(0.01)	
Education: JHS	0.30	0.30	0.31	0.30	0.90
	(0.02)	(0.02)	(0.02)	(0.01)	
Education: SHS	0.46	0.46	0.47	0.46	0.92
	(0.03)	(0.03)	(0.03)	(0.01)	
Personality					
Self-efficacy index	0.80	0.81	0.79	0.80	0.15
	(0.01)	(0.01)	(0.01)	(0.00)	
Depression (PHQ-2)	0.25	0.26	0.26	0.26	0.89
	(0.01)	(0.01)	(0.01)	(0.01)	
Stress	0.04	0.05	0.05	0.05	0.33
	(0.00)	(0.00)	(0.00)	(0.00)	
Anxiety (GAD-2)	0.23	0.24	0.25	0.24	0.47
	(0.01)	(0.01)	(0.01)	(0.01)	
Employment characteristics					
Any employment	0.21	0.22	0.22	0.22	0.95
	(0.02)	(0.02)	(0.02)	(0.01)	
Paid employment	0.19	0.19	0.19	0.19	0.96
	(0.02)	(0.02)	(0.02)	(0.01)	
Paid wage-employment	0.12	0.14	0.14	0.13	0.68
	(0.02)	(0.02)	(0.02)	(0.01)	
Paid self-employed	0.07	0.06	0.05	0.06	0.68
	(0.01)	(0.01)	(0.01)	(0.01)	
Monthly total income (among all)	9.12	8.04	8.59	8.59	0.90
	(1.62)	(1.54)	(1.80)	(0.96)	
Weekly total hours (among all)	9.83	11.40	10.58	10.60	0.65
	(1.12)	(1.27)	(1.14)	(0.68)	
Written contract (among all)	0.02	0.03	0.02	0.02	0.29
	(0.01)	(0.01)	(0.01)	(0.00)	
Distribution across program components					
Region: Accra	0.64	0.62	0.63	0.63	0.86
	(0.03)	(0.03)	(0.02)	(0.01)	
Region: Kumasi	0.17	0.19	0.17	0.18	0.65
	(0.02)	(0.02)	(0.02)	(0.01)	
Region: Tamale	0.19	0.19	0.20	0.19	0.92
	(0.02)	(0.02)	(0.02)	(0.01)	
Trade: Dressmaking	0.49	0.49	0.45	0.48	0.45
	(0.03)	(0.03)	(0.03)	(0.02)	
Trade: Hairdressing	0.13	0.12	0.13	0.13	0.91
	(0.02)	(0.02)	(0.02)	(0.01)	
Trade: Beauty therapy	0.26	0.28	0.33	0.29	0.10
	(0.02)	(0.02)	(0.02)	(0.01)	
Trade: Fashion accessories	0.09	0.09	0.07	0.08	0.52
	(0.02)	(0.01)	(0.01)	(0.01)	
Trade: Yarn weaving	0.02	0.02	0.02	0.02	0.72
	(0.01)	(0.01)	(0.01)	(0.00)	
N	362	362	385	1,109	
Joint F-stat. Self-efficacy					0.939
Joint F-stat. Neutral					0.668

Note: Table shows averages for baseline observations. The values displayed for the differences are the differences in means across control and treatment group and their standard errors in parentheses. The p-values belong to a joint orthogonality test on the treatment arms. Values displayed for F-stat are F-statistics for joint significance of all balance variables.

TABLE A.III.2. Determinants of training start.

