Evaluating the Effects of Entrepreneurship Edutainment in Egypt

Ghada Barsoum

American University of Cairo

Bruno Crépon

CREST, J-PAL & IZA

Drew Gardiner

International Labour Organization

Bastien Michel*

Aarhus University & TrygFonden's Center for Child Research

William Parienté

UC Louvain

Abstract

We measure the impact of an edutainment program broadcast on a popular Egyptian television channel and specifically designed to promote entrepreneurship among young adult viewers. We implemented a randomized controlled trial following a non-symmetric encouragement design to measure the impact of the intervention on viewers' attitudes towards self-employment, knowledge of the Egyptian entrepreneurial ecosystem, professional aspirations, and professional choices. Our design allows us to identify the importance of peer effects within groups of friends. We reach several conclusions. First, while the show had some impact on viewers' attitudes toward self-employment, its impact is much more limited on the other three sets of outcomes. The impact of the intervention is particularly important on respondents' gender-related beliefs associated with self-employment. Second, we find some evidence of complex peer effects, alternately amplifying and mitigating the direct effect of a respondent's exposure to the intervention. Third, while some of the intervention's impacts seem to be welfare-improving, others are more ambiguous from a welfare perspective. These results emphasize the importance of the nature of the messages conveyed by media programs, the way in which these are conveyed, as well as how they can be perceived by a heterogeneous population.

I.   Introduction

The idea of fostering employment opportunities through the development of entrepreneurship has been very popular over the last few decades, especially in countries facing high unemployment rates. In order to do so, a variety of interventions have been implemented, all designed to help alleviate the many constraints preventing the targeted populations (the unemployed, the youth, etc.) from starting a business. For a long time, these interventions primarily aimed at alleviating traditional financial and human capital constraints, deemed critical for a firm to operate in a sustainable manner. However, more recent works have also highlighted the importance of modifying less tangible input factors, such as entrepreneurship-related perceptions, aspirations, and social norms, which are believed to have a great influence individuals' decision to start a business or not.

Although there are numerous ways to promote entrepreneurship by alleviating one or several of the constraints faced by potential entrepreneurs, these have yielded mixed evidence so far. For instance, there is now a growing literature showing the rather weak impact of microcredit on economic activities (see Banerjee et al. (2015) for a review). The impact of most training programs aiming to improve the profitability and survival rate of existing businesses has also proven relatively limited (McKenzie and Woodruff, 2014). The few evaluations of training programs designed to help individuals start a business have also yielded mixed results in the short run and no long-term effects (McKenzie and Woodruff, 2014; Crépon et al., 2015).

Taking advantage of the huge popularity of television programs throughout the world and the potential impact of edutainment programs, a new type of training program has emerged in the past years as an alternative way to familiarize a wide range of viewers with entrepreneurial culture and entrepreneurship-related knowledge. Indeed, television is a powerful instrument of communication all around the world and is especially important in many developing countries where access to other means of communication, such as newspapers, the radio, and the Internet remains more limited. In 2015, 92% of households in the world owned a television set, while only 43.9% of the world population used the internet according to the World Bank.[1]

In fact, television and, in particular, mainstream programs have been shown to be important vectors of societal changes in various settings. Indeed, recent studies have shown that television or radio

---

[1] World Development Indicators' information society data for the year 2015.

programs can have crucial long-term impacts on societies and, in particular, on gender-related norms. For instance, Jensen and Oster (2009) showed that the introduction of cable television in India was associated with an increase in women empowerment, materialized by a decrease in the reported acceptability of domestic violence towards women, an increase in women's autonomy and a reduction in son preference. Similarly, Chong and La Ferrera (2009) found that the introduction of television increased the proportion of women who were either separated or divorced in Brazil. La Ferrara, Chong and Duryea (2012) found that it also induced a decrease in the fertility rate and provided evidence that this effect was partly driven by an increased exposure to telenovelas.[2]

Therefore, it is only natural that television and, in particular, mainstream programs have been increasingly seen as potential public policy tools (La Ferrara, 2015). In particular, governments and non-profit organizations have tried to use the huge popularity of these programs to achieve goals of public policy interest by embedding educational content into entertaining programs, thus creating so-called "edutainment" programs (Singhal et al., 2003). The impact of these programs on viewers is believed to materialize through different but potentially concomitant channels, of which La Ferrara (2015) suggests there are three types. First, these shows can have an impact on viewers through the *information* they deliver; second, they can have an impact on the preferences of viewers through their observation of the behaviors of characters they can relate to;[3] third, they can have an impact on viewers by changing their time allocation and, more specifically, by increasing the time they dedicate to watching TV and reducing the time they allocate to carrying out other activities.[4]

However, evidence on the impact of media programs specifically designed to have an impact of public policy interest remain limited and this is especially so when applied to the field of entrepreneurship. Further evidence is also required so as to identify the type of effects that can be expected from such programs. Among the few existing studies on the topic, Bernard et al. (2014) studied the impact of inspirational documentaries showcasing the stories of people who had successfully started their own small business, and found that they had an important impact on aspiration-related outcomes when broadcast in rural communities in Ethiopia. Studying the impact of an edutainment entrepreneurship program targeting high school students in Tanzania, Bjorvatn et al. (2015) found that it increased

---

[2] Although less evidence exists on Egypt, television is also believed to have influenced or accompanied societal changes in the country. See for instance Abu-Lughod (1993).
[3] This falls in with Bandura's Social Learning Theory (1977) according to which viewers are influenced by observing the behaviors of models and the consequences of their actions
[4] DellaVigna and Gentzkow (2010) view the first two channels as being part of a broader category of "persuasion effects", which can be further fostered when shows appeal to viewers' emotions (Lewin, 1951).

interest in entrepreneurship in the short run, business creation in the long run, but reduced school investments. On a different topic, Berg and Zia (2013) found that, in South Africa, the delivery of educational messages on debt management embedded into the popular soap opera *Scandal!* increased viewers' knowledge on the subject and modified their borrowing behaviors. Kearney and Levine (2015) studied the impact of *Sesame Street*, an edutainment program introduced in 1969 in the US with the explicit goal of preparing preschool-age children for school entry, and found that it improved school readiness.

More broadly, despite the importance of the influence of television programs on social norms and, in particular, gender-related ones, evidence remains lacking on the role of social interactions in explaining how these programs manage (or not) to shift outcomes that are at least partly determined at the group of peers level (rather than entirely shaped at the individual level), as well as on the underlying mechanisms at play. This lack of evidence appears all the more detrimental that peer effects have proven extremely important in either mitigating or amplifying programs' uptake, as well as their overall impact. For instance, Dahl et al. (2014) found that, in Norway, there are significant peer effects in the probability that a father takes paternity leave in both workplace and family networks. On the consequences of peer effects on programs' overall impact, Miguel and Kremer (2003) measured the impact of a school-based deworming program in Kenya and found large program externalities both on health and education outcomes. Peer effects are also at work in less biologically influenced fields such as education (see Epple and Romano (2011) for a review), crime (see Glaeser et al. (1996) for a review), and even labor. For instance, on a topic closely related to this paper, Nanda and Sørensen (2010) found that an individual is more likely to become an entrepreneur in Denmark if his or her coworkers have been entrepreneurs before.

This paper presents new evidence on these questions gathered through the impact evaluation of a large-scale edutainment program specifically designed to promote entrepreneurship to young individuals in Egypt. In particular, it aimed to change viewers' attitudes and perceptions with respect to entrepreneurship, and improve their entrepreneurship-related knowledge. The show consisted in 13 episodes involving 14 contestants, each episode putting contestants in front of a new challenge testing their entrepreneurial skills. It was broadcast on one of the country's most watched television channel for a period of three months starting in December 2013. In order to reach its goals, educational content was systematically disseminated in every episode amidst entertaining content, and contestants were recruited from various subgroups of the Egyptian population so as to ensure that

viewers could relate with at least one of the contestants they could observe. Noticeably, female contestants performed particularly well throughout the show, the best of them ranking first and second. In turn, this allows us to investigate the impact of the show on viewers' opinions related to female entrepreneurs.

Egypt is particularly well suited to the objectives of the edutainment program and, combined with some of the country's characteristics, it provides a perfect setting where to gather additional evidence on some of the above questions. First, as in many developing countries, the place of television is particularly important in Egypt. According to the World Bank,[5] 97% of Egyptian households owned at least one television set in 2011 and 40% watched television more than four hours a day (PwC, 2012).[6,7] Second, our setting allows us to study how individual-level outcomes can be influenced by a television programs when some of these outcomes are heavily influenced by groups of peers. We do so using the case of youths' perceptions of self-employment and their opinions related to female entrepreneurs. Indeed, despite a high youth unemployment rate peaking at 40.1% in 2013 according to the International Labour Organization (ILO) (a pattern also shared by many developing countries, especially in the MENA region (as detailed in *Table 1*)), the share of entrepreneurs is particularly small, around 4% (Roushdy and Sieverding, 2015). While this puzzling observation pinpoints the existence of traditional regulatory, financial, and human capital barriers, it also underlines the importance cultural barriers, such as negative perceptions and expectations related to self-employment. Indeed, young individuals and, in particular, young educated individuals tend to strongly favor employment in the public sector (Said, 2011; Barsoum, 2014; Barsoum, 2016).[8] Egypt also exhibits large gender inequalities which are particularly visible on the labor market where the unemployment rate among young female actives aged between 15 and 24 years peaked at 61.3% in 2013, when it leveled at 33.7% for males (ILO, 2013).

In order to measure the impact of the program and provide new evidence on the more general questions discussed above, we carried out a randomized controlled trial using an encouragement

---

[5] World Development Indicators' information society data for the year 2014.

[6] This observation is more generally true for the entire MENA region (as well as for other regions), where the share of households owning a television set is close to 100% in many countries: for instance, it was at 98% in Algeria, 98% in Iraq, 98% in Lebanon, and 100% in Morocco in 2013 (World Development Indicators, information society data). The average number of hours spent watching television was calculated to be 3.11 hours every day in 17 MENA countries (PwC, 2012).

[7] This trend was also favored by the development of an important television industry in Egypt producing hugely popular mainstream television programs, including talent, reality, and game shows, which have become a major source of entertainment over the past decades.

[8] Survey data suggests that these barriers often lead young individuals to reconsider entrepreneurship as either a supplemental income-generating activity or as a career option they could pursue later in life once they have established themselves financially or professionally, rather than as a conceivable main career option (Sieverding, 2012).

design where respondents included in our sample were randomly selected to receive an encouragement to watch the show. Our design exhibits three interesting features, which contrast with what has frequently been done until now in the literature on the impact of media programs. First, our sample is constituted of a representative subset of a very large population of young individuals (between 18 and 35 years old) in Egypt who have some interest in entrepreneurship.[9] Second, this is to our knowledge the first time that a mainstream television program purposely designed to have an impact of public policy interest is evaluated through a large-scale randomized controlled trial relying on an easily replicable and scalable set of encouragements. Indeed, treatment respondents were reminded to gain exposure to the program via the sending of simple text messages.[10] Third, we did not provide the control group with any incentive to watch another show so as to measure the impact of the show in a more realistic manner, which does not artificially hold constant the number of hours spent watching television across treatment and control individuals and elude the possible negative impact of a change in respondents' time allocation (Olken, 2009) – potentially overestimating the true impact of such interventions.

Moreover, we develop an innovative strategy to study the role of social interactions on the effects of the program. Indeed, a subset of respondents' friends meeting the same inclusion criteria (i.e. young and interested in self-employment) was included in our sample and a random subset of this group of friends was also randomly selected to receive the same encouragements. This induced an exogenous variation in their own and their friends' exposure to the intervention depending on whether or not they, their friend(s) or both received the encouragements. This design allows us to identify both the *direct* causal impact of the intervention on a policy-relevant set of viewers, as well as any *indirect* causal impact arising from peer effects within groups of friends.

We collected data on the impact of the intervention 13 to 21 months after the end of the show and find that despite the limited natural outreach of the edutainment program (8% of respondents in the control group watched the program), receiving the encouragements increased, although moderately, one's exposure rate to the show: self-reported data on respondents' exposure to the intervention show a differential exposure rate of 6 percentage points between treatment and control respondents.

---

[9] For instance, Bjorvatn et al. (2015) and Bernard et al. (2014) chose to focus on specific subgroups: high school students and rural villagers respectively.

[10] Until now, experimental studies investigating the impact of media programs have relied on two types of encouragements: a) financial incentives (Berg and Zia, 2013; Bjorvatn et al., 2015), and b) the organization of broadcasting events (Paluck and Green, 2009; Bernard et al., 2014), which raise the additional problem that these evaluations capture the impact of the content of a media program in a controlled setting (along with any potential interaction effect between this content and these broadcasting events), rather than the impact of a media program in real life conditions.

Although the limited magnitude of this differential exposure rate considerably reduces our statistical power, we are still able to show that the program had an important impact on respondents' general beliefs associated with self-employment and, in particular, gender-related ones. Indeed, in line with previous evidence on the impact of television programs, our results show that women role models (as portrayed in a TV show) can indeed have an impact on individuals' gender-related opinions associated with self-employment. However, we cannot establish that the show had any impact on respondents' aspirations towards entrepreneurship, knowledge about the business environment, or on the likelihood that respondents took any steps towards the creation of a business. We also find evidence of the importance of social interactions for the impact of media programs. For instance, the impact of the show on individuals' gender-related opinions associated with self-employment women completely vanish when a respondent is exposed to the show along with their friends, which we interpret as a sign that the information conveyed by the edutainment may not have been perceived as sufficiently credible by its audience. Finally, we find some evidence that while some of these impacts are welfare-improving, others are more ambiguous from a welfare perspective.

Our study contributes to several strands of literature. First, our study complements the burgeoning literature on the impact of media: we provide evidence on whether or not media programs can be used in the short run to achieve goals of public policy interest and, in particular, to improve the insertion of young individuals in the labor market through entrepreneurship. In doing so, our results also add to the literature on the impact of entrepreneurship (training) programs (McKenzie and Woodruff, 2014; Crépon et al., 2015 by measuring the impact of a particular light form of entrepreneurship training focusing primarily on the promotion of an entrepreneurial culture rather than the provision of hard skills. We also contribute to the literature on gender-related norms (Beaman et al., 2012) by presenting new evidence that showcasing successful women, even through a very light intervention, can change general perceptions a population has about women. Finally, our design allows us to investigate the importance of peer effects in the context of media and entrepreneurship programs. We show that social interactions can affect significantly the impact of messages that are conveyed.

The rest of the article is organized as follows: in section II, we describe the intervention; in section III, we describe our empirical strategy; in section IV, we detail our estimation strategy; in section V, we provide a description of our data and sample; in section VI, we present our study results; in section VII, we conclude and discuss policy implications.

II.   Intervention

Taking advantage of the huge popularity of mainstream television programs, Bamyan Media[15] produced an innovative mainstream television program, *El Mashroua,* which was broadcast on a major Egyptian channel and was specifically designed to promote entrepreneurship among young adults (18-35 years old). It consisted in 13 episodes involving 14 contestants from various backgrounds. It started with a series of ten challenges[16] (one challenge per episode) opposing two teams of contestants, which aimed at testing contestants' entrepreneurial skills – the least performing contestant of the losing team being eliminated by a set of three judges at the end of each episode.[17] In the last three episodes, the remaining three contestants presented their own business project in front of a panel of judges made up of successful entrepreneurs. Each finalist had to prove capable of applying everything they had learnt throughout the show.

The show primarily aimed to change viewers' attitudes towards self-employment and improve their entrepreneurial-related knowledge. Throughout the episodes, different forms of self-employment were showcased (ranging from running a food stand to organizing sightseeing tours for tourists or cultural events), the importance of various entrepreneurial skills was stressed (such as planning, organizational or marketing skills etc.), and core business concepts were also placed at the center of each episode (such as business plans, profits, or customer satisfaction, etc.). In order to facilitate the impact of the program, contestants were recruited from very different backgrounds in terms of gender (half of the contestants were women), socio-economic status, region of origin, ethnic and religious groups so that viewers would be able to connect emotionally with them. Eventually, Bamyan expected that the program would change viewers' aspirations related to their professional career and lead a higher share of them to aspire to become an entrepreneur.

In parallel to the show, support activities were also carried out so as to create a bridge between the show and the real world, and boost business creation. Indeed, their goal was to provide viewers with the support they might need if they were to take the plunge and attempt to start a business: networking events were held in collaboration with partner organizations delivering advanced entrepreneurship

---

[15] Bamyan Media is a social enterprise created in 2010 and registered in the US as a 501c3 non-profit organization. The goal of its edutainments is to "create riveting and compelling content that can spark social movements to improve lives and communities."