	Random Forest (1)	Adaptive Lasso (2)	Elastic Net (3)	Literature (4)	All (5)
Socioeconomic characteristics					
Age	0.019**			0.016**	0.020**
	(0.008)			(0.008)	(0.009)
Married				-0.045	-0.029
				(0.032)	(0.033)
N° of children				-0.015	-0.028
				(0.032)	(0.032)
Education: Primary				0.011	-0.017
				(0.077)	(0.077)
Education: JHS				0.011	-0.015
				(0.075)	(0.075)
Education: SHS				0.105	0.050
				(0.075)	(0.077)
Household asset index	-0.001				-0.030
	(0.082)				(0.082)
Financially independent				0.026	-0.006
				(0.048)	(0.048)
Employment and jobsearch					
Employed				0.026	0.011
				(0.076)	(0.074)
Weekly total hours (among all)				0.000	0.001
				(0.001)	(0.001)
N° of job search channels	0.015				0.012
	(0.011)				(0.011)
Psychology and personality					
Self-efficacy index	0.029*				0.032*
	(0.017)				(0.017)
Risk preferences	0.017***		0.020***		0.013**
	(0.006)		(0.006)		(0.006)
Level of (im)patience	-0.012				-0.012
	(0.008)				(0.008)
Neuroticism	-0.016				-0.010
	(0.063)				(0.063)
Depression (PHQ-2)	-0.061				-0.049
	(0.060)				(0.060)
Self esteem	0.186**				0.154**
	(0.080)				(0.078)
Regional aspects and migration					
Dagbani	0.049	0.047	0.026		0.034
	(0.112)	(0.107)	(0.111)		(0.115)
Region of birth: Northern			0.055		0.077
			(0.068)		(0.072)
Internal migration, intentions				-0.014	-0.016
				(0.014)	(0.014)
International migration, intentions				-0.008	-0.001
				(0.015)	(0.015)
N° of known contraception methods	-0.002				-0.008
	(0.007)				(0.007)
N° of used contraception methods	-0.011				-0.006
	(0.012)				(0.013)
Perceptions about training					
Expected returns to VT	0.001*				0.000
	(0.000)				(0.000)
N° of expectations towards N4G	-0.004				0.007
	(0.013)				(0.014)
Training expectations: Employment		-0.088**			-0.107***
		(0.035)			(0.040)
Training expectations: Skills		0.112***			0.080**
		(0.031)			(0.033)
Observations	1,009	1,009	1,009	1,009	1,009
Adj. R^2	0.114	0.109	0.100	0.105	0.128

Note: Results from OLS estimations. The outcome variable is N4G training start and the explanatory variables are baseline characteristics selected by random forest in column (1), by adaptive Lasso in column (2), by elastic net in column (3), and by previous studies in column (4). Column (5) combines all explanatory variables. All estimations include region-occupation FEs. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.III.3. Determinants of training completion.

	Prediction of training completion				
	Random Forest (1)	Adaptive Lasso (2)	Elastic Net (3)	Literature (4)	All (5)
Socioeconomic characteristics					
Age	0.016**			0.017**	0.016**
	(0.008)			(0.008)	(0.008)
Married				-0.023	-0.014
				(0.032)	(0.032)
N° of children				-0.033	-0.041
				(0.031)	(0.031)
Education: Primary				0.018	-0.012
				(0.078)	(0.075)
Education: JHS				0.052	0.031
				(0.077)	(0.074)
Education: SHS				0.145*	0.105
				(0.077)	(0.076)
Household asset index	-0.011				-0.059
	(0.082)				(0.082)
Financially independent				-0.012	-0.050
				(0.047)	(0.048)
Employment and jobsearch					
Employed				0.015	0.017
				(0.075)	(0.075)
Weekly total hours (among all)				0.001	0.001
				(0.001)	(0.001)
N° of job search channels	0.011				0.010
	(0.012)				(0.012)
N° of jobs (12 months)	0.015*				0.012
	(0.009)				(0.009)
Psychology and personality					
Self-efficacy index	0.039**				0.041**
	(0.016)				(0.016)
Risk preferences	0.009				0.007
	(0.006)				(0.006)
Level of (im)patience	-0.012				-0.012
	(0.008)				(0.008)
Neuroticism	-0.094				-0.088
	(0.061)				(0.061)
Anxiety (GAD-2)	-0.012				0.004
	(0.062)				(0.062)
Regional aspects and migration					
Languagae: Dagbani	0.046	0.050	0.035		0.044
	(0.109)	(0.106)	(0.107)		(0.106)
Region of birth: Northern	0.104		0.075		0.110
	(0.068)		(0.068)		(0.070)
Internal migration, intentions				-0.010	-0.010
				(0.014)	(0.014)
International migration, intentions				0.007	0.001
				(0.015)	(0.015)
National migration preparations	0.022				-0.197
	(0.106)				(0.144)
International migration preparations			0.372**		0.523***
			(0.146)		(0.202)
Other variables					
N° of known contraception methods	0.001				-0.004
	(0.007)				(0.007)
Expected returns to VT	0.000				0.000
	(0.000)				(0.000)
Observations	1,009	1,009	1,009	1,009	1,009
Adj. R^2	0.114	0.096	0.101	0.112	0.125

Note: Results from OLS estimations. The outcome variable is N4G training completion and the explanatory variables are baseline characteristics selected by random forest in column (1), by adaptive Lasso in column (2), by elastic net in column (3), and by previous studies in column (4). Column (5) combines all explanatory variables. All estimations include region-occupation FEs. Robust standard errors are displayed in parentheses ($* \ p < 0.1$, $** \ p < 0.05$, $*** \ p < 0.01$).

TABLE A.III.4. Prediction accurateness for training start and completion.

	Accurateness of prediction		
	Random Forest (1)	Adapt. Lasso (2)	Elastic Net (3)
[A] Prediction of training start			
Predicted starting probability	1.287***	0.137	1.654*
	(0.039)	(0.575)	(0.864)
	[0.000]	[0.489]	[0.065]
Observations	1,009	1,009	1,009
Adj. R^2	0.359	0.092	0.096
[B] Prediction of training completion			
Predicted completion probability	1.332***	0.282	0.599
	(0.038)	(0.603)	(0.603)
	[0.000]	[0.640]	[0.377]
Observations	1,009	1,009	1,009
Adj. R^2	0.370	0.096	0.097

Note: Results from OLS estimations. The outcome variable is N4G training start and the explanatory variable is the predicted probability of training start based on random forest in column (1), adaptive Lasso in column (2), and elastic net in column (3). All estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

Appendix IV. Additional results

FIGURE A.IV.1. Effect on participation by predicted baseline income.
Notes: The figure shows the results of OLS regressions for the effect of the self-efficacy
testimonials on N4G training participation by women's monthly baseline income predicted
based on education, personality, and language skills.

FIGURE A.IV.2. Effect on participation by baseline self-efficacy.
Notes: The figure shows the results of OLS regressions for the effect of the self-efficacy
testimonials on N4G training participation by women's baseline self-efficacy index.