[16] As part of these challenges, two teams of contestants of equal size were opposed. The challenges varied from designing an awareness campaign to producing and selling fruit juice in the street, or by organizing a tourist trip.

[17] Members of the losing team had to vote to eliminate the teammate they thought had underperformed the most and should leave. Ultimately, the decision to eliminate a contestant fell to a panel of three judges (two of which stayed on throughout the whole TV show, the remaining one being a celebrity guest judge who changed from episode to episode) based on their own opinion and the contestants' vote.

training, mentorship, or financial services throughout the country, and a website was launched providing information on the show and these partner organizations.

The first episode of the show aired on December 21st, 2013 and an episode aired every Saturday evening from that day on until March 29th, 2014.[18] For the purpose of this research project, it is interesting to note that female contestants performed particularly well throughout the show, the best of them ranking first and second. This allows us to test the specific impact the show had on gender-related beliefs and, in particular, those related to self-employment.

III.   Empirical strategy

III.A Sampling strategy

Our sample is constituted of a representative subset of a very large population of young individuals (between 18 and 35 years old) in Egypt who have some interest in entrepreneurship. Indeed, a randomly generated set of mobile phone numbers[19] was called to select a sample and collect baseline information from December 30th, 2013 to January 4th, 2014. In order to have a sample that was as representative as possible of the intervention's target group, only individuals who matched the following criteria were included: a/ be aged between 18 and 35; b/ watch TV at least from time to time; c/ be interested in starting a business. A sample of 5,924 individuals was constituted.

Importantly for the design of this experiment, these 5,924 respondents (referred to as "*prime* respondents" hereafter) were asked to provide the contact details of up to three of their friends meeting our inclusion criteria. 3,855 prime respondents did not share any of their friends' contact details, 1,159 shared the contact details of one of their friends, 536 of two of their friends, and 374 of three of their friends. In total, 3,353 additional respondents (referred to as "*secondary* respondents" hereafter) were added to our sample, within which clusters of friends were created.[20] This allows us to investigate the importance of peer effects in the context of media and entrepreneurship programs.

---

[18] With the exception of the 6th episode, originally scheduled to air on January 21st, which was postponed to the following week due to the multiple bombings which happened on that day in Egypt and received extensive coverage from the channel on which *El-Mashroua* was broadcast.

[19] According to the Demographic and Health Survey, over 90% of Egyptian households owned a cell phone in 2014 and, according to the International Telecommunication Union's World Telecommunication/ICT Development Report and database, there were 114 mobile cellular subscriptions per 100 inhabitants in Egypt in 2014. http://data.worldbank.org/indicator/IT.CEL.SETS.P2

[20] Survey data shows that the probability that a secondary respondents knows the other secondary respondents included in their cluster is roughly similar to the probability that they know their primo respondent: around 82% for the former and 87% for the latter.

In *Figure 1* below, we describe the structure of our sample.

		Prime respondents	Secondary respondents
Whole sample (9,277)	Clusters with friends (5,422)	Group 1 (with friends) 2,069 By cluster size: 2: 1,159 3: 536 4: 374	Group 3 3,353 By cluster size: 2: 1,159 3: 1,072 4: 1,122
	Clusters without friends (3,855)	Group 2 (without friends) 3,855	

Figure 1 - Sample structure

III.B Identification strategy

Set up

Measuring the impact of the intervention entails finding a comparison group mimicking what would have happened to respondents who were exposed to the intervention had they *not* been exposed to it (the counterfactual). Finding a good comparison group is at the core of any impact evaluation and represents the main challenge when attempting to measure the incidence of mass media programs on individuals' life. Indeed, one needs to identify a group of individuals who were not exposed to the intervention but resemble the ones who were as much as possible: the larger the differences between the groups compared, the higher the chances that one mistakes the impact of pre-existing differences between groups for that of the intervention. For instance, a naive comparison of individuals who watched the show with those who did not is likely to yield biased estimates if the decision to watch the show is somehow correlated with their prior level of interest in starting a business, which in turn is likely to be correlated with the outcomes we are interested in, such as respondents' perceptions of entrepreneurship, knowledge about self-employment, professional career aspirations, and career choices.

In the search for a comparison group, a first strategy is to find an exogenous source of variation in the probability for individuals to be exposed to mass media programs. The comparison group is then constituted by the individuals who could have been exposed to these programs but were not. This identification strategy has recently been used quite extensively in studies aiming to measure the overall impact of access to television and/or radio programs. For instance, Jensen and Oster (2009), Olken (2009), Chong and La Ferrara (2009), La Ferrara, Chong and Duryea (2012), and Farré and Fasani (2013) all rely on variations in signal reception, which they argue is exogenous in the context of their studies, to identify the impact of exposure to television programs.

However, studies evaluating the impact of a specific program usually cannot rely on such a natural source of exogenous variation in individuals' exposure to that program. An alternative strategy consists in artificially creating this source of variation by encouraging some individuals but not others to gain exposure to the program (Palluck and Green, 2009; Berg and Zia, 2013; Bernard et al., 2014; Bjorvatn et al., 2015). For instance, Palluck and Green (2009) exposed Rwandan villagers to a radio program aimed at discouraging blind obedience and reliance on directions from the authorities following the genocide. They did so by sending research assistants to treatment villages where they played four 20-minute episodes on a portable stereo each month. Berg and Zia (2013) provided financial incentives to treatment respondents to increase their exposure to the show: subject to their answering correctly a questionnaire testing their knowledge of the show, respondents would receive a cash transfer. In such settings, the impact of the program is estimated on the set of individuals (called "*compliers*") who respond to the encouragements by gaining exposure to the program.

Study design

As the show was broadcast nation-wide on a channel available to all and there were naturally strong reasons to expect significant selection with respect to the type of individuals who would gain exposure to the intervention, we implemented a randomized controlled trial following an encouragement design to generate the counterfactual for our treatment group. Individuals were randomly allocated to either a treatment or a control group, differing only by the level of encouragement they received to gain exposure to the intervention. This design guarantees that the two groups were comparable prior to the roll-out of the intervention (or that respondents' treatment status was not correlated with their baseline characteristics) and allows us to measure unbiased causal estimates of the intervention impact.

Our study design differs from what has been done until now in the literature on the impact of media programs (Palluck and Green, 2009; Berg and Zia, 2013; Bernard et al., 2014; Bjorvatn et al., 2015) in three crucial ways. First, our sample is constituted of a representative subset of a very large population of young individuals (between 18 and 35 years old) in Egypt who have some interest in entrepreneurship.

Second, we opted for a *non-symmetric* encouragement design in which the control group received no encouragement whatsoever, while the above-mentioned studies relied on a *symmetric* encouragement design. For instance, control villages in Palluck and Green (2009) and control respondents in Berg and Zia (2013) also received similar incentives to respectively listen to an alternative radio program and watch an alternative TV program. A practical advantage of symmetric encouragement designs lies in their greater statistical power, achieved through a reduction in the exposure of the control group to the relevant show. However, these symmetric designs estimate the impact of a program *conditional* on the control group listening or watching an alternative program and, as such, cannot capture the (potentially negative) consequences of an increase in the amount of time allocated to watching television or listening to the radio – see Zavodny (2006) and Olken (2009) for discussions on the possible negative impact of mass media programs, and La Ferrara (2015) for a review of the evidence on the topic. Furthermore, the impact measured using a symmetric design is to some extent arbitrarily conditional on the choice of alternative program the control group is exposed to.

Third, we chose to rely on cheap and easily replicable incentives to encourage treatment respondents to gain exposure to the intervention, while the above-mentioned studies relied on strong incentives. Strong encouragements provide another way to achieve greater statistical power, and therefore improve one's capacity to establish whether or not a program *can* have an impact. However, they also modify the set of compliers on which the impact of the program is estimated. Unfortunately, the stronger the incentives, the less likely a set of encouragements is to be replicated as part of a large scale program and the less representative the group of compliers will be of the policy-relevant target group (the group of individuals who could be induced to gain exposure to a program as part of a public policy) and, therefore, the lower the external validity of the results. Relying on scalable encouragements is all the more important in the evaluation of media programs as their most salient feature precisely lies in their ability to reach a very large audience.

Finally, individuals included in the sample were randomized at the *individual* level after a stratification based on respondents' gender, whether they are a prime or a secondary respondent (in

the latter case, whether the respondent was the first, second or third name provided was also taken into account), and whether or not an email address had been provided at baseline (a proxy for respondents' access to the Internet). In doing so, half of our respondents were selected to receive the encouragements and the other half were selected not to receive any encouragement. However, as our sample contains groups of friends, this individual-level randomization mechanically split the sample based on whether or not respondents received the encouragements and on the share of their friends who received the encouragements.

In *Figure 2* below, we describe the treatment allocation by group of respondents.

		T1	*Share of friends receiving the encouragements*
Whole sample (9,277)	With friends (5,422)	**Received the encouragements** 2,717 respondents (50.11%)	- 0%: 868 resp. (31.95%) - 33%: 304 resp. (11.19%) - 50%: 400 resp. (14.72%) - 67%: 264 resp. (9.72%) - 100%: 881 resp. (32.43%)
		Did not receive the encouragements 2,705 respondents (49.89%)	- 0%: 863 resp. (31.90%) - 33%: 285 resp. (10.54%) - 50%: 384 resp. (14.20%) - 67%: 304 resp. (11.24%) - 100%: 869 resp. (32.13%)
	Without friends (3,855)	**Received the encouragements** 1,928 respondents (50.01%)	
		Did not receive the encouragements 1,927 respondents (49.99 %)	

Figure 2 – Treatment allocation by group of respondents

Encouragements were provided in the form of text messages written in Arabic and sent to the phone of treatment respondents from the fifth episode[22] on January 18th, 2014 onwards. One or two text

---

[22] Unfortunately, the collection of the baseline survey encountered several delays and was only finalized at the beginning of January 2014, which meant that encouragements could only be sent from the fifth episode onwards.

messages were sent every week to encourage *treatment* respondents to watch the TV show and browse the show's website until the 13th and final episode was broadcast on March 29th. In order to make up for the late start and further increase the differential take-up rate across the groups, we provided additional encouragements during the month following the end of the TV show: treatment respondents were all called and encouraged to watch the show's episodes online, and to take a quiz testing their knowledge of the show.[23] As part of these calls, respondents were also told about the content of the website. As displayed in *Table A.2* placed in the appendix, the content of the encouragements merely reminded treatment respondents of the date and time of the show, and aimed to spark their interest by providing them with the main topic covered in the upcoming episode. Hence, it is unlikely that the encouragements had any *direct* impact on the respondents – at least not on the set of outcomes on which we focus on in this article. In particular, encouragements did not contain any gender-related information.

IV.   Estimation strategy

In order to obtain a consistent estimate of the Average Treatment Effect of the intervention on the outcome (y_i) of both prime and secondary respondents, a first step would be to estimate the following equation:

$$y_i = aT_1S_0 + bT_1S_+ + cP(1 - T_1) + dPT_1 + \sum_{f=0}^{3} \mu_f S_f + X_i\delta + \varepsilon_i \qquad (1)$$

T_1 is a dummy variable indicating whether or not individual i received the encouragements her/himself and P indicates the share of individual i's friends who received the encouragements. S_0 is a dummy variable indicating when a cluster contains one single individual, S_+ is a dummy variable indicating when a cluster contains more than one single individual, and S_f are our stratum fixed effects: dummy variables indicating the number of friends f in a cluster. A vector of baseline covariates X_i is also added to the regression. It contains information on respondents' gender, region of residence (city, Lower Egypt, Upper Egypt or frontier governorates), highest level of education, and relative level of wealth calculated based on asset ownership data. Given the substantial duration of the data collection,

---

[23] However, the number of individuals who completed the quiz being low, we do not believe that the encouragements provided after the end of the broadcasting of the show had much of an impact on the intervention's take-up rate. Indeed, less than 50 individuals completed that quiz, despite the fact that it was broadly advertised on the show's social media accounts, in addition to being advertised to the individuals included in the sample.

X_i also contains dummy variables indicating whether the respondent was part of the first, second, third, or fourth randomly selected batch of respondents to be contacted as part of the endline survey.[24]

However, as our sample contains groups of friends of varying size (one to four respondents per cluster), the share of a respondent's friends receiving the encouragements (P) is correlated with the size of their cluster – as displayed in *Table A.3* placed in the appendix. As a consequence, the Average Treatment Effects *b*, *c*, and *d* obtained through the estimation of equation (1) are constructed as weighted averages of within-stratum (clusters with 2, 3, or 4 respondents) average treatment effects, with weights proportional to both the share of observations and the intensity of the treatment within stratum (the probability to receive the treatment or the share of friends receiving the encouragements).[25]

In order to obtain consistent estimates of the Average Treatment Effects (*a*, *b*, *c*, and *d*), we opt for an alternative approach which is equivalent to calculating our average treatment effects as the weighted average of within-stratum Average Treatment Effects, with weights proportional solely to the share of observations within each stratum (Imbens and Rubin, 2015). We do so by estimating by Ordinary-Least-Squares the following equation:

$$y_i = aT_1S_0$$

$$+ bT_1S_+ + b_2T_1(S_2 - q(S_2|S_+))S_+ + b_3T_1(S_3 - q(S_3|S_+))S_+$$

$$+ cP(1 - T_1) + c_2P(1 - T_1)(S_2 - q(S_2|S_+))S_+ + c_3P(1 - T_1)(S_3 - q(S_3|S_+))S_+$$

$$+ dPT_1 + d_2P(T_1)(S_2 - q(S_2|S_+))S_+ + d_3P(T_1)(S_3 - q(S_3|S_+))S_+$$

$$+ \sum_{f=0}^{3} \mu_f S_f + X_i\delta + \varepsilon_i \qquad\qquad \textbf{(2)}$$

$q(S_f|S_+)$ indicates the share of respondents in stratum *f* out of the broader set of respondents with at least one friend in our sample.[26]

---

[24] We randomly selected respondents to be included in the first, second, third or fourth batch of endline data collection.
[25] Results obtained through the estimation of equation (1) yield results that are similar to those obtained through the estimation of equation (2) – as displayed in *Tables A.10* placed in the appendix.
[26] Those shares are recalculated for each dependent variable.

When estimating equation (2), two statistical tests are carried out for each outcome. First, we investigate whether or not the intervention had any impact on outcome (y_i) by testing the following first joint hypothesis:

H1: $a = b = c = d = 0$

Second, we investigate the existence of spillover effects by testing the following second joint hypothesis:

H2: $c = d = 0$

We restrict the analysis to the estimation of the above reduced forms providing Intent-To-Treat estimates and do not report Two-Stage Least Squares Treatment-on-the-Treated estimates measuring the impact of the intervention on the individuals exposed to the intervention given the difficulty of measuring respondents' relevant level of exposure to the intervention, as is often the case in the evaluation of multi-component intervention. It also appears likely that our measures of respondents' exposure to the intervention underestimates (at least slightly) the respondents' "true" level of exposure given that the endline questionnaire was carried out 13 to 21 months after the end of the broadcasting of the show. It is also likely that the ensuing measurement error is correlated with respondents' treatment status.

V. Data collection and sample description

V.A Data collection

From December 30th, 2013 to January 4th, 2014, baseline background information was collected over the phone on each prime respondent included in the study sample. In particular, baseline information was collected on their gender, age, governorate of residence, professional occupation, and highest level of education. Asset ownership data was also collected at baseline and used to calculate an asset ownership index based on which respondents were ranked and sub-divided into quartiles. Unfortunately, secondary respondents could not be contacted prior to the roll-out of the encouragements and only their age and gender could be obtained via their prime respondent.

The endline survey was also carried out over the phone and stretched from April 30th, 2015 to January 31st, 2016.[27] The questionnaire was structured in five sections, each of which was designed to collect different types of information. First, questions were asked to identify respondents' professional aspirations and, more specifically, their preferences regarding the following career options: "working as an employee in the *private* sector," "working as an employee in the *public* sector," "working as a self-employed person," and "not working."[28] Second, respondents were asked about their perceptions of self-employment. In particular, these questions were designed to measure: a) respondents' perception of the importance of various barriers to starting a business (such as the lack of funding or appropriate skills, or the complexity of the regulations, etc.); and b) some general self-employment-related opinions and, in particular, gender-related ones. A third set of questions aimed to test respondents' knowledge of the entrepreneurial ecosystem and a fourth to capture any steps they may have taken towards the creation of a business. A final set of questions were asked to measure respondents' exposure to the encouragements and intervention.

In total, we were able to successfully survey 60% of the 9,277 respondents included in our sample as part of the endline survey, 16 to 24 months after the completion of the baseline survey. Among the group of 5,520 respondents who could be surveyed at endline, 2,743 received the encouragements and 2,777 did not. Out of those who did not receive the encouragements, 1,606 did not have any friends receiving the encouragements either. The attrition rate is balanced across *treatment* groups irrespective of the specification considered (whether or not baseline covariates are added to the regression), as detailed in *Table 2*: the differential attrition rate is always small and non-significant.

V.B Sample description and balance checks

In *Table 2*, we describe the average baseline characteristics of the individuals included in our sample who were also surveyed at endline (5,520 respondents, *i.e.* 59.5% of the total sample). Our sample is overwhelmingly constituted of young adult males: men represent 83.4% of the respondents reached at endline and the average age is 27 years old,[29] which may explain some of the discrepancies observed between our sample and the Egyptian population (as detailed in *Table A.4* placed in the

---

[27] In total, the completion of the endline questionnaire took between 15 and 20 minutes.

[28] As a first step towards measuring their aspirations, respondents were asked to rank these options based on how frequent they were among their family in order to limit possible social desirability and/or anchoring biases (Bernard and Taffesse (2014)). As a second step, respondents were then asked to rank the same options according to what they would like best for themselves *presently*, and, finally, according to what they would like best for themselves *20 years from now*.

[29] Our inclusion criteria may provide a first explanation for the over-representation of men in our sample. Indeed, women appear to be less interested in entrepreneurship than men according to the 2009 Survey of Young People in Egypt. However, qualitative evidence gathered throughout the project also suggests that women were significantly more difficult to survey over the phone than men.

appendix). Indeed, 26.1% of the respondents included in our sample live in one of the four city governorates Cairo, Alexandria, Port Said, and Suez, although these Governorates only represent 17.7% of the total Egyptian population according to CAPMAS. As a consequence, individuals living in Lower or Upper Egypt are under-represented in our sample. In addition, our respondents appear to be more educated than the overall Egyptian population: only 3.8% of our respondents have no education at all and 33.5% have a higher education degree as their highest educational achievement (hereafter referred to as "*highly-educated*" respondents), as opposed to 32.5% and 11.6% respectively in the overall population. However, asset ownership data tend to suggest that our respondents' level of wealth is comparable to that of the average Egyptian. In particular, 97.9% of respondents declared that they owned a TV set and 90.9% declared that they had access to cable television, which largely confirms that respondents are to a very large extent exposed to mass media and had the means to gain exposure to the intervention. Interestingly, 22.5% of respondents were already self-employed at baseline.

As expected given the design of the experiment, the characteristics of the individuals included in our sample are largely uncorrelated with whether or not they received the encouragements, as also displayed in *Table 3*. Coefficients displayed in this table are obtained by estimating equation (2) using successively each of the baseline characteristics displayed in the left column of the table as the dependent variable. We do so using all observations for which baseline information are available. The point estimates associated with the treatment variables remain small and non-significant, suggesting again that respondents' treatment status is uncorrelated with their baseline characteristics. The null hypothesis testing the joint nullity of the four coefficients cannot be rejected at the 5% threshold for any of the background characteristics, except for the share of unemployed respondents looking for a job at baseline.

V.C Attitudes towards self-employment in Egypt

In order to understand the possible impact of the intervention, we now turn to the status of entrepreneurship in the Egyptian society to assess young individuals' attitudes towards self-employment, the most hindering barriers to business creation, as well as their professional aspirations and professional choices. In order to do so, we exploit the representativeness of our sample and investigate the level of our key outcome variables among the group of respondents who fell in the *pure control group*, i.e. the group of individuals who were not affected by the encouragements, neither directly nor indirectly through their friends. We report these descriptive statistics in *Table 3*.

Consistent with prior findings, we find that young Egyptians do aspire to being self-employed but generally in the long run rather than in the short run, where they prefer seeking employment in the public sector. Indeed, 38.9% of the *pure control* respondents chose "self-employment" as the professional career option they would preferably choose for themselves now, almost 10 percentage points less than the share of respondents who preferred working in the public sector (48.0%) but significantly more than the share of those who chose working in the private sector (11.0%). This result is consistent with prior evidence on the relative attractiveness of public employment over other career options – presumably due to the stability and status it may offer (Said, 2011; Barsoum, 2014; Barsoum, 2016). Although the public sector seems more attractive *in the present*, self-employment was chosen as the preferred professional career option *20 years from now* by 54.5% of the respondents, well above any other career options. This pattern is also consistent with prior evidence on the increased attractiveness of self-employment as a future professional career option (Sieverding, 2012).

Several barriers to business creation may explain why self-employment appears relatively less attractive to young Egyptians in the short-run. First, they have a very limited knowledge of the entrepreneurial ecosystem in Egypt and, more specifically, of the organizations supporting entrepreneurs. Only 3.3% of *pure control* respondents knew of an organization providing mentoring services, 6.5% knew of an organization providing training services, and 19.5% of them knew of an organization providing financial services (such as a loan). Second, the lack of funding appears as the most important barrier to starting a business.[30] Complex government laws and respondents' lack of required skills are also reported to be important barriers but are only distant second. So are negative perception by society and resistance to change which are distant third. Along required skills for entrepreneurship, access to language training, and technology are also of relative importance.

Another possible barrier lies in individuals' beliefs and, more specifically, in the *perceived* probability to be successful as an entrepreneur associated with certain subgroups of the population: 56.7% of the *pure control* respondents strongly agreed that it is possible for women to successfully run a business. Furthermore, 61.5% strongly agreed that it is possible for individuals without a higher education to successfully run their own business and 49.6% that it is possible for individuals who do not have wealthy parents to successfully run their own business.

---

[30] Poor knowledge of the eco-system is all the more limiting for this reason.

Finally, 36.3% of the *pure control* respondents reported having made a decision with respect to their professional career since the beginning of the broadcasting of the show, and 19.2% reported they had made a decision related to the creation of a business. Moreover, 76.3% reported they were planning to start a business in the future.

Interestingly, patterns are remarkably similar in the four subgroups we investigate: men, women, highly-educated respondents, and non-highly educated respondents. If anything, men and less educated respondents report more discriminatory beliefs against women, and less educated respondents appear to know far fewer organizations from the entrepreneurial ecosystem than more educated respondents – points we get back to in the next section.

VI. Results

VI.A Take-up rate

As a preliminary check, we investigate whether respondents randomly selected to receive the encouragements remembered having received these encouragements.[31] We do so for two reasons: first, the technology available in Egypt at the time of the study did not allow us to receive delivery notices that would have enabled us to monitor the proper implementation of the encouragements; second, this allows us to assess the extent to which respondents paid attention to the encouragements we sent. While this aspect is important to all studies relying on encouragement designs, it is of particular importance in countries such as Egypt, where individuals can receive numerous advertisements via text message on a daily basis and, as a consequence, may pay limited attention to them. This also provides additional evidence on the effectiveness of text messages as encouragements.

In columns *A.* and *B.* of *Table 5.a*, we report on the impact of the encouragements on the probability for respondents to declare to have received at least one text message related to *El Mashroua*, as well as on the number of such text messages received. First, it is reassuring to observe that the share of *control* respondents who declared having received at least one encouragement is small (around 4%) and that, on average, they reported having received 0.06 text message advertising *El Mashroua*. Second, the share of treatment respondents who remembered having received at least one

---

[31] In order to limit potential sources of measurement error which may be correlated with the intervention, all questions related to the encouragements and exposure rate were asked at the very end of the interview.

encouragement is more than 20 percentage points higher and, on average, these respondents declared having received 0.48 more text message (provided that they remembered having received at least one encouragement, they reported to have received 3.43 text messages). This suggests that text messages can be effective encouragements but that only a fraction of the population might be receptive to them.

In columns *C.* to *I.* of *Table 5.a*, we analyze the impact of the encouragements on a range of indicators describing respondents' exposure to the intervention and show that receiving the encouragements had a positive impact on almost all take-up indicators. Indeed, receiving the encouragements increased the overall exposure rate by more than 5.4 percentage points (column C.). This rate is defined as the probability of a respondent having watched at least one episode, visited *El Mashroua*'s website at least once, followed one of their social media, or attended at least one of their events. This represents a 60% increase compared to the exposure rate of the control group and suggests that roughly one respondent in three who remembered having received the encouragements watched at least one episode of the show. This differential exposure rate is largely explained by the large impact the encouragements had on the probability of treatment respondents having watched the show: while 8.2% of the control respondents declared they had watched at least one episode of the show, encouragements increased this probability by around 5 percentage points. Receiving the encouragements also had an impact on the number of episodes watched, however the effect is entirely driven by the fact that the encouragements led a higher share of treatment respondents to watch the show, which suggests that the show may have had some problems retaining viewers (conditional on having watched at least one episode of the show, the average number of episodes watched is 3.21). The encouragements also had a positive and statistically significant impact on almost all other take-up indicators, but the magnitude of this impact is more limited. Indeed, their impact is small on respondents' probability of having visited *El Mashroua*'s website or followed *El Mashroua* on social media.[33] However, no impact can be found whatsoever on their probability of having attended an event organized by *El Mashroua*. These results are consistent with the nature of the encouragements sent, primarily designed to increase the TV show viewing rate, as well as with the fact that these other

---

[33] Note that the positive impacts found on these secondary indicators may be both a direct consequence of the encouragements received (as some of them advertised *El Mashroua*'s website) and an indirect effect of an increased exposure to the show (for instance the social media were not advertised as part of the encouragements). We lack the data to disentangle the relative importance of both factors but it is of no consequence for what follows.

components of the intervention were unfortunately not advertised as part of the show (or only too rarely).[34,35]

We investigate the existence of spillover effects in respondents' exposure to the intervention and find none. Indeed, investigating whether or not the share of a respondent's friends receiving the encouragements had any impact on his or her exposure rate, we find no impact – irrespective of whether or not the respondent received the encouragements themselves: the estimates associated with the variables $P*(1-T1)$ and $P*T1$ are systematically close to 0 (columns $C.$ to $I.$). Similarly, whether or not a respondent received the encouragements had no impact on the share of their friends exposed to the intervention (columns $J.$).

Finally, given the design of the experiment, the differential take-up rate across individuals (depending on whether or not they received the encouragements) allows us to measure the impact of the TV show on an interesting set of marginal viewers: the group of individuals that decision makers can influence at a low cost so that they gain exposure to the show.[38] Furthermore, we do not find any marginal impact of having at least one friend receiving the encouragement on the exposure rate of the respondents receiving themselves the encouragements. Consequently, we can be confident that if any differences arose across individuals receiving the encouragements depending on whether or not at least one of their friends received the encouragements as well, it can be attributed to friends discussing further the content of the show – and not to any differences in the intensity these two groups were exposed to the show.

---

[34] We also investigate the counterfactual level of exposure the show and the level of the differential take-up rate in four subgroups of respondents we are particularly interested in: males, females, highly educated, and non-highly educated respondents (*Table A.5.a* (placed in the appendix). We find some differences in the groups' counterfactual level of exposure to the show but limited differences in the impact of the encouragements on the exposure rate. We find that the counterfactual exposure rate is particularly high for female respondents.

[35] In column *J.*, we estimate the impact of the encouragements on the share of respondents' friends who were exposed to the intervention – using our measure of overall take-up rate as a proxy for whether or not a respondent was exposed to the intervention. As expected, an increase in the share of a respondent's friends who received the encouragements increased their share of friends exposed to the intervention: increasing the share of a respondent's friends receiving the encouragements by 50 percentage points increased their share of friends exposed to the intervention by around 2 percentage points. This result holds irrespective of whether or not the individual received the encouragements themselves.

[38] Note that we carry out a placebo test to assess the robustness of our first-stage estimates by investigating whether the encouragements had any impact on respondents' exposure to an alternative show, and find no impact. In order to do so, respondents were asked as part of the endline survey to answer the exact same set of exposure-related questions about *El Mashroua* and another TV show ("*The Voice*"), which was broadcast around the same time as *El Mashroua* (questions were asked about the placebo show first, and then about *El Mashroua*). These questions were placed at the very end of the questionnaire in order not to influence the way respondents answered our other questions. We display the results of this placebo test in *Table A.5.b* (placed in the appendix) and find no difference between treatment and control respondents' exposure to the placebo show in any of the dimensions investigated, suggesting that the observed differential exposure rate cannot be attributed to any sort of response bias.

While the size of these coefficients appears to be large with respect to both the relatively small share of control respondents who were exposed to the show and the limited share of treatment individuals who remembered having received the encouragements, the differential exposure rate remains small in magnitude. However, it is worth reminding that endline data were collected one to two years after the end of the broadcasting of the show and that, as a consequence, the magnitude of the first-stage estimates is likely underestimated. In fact, a first follow-up survey carried out 6 months after the end of the intervention (during the first two weeks of October 2015) to measure the differential exposure rate across groups on a randomly selected subset of 558 respondents (representing 6% of the sample) revealed a differential exposure twice as high as the one captured by endline data: the direct effect of the encouragements increased the probability to have watched at least one episode of the show by 11 percentage points. Nevertheless, it is possible that the study's statistical power is limited and, therefore, that it only allows us to detect large effects.[39]

VI.B Impact on opinions and perceptions

Perceptions of entrepreneurship and knowledge

First, we investigate the impact of the TV show on viewers' perceptions of the importance of various barriers to self-employment so as to understand whether the intervention modified viewers' perception of self-employment as a feasible career option. In order to do so, we investigate whether or not the show had any impact on respondents' perception of the following eleven barriers to self-employment: lack of required skills, lack of access to funding, lack of access to information, lack of access to foreign language training, lack of access to technology, complicated government laws, roughness of the competition among entrepreneurs, negative perception by society, resistance to change, and discrimination based on gender. For each item, respondents were asked to assess its importance on a 1 to 10 scale (10 standing for "extremely preventive barriers"). In order to limit the number of statistical tests carried out, these outcomes were combined into the following three indexes constructed using the methodology described in Anderson (2012):[40] a resource index,[41] an economic

---

[39] In what follows, we report the standard deviation of each outcome variable in the group of respondents who were exposed to neither direct nor indirect impacts of the encouragements (*pure control* group) so as to assess the study's statistical power. The formula for estimating the minimum detectable effect (in standard deviation) can be expressed as MDE=2.83*(s.e./s.d.), with α=0.05 and β=0.80 and, where s.e. is the standard error associated with the treatment coefficient and s.d. is the standard deviation of the outcome variable in the pure control group.

[40] As part of this methodology, the weight given to each outcome used in an index is equal to the sum of its row entries in the inverted covariance matrix of the outcomes used in the construction of that index.

[41] The resource index is constructed based on respondents' perceptions of the following barriers: lack of required skills, lack of access to funding, lack of access to information, lack of access to foreign language training, and lack of access to technology.

structure index,[42] and a societal index[43] (the impact of the encouragements on each individual item is reported in *Table A.6*, placed in the appendix).

In parallel, we investigate whether or not the show had any impact on respondents' knowledge of the Egyptian entrepreneurial ecosystem so as to test whether or not the show had any impact on *actual* (information) constraints (as opposed to the above mentioned *perceived* constraints). More specifically, we investigate whether the intervention had any impact on the share of respondents who knew of any organization which could provide them with mentoring services, training, or financial support. Again, we combine these three variables into an index indicating whether or not respondents know of any these organizations at endline (the impact of the encouragements on each individual item is also reported in *Table A.6*, placed in the appendix).

We find that the intervention had a limited overall impact on respondents' perceived and actual barriers (*Table 5.a*): all coefficients but one are small and not statistically different from 0. However, the null hypothesis associated with the F-test testing the existence of any impact of the intervention is rejected at the 10% level for the economic structure and resource indexes. These statistics are in fact driven by a strong (and statistically significant) impact of the show on two individual items: respondents' perceptions of the roughness of the competition among entrepreneurs and their perception of the importance of gender discrimination. In both cases, the direct effect of the encouragements reduced the perceived importance of these two barriers, suggesting that the content of the show led viewers to believe that starting a business may be easier than initially expected. While the interpretation of the latter outcome may appear ambiguous, there is no reason to believe that the show had any impact on viewers' perception of the level of discrimination faced by men when attempting to start a business. Therefore, given the good performance of female contestants throughout the show, we interpret this result as an indication that the show led viewers to revise downward their perception of the level of discrimination faced by women when attempting to start a business. Interestingly, we find evidence of spillover effects in relation to respondents' perception of the roughness of the competition among entrepreneurs. These spillovers reinforce the direct effect of the encouragements, such that an increase in the share of a respondent's friends receiving the encouragements reduces further the perceived importance of competition as a barrier to self-

---

[42] The economy index is constructed based on respondents' perceptions of the following barriers: complicated government laws and roughness of the competition among entrepreneurs.
[43] The societal index is constructed based on respondents' perceptions of the following barriers: negative perception by society, resistance to change, and discrimination based on gender.

employment. It is worth noting that the share of a respondent's friends receiving the encouragements only had a statistically significant impact when they received the encouragements themselves, suggesting that these spillovers effects only arise because the content of the show was discussed among friends who were exposed to it.