FIGURE A.IV.3. Effect on participation by baseline education and self-efficacy.
Notes: The figure shows the results of OLS regressions for the effect of the self-efficacy
testimonials on N4G training participation by women's baseline education and self-efficacy
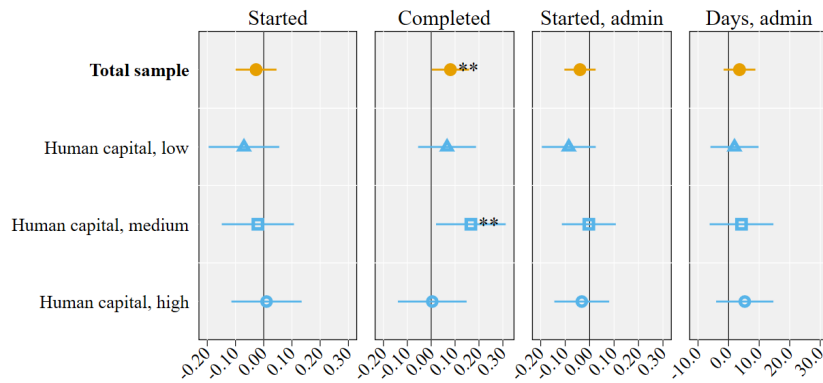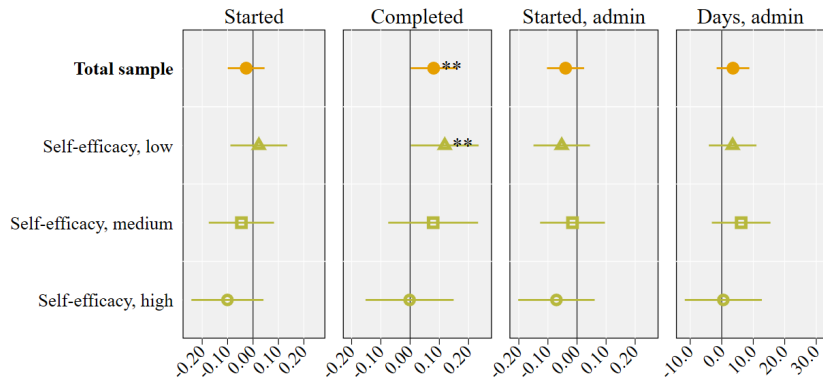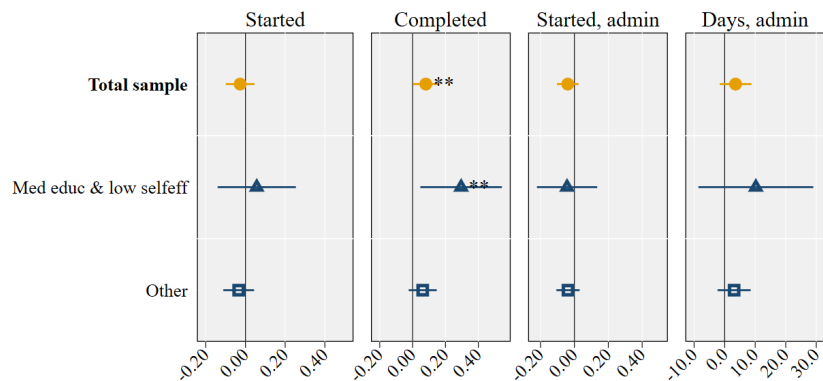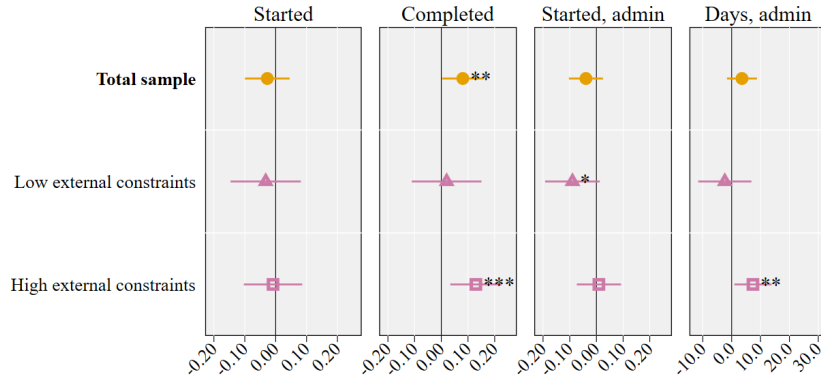index.

FIGURE A.IV.4. Effect on participation by degree of external constraints.
Notes: The figure shows the results of OLS regressions for the effect of the self-efficacy testimonials on N4G training participation by women's baseline exposure to external constraints.

TABLE A.IV.1. Successful delivery of the neutral testimonials.

	Video clicks		Neutral video		N° of SMS	
	Ever (1)	N° (2)	Watched (3)	Remembered (4)	Self-reported (5)	Sent (6)
Neutral testimonials (assigned)	0.451***	1.414***	0.299***	0.287***	6.370***	27.587***
	(0.026)	(0.135)	(0.029)	(0.027)	(0.383)	(0.179)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	747	747	681	681	668	747
Control mean	0.000	0.000	0.063	0.032	0.000	0.000
Baseline outcome						

Note: Results from OLS estimations. The outcome variables indicate if respondents ever clicked on any of the individualized links (column 1), the number of recorded clicks for the individualized links (column 2), if respondents reported to have watched the videos or remembered at least two content components (columns 3 and 4), and self-reported and actual number of received follow-up SMS (columns 5 and 6). Estimations include region-occupation FE. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.2. Effect of the self-efficacy testimonials on separate items of self-efficacy index.

	Separate items			
	Problem solving (1) (1)	Problem solving (2) (2)	Goal achievement (3)	Unexpected events (4)
[A] OLS estimations				
Self-efficacy (assigned)	0.051	0.127*	0.092	0.047
	(0.059)	(0.071)	(0.056)	(0.068)
	[0.388]	[0.073]	[0.100]	[0.491]
[B] CACE estimations				
SE testimonials (remembered)	0.278	0.683*	0.496	0.255
	(0.317)	(0.391)	(0.314)	(0.370)
	[0.382]	[0.081]	[0.114]	[0.491]
1st stage F-stat	64.468	66.404	66.028	65.785
Observations	676	676	677	677
Control mean	3.480	3.138	3.547	3.209
Baseline outcome	✓	✓	✓	✓

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. The outcome variables are the separate index items varying between one and four. Estimations include region-occupation FE. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.3. Effect of the self-efficacy testimonials on training completion conditional on predicted training start.

	Among women with predicted start	
	Completed (1)	N° of days (2)
SE testimonials (assigned)	0.368***	18.708***
	(0.049)	(3.008)
	[0.000]	[0.000]
Observations	255	255
Control mean	0.000	2.149

Note: Results from OLS estimations. The outcome variable in column (1) is binary and an integer in column (2). The sample is reduced to women for whom a random forest using all baseline characteristics and trained on women who did not receive any testimonials predicted that they would start the N4G training. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.4. Effect of the neutral testimonials on training participation.

	Self-reported		Attendance sheets	
	Started (1)	Completed if started (2)	Started (3)	N° of days (4)
[A] OLS estimations				
Neutral testimonials (assigned)	-0.033	0.056	-0.047	3.395
	(0.036)	(0.041)	(0.032)	(2.524)
	[0.368]	[0.172]	[0.143]	[0.179]
[B] CACE estimations				
Neutral testimonials (remembered)	-0.114	0.144	-0.182	9.644
	(0.129)	(0.104)	(0.119)	(7.540)
	[0.378]	[0.168]	[0.128]	[0.202]
1st stage F-stat	114.557	99.310	114.557	81.641
Observations	681	370	681	361
Control mean	0.559	0.774	0.547	49.387
Baseline outcome				

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. The outcome variables in columns (1) to (3) are binary. Training start in the admin data equals one if a study participants is listed at least once in the attendance sheets. The outcome in column (4) is integer. Columns (2) and (4) reduce the sample to women who started the training. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.5. Effect of the neutral testimonials on perceptions and psychological outcomes.

	Benefits of VT			Psychological outcomes				
	Income (1)	Employment (2)	Social status (3)	Self-efficacy index (4)	Mental health index (5)	Self-esteem (6)	Conscien-tiousness (7)	Life satisfaction (8)
[A] OLS estimations								
Neutral testimonials (assigned)	1.166	0.011	0.022	-0.046	0.001	-0.002	0.030	0.021
	(5.297)	(0.016)	(0.017)	(0.076)	(0.012)	(0.009)	(0.023)	(0.018)
	[0.826]	[0.490]	[0.196]	[0.542]	[0.954]	[0.865]	[0.187]	[0.239]
[B] CACE estimations								
Neutral testimonials (remembered)	4.011	0.038	0.076	-0.163	0.002	-0.005	0.105	0.072
	(18.288)	(0.055)	(0.059)	(0.269)	(0.042)	(0.032)	(0.080)	(0.062)
	[0.826]	[0.488]	[0.197]	[0.544]	[0.954]	[0.864]	[0.188]	[0.241]
1st stage F-stat	113.499	114.557	114.557	111.706	108.248	115.128	116.629	114.557
Observations	666	681	681	681	632	681	681	681
Control mean	47.494	0.948	0.937	-0.010	0.219	0.952	0.845	0.516
Baseline outcome	✓			✓	✓	✓	✓	