However, we cannot find any impact of the show on the barriers that are perceived as the most hindering ones by our respondents (the lack of funding, complicated regulations, and lack of required skills). In particular, we find that the show had no impact on respondents' perception of the importance of funding constraints as a barrier to starting a business. We do not find any impact either on respondents' perception of the importance of government laws as a barrier to starting a business. Part of the explanation for this absence of impact on *perceived* barriers may lie in in the fact that we cannot find that the show had any strong impact on respondent's knowledge-related indicators (despite their limited knowledge of the entrepreneurial ecosystem). One possible explanation for this result might be that this information was often provided too indirectly through either the TV show's website or its networking events, and too rarely as part of the TV show itself, which remained the core of the intervention.

In *Table 5.b*, we look at the specific impact of the intervention on four subsets of respondents: men, women, highly-educated respondents, and non-highly educated respondents. For each category of respondents, we measure the impact of the intervention on each of the four above-mentioned indexes (resource index, economy index, societal index, and knowledge index). We find that the impact of the intervention on respondents' perceptions related to the functioning of the economy is driven by the effects it had on men and non-highly educated respondents. Interestingly, we also find that the negative impact observed above on the importance of gender discrimination as a barrier to starting a business is again entirely driven by male respondents (see *Tables A.7* placed in the appendix). Although no overall impact of the intervention could be found on knowledge-related outcomes, we actually find that the show increased the knowledge of non-highly educated respondents, the subset of respondents who had the least amount of information at baseline. This suggests that although the educational content of the show may have been weak, it was not null and the least informed subsets of the population did benefit from it.

General beliefs about conditions for being a successful entrepreneur

Then, we investigate whether or not the content of the show had any impact on viewers' general beliefs related to self-employment. In order to do so, we investigate whether or not the show had any impact on the share of respondents who strongly agreed with different statement investigating their beliefs related to self-employment. The first of these statements tested respondents' beliefs in women's ability to successfully run a business, the second investigated respondents' belief in the importance of being wealthy to successfully run a business, and the third investigated their belief in the importance of being highly educated to successfully run a business. We also take advantage of the good performance of female contestants throughout the show to investigate whether the intervention triggered broader changes in respondents' gender-related beliefs and reduced the share of respondents strongly supporting the idea that men might have more rights to a job or to receive a higher education.

As displayed in *Table 6.a*, we find that receiving the encouragements had a direct impact on some of viewers' beliefs and, in particular, on viewers' gender-related beliefs in relation to self-employment. In particular, we find that receiving the encouragements increased by 3.9 percentage points the share of respondents who reported to strongly agree that it is possible for women to successfully run their own business. The impact of the encouragements increases to 7.1 percentage points for the set of respondents who provided the contact details of at least one of their friends at baseline. The encouragements also appear to have had a direct impact on the share of respondents who strongly agreed that it is possible for individuals who do not have wealthy parents to successfully run a business – although only one coefficient is statistically significant at the 10% level. However, we do not find that the encouragements had a direct impact on any of the other outcomes, in particular broader gender-related beliefs.

Interestingly, we also find evidence of spillover effects which, surprisingly, mitigate the direct effects of these encouragements: statistically significant coefficients are systematically negative. Indeed, the null hypothesis of the statistical test investigating the existence of spillover effects is rejected at the 5% threshold for the three outcomes testing respondents' entrepreneurship-related beliefs (columns *A.*, *D.*, and *E.*).[44] Again, the share of a respondent's friends receiving the encouragements only had a statistically significant impact when they received the encouragements themselves.

---

[44] Qualitative work confirmed that the content of the show was discussed within groups of friends.

In *Tables 6.b*, we look at the specific impact of the intervention on the same four subsets of respondents: men, women, highly-educated respondents, and non-highly educated respondents. Interestingly, the effects of the encouragements on gender-related outcomes appear particularly pronounced on men and low-educated respondents – the two subsets of respondents with the most discriminatory beliefs against women – but are null on women (coefficients are closer to 0 and are not statistically significant). Similarly, the effects of the encouragements on the share of respondents strongly agreeing that non-highly educated individuals can be successful at running a business are also particularly pronounced among highly-educated respondents (the subset of respondents with the most discriminatory beliefs against non-highly educated respondents) and much less on non-highly educated respondents. All in all, these results suggest that the show may have contributed to correct some detrimental beliefs hold by some subsets of the population against some other subsets of the population (men over women, and highly-educated individuals over non-highly educated individuals).

VI.C Impact on professional aspirations and career choices

Finally, we investigate whether the changes observed in respondents' perceptions associated with self-employment translated to changes in their professional aspirations and their career choices. In order to do so, we first measure separately the impact of the intervention on the probability for a respondent to choose "working as an employee in the *private* sector," "working as an employee in the *public* sector," and "working as a self-employed person" as their favorite professional career option in the present.[45,46] Second, we also measure the impact of the intervention on respondents' professional career-related decisions. More specifically, we measure whether or not the intervention had any impact on respondents' probability of having made any decision with respect to their professional career since January 2014 (month during which encouragements started being sent), on respondents' probability of having taken any steps towards the creation of a business, on the probability for them to still plan to start a business or a new business in the future, as well as on the probability for respondents to report "self-employment" as their primary activity at endline. Those four variables are combined into an index, on which the impact of the intervention is also reported

---

[45] Given the high number of respondents who only reported their favorite or favorite two options, we only look at the impact of the intervention on respondents' favorite professional career option. Respondents could give the same ranking to more than one option. This explains in what follows why the shares of respondents picking each of these options do not add up exactly to one.

[46] The share of respondents who chose "being unemployed" as their favorite professional career option being small (less than 5%), we decided to exclude the related variables from the set of outcome variables studied in this section.

(the impact of the encouragements on each individual item is also reported in *Table A.8*, placed in the appendix).[47]

As displayed in *Table 7.a*, we do not find any impact of the encouragements on viewers' professional aspirations and, in particular, it does not contribute to increase the share of respondents picking self-employment as their favorite professional career option in the short run. Indeed, coefficients are all relatively small and are not statistically significant at the 10% level. Transversal tests investigating the existence of *any* impact on respondents' aspirations yield a similar conclusion. As a consequence, it is not surprising that we find no overall impact of the intervention on respondents' career choices. In particular, no impact is found on the probability for a respondent to have made any decision with respect to their professional career or to have taken any steps towards the creation of a business since January 2014. No impact is found either on the share of self-employed respondents. Coefficients are negative and very close to zero. In *Table 7.b*, we look at the specific impact of the intervention on the same four subsets of respondents (men, women, highly-educated respondents, and non-highly educated respondents) and reach similar conclusions for all four subsets. If anything, we find some evidence suggesting that the intervention may have reduced the probability for female respondents to have taken any steps towards the creation of a business.

This suggests that, while the intervention did manage to change some of the viewers' perceptions related to self-employment, its content was probably insufficient to spark more concrete changes in respondents' aspirations and professional career.

VII. Conclusion and policy implications

In this article, we measure the impact of an edutainment program designed to promote entrepreneurship among young adult viewers and broadcast on a popular cable channel in Egypt using a randomized controlled trial following a non-symmetric encouragement design. We reach several conclusions. First, we provide additional evidence that cheap encouragements, such as simple text messages, can be used effectively by policymakers to induce desirable behavioral changes.

Second, although the limited magnitude of this differential take-up considerably reduces our statistical power, we are still able to show that the program had an important impact on some of our respondents' general attitudes towards self-employment and, in particular, gender-related ones. More

---

[47] Again, this index was constructed using the methodology described in Anderson (2012).

generally, we show that the content of the show managed to correct some detrimental beliefs some subsets of the population held against some other subsets of the population. In particular, this is true for male respondents who are less likely to report gender discriminatory beliefs when exposed to the intervention. In line with previous studies showing how effective media programs can be at shifting gender norms, our results suggest that television programs can be successful at fighting prejudice. However, we cannot establish that the show had any overall impact on respondents' aspirations towards entrepreneurship, knowledge about the business environment, or on the likelihood that respondents took any steps towards the creation of a business.

Third, we also find evidence of the importance of social interactions for the impact of media programs. Indeed, we find some evidence of spillover effects within clusters of friends in relation to respondents' perceptions and general opinions. Interestingly, spillover effects are complex and outcome-specific, alternately amplifying and mitigating the direct effect of one's exposure the intervention. In particular, the impact of the show on individuals' gender-related opinions associated with self-employed women completely vanishes when a respondent is exposed to the show along with their friends. We interpret this result as a sign that the information conveyed by the edutainment may not have been perceived as sufficiently credible by its audience. Consequently, friends discussing the content of the show may have emphasized the entertaining aspect of the show at the expense of its educational aspect. These findings open interesting avenues for future research on peer effects and the impact of media programs.

Fourth, the nature of some of these impacts has unclear welfare consequences. Indeed, while the shift in respondents' general attitudes towards self-employment (and, in particular, women entrepreneurs) are certainly interesting, the nature of some other impacts of the intervention can be questioned from a welfare point of view. This question is particularly salient for the impact that the show had on viewers' perceptions of self-employment. As described earlier, we find that the show led viewers to believe that the level of competition and gender discrimination against women is not as high as what they initially thought it would be. In retrospect, it is unclear whether or not the edutainment managed to convey a representative image of what it is like to start and run a business and, as a consequence, whether or not the shift in viewers' perceptions reflects a distortion in their representations or a convergence between viewers' prior beliefs and reality. In turn, this draws attention to the content of edutainment programs, the messages they convey and, eventually, the potential negative impact those

programs may have on viewers, by combining educational and entertainment content, and blurring the line between fiction and reality.

Our conclusions do not rule out edutainment programs as a possible effective public policy tool, but rather call attention again to their content, the way their key messages are conveyed to viewers, and the way these messages can be interpreted by different subgroups of the population.

References

Abdullah, R. A. (2004). Entertainment-education in the Middle East: Lessons from the Egyptian oral rehydration therapy campaign. *Entertainment-education and social change: History, research, and practice*, pp.301-320.

Abu-Lughod, L. (1993). Islam and public culture: The politics of Egyptian television serials. *Middle East Report*, pp.25-30.

Anderson, M. L. (2012). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American statistical Association*.

Bandura, A., & Walters, R. H. (1977). Social learning theory.

Banerjee, A., Karlan, D., & Zinman, J. (2015). Six randomized evaluations of microcredit: Introduction and further steps. *American Economic Journal: Applied Economics*, 7(1), 1-21.

Barsoum, G. (2014). Young people's job aspirations in Egypt and the continued preference for a government job. Working Paper 838 The Economic Research Forum.

Barsoum, G. (2016). The Public Sector as the Employer of Choice among Youth in Egypt: The Relevance of Public Service Motivation Theory. *International Journal of Public Administration,* 39(3), pp. 205-215.

Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *Science*, 335(6068), 582-586.

Berg, G., & Zia, B. (2013). Harnessing emotional connections to improve financial decisions: Evaluating the impact of financial education in mainstream media. World Bank Policy Research Working Paper, (6407).

Bernard, T., S. Dercon, K. Orkin, and A. S. Taffesse (2014), The Future in Mind: Aspirations and Forward-Looking Behaviour in Rural Ethiopia, CSAE Working Paper WPS/2014-16.

Bernard, T., & Taffesse, A. S. (2014). Aspirations: An approach to measurement with validation using Ethiopian data. *Journal of African Economies*, *23*(2), pp.189-224.

Bjorvatn, K., Cappelen, A. W., Sekei, L. H., Sorensen, E., & Tungodden, B. (2015). Teaching through television: Experimental evidence on entrepreneurship education in Tanzania. NHH Dept. of Economics Discussion Paper, (3).

Chong, A., & Ferrara, E. L. (2009). Television and divorce: Evidence from Brazilian novelas. *Journal of the European Economic Association*, *7*(2-3), pp.458-468.

Dahl, G. B., Løken, K. V., & Mogstad, M. (2014). Peer effects in program participation. *The American Economic Review*, 104(7), 2049-2074.

DellaVigna, S., & Gentzkow, M. (2010). Persuasion: Empirical Evidence. *Annu. Rev. Econ*, *2*, pp.643-69.

DellaVigna, S., & Ferrara, E. L. (2015). Economic and social impacts of the media (No. w21360). National Bureau of Economic Research.

Epple, D., & Romano, R. (2011). Peer effects in education: A survey of the theory and evidence. *Handbook of social economics*, 1(11), 1053-1163.

Farré, L., & Fasani, F. (2013). Media exposure and internal migration—Evidence from Indonesia. *Journal of Development Economics*, *102*, pp.48-61.

Glaeser, E. L., Sacerdote, B., & Scheinkman, J. A. (1996). Crime and social interactions. *The Quarterly Journal of Economics*, 111(2), 507-548.

Hattab, H. (2012). Global entrepreneurship monitor: Egypt Entrepreneurship report 2012.

Imbens, G. W. & Rubin, D. B. (2015). Causal inference in statistics, social, and biomedical sciences. Cambridge University Press.

Jensen, R., & Oster, E. (2009). The power of TV: Cable television and women's status in India. *The Quarterly Journal of Economics*, pp.1057-1094.

Kearney, M. S., & Levine, P. B. (2015). *Early childhood education by MOOC: Lessons from Sesame Street* (No. w21229). National Bureau of Economic Research.

Kearney, M. S., & Levine, P. B. (2015). Media influences on social outcomes: the impact of MTV's 16 and pregnant on teen childbearing. *The American Economic Review*, *105*(12), pp.3597-3632.

La Ferrara, E. (2015). Mass media and social change: Can we use television to fight poverty?

La Ferrara, E., Chong, A., & Duryea, S. (2012). Soap operas and fertility: Evidence from Brazil. *American Economic Journal: Applied Economics*, *4*(4), pp.1-31.

Lewin, K. (1951). Field Theory in Social Science. New York: Harper & Row.

McKenzie, D., & Woodruff, C. (2013). What are we learning from business training and entrepreneurship evaluations around the developing world?. *The World Bank Research Observer*, 29(1), 48-82.

Miguel, E., & Kremer, M. (2004). Worms: identifying impacts on education and health in the presence of treatment externalities. *Econometrica*, 72(1), 159-217.

Nanda, R., & Sørensen, J. B. (2010). Workplace peers and entrepreneurship. *Management Science*, 56(7), 1116-1126.

Olken, B. A. (2009). Do television and radio destroy social capital? Evidence from Indonesian villages. *American Economic Journal: Applied Economics*, *1*(4), pp.1-33.

Paluck, E. L., & Green, D. P. (2009). Deference, dissent, and dispute resolution: An experimental intervention using mass media to change norms and behavior in Rwanda. *American Political Science Review*, *103*(4), p.622.

PwC (2012). Arab Media Outlook 2011–2015: Exposure and Transition.

Roushdy, R., & Sieverding, M. (2015). Panel survey of young people in Egypt 2014: Generating evidence for policy, programs, and research. Cairo: Population Council.

Said, M. (2011). Risk aversion and the preference for public sector employment: Evidence from Egyptian labor survey data. *International Journal of Economics and Research*, *2*(5), pp.132-143.

Sieverding, M. (2012). Youth Perspectives on Entrepreneurship in Egypt: Barriers to Entrepreneurship as a Means to Combat Youth Unemployment. Survey of Young People in Egypt Policy Brief Series No. 5. Cairo, Egypt.

Singhal, A., Cody, M. J., Rogers, E. M., & Sabido, M. (2003). Entertainment-education and social change: History, research, and practice. Routledge.

Walldén, S., & Soronen, A. (2004). Edutainment: From television and computers to digital television. Tampere: University of Tampere.

Zavodny, M. (2006). Does watching television rot your mind? Estimates of the effect on test scores. *Economics of Education review*, *25*(5), pp.565-573.

Tables

Table 1: Unemployment rates in the MENA region

	Total	Female	Male	Youth, Total	Youth, Female	Youth, Male
Algeria	9.8	17.3	8.3	20.4	33.0	17.9
Egypt	13.2	27.0	8.8	41.7	61.3	33.7
Jordan	12.6	22.1	10.5	33.3	55.2	27.7
Lebanon	6.2	11.1	4.6	20.2	25.0	17.8
Morocco	9.2	8.9	9.2	18.4	17.5	18.7
Tunisia	13.3	15.7	12.3	31.3	32.2	29.5
MENA region (excl. high income countries)	12.8	22.4	10.1	31.2	47.6	26.3

Notes: 2013 World Development Indicators. The year 2013 was the last year for which statistics were available for all reported countries. Youth are understood as individuals aged between 15 and 24 years old.