Note: Panel A shows results from OLS estimations. Panel B shows results from IV estimations using the random treatment assignment as instrument for remembering at least two content components of the videos. In column (1) the outcome is the expected monthly income difference (USD) for having completed vocational training. In columns (2) and (3) the binary outcome variables indicate if individuals agreed to the statement. Ouctomes in columns (4) to (8) vary between zero and one. Estimations include region-occupation FE. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.6. Robustness of effects of the self-efficacy testimonials to alternative specifications.

	P-value of SE treatment assignment				
	Model (1)	RI test (2)	IPW (3)	PDS Lasso (4)	BKY (5)
Training start	-0.027	-0.027	0.004	-0.030	-0.027
	[0.463]	[0.491]	[0.924]	[0.408]	[0.608]
Training completion	0.024	0.024	0.053	0.023	0.024
	[0.501]	[0.529]	[0.163]	[0.526]	[0.608]
Training completion among started	0.081	0.081	0.091	0.083	0.081
	[0.043]	[0.037]	[0.027]	[0.034]	[0.271]
Training start, admin.	-0.039	-0.039	0.018	-0.039	-0.039
	[0.227]	[0.224]	[0.719]	[0.228]	[0.434]
Training days, admin	3.573	3.573	-0.979	3.247	3.573
	[0.176]	[0.149]	[0.830]	[0.215]	[0.434]

Note: Column (1) reports estimation coefficients and p-values in squared brackets of the main OLS specification. Column (2) reports estimations results when adding the Fisher's permutation-based randomization inference (RI) test with 1,000 replications implemented with `ritest` (Hess, 2017). Column (3) shows estimation results when applying inverse probability weights adjusting for sample attrition. Column (4) additionally controls for PDS-Lasso selected baseline characteristics. Column (5) reports estimation results when controlling for the false discovery rate (Benjamini et al. 2006). Each regression uses random assignment of the self-efficacy testimonial as explanatory variable and the first column indicates the respective dependent variable. All estimations include region-occupation FEs and robust standard errors.

TABLE A.IV.7. Sample attrition by treatment status.

	Attrition		
	(1)	(2)	(3)
[A] Self-efficacy testimonials			
SE testimonials (assigned)	0.000	0.003	0.003
	(0.021)	(0.021)	(0.021)
	[0.984]	[0.870]	[0.870]
[B] Neutral testimonials			
Neutral testimonials (assigned)	-0.011	-0.007	-0.007
	(0.021)	(0.021)	(0.021)
	[0.609]	[0.743]	[0.743]
Observations	747	747	747
Control mean	0.094	0.094	0.094
Occupation X Region FE		✓	✓
Baseline controls			✓

Note: Table shows OLS estimation results for the effect of treatment assignment on sample attrition. Panel A shows the results for the assignment of the self-efficacy testimonials and Panel B the results for the assignment of the neutral testimonials. The models of column (2) includes occupation-region FE as controls and column (3) includes occupation-region FE as well as age, marital status, employment situation, education, and household asset index at baseline as controls. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.8. Sample attrition by baseline characteristics.