Table 2: Sample description and balance checks

Variables		Total		Without friends		With friends		All coeff.=0	
	N	Mean	Sd	T1	T1	P(1-T1)	PT1	P-value	Sig.
Attrition	9,277	0.424	0.494	0.009	0.007	0.002	0.008	0.920	
Male	5,520	0.834	0.372	-0.004	0.009	0.009	-0.018	0.924	
Age	4,781	26.995	4.700	0.334	-0.121	0.446	0.227	0.077	*
Email address shared	4,781	0.176	0.381	-0.014	-0.028	-0.055	0.012	0.148	
Schooling level									
Never went to school	2,908	0.038	0.192	-0.018	0.008	0.009	0.016	0.170	
Primary school	2,908	0.154	0.361	0.028	-0.036	-0.027	0.022	0.467	
Secondary education	2,908	0.473	0.499	0.001	-0.003	-0.012	-0.040	0.911	
Higher education	2,908	0.335	0.472	-0.011	0.031	0.030	0.002	0.906	
Missing	2,908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Location									
Urban Gov.	2,913	0.261	0.439	-0.013	-0.022	0.007	-0.005	0.798	
Lower Egypt	2,913	0.379	0.485	-0.019	-0.024	-0.019	0.019	0.916	
Upper Egypt	2,913	0.339	0.473	0.033	0.037	0.022	0.014	0.429	
Frontier Gov.	2,913	0.021	0.144	-0.001	0.008	-0.010	-0.028	0.486	
Missing	2,913	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Status									
Employee, private sect.	2,913	0.365	0.481	0.031	0.020	-0.029	-0.063	0.467	
Self-employed	2,913	0.225	0.418	-0.010	0.010	0.022	0.027	0.882	
Unpaid fam. Worker	2,913	0.019	0.137	0.003	0.033	0.004	-0.032	0.279	
Apprentice/intern	2,913	0.005	0.067	-0.001	-0.010	-0.003	0.004	0.584	
Student	2,913	0.205	0.404	0.014	-0.015	0.075	0.044	0.156	
Unempl., looking	2,913	0.064	0.245	-0.015	-0.021	-0.064	-0.011	0.025	**
Unempl., home duties	2,913	0.096	0.294	-0.013	-0.003	0.004	0.034	0.536	
Unempl., not looking	2,913	0.022	0.147	-0.008	-0.013	-0.009	-0.003	0.526	
Missing	2,913	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Dwelling									
Apartment	2,913	0.368	0.482	0.001	-0.008	0.011	0.031	0.982	
House	2,913	0.622	0.485	0.003	0.016	0.007	-0.032	0.980	
Other	2,913	0.010	0.101	-0.004	-0.008	-0.017	0.001	0.392	
Missing	2,913	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Asset ownership									
1st Quartile	4,772	0.549	0.498	0.023	0.032	0.009	-0.012	0.454	
2nd Quartile	4,772	0.142	0.349	-0.002	0.001	0.011	0.017	0.817	
3rd Quartile	4,772	0.170	0.376	0.002	-0.017	-0.010	0.008	0.922	
4th Quartile	4,772	0.139	0.346	-0.023	-0.016	-0.010	-0.013	0.265	
Missing	4,772	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Assets ownership									
Television	2,910	0.979	0.144	0.003	-0.008	-0.006	-0.009	0.771	
Satellite Dish	2,908	0.909	0.288	0.005	-0.022	-0.052	-0.012	0.575	
Personal computer	2,911	0.261	0.439	0.001	0.011	0.009	-0.029	0.971	

Notes: In the table, we provide the average characteristics of the respondents who completed the endline questionnaire and test whether the attrition induced any imbalance between groups of respondents, allowing for the existence of spillovers. In order to do so, each variable displayed in the left column are regressed on a constant, *treatment* dummy variables and stratum fixed effects - as displayed by equation (2). Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 3: Self-employment in Egypt

	Variables	N	Total Mean	Men Mean	Women Mean	High. Edu. Mean	Low Edu. Mean
	Share of respondents strongly agreeing with the following statements						
Beliefs	In Egypt, it is possible for women to successfully run their own business.	1,606	0.569	0.500	0.842	0.597	0.556
	In Egypt, it is possible for individuals without a higher education to successfully run their own business.	1,606	0.608	0.601	0.637	0.597	0.620
	In Egypt, it is possible for individuals who do not have wealthy parents to successfully run their own business.	1,606	0.494	0.498	0.478	0.525	0.494
	In Egypt, when jobs are scarce, men should have more rights to a job than women.	1,606	0.702	0.740	0.550	0.633	0.749
	In Egypt, a university education is more important for a boy than for a girl.	1,606	0.187	0.215	0.075	0.146	0.215
	Importance of the following barriers to self-employment on a 0 to 1 scale						
Perceptions of barriers	Lack of required skills	1,568	0.624	0.624	0.622	0.636	0.619
	No access to funding	1,578	0.820	0.820	0.820	0.813	0.823
	Lack of access to information	1,537	0.491	0.484	0.514	0.485	0.492
	Lack of access to foreign language training	1,510	0.513	0.508	0.533	0.512	0.518
	Lack of access to technology	1,531	0.501	0.495	0.528	0.494	0.517
	Government laws	1,492	0.634	0.621	0.682	0.687	0.618
	Tough Competition	1,556	0.471	0.455	0.538	0.462	0.471
	Fear of failure	1,572	0.601	0.594	0.626	0.628	0.592
	Negative perception by society	1,513	0.586	0.576	0.630	0.596	0.589
	Resistance to change	1,532	0.569	0.560	0.601	0.567	0.558
	Discrimination based on gender	1,536	0.488	0.472	0.550	0.449	0.509
	Share of respondents choosing the following option as their favourite professional career option for themselves now						
Aspirations	"Being self-employment"	1,572	0.384	0.399	0.325	0.378	0.383
	"Being an employee in the private sector"	1,572	0.111	0.112	0.108	0.141	0.095
	"Being employee in the public sector"	1,572	0.484	0.485	0.478	0.469	0.497
	"Being unemployed"	1,572	0.024	0.007	0.089	0.011	0.026
	Share of respondents choosing the following option as their favourite professional career option for themselves 20 years from now						
	"Being self-employment"	1,314	0.545	0.564	0.465	0.575	0.534
	"Being an employee in the private sector"	1,314	0.060	0.061	0.055	0.056	0.058
	"Being employee in the public sector"	1,314	0.349	0.359	0.311	0.334	0.365
	"Being unemployed"	1,314	0.046	0.014	0.173	0.037	0.042
	Share of respondents knowing an organization providing:						
Knowledge	Mentoring services	1,604	0.034	0.034	0.031	0.056	0.024
	Financial services	1,603	0.184	0.189	0.165	0.282	0.139
	Training services	1,604	0.064	0.058	0.087	0.124	0.034
	Any of these three services	1,604	0.226	0.230	0.214	0.354	0.170
	Share of respondents who:						
Steps	Made any important decisions taken with respect to their professional career?	1,603	0.366	0.377	0.320	0.492	0.305
	Have taken any steps towards the creation of a business?	1,603	0.194	0.203	0.162	0.195	0.189
	Plan to start a business in the future	1,402	0.768	0.791	0.654	0.825	0.754
	Average sample size		1,533	1,228	303	430	876

Table 4: Take-up rate, El Mashroua

		Exposure to the encouragements		Exposure to El Mashroua							Friends
				Self							
		A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
		Received enc.	Number of enc. Received	Overall take-up rate	Heard of the show	Watched the show	Number of episodes watched	Visited website	Followed social media	Attended events	Share of friends exposed to the intervention
Without friends	T1	0.220***	0.480***	0.058***	0.162***	0.048***	0.133***	0.011***	0.012**	-0.001	-0.000
		(0.016)	(0.047)	(0.014)	(0.020)	(0.013)	(0.038)	(0.004)	(0.005)	(0.001)	(0.001)
With friends	T1	0.206***	0.482***	0.054***	0.177***	0.051***	0.081	0.013**	0.011	-0.001	0.010
		(0.021)	(0.061)	(0.020)	(0.028)	(0.019)	(0.057)	(0.006)	(0.008)	(0.001)	(0.013)
	P*(1-T1)	0.007	0.026	-0.003	-0.005	-0.004	-0.062	-0.005	0.002	-0.001	0.041**
		(0.017)	(0.035)	(0.022)	(0.031)	(0.022)	(0.064)	(0.005)	(0.009)	(0.001)	(0.016)
	P*T1	-0.019	-0.109	0.004	-0.029	-0.007	-0.051	0.004	-0.000	0.000	0.035**
		(0.030)	(0.091)	(0.023)	(0.033)	(0.022)	(0.059)	(0.009)	(0.009)	(0.000)	(0.015)
	Pure control mean	0.041	0.058	0.088	0.247	0.082	0.170	0.003	0.011	0.001	0.020
	Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.057	0.734	0.020
	SPI Prob > F	0.758	0.358	0.976	0.673	0.934	0.416	0.571	0.983	0.545	0.003
	Sample size	4,860	4,642	5,512	5,511	5,511	5,360	5,510	5,512	5,510	5,512

Notes: In this table, we describe the average treatment effect of the encouragements on respondents' level of exposure to the intervention by treatment groups (*Self* columns). We also describe their impact on the probability for a respondent to have at least one friend exposed to the intervention in their cluster (*Friends* column). In order to do so, we estimate equation (2) for each of the measure of exposure displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 5.a: Impact on respondents' perceptions of various barriers to self-employment

		Perceived barriers to starting a business			
		A.	B.	C.	D.
	Variables	Index, economy	Index, resources	Index, society	Index, knowledge
Without friends	T1	-0.049	0.031	-0.027	0.006
		(0.034)	(0.026)	(0.028)	(0.018)
	T1	0.015	-0.042	-0.041	0.017
		(0.044)	(0.033)	(0.036)	(0.026)
With friends	P*(1-T1)	-0.038	0.039	-0.032	0.028
		(0.051)	(0.036)	(0.040)	(0.030)
	P*T1	-0.142***	0.028	-0.028	-0.048
		(0.050)	(0.039)	(0.033)	(0.030)
	Pure control mean	-0.010	0.010	-0.003	0.226
	Pure control s.d.	0.783	0.587	0.635	0.419
	Prob > F	0.018	0.077	0.101	0.249
	SPI Prob > F	0.015	0.417	0.692	0.190
	# Obs.	5,442	5,487	5,401	5,513

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 5.b: Impact on respondents' perceptions of various barriers to self-employment (heterogeneity)

	Variables	Gender				Education			
		A.	B.	C.	D.	E.	F.	G.	H.
		Index, economy	Index, resources	Index, society	Index, knowledge	Index, economy	Index, resources	Index, society	Index, knowledge
		Men				*High. educ.*			
Without friends	T1	-0.009	0.023	-0.045	0.005	-0.048	-0.012	-0.065	-0.071
		(0.054)	(0.041)	(0.045)	(0.030)	(0.089)	(0.066)	(0.073)	(0.058)
With friends	T1	0.016	-0.036	-0.055	0.030	-0.072	-0.028	-0.049	-0.065
		(0.046)	(0.035)	(0.038)	(0.026)	(0.073)	(0.056)	(0.062)	(0.049)
	P*(1-T1)	-0.036	0.038	-0.071*	0.022	-0.099	0.042	-0.084	-0.083
		(0.055)	(0.039)	(0.043)	(0.032)	(0.092)	(0.066)	(0.076)	(0.061)
	P*T1	-0.146***	0.019	-0.017	-0.060*	-0.066	0.078	-0.041	-0.036
		(0.055)	(0.040)	(0.048)	(0.032)	(0.084)	(0.066)	(0.073)	(0.058)
	Prob > F	0.066	0.407	0.178	0.403	0.445	0.737	0.505	0.169
	SPI Prob > F	0.024	0.550	0.231	0.149	0.422	0.385	0.458	0.328
	Pure control mean	-0.058	0.000	-0.040	0.230	0.057	-0.002	-0.001	0.354
	# Obs.	4,550	4,585	4,507	4,597	1,633	1,642	1,627	1,642
		Women				*Low. educ.*			
Without friends	T1	-0.055	-0.027	-0.022	0.005	-0.018	0.003	-0.052	0.068**
		(0.081)	(0.070)	(0.068)	(0.046)	(0.062)	(0.046)	(0.051)	(0.031)
With friends	T1	-0.140	-0.013	0.092	-0.088	0.034	-0.030	-0.023	0.042
		(0.109)	(0.104)	(0.100)	(0.072)	(0.057)	(0.043)	(0.046)	(0.030)
	P*(1-T1)	-0.039	0.119	0.281**	0.029	-0.035	0.023	-0.033	0.080**
		(0.140)	(0.116)	(0.140)	(0.079)	(0.067)	(0.046)	(0.051)	(0.035)
	P*T1	-0.085	0.124	-0.098	0.024	-0.184***	-0.021	-0.044	-0.059
		(0.134)	(0.147)	(0.118)	(0.075)	(0.069)	(0.050)	(0.060)	(0.036)
	Prob > F	0.227	0.710	0.178	0.496	0.080	0.587	0.452	0.044
	SPI Prob > F	0.787	0.408	0.093	0.885	0.026	0.816	0.619	0.025
	Pure control mean	0.184	0.044	0.145	0.214	-0.038	0.021	-0.000	0.170
	# Obs.	889	899	891	913	3,071	3,096	3,041	3,118

Notes: In this table, we describe the average treatment effect of the intervention on respondents' perceptions of the importance of various barriers to self-employment. We do so for the following subgroups: men, women, highly-educated, and non-highly educated respondents. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table and for each of the subgroups. For each outcome and each subgroup, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" rows, while the p-values resulting from the latter are displayed in the "SPI Prob>F" rows. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 6.a: Impact on respondents' opinions

Share of respondents who strongly agreed with the following statements:

	Variables	A. In Egypt, it is possible for women to successfully run their own business.	B. In Egypt, when jobs are scarce, men should have more rights to a job than women.	C. In Egypt, a university education is more important for a boy than for a girl.	D. In Egypt, it is possible for individuals without a higher education to successfully run their own business.	E. In Egypt, it is possible for individuals who do not have wealthy parents to successfully run their own business.
Without friends	T1	0.039*	-0.003	0.001	0.000	0.022
		(0.021)	(0.020)	(0.017)	(0.021)	(0.022)
With friends	T1	0.071**	-0.013	-0.022	0.047	0.054*
		(0.029)	(0.026)	(0.023)	(0.029)	(0.030)
	P*(1-T1)	0.005	-0.025	-0.010	0.023	0.030
		(0.033)	(0.030)	(0.027)	(0.034)	(0.034)
	P*T1	-0.104***	-0.012	0.011	-0.083**	-0.086***
		(0.032)	(0.031)	(0.025)	(0.033)	(0.032)
	Pure control mean	0.569	0.702	0.187	0.608	0.494
	Pure control s.d.	0.495	0.458	0.390	0.488	0.500
	Prob > F	0.005	0.913	0.900	0.149	0.057
	SPI Prob > F	0.005	0.653	0.852	0.035	0.018
	Sample size	5,519	5,518	5,520	5,518	5,519

Notes: In this table, we describe the average treatment effect of the intervention on respondents' general opinions. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 6.b: Impact on respondents' opinions (heterogeneity)