	Non-attriters (1)	Attriters (2)	Absolute diff. (3)	p-value (4)
Socioeconomic characteristics				
Age	20.64	20.11	0.53	0.01
	(0.06)	(0.23)	(0.22)	
Married	0.40	0.37	0.03	0.59
	(0.02)	(0.05)	(0.05)	
Has children	0.19	0.27	-0.08	0.05
	(0.01)	(0.04)	(0.04)	
Education: None	0.05	0.10	-0.05	0.02
	(0.01)	(0.03)	(0.02)	
Education: Primary	0.17	0.29	-0.12	0.00
	(0.01)	(0.05)	(0.04)	
Education: JHS	0.30	0.32	-0.02	0.70
	(0.01)	(0.05)	(0.05)	
Education: SHS	0.48	0.29	0.19	0.00
	(0.02)	(0.05)	(0.05)	
Personality				
Self-efficacy index	0.80	0.77	0.03	0.06
	(0.00)	(0.02)	(0.02)	
Depression (PHQ-2)	0.26	0.25	0.01	0.65
	(0.01)	(0.03)	(0.03)	
Stress	0.05	0.05	-0.00	0.79
	(0.00)	(0.01)	(0.01)	
Anxiety (GAD-2)	0.24	0.29	-0.05	0.06
	(0.01)	(0.03)	(0.03)	
Employment characteristics				
Any employment	0.22	0.25	-0.03	0.42
	(0.01)	(0.04)	(0.04)	
Paid employment	0.18	0.24	-0.06	0.18
	(0.01)	(0.04)	(0.04)	
Paid wage-employment	0.13	0.14	-0.01	0.80
	(0.01)	(0.03)	(0.04)	
Paid self-employed	0.05	0.10	-0.05	0.06
	(0.01)	(0.03)	(0.02)	
Monthly total income (among all)	7.22	22.21	-14.99	0.00
	(0.77)	(7.09)	(3.31)	
Weekly total hours (among all)	10.47	11.92	-1.45	0.54
	(0.71)	(2.26)	(2.37)	
Written contract (among all)	0.02	0.03	-0.01	0.50
	(0.00)	(0.02)	(0.01)	
Distribution across program components				
Region: Accra	0.63	0.68	-0.05	0.28
	(0.02)	(0.05)	(0.05)	
Region: Kumasi	0.18	0.18	-0.00	0.91
	(0.01)	(0.04)	(0.04)	
Region: Tamale	0.20	0.14	0.06	0.15
	(0.01)	(0.03)	(0.04)	
Trade: Dressmaking	0.48	0.44	0.04	0.43
	(0.02)	(0.05)	(0.05)	
Trade: Hairdressing	0.12	0.19	-0.07	0.05
	(0.01)	(0.04)	(0.03)	
Trade: Beauty therapy	0.29	0.29	0.00	0.99
	(0.01)	(0.05)	(0.05)	
Trade: Fashion accessories	0.09	0.06	0.03	0.38
	(0.01)	(0.02)	(0.03)	
Trade: Yarn weaving	0.02	0.02	0.00	0.91
	(0.00)	(0.01)	(0.02)	
N	1009	100	1,109	
P-val of joint F-stat.				0.000

Note: Table shows averages for baseline observations. The values displayed for the differences are the differences in means across women who remained in the sample and women who attrited and their respective standard errors in parentheses. The p-values belong to a joint orthogonality test on the two groups. Values displayed for F-stat are F-statistics for joint significance of all balance variables.

TABLE A.IV.9. Heterogeneous treatment effect of self-efficacy testimonials on training start.

	Start N4G
	(1)
SE testimonials (assigned)	0.238
	(0.509)
SE testimonials (assigned) × Age	-0.029
	(0.023)
SE testimonials (assigned) × Married	-0.006
	(0.084)
SE testimonials (assigned) × Has children	0.004
	(0.109)
SE testimonials (assigned) × Education: Primary	0.168
	(0.206)
SE testimonials (assigned) × Education: JHS	0.175
	(0.192)
SE testimonials (assigned) × Education: SHS	0.225
	(0.191)
SE testimonials (assigned) × Self-efficacy, 1st tercile	0.198**
	(0.098)
SE testimonials (assigned) × Self-efficacy, 2nd tercile	0.053
	(0.102)
SE testimonials (assigned) × Depression (PHQ-2)	0.321*
	(0.171)
SE testimonials (assigned) × Stress level	-2.008**
	(0.816)
SE testimonials (assigned) × Anxiety (GAD-2)	0.047
	(0.178)
SE testimonials (assigned) × Present bias	0.105
	(0.081)
SE testimonials (assigned) × Employed	0.564***
	(0.196)
SE testimonials (assigned) × Monthly income (among all)	0.001
	(0.001)
SE testimonials (assigned) × Weekly working hours (among all)	-0.010***
	(0.004)
Observations	619
Joint F-stat (p-val)	0.000

Note: Results from OLS estimations predicting training start based on randomly assigned treatment status, baseline characteristics, and their interactions. Robust standard errors are displayed in parentheses (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.10. Effect of the self-efficacy testimonials on skills.