		Gender					Education				
		Share of respondents strongly agreeing with the following statements:									
		A.	B.	C.	D.	E.	A.	B.	C.	D.	E.
	Variables	In Egypt, it is possible for women to successfully run their own business.	In Egypt, when jobs are scarce, men should have more rights to a job than women.	In Egypt, a university education is more important for a boy than for a girl.	In Egypt, it is possible for individuals without a higher education to successfully run their own business.	In Egypt, it is possible for individuals who do not have wealthy parents to successfully run their own business.	In Egypt, it is possible for women to successfully run their own business.	In Egypt, when jobs are scarce, men should have more rights to a job than women.	In Egypt, a university education is more important for a boy than for a girl.	In Egypt, it is possible for individuals without a higher education to successfully run their own business.	In Egypt, it is possible for individuals who do not have wealthy parents to successfully run their own business.
		Men					**High. educ.**				
Without friends	T1	0.046*	0.010	0.004	0.007	0.019	-0.008	-0.045	-0.016	-0.038	-0.051
		(0.025)	(0.022)	(0.021)	(0.025)	(0.025)	(0.040)	(0.041)	(0.029)	(0.043)	(0.044)
With friends	T1	0.079**	0.004	-0.021	0.065**	0.056*	0.073	0.060	-0.071*	0.074	0.055
		(0.031)	(0.027)	(0.026)	(0.031)	(0.032)	(0.054)	(0.053)	(0.039)	(0.053)	(0.058)
	P*(1-T1)	0.011	-0.018	-0.014	0.040	0.026	0.041	0.063	-0.083*	0.090	0.015
		(0.036)	(0.031)	(0.030)	(0.036)	(0.037)	(0.064)	(0.064)	(0.045)	(0.063)	(0.070)
	P*T1	-0.120***	-0.024	0.004	-0.098***	-0.094***	-0.158***	-0.061	0.050	-0.157***	-0.147***
		(0.035)	(0.033)	(0.028)	(0.036)	(0.035)	(0.054)	(0.058)	(0.042)	(0.054)	(0.052)
	Prob > F	0.004	0.887	0.930	0.069	0.072	0.044	0.508	0.267	0.005	0.031
	SPI Prob > F	0.003	0.636	0.876	0.014	0.019	0.013	0.353	0.085	0.006	0.019
	Pure control mean	0.500	0.740	0.215	0.601	0.498	0.597	0.633	0.146	0.597	0.525
	# Obs.	4,603	4,603	4,604	4,602	4,603	1,644	1,643	1,644	1,644	1,643
		Women					**Low. educ.**				
Without friends	T1	0.018	-0.047	-0.006	-0.013	0.042	0.047*	-0.012	-0.020	0.004	0.024
		(0.033)	(0.045)	(0.022)	(0.043)	(0.044)	(0.028)	(0.026)	(0.023)	(0.029)	(0.030)
With friends	T1	-0.005	-0.127	-0.036	-0.084	0.031	0.086**	-0.061**	-0.006	0.026	0.028
		(0.052)	(0.083)	(0.043)	(0.090)	(0.085)	(0.036)	(0.031)	(0.031)	(0.038)	(0.038)
	P*(1-T1)	-0.063	-0.099	0.014	-0.105	0.054	-0.018	-0.075**	0.044	-0.003	0.002
		(0.060)	(0.100)	(0.047)	(0.100)	(0.101)	(0.040)	(0.034)	(0.036)	(0.043)	(0.043)
	P*T1	0.021	0.071	0.065	0.035	-0.035	-0.110***	0.016	0.012	-0.055	-0.045
		(0.054)	(0.087)	(0.052)	(0.097)	(0.086)	(0.042)	(0.038)	(0.034)	(0.045)	(0.044)
	Prob > F	0.687	0.483	0.756	0.853	0.834	0.019	0.191	0.451	0.820	0.777
	SPI Prob > F	0.537	0.439	0.449	0.550	0.793	0.027	0.084	0.446	0.469	0.583
	Pure control mean	0.842	0.550	0.075	0.637	0.478	0.556	0.749	0.215	0.620	0.494
	# Obs.	913	912	913	913	913	3,121	3,121	3,122	3,120	3,122

Notes: In this table, we describe the average treatment effect of the intervention on respondents' general opinions for the following subgroups: men, women, highly-educated, and non-highly educated respondents. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table and for each of the subgroups. For each outcome and each subgroup, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" rows, while the p-values resulting from the latter are displayed in the "SPI Prob>F" rows. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 7.a: Impact on respondents' aspirations and probability to have steps taken any towards the creation of a business

| | Variables | Aspirations *Share of respondents choosing the following option as their favorite professional option for themselves now* | | | | Steps *Probability to have taken any steps taken towards the creation of a business* |
		"Being self-employment" A.	"Being a public employee" B.	"Being a private employee" C.	P-values for transversal tests D.	Index E.
Without friends	T1	0.019	0.003	-0.019	0.492	-0.018
		(0.021)	(0.022)	(0.014)		(0.023)
With friends	T1	0.022	-0.046	0.012	0.122	-0.047
		(0.029)	(0.028)	(0.018)		(0.033)
	P*(1-T1)	0.031	-0.021	-0.012	0.746	-0.035
		(0.032)	(0.033)	(0.020)		(0.037)
	P*T1	0.039	0.005	-0.036*	0.203	0.071*
		(0.033)	(0.034)	(0.020)		(0.037)
	Pure control mean	0.384	0.483	0.111		0.014
	Pure control s.d.	0.487	0.500	0.314		0.558
	Prob > F	0.260	0.384	0.249	0.227	0.268
	SPI Prob > F	0.326	0.808	0.177	0.412	0.107
	Sample size	5,427	5,427	5,427		5,520

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and on their probability to have made any decision with respect to their professional career or the creation of a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table 7.b: Impact on respondents' aspirations and steps taken towards the creation of a business (heterogeneity)

		Gender				Education			
		A.	B.	C.	D.	E.	F.	G.	H.
		Share of respondents choosing the following options as their favorite professional option for themselves now:			*Steps taken towards the creation of a business (Index)*	*Share of respondents choosing the following options as their favorite professional option for themselves now:*			*Steps taken towards the creation of a business (Index)*
	Variables	Being self-employed	Being employed in the public sector	Being employed in the private sector		Being self-employed	Being employed in the public sector	Being employed in the private sector	
		Men				***High. educ.***			
Without friends	T1	0.020	0.008	-0.024	0.005	0.024	0.001	-0.023	-0.071
		(0.025)	(0.025)	(0.016)	(0.027)	(0.042)	(0.043)	(0.030)	(0.043)
With friends	T1	0.032	-0.039	0.005	-0.052	0.023	-0.060	0.040	-0.051
		(0.031)	(0.031)	(0.019)	(0.035)	(0.055)	(0.054)	(0.039)	(0.056)
	P*(1-T1)	0.019	-0.022	-0.002	-0.036	0.074	-0.066	-0.010	-0.051
		(0.035)	(0.036)	(0.021)	(0.039)	(0.064)	(0.066)	(0.046)	(0.064)
	P*T1	0.031	-0.006	-0.028	0.083**	0.035	0.013	-0.058	0.063
		(0.035)	(0.036)	(0.020)	(0.040)	(0.057)	(0.057)	(0.041)	(0.066)
	Prob > F	0.205	0.514	0.305	0.260	0.719	0.843	0.542	0.361
	SPI Prob > F	0.584	0.829	0.392	0.079	0.415	0.582	0.359	0.457
	Pure control mean	0.399	0.485	0.111	0.078	0.378	0.469	0.141	0.070
	# Obs.	4,529	4,529	4,529	4,604	1,625	1,625	1,625	1,644
		Women				***Low. educ.***			
Without friends	T1	0.014	-0.010	-0.002	-0.084**	0.030	-0.003	-0.019	0.027
		(0.042)	(0.044)	(0.028)	(0.041)	(0.029)	(0.029)	(0.017)	(0.031)
With friends	T1	-0.035	-0.107	0.086	0.044	0.035	-0.046	-0.001	-0.036
		(0.071)	(0.082)	(0.064)	(0.093)	(0.036)	(0.037)	(0.021)	(0.042)
	P*(1-T1)	0.144*	-0.007	-0.091	-0.008	0.021	-0.016	-0.011	-0.038
		(0.087)	(0.101)	(0.067)	(0.106)	(0.040)	(0.041)	(0.023)	(0.049)
	P*T1	0.096	0.092	-0.122*	-0.063	0.015	0.005	-0.018	0.039
		(0.086)	(0.095)	(0.072)	(0.084)	(0.044)	(0.046)	(0.023)	(0.046)
	Prob > F	0.235	0.652	0.0845	0.318	0.477	0.608	0.676	0.726
	SPI Prob > F	0.132	0.622	0.094	0.754	0.826	0.922	0.644	0.525
	Pure control mean	0.325	0.478	0.108	-0.242	0.383	0.497	0.095	-0.001
	# Obs.	895	895	895	913	3,068	3,068	3,068	3,122

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and willingness to start a business in the future for the following subgroups: men, women, highly, and non-highly educated respondents. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table and for each of the subgroups. For each outcome and each subgroup, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" rows, while the p-values resulting from the latter are displayed in the "SPI Prob>F" rows. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Appendix

Appendix A.1: Study timeline

Appendix A.2: List of encouragements

Appendix A.3: Treatment probabilities per stratum

Appendix A.4: Sample representativeness

Appendix A.5: Take-up rate, The Voice (placebo)

Appendix A.6: Impact on respondents' perceptions of varius barriers to self-employment (heterogeneity)

Appendix A.7: Impact on respondents' aspirations and steps towards the creation of a business (heterogeneity)

Appendix A.8: Results with alternative specification (equation (1))

Figure A.1: Study timeline

In figure below, we summarize the study timeline.
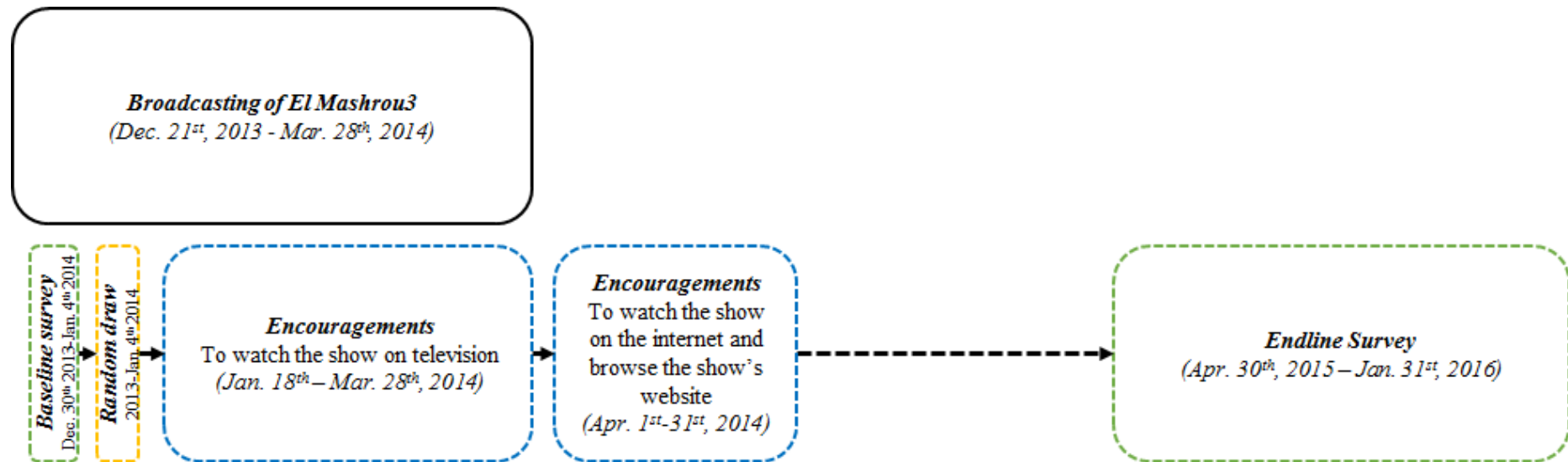
Table A.2: List of encouragements sent

In the following table, we list the encouragements sent to treatment respondents in the form of text messages:

#	Date	Message (ENG)	Message (AR)
5	Sat.18th, Jan.	Do you want to watch a reality TV show that has action, drama, and the necessary skills to become a successful entrepreneur? Watch "El Mashroua" on Al Nahar tonight at 11 pm	عايز تتفرج على برنامج واقعي في دراما، اكشن، والخطوات المطلوبة عشان تبقى رائد ناجح؟ شاهد "المشروع" على قناة النهار اليوم الساعة ١١ مساءً
6	Thu. 30th, Jan.	Want to learn how to start your business? Create your free account elmashrou3.tv	عايز تعرف ازاي تبدأ مشروع خاص بك؟ خش على elmashrou3.tv و إشترك ببلاش!
6	Sat. 1st, Feb.	Tonight on Al Nahar at 11, watch entrepreneurs in the kitchen on El Mashroua!	الليلة الساعة 11 على النهار في برنامج المشروع رواد الأعمال في المطبخ
7	Thu. 6th, Feb.	You have been selected to participate in a game: watch El Mashroua every week and answer a short survey testing your knowledge of the show at its end. You may win a Samsung tablet. Information: 01025117112.	تم اختيارك لتشارك في المسابقة شاهد برنامج المشروع وجاوب استطلاع لاختبار معلوماتك لتفوز بسامسونج نوت8 للمعلومات: 01025117112
7	Sat. 8th, Feb.	Tonight on Al Nahar at 11, learn how to plan business events on El Mashroua!	الليلة الساعة 11 على النهار اتعلم ازاي تخطط حفلات لعملك في المشروع
8	Thu. 13th, Feb.	You have been selected to participate in a game: watch El Mashroua every week and answer a short survey testing your knowledge of the show at its end. You may win a Samsung tablet and other gifts. Information: 01025117112.	تم اختيارك لتشارك في مسابقة شاهد برنامج المشروع وجاوب استطلاع لاختبار معلوماتك لتفوز بسامسونج نوت8 وهدايا أخرى للمعلومات: 01025117112
8	Sat. 15th, Feb.	Tonight on El Mashroua (Al Nahar, 11pm), contestants face an exciting challenge in the desert!	الليلة الساعة 11 على النهار المتسابقين في الصحراء للتحدي الجديد!
9	Sat. 22nd, Feb.	Tonight on El Mashroua (Al Nahar, 11pm), contestants learn how to advertize their business!	الليلة في المشروع (النهار الساعة 11) المتسابقين يعلنوا عن مشاريعهم!
10	Sat. 1st, Mar.	Watch El Mashroua on Al Nahar tonight (11pm), contestants organize exciting fashion shows, last challenge before the grand finale!	الليلة الساعة 11 قناة النهار المتسابقين بيحضرو عرض أزياء بديع!
11	Mon. 3rd, Mar.	Want to go beyond the show? Need advice, online courses or micro-finance loans to start your business? Create your account on elmashrou3.tv, you'll find all the information you need to start your business	عاوز أكتر من البرنامج؟ محتاج نصيحة، تدريب أونلاين أو دعم مالي محدود لتبدأ مشروعك؟ إشترك على elmashrou3.tv و هتعرف إزاي تبدأ مشروعك
11	Sat. 8th, Mar.	Watch El Mashroua on Al Nahar tonight (11pm) and see how successful entrepreneurs judge contestants' business plan!	الليلة الساعة 11 على النهار رواد أعمال ناجحين يقيمو خطة عمل المتسابقين
Quiz	Tue. 1st, Apr.	Log on elmashrou3.tv and answer our quiz before 15/4 to win a Samsung Tablet	ادخل علىelmashrou3.tv شارك في المسابقة قبل 4/15 واكسب سامسونج تابلت

Notes: in this table, we report the text messages sent (in Arabic) to treatment respondents to encourage them to watch the show.

Table A.3: Treatment probabilities per stratum

Variables	Stratum 1: 1 respondent per cluster	Stratum 2: 2 friends per cluster	Stratum 3: 3 friends per cluster	Stratum 4: 4 friends per cluster
Share of respondents who received the encouragements	49.62	49.30	50.15	49.95
Share of friends who received the encouragements				
0%	0.00	49.86	25.81	10.89
33%	0.00	0.00	0.00	39.78
50%	0.00	0.00	47.99	0.00
67%	0.00	0.00	0.00	38.25
100%	0.00	50.14	26.20	11.09
#Obs.	2,088	1,430	1,019	983

Notes: in this table, we display the probability to receive the encouragements and the average share of friends receiving the encouragements for each stratum.