	Skills		
	Registered	Outside	Soft-skills
	(1)	(2)	(3)
SE testimonials (assigned)	0.510***	0.170	0.044
	(0.188)	(0.173)	(0.134)
	[0.007]	[0.325]	[0.740]
Observations	677	677	677
Control mean	4.735	2.327	7.718
Baseline outcome			

Note: Results from OLS estimations. Outcome variables vary between 0 and 10. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets.

TABLE A.IV.11. Effect of the self-efficacy testimonials on employment and income.

	Employment				Income
	Any	Paid wage	Paid self	Unpaid	monthly
	(1)	(2)	(3)	(4)	(5)
SE testimonials (assigned)	-0.005	-0.028	0.029	-0.010	2.531
	(0.038)	(0.034)	(0.024)	(0.026)	(2.269)
	[0.888]	[0.407]	[0.229]	[0.691]	[0.265]
Observations	677	677	677	677	665
Control mean	0.533	0.289	0.103	0.140	14.428
Baseline outcome	✓	✓	✓	✓	✓

Note: Results from OLS estimations. Outcome variables in columns (1) to (4) are dummy variables. Outcome variable in column (5) is measured in USD. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.12. Effect of the self-efficacy testimonials on job attributes among employed.

	Hourly income	if inc.>0	Weekly hours (1hr)	Tenure (months)	Written contract	Medical benefits	Pension	Paid days off	Job satisfaction
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SE testimonials (assigned)	0.038	0.065	-2.193	2.619*	-0.000	0.042	0.017	-0.065	-0.015
	(0.038)	(0.050)	(2.214)	(1.412)	(0.053)	(0.041)	(0.034)	(0.049)	(0.027)
	[0.311]	[0.195]	[0.323]	[0.065]	[0.996]	[0.311]	[0.614]	[0.190]	[0.582]
Observations	362	258	362	344	278	282	282	282	362
Control mean	0.186	0.256	51.444	10.601	0.273	0.113	0.080	0.253	0.406
Baseline outcome				✓	✓				

Note: Results from OLS estimations. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.13. Effect of the self-efficacy testimonials on job search.

	Jobsearch	N° of (past 6 months)			
	channels	Employers	Jobs	Interviews	Offers
SE testimonials (assigned)	0.111	-0.038	0.194	0.029	-0.128
	(0.095)	(0.120)	(0.160)	(0.077)	(0.098)
	[0.243]	[0.749]	[0.226]	[0.702]	[0.191]
Observations	677	676	675	677	677
Control mean	2.163	0.989	1.310	0.567	0.742
Baseline outcome	✓	✓	✓	✓	✓

Note: Results from OLS estimations. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).

TABLE A.IV.14. Effect of the self-efficacy testimonials on family and financial situation.

	Family			Finances		
	Married	Pregnant	Has children	Bank account	Mobile money	Saving scheme
	(1)	(2)	(3)	(4)	(5)	(6)
SE testimonials (assigned)	0.011	-0.003	0.023	0.039	-0.019	0.031
	(0.036)	(0.017)	(0.019)	(0.031)	(0.024)	(0.033)
	[0.765]	[0.857]	[0.235]	[0.216]	[0.430]	[0.347]
Observations	677	677	677	677	677	677
Control mean	0.458	0.052	0.229	0.295	0.854	0.272
Baseline outcome	✓	✓	✓	✓	✓	✓

Note: Results from OLS estimations. Estimations include region-occupation FEs. Robust standard errors are displayed in parentheses and p-values in squared brackets (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$).