Table A.4: Sample representativeness

| Variables | Sample (Baseline) | | | CAPMAS 2014 | DHS 2014 |
	N	Mean	Sd	Mean	Mean
Male	5,520	0.834	0.372		
Age	4,781	26.995	4.700		
Email address shared	4,781	0.176	0.381		
Schooling level					
Never went to school	2,908	0.038	0.192		0.247
Primary school	2,908	0.154	0.361		0.236
Secondary education	2,908	0.473	0.499		0.402
Higher education	2,908	0.335	0.472		0.116
Missing	2,908	0.000	0.000		
Location					
Urban Gov.	2,913	0.261	0.439	0.177	
Lower Egypt	2,913	0.379	0.485	0.429	
Upper Egypt	2,913	0.339	0.473	0.376	
Frontier Gov.	2,913	0.021	0.144	0.018	
Missing	2,913	0.000	0.000		
Status					
Employee, private sect.	2,913	0.365	0.481		
Self-employed	2,913	0.225	0.418		
Unpaid fam. worker	2,913	0.019	0.137		
Apprentice/intern	2,913	0.005	0.067		
Student	2,913	0.205	0.404		
Unempl., looking	2,913	0.064	0.245		
Unempl., home duties	2,913	0.096	0.294		
Unempl., not looking	2,913	0.022	0.147		
Missing	2,913	0.000	0.000		
Dwelling					
Apartment	2,913	0.368	0.482		0.385*
House	2,913	0.622	0.485		0.597*
Other	2,913	0.010	0.101		0.174*
Missing	2,913	0.000	0.000		
Asset ownership					
Television	2,910	0.979	0.144		0.975
Satellite Dish	2,908	0.909	0.288		0.966
Personal computer	2,911	0.261	0.439		0.326

Notes: In this table, we provide the average characteristics of our sample. * denotes information collected as part of the 2008 edition of the DHS

Table A.5.a: Take-up rate heterogeneity, El Mashroua

		Gender		Education	
		A.	B.	C.	D.
		Men	Women	Low. educ.	Hig. educ.
Without friends	T1	0.056***	0.066*	0.050***	0.098***
		(0.014)	(0.034)	(0.018)	(0.032)
With friends	T1	0.053**	0.087	0.053**	0.060
		(0.021)	(0.071)	(0.025)	(0.039)
	P*(1-T1)	-0.000	-0.034	0.005	-0.033
		(0.023)	(0.074)	(0.028)	(0.040)
	P*T1	0.000	0.009	0.000	0.010
		(0.024)	(0.077)	(0.029)	(0.046)
	Pure control mean	0.069	0.165	0.080	0.113
	Prob > F	0.000	0.039	0.000	0.000
	SPI Prob > F	1.000	0.897	0.981	0.688
	Sample size	4,598	911	3,118	1,641

Notes: In this table, we describe the average treatment effect of the encouragements on respondents' level of exposure to the intervention by sub-groups of respondents. In order to do so, we estimate equation (2) for each of the subgroups displayed in top row of the table using as a dependent variable the overall take-up variable. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table A.5.b: Take-up rate, The Voice (placebo test)

		Self							**Friends**
		A.	B.	C.	D.	E.	F.	G.	H.
		Overall take-up rate	Heard of the show	Watched the show	Number of episodes watched	Visited website	Followed social media	Attended events	Share of friends exposed to the intervention
Without friends	T1	0.001	0.024	-0.002	0.036	0.003	-0.003	-0.001	0.001
		(0.018)	(0.020)	(0.018)	(0.152)	(0.005)	(0.009)	(0.001)	(0.002)
With friends	T1	-0.023	-0.014	-0.029	-0.008	-0.004	-0.010	-0.001	-0.008
		(0.027)	(0.029)	(0.026)	(0.206)	(0.008)	(0.012)	(0.001)	(0.020)
	P*(1-T1)	0.006	0.006	-0.008	0.036	0.012	0.018	-0.001	-0.016
		(0.032)	(0.034)	(0.031)	(0.238)	(0.010)	(0.015)	(0.002)	(0.023)
	P*T1	0.025	0.001	0.019	0.084	0.010	0.021	-0.000	0.001
		(0.032)	(0.037)	(0.032)	(0.262)	(0.009)	(0.015)	(0.000)	(0.024)
	Pure control mean	0.268	0.410	0.263	1.408	0.011	0.044	0.001	0.072
	Prob > F	0.791	0.648	0.802	0.996	0.418	0.285	0.733	0.913
	SPI Prob > F	0.730	0.983	0.801	0.941	0.298	0.190	0.629	0.782
	Sample size	5,512	5,512	5,512	5,188	5,512	5,512	5,512	5,512

Notes: In this table, we describe the average treatment effect of the encouragements on respondents' level of exposure to the placebo show (The Voice) (*Self* columns). We also describe their impact on the probability for a respondent to have at least one friend exposed to the intervention in their cluster (*Friends* column). In order to do so, we estimate equation (2) for each of the measure of exposure displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.6: Impact on respondents' perceptions of various barriers to self-employment (individual items)

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	5,396	-0.001	-0.003	0.015	-0.015	0.624	0.301	0.507
		(0.012)	(0.016)	(0.018)	(0.019)	0.280		
No access to funding	5,446	0.018*	-0.011	0.018	0.016	0.820	0.076	0.287
		(0.010)	(0.013)	(0.015)	(0.015)	0.236		
Lack of access to information	5,301	0.013	-0.008	0.010	0.011	0.491	0.707	0.740
		(0.013)	(0.017)	(0.019)	(0.019)	0.292		
Lack of access to foreign language traing	5,250	0.015	-0.027	-0.017	0.013	0.513	0.432	0.548
		(0.014)	(0.017)	(0.019)	(0.021)	0.301		
Lack of access to technology	5,266	-0.001	0.005	0.027	-0.001	0.501	0.646	0.438
		(0.014)	(0.019)	(0.021)	(0.021)	0.301		
Resource Index	5,487	0.031	-0.042	0.039	0.028	0.010	0.077	0.417
		(0.026)	(0.033)	(0.036)	(0.039)	0.587		
Government laws	5,141	-0.000	-0.000	-0.018	-0.022	0.634	0.765	0.404
		(0.014)	(0.018)	(0.021)	(0.021)	0.299		
Tough Competition	5,353	-0.026**	0.011	-0.006	-0.059***	0.471	0.004	0.009
		(0.013)	(0.016)	(0.019)	(0.019)	0.296		
Economy Index	5,442	-0.049	0.015	-0.038	-0.142***	-0.010	0.018	0.015
		(0.034)	(0.044)	(0.051)	(0.050)	0.783		
Fear of failure	5,401	0.025*	0.008	0.017	-0.014	0.601	0.236	0.524
		(0.013)	(0.016)	(0.019)	(0.019)	0.291		
Negative perception by society	5,242	-0.023*	-0.006	-0.012	-0.010	0.586	0.360	0.680
		(0.013)	(0.016)	(0.018)	(0.019)	0.277		
Resistance to change	5,264	-0.005	-0.013	-0.020	-0.026	0.569	0.233	0.241
		(0.013)	(0.016)	(0.019)	(0.020)	0.281		
Discrimination based on gender	5,264	-0.038***	-0.037**	-0.025	0.013	0.488	0.010	0.390
		(0.013)	(0.018)	(0.021)	(0.021)	0.299		
Societal Index	5,401	-0.027	-0.041	-0.032	-0.028	-0.003	0.101	0.692
		(0.028)	(0.036)	(0.040)	(0.033)	0.635		
Mentoring Org.	5,512	-0.001	0.012	-0.006	-0.004	0.034	0.418	0.839
		(0.008)	(0.012)	(0.012)	(0.015)	0.180		
Financial Org.	5,509	0.007	0.014	0.025	-0.045	0.184	0.214	0.193
		(0.017)	(0.025)	(0.029)	(0.028)	0.388		
Training Org.	5,512	0.002	0.027*	0.037*	-0.035*	0.064	0.096	0.030
		(0.010)	(0.016)	(0.019)	(0.019)	0.244		
Knowledge Index (any)	5,513	0.006	0.017	0.028	-0.048	0.226	0.249	0.190
		(0.018)	(0.026)	(0.030)	(0.030)	0.419		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.7.a: Impact on respondents' perceptions of various barriers to self-employment (women)

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	882	-0.008	0.060	0.143***	0.006	0.622	0.138	0.036
		(0.024)	(0.051)	(0.055)	(0.052)	0.273		
No access to funding	892	0.030	-0.049	-0.047	0.032	0.820	0.368	0.404
		(0.021)	(0.035)	(0.041)	(0.047)	0.237		
Lack of access to information	867	0.014	0.018	0.088*	-0.010	0.514	0.418	0.248
		(0.025)	(0.050)	(0.053)	(0.062)	0.275		
Lack of access to foreign langge traing	859	0.032	-0.080	0.013	0.063	0.533	0.218	0.606
		(0.027)	(0.054)	(0.060)	(0.065)	0.303		
Lack of access to technology	868	-0.004	0.002	0.098*	0.001	0.528	0.276	0.220
		(0.027)	(0.052)	(0.056)	(0.061)	0.300		
Resource Index	899	0.051	-0.112	0.117	0.123	0.044	0.176	0.419
		(0.052)	(0.113)	(0.116)	(0.147)	0.582		
Government laws	834	0.018	-0.007	0.030	0.017	0.682	0.897	0.819
		(0.025)	(0.047)	(0.055)	(0.055)	0.264		
Tough Competition	873	-0.034	-0.074	-0.052	-0.081	0.538	0.007	0.221
		(0.026)	(0.048)	(0.059)	(0.053)	0.286		
Economy Index	889	-0.035	-0.167	-0.039	-0.087	0.184	0.088	0.781
		(0.066)	(0.114)	(0.140)	(0.134)	0.705		
Fear of failure	891	0.009	0.045	0.128**	-0.027	0.626	0.125	0.078
		(0.025)	(0.047)	(0.059)	(0.047)	0.269		
Negative perception by society	854	0.013	0.043	0.047	-0.034	0.630	0.867	0.626
		(0.024)	(0.048)	(0.057)	(0.060)	0.266		
Resistance to change	857	-0.015	0.027	0.129**	-0.007	0.601	0.084	0.054
		(0.026)	(0.044)	(0.054)	(0.050)	0.280		
Discrimination based on gender	874	-0.018	0.011	0.066	-0.064	0.550	0.288	0.328
		(0.028)	(0.055)	(0.059)	(0.065)	0.306		
Societal Index	891	-0.011	0.079	0.280**	-0.028	0.145	0.101	0.692
		(0.054)	(0.103)	(0.140)	(0.033)	0.600		
Mentoring Org.	912	0.014	0.030	0.043	-0.018	0.031	0.698	0.474
		(0.017)	(0.033)	(0.041)	(0.031)	0.174		
Financial Org.	911	-0.011	-0.100	0.015	0.030	0.165	0.245	0.888
		(0.032)	(0.067)	(0.078)	(0.068)	0.372		
Training Org.	912	-0.020	-0.008	-0.014	-0.023	0.087	0.830	0.804
		(0.023)	(0.044)	(0.056)	(0.037)	0.282		
Knowledge Index (any)	912	-0.017	-0.056	0.023	0.023	0.214	0.727	0.910
		(0.035)	(0.071)	(0.079)	(0.075)	0.411		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.7.b: Impact on respondents' perceptions of various barriers to self-employment (men)

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	4,511	-0.001	-0.011	0.001	-0.017	0.624	0.323	0.718
		(0.014)	(0.017)	(0.019)	(0.021)	0.281		
No access to funding	4,551	0.014	-0.007	0.029*	0.014	0.820	0.071	0.141
		(0.012)	(0.014)	(0.016)	(0.016)	0.235		
Lack of access to information	4,431	0.011	-0.009	0.004	0.011	0.484	0.900	0.851
		(0.015)	(0.018)	(0.021)	(0.020)	0.295		
Lack of access to foreign langge traing	4,388	0.008	-0.022	-0.022	0.009	0.508	0.725	0.526
		(0.016)	(0.018)	(0.021)	(0.022)	0.301		
Lack of access to technology	4,395	-0.002	0.005	0.022	0.000	0.495	0.864	0.625
		(0.016)	(0.020)	(0.023)	(0.023)	0.301		
Resource Index	4,585	0.021	-0.035	0.038	0.019	0.000	0.222	0.550
		(0.030)	(0.034)	(0.039)	(0.040)	0.587		
Government laws	4,304	-0.006	0.002	-0.022	-0.028	0.621	0.621	0.291
		(0.016)	(0.020)	(0.022)	(0.022)	0.306		
Tough Competition	4,477	-0.024	0.020	-0.001	-0.055***	0.455	0.049	0.033
		(0.015)	(0.018)	(0.021)	(0.021)	0.296		
Economy Index	4,550	-0.050	0.039	-0.034	-0.146***	-0.058	0.056	0.025
		(0.040)	(0.048)	(0.055)	(0.055)	0.795		
Fear of failure	4,507	0.029*	0.002	0.003	-0.010	0.594	0.395	0.882
		(0.015)	(0.018)	(0.020)	(0.021)	0.297		
Negative perception by society	4,385	-0.038**	-0.013	-0.021	-0.007	0.576	0.080	0.507
		(0.015)	(0.018)	(0.019)	(0.020)	0.279		
Resistance to change	4,404	-0.001	-0.018	-0.036*	-0.029	0.560	0.169	0.086
		(0.015)	(0.017)	(0.020)	(0.022)	0.280		
Discrimination based on gender	4,387	-0.044***	-0.045**	-0.035	0.024	0.472	0.007	0.155
		(0.015)	(0.018)	(0.022)	(0.022)	0.295		
Societal Index	4,507	-0.034	-0.060	-0.070	-0.028	-0.040	0.101	0.692
		(0.033)	(0.039)	(0.043)	(0.033)	0.638		
Mentoring Org.	4,597	-0.006	0.010	-0.015	-0.003	0.034	0.137	0.492
		(0.009)	(0.013)	(0.012)	(0.017)	0.182		
Financial Org.	4,595	0.012	0.028	0.022	-0.057*	0.189	0.290	0.138
		(0.020)	(0.027)	(0.031)	(0.030)	0.392		
Training Org.	4,597	0.008	0.029*	0.037*	-0.035*	0.058	0.123	0.042
		(0.011)	(0.017)	(0.020)	(0.021)	0.233		
Knowledge Index (any)	4,598	0.012	0.026	0.023	-0.060*	0.230	0.276	0.146
		(0.021)	(0.028)	(0.032)	(0.032)	0.421		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.7.c: Impact on respondents' perceptions of various barriers to self-employment (highly educated)

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	1,628	-0.005	0.003	0.018	-0.003	0.624	0.964	0.859
		(0.023)	(0.029)	(0.033)	(0.035)	0.280		
No access to funding	1,631	0.036*	-0.033	-0.008	0.028	0.820	0.161	0.513
		(0.019)	(0.022)	(0.027)	(0.024)	0.236		
Lack of access to information	1,626	-0.005	0.000	0.025	0.026	0.491	0.870	0.550
		(0.025)	(0.030)	(0.034)	(0.033)	0.292		
Lack of access to foreign langge traing	1,612	0.001	-0.020	0.005	0.017	0.513	0.931	0.885
		(0.025)	(0.031)	(0.033)	(0.036)	0.301		
Lack of access to technology	1,622	0.009	-0.018	0.023	0.049	0.501	0.667	0.335
		(0.026)	(0.033)	(0.037)	(0.036)	0.301		
Resource Index	1,642	0.047	-0.057	0.041	0.075	0.010	0.405	0.407
		(0.047)	(0.059)	(0.066)	(0.066)	0.587		
Government laws	1,564	-0.014	-0.026	-0.061*	-0.007	0.634	0.473	0.205
		(0.024)	(0.030)	(0.034)	(0.034)	0.299		
Tough Competition	1,623	-0.030	-0.010	-0.016	-0.042	0.471	0.282	0.397
		(0.024)	(0.030)	(0.037)	(0.033)	0.296		
Economy Index	1,633	-0.063	-0.065	-0.099	-0.066	-0.010	0.447	0.422
		(0.063)	(0.080)	(0.092)	(0.084)	0.783		
Fear of failure	1,627	0.005	-0.013	-0.040	-0.051*	0.601	0.237	0.115
		(0.024)	(0.029)	(0.036)	(0.028)	0.291		
Negative perception by society	1,604	-0.023	-0.019	-0.015	-0.014	0.586	0.629	0.824
		(0.023)	(0.031)	(0.035)	(0.034)	0.277		
Resistance to change	1,611	0.001	-0.023	-0.029	-0.025	0.569	0.622	0.541
		(0.025)	(0.029)	(0.034)	(0.035)	0.281		
Discrimination based on gender	1,601	-0.018	-0.014	0.006	0.030	0.488	0.850	0.667
		(0.025)	(0.032)	(0.039)	(0.033)	0.299		
Societal Index	1,627	-0.025	-0.069	-0.084	-0.028	-0.003	0.101	0.692
		(0.053)	(0.065)	(0.076)	(0.033)	0.635		
Mentoring Org.	1,642	-0.001	-0.027	-0.032	0.013	0.056	0.725	0.359
		(0.020)	(0.024)	(0.024)	(0.030)	0.231		
Financial Org.	1,642	-0.044	-0.058	-0.073	-0.043	0.282	0.217	0.326
		(0.037)	(0.049)	(0.057)	(0.055)	0.451		
Training Org.	1,642	-0.010	0.030	0.029	-0.054	0.124	0.568	0.295
		(0.028)	(0.036)	(0.045)	(0.038)	0.330		
Knowledge Index (any)	1,642	-0.051	-0.075	-0.083	-0.036	0.354	0.171	0.328
		(0.040)	(0.052)	(0.061)	(0.058)	0.479		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.7.d: Impact on respondents' perceptions of various barriers to self-employment (non-highly educated)

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	3,031	-0.004	-0.000	0.006	-0.030	0.619	0.430	0.461
		(0.017)	(0.021)	(0.023)	(0.024)	0.286		
No access to funding	3,073	0.003	0.001	0.029	0.007	0.823	0.530	0.341
		(0.014)	(0.017)	(0.020)	(0.021)	0.239		
Lack of access to information	2,957	0.013	-0.002	0.009	-0.009	0.492	0.847	0.899
		(0.017)	(0.022)	(0.025)	(0.026)	0.287		
Lack of access to foreign langge traing	2,932	0.007	-0.033	-0.038	0.008	0.518	0.526	0.311
		(0.019)	(0.022)	(0.026)	(0.027)	0.300		
Lack of access to technology	2,932	-0.020	0.008	0.020	-0.026	0.517	0.479	0.512
		(0.019)	(0.024)	(0.027)	(0.028)	0.298		
Resource Index	3,096	-0.005	-0.025	0.023	-0.021	0.021	0.527	0.816
		(0.036)	(0.041)	(0.046)	(0.050)	0.591		
Government laws	2,879	0.001	-0.004	-0.023	-0.032	0.618	0.682	0.364
		(0.019)	(0.024)	(0.027)	(0.029)	0.305		
Tough Competition	3,010	-0.022	0.023	0.003	-0.064**	0.471	0.087	0.047
		(0.018)	(0.021)	(0.024)	(0.026)	0.300		
Economy Index	3,071	-0.037	0.045	-0.035	-0.184***	-0.038	0.080	0.026
		(0.047)	(0.057)	(0.067)	(0.069)	0.791		
Fear of failure	3,041	0.029	0.005	0.024	0.012	0.591	0.428	0.554
		(0.018)	(0.022)	(0.024)	(0.027)	0.298		
Negative perception by society	2,927	-0.034**	-0.003	-0.022	-0.014	0.589	0.269	0.535
		(0.017)	(0.021)	(0.023)	(0.025)	0.275		
Resistance to change	2,943	-0.007	-0.000	-0.006	-0.034	0.558	0.519	0.376
		(0.017)	(0.021)	(0.024)	(0.025)	0.277		
Discrimination based on gender	2,951	-0.060***	-0.037	-0.046*	-0.010	0.509	0.004	0.213
		(0.018)	(0.023)	(0.027)	(0.028)	0.302		
Societal Index	3,041	-0.045	-0.027	-0.033	-0.028	-0.000	0.101	0.692
		(0.040)	(0.047)	(0.051)	(0.033)	0.647		
Mentoring Org.	3,117	-0.004	0.025*	0.007	-0.013	0.024	0.439	0.659
		(0.009)	(0.015)	(0.014)	(0.017)	0.153		
Financial Org.	3,117	0.035	0.045	0.075**	-0.050	0.139	0.033	0.031
		(0.021)	(0.029)	(0.033)	(0.033)	0.346		
Training Org.	3,117	0.019*	0.028	0.039*	-0.039*	0.034	0.027	0.041
		(0.010)	(0.019)	(0.021)	(0.022)	0.181		
Knowledge Index (any)	3,118	0.040*	0.059*	0.080**	-0.059	0.170	0.030	0.025
		(0.023)	(0.032)	(0.035)	(0.036)	0.375		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table A.8: Impact on respondents' probability to have taken any steps towards the creation of a business (individual items)

	Variables	Any important decisions made w.r.t. their professional career? E.	Any steps taken towards the creation of a business? G.	Plan to start a business in the future G.	Self-employed H.	Steps taken towards the creation of a business (Index) I.
		Steps				
		Steps taken towards the creation of a business (since Jan. 2014)				
Without friends	T1	-0.010	-0.013	-0.002	-0.002	-0.018
		(0.020)	(0.016)	(0.020)	(0.018)	(0.023)
With friends	T1	-0.017	-0.023	-0.031	-0.010	-0.047
		(0.030)	(0.024)	(0.025)	(0.026)	(0.033)
	P*(1-T1)	-0.008	-0.030	-0.021	-0.000	-0.035
		(0.035)	(0.028)	(0.028)	(0.030)	(0.037)
	P*T1	0.028	0.013	0.035	0.045	0.071*
		(0.031)	(0.027)	(0.032)	(0.032)	(0.037)
	Pure control mean	0.366	0.194	0.768	0.254	0.014
	Pure control s.d.	0.482	0.396	0.422	0.436	0.558
	Prob > F	0.892	0.748	0.762	0.625	0.268
	SPI Prob > F	0.646	0.517	0.405	0.368	0.107
	Sample size	5,511	5,511	4,920	5,500	5,520

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and on their probability to have made any decision with respect to their professional career or the creation of a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.9.a: Impact on respondents' aspirations and steps taken towards the creation of a business (gender)

	Variables	Women					Men				
		Any important decisions made w.r.t. their professional career?	Any steps taken towards the creation of a business?	Plan to start a business in the future	Self-employed	Steps taken towards the creation of a business (Index)	Any important decisions made w.r.t. their professional career?	Any steps taken towards the creation of a business?	Plan to start a business in the future	Self-employed	Steps taken towards the creation of a business (Index)
		A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
Without friends	T1	-0.087**	-0.048	-0.011	0.001	-0.084**	0.015	-0.002	0.004	-0.001	0.005
		(0.039)	(0.030)	(0.048)	(0.017)	(0.041)	(0.024)	(0.020)	(0.022)	(0.023)	(0.027)
With friends	T1	0.014	-0.009	0.150*	-0.026	0.045	-0.018	-0.025	-0.044*	-0.003	-0.052
		(0.077)	(0.065)	(0.087)	(0.041)	(0.093)	(0.032)	(0.026)	(0.026)	(0.028)	(0.035)
	P*(1-T1)	0.096	-0.052	-0.024	-0.041	-0.018	-0.016	-0.027	-0.027	0.008	-0.036
		(0.089)	(0.069)	(0.100)	(0.043)	(0.106)	(0.037)	(0.030)	(0.029)	(0.033)	(0.039)
	P*T1	0.050	-0.018	-0.134*	-0.029	-0.059	0.026	0.017	0.046	0.051	0.083**
		(0.079)	(0.065)	(0.077)	(0.045)	(0.084)	(0.033)	(0.029)	(0.034)	(0.035)	(0.040)
	Pure control mean	0.320	0.161	0.654	0.047	-0.242	0.377	0.203	0.791	0.307	0.078
	Pure control s.d.	0.467	0.369	0.477	0.211	0.511	0.485	0.402	0.406	0.461	0.551
	Prob > F	0.160	0.528	0.218	0.688	0.313	0.873	0.886	0.527	0.541	0.257
	SPI Prob > F	0.453	0.721	0.219	0.512	0.774	0.676	0.575	0.244	0.353	0.078
	Sample size	912	912	719	908	912	4,596	4,596	4,198	4,589	4,605

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and on their probability to have made any decision with respect to their professional career or the creation of a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.9.b: Impact on respondents' aspirations and steps taken towards the creation of a business (education)

	Variables	Highly educated					Non-highly educated				
		Any important decisions made w.r.t. their professional career?	Any steps taken towards the creation of a business?	Plan to start a business in the future	Self-employed	Steps taken towards the creation of a business (Index)	Any important decisions made w.r.t. their professional career?	Any steps taken towards the creation of a business?	Plan to start a business in the future	Self-employed	Steps taken towards the creation of a business (Index)
		A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
Without friends	T1	-0.011	-0.006	-0.077**	-0.027	-0.071*	0.039	-0.003	0.031	-0.010	0.027
		(0.043)	(0.033)	(0.036)	(0.031)	(0.043)	(0.026)	(0.022)	(0.027)	(0.025)	(0.031)
With friends	T1	-0.017	0.048	-0.067	-0.035	-0.051	-0.009	-0.038	-0.027	0.004	-0.036
		(0.057)	(0.045)	(0.045)	(0.046)	(0.056)	(0.038)	(0.030)	(0.033)	(0.034)	(0.042)
	P*(1-T1)	-0.040	0.048	-0.122**	0.015	-0.051	-0.006	-0.051	0.014	-0.015	-0.038
		(0.071)	(0.053)	(0.058)	(0.051)	(0.064)	(0.044)	(0.034)	(0.034)	(0.039)	(0.049)
	P*T1	0.017	-0.032	0.056	0.048	0.065	0.005	0.023	0.016	0.030	0.039
		(0.054)	(0.048)	(0.050)	(0.052)	(0.066)	(0.041)	(0.036)	(0.043)	(0.043)	(0.046)
	Pure control mean	0.492	0.195	0.825	0.192	0.070	0.305	0.189	0.754	0.296	-0.001
	Pure control s.d.	0.501	0.396	0.380	0.394	0.525	0.461	0.392	0.431	0.457	0.571
	Prob > F	0.956	0.856	0.021	0.668	0.351	0.673	0.618	0.471	0.636	0.726
	SPI Prob > F	0.820	0.545	0.048	0.615	0.444	0.985	0.270	0.860	0.716	0.525
	Sample size	1,641	1,641	1,474	1,637	1,644	3,117	3,117	2,797	3,113	3,122

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and on their probability to have made any decision with respect to their professional career or the creation of a business. In order to do so, we estimate equation (2) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Tables A.10: Results with alternative specification (equation (1))

Table A.9.A: Impact on respondents' opinions
(equation (1))

Share of respondents who strongly agreed with the following statements:

	Variables	A. In Egypt, it is possible for women to successfully run their own business.	B. In Egypt, when jobs are scarce, men should have more rights to a job than women.	C. In Egypt, a university education is more important for a boy than for a girl.	D. In Egypt, it is possible for individuals without a higher education to successfully run their own business.	E. In Egypt, it is possible for individuals who do not have wealthy parents to successfully run their own business.
Without friends	T1	0.039*	-0.003	0.001	0.000	0.022
		(0.021)	(0.020)	(0.017)	(0.021)	(0.022)
With friends	T1	0.079***	-0.020	-0.013	0.033	0.049*
		(0.027)	(0.025)	(0.022)	(0.027)	(0.027)
	P*(1-T1)	0.034	-0.023	-0.003	0.022	0.025
		(0.029)	(0.027)	(0.024)	(0.029)	(0.030)
	P*T1	-0.086***	0.005	-0.001	-0.052*	-0.079***
		(0.029)	(0.027)	(0.023)	(0.030)	(0.029)
	Pure control mean	0.569	0.702	0.187	0.608	0.494
	Pure control s.d.	0.495	0.458	0.390	0.488	0.500
	Prob > F	0.004	0.925	0.941	0.435	0.062
	SPI Prob > F	0.005	0.682	0.994	0.156	0.019
	Sample size	5,519	5,518	5,520	5,518	5,519

Notes: In this table, we describe the average treatment effect of the intervention on respondents' general opinions. In order to do so, we estimate equation (1) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table A.9.B: Impact on respondents' perceptions of various barriers to self-employment (equation (1))

Perceived barriers to starting a business

	Obs.	Without friends T1	With friends T1	P*(1-T1)	P*T1	Pure Control Mean & Sd	Prob > F	SPI Prob > F
Lack of required skills	5,396	-0.001	0.001	0.019	-0.018	0.624	0.208	0.296
		(0.012)	(0.015)	(0.016)	(0.017)	0.280		
No access to funding	5,446	0.018*	-0.004	0.023*	0.005	0.820	0.061	0.237
		(0.010)	(0.013)	(0.014)	(0.014)	0.236		
Lack of access to information	5,301	0.013	-0.005	0.014	0.011	0.491	0.641	0.589
		(0.013)	(0.016)	(0.018)	(0.017)	0.292		
Lack of access to foreign langge traing	5,250	0.015	-0.022	-0.005	0.016	0.513	0.498	0.640
		(0.014)	(0.016)	(0.018)	(0.018)	0.301		
Lack of access to technology	5,266	-0.001	-0.003	0.015	0.001	0.501	0.813	0.712
		(0.014)	(0.017)	(0.019)	(0.019)	0.301		
Resource Index	5,487	0.031	-0.024	0.057*	0.009	0.010	0.048	0.248
		(0.026)	(0.031)	(0.034)	(0.035)	0.587		
Government laws	5,141	-0.000	0.002	-0.025	-0.034*	0.634	0.250	0.069
		(0.014)	(0.017)	(0.018)	(0.019)	0.299		
Tough Competition	5,353	-0.027**	0.012	0.005	-0.049***	0.471	0.008	0.023
		(0.013)	(0.016)	(0.017)	(0.018)	0.296		
Economy Index	5,442	-0.049	0.024	-0.026	-0.145***	-0.010	0.007	0.005
		(0.034)	(0.041)	(0.045)	(0.046)	0.783		
Fear of failure	5,401	0.025*	0.013	0.023	-0.017	0.601	0.139	0.250
		(0.013)	(0.015)	(0.017)	(0.017)	0.291		
Negative perception by society	5,242	-0.023*	-0.002	-0.002	-0.006	0.586	0.459	0.933
		(0.012)	(0.015)	(0.017)	(0.017)	0.277		
Resistance to change	5,264	-0.005	-0.017	-0.022	-0.019	0.569	0.233	0.217
		(0.013)	(0.015)	(0.017)	(0.017)	0.281		
Discrimination based on gender	5,264	-0.038***	-0.032**	-0.017	0.011	0.488	0.014	0.544
		(0.013)	(0.016)	(0.018)	(0.018)	0.299		
Societal Index	5,401	-0.027	-0.028	-0.010	-0.028	-0.003	0.101	0.692
		(0.028)	(0.033)	(0.037)	(0.033)	0.635		
Mentoring Org.	5,512	-0.001	0.022*	0.005	-0.013	0.034	0.352	0.557
		(0.008)	(0.011)	(0.011)	(0.013)	0.180		
Financial Org.	5,509	0.007	0.025	0.047*	-0.042*	0.184	0.061	0.033
		(0.017)	(0.022)	(0.025)	(0.024)	0.388		
Training Org.	5,512	0.002	0.022	0.031*	-0.032**	0.064	0.047	0.015
		(0.010)	(0.014)	(0.016)	(0.015)	0.244		
Knowledge Index (any)	5,513	0.006	0.031	0.042	-0.061**	0.226	0.035	0.016
		(0.018)	(0.024)	(0.026)	(0.025)	0.419		

Notes: In this table, we describe the average treatment effect of the intervention on respondents' respondents' perceptions of the importance of several barriers to starting a business. In order to do so, we estimate equation (1) for each of the dependent variable displayed in left column of the table. Stratum fixed effects and the whole conditioning sets are always added in the regressions. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" column, while the p-values resulting from the latter are displayed in the "SPI Prob>F" column. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.

Table A.9.C: Impact on respondents' aspirations and steps taken towards the creation of a business (equation (1))

	Variables	Aspirations				Steps				
		Share of respondents choosing the following option as their favorite professional option for themselves now				*Steps taken towards the creation of a business (since Jan. 2014)*				
		"Being self-employment"	"Being a public employee"	"Being a private employee"	P-values for transversal tests	Any important decisions made w.r.t. their professional career?	Any steps taken towards the creation of a business?	Plan to start a business in the future	Self-employed	Steps taken towards the creation of a business (Index)
		A.	B.	C.	D.	E.	F.	G.	H.	I.
Without friends	T1	0.019	0.003	-0.019	0.492	-0.010	-0.013	-0.002	-0.002	-0.018
		(0.021)	(0.022)	(0.014)		(0.020)	(0.016)	(0.020)	(0.018)	(0.023)
With friends	T1	0.015	-0.041	0.015	0.122	-0.002	-0.026	-0.015	-0.018	-0.039
		(0.027)	(0.027)	(0.017)		(0.027)	(0.022)	(0.024)	(0.023)	(0.030)
	P*(1-T1)	0.015	-0.017	0.003	0.746	-0.018	-0.025	0.010	-0.016	-0.032
		(0.029)	(0.030)	(0.018)		(0.029)	(0.024)	(0.025)	(0.025)	(0.033)
	P*T1	0.038	-0.002	-0.026	0.203	-0.016	0.027	0.036	0.041	0.054*
		(0.030)	(0.031)	(0.019)		(0.029)	(0.025)	(0.027)	(0.026)	(0.032)
	Pure control mean	0.384	0.483	0.111		0.366	0.194	0.768	0.254	0.014
	Pure control s.d.	0.487	0.500	0.314		0.482	0.396	0.422	0.436	0.558
	Prob > F	0.303	0.405	0.428	0.227	0.921	0.589	0.739	0.518	0.341
	SPI Prob > F	0.395	0.847	0.384	0.412	0.708	0.331	0.375	0.251	0.149
	Sample size	5,427	5,427	5,427		5,511	5,511	4,920	5,500	5,520

Notes: In this table, we describe the average treatment effect of the intervention on respondents' aspirations and on their probability to have made any decision with respect to their professional career or the creation of a business. In order to do so, we estimate equation (1) for each of the dependent variable displayed in top row of the table. For each outcome, we test the "no impact of the encouragements hypothesis" (H1), as well as the "no spillover hypothesis" (H2). The p-values resulting from the former test are displayed in the "Prob>F" row, while the p-values resulting from the latter are displayed in the "SPI Prob>F" row. Standard errors are clustered at the group of friends level. *, **, *** denote significance at the 10, 5 and 1 percent levels respectively.