



Sep 2016

No.302

**Sex Workers, Self-Image and Stigma:
Evidence from Kolkata Brothels**

Sayantana Ghosal, Smarajit Jana, Anandi Mani,
Sandip Mitra and Sanchari Roy

WORKING PAPER SERIES

Centre for Competitive Advantage in the Global Economy

Department of Economics

Sex Workers, Self-Image and Stigma: Evidence from Kolkata Brothels*

Sayantana Ghosal Smarajit Jana Anandi Mani Sandip Mitra
Sanchari Roy [†]

July 13, 2015

Abstract

This paper empirically examines the role of self-image in determining the behaviour and choices of socially excluded individuals. Using a randomized field experiment with sex workers in Kolkata, India, we study the impact of a psychological training program designed to improve self-image impaired by social exclusion and stigma. We find positive and significant impacts on self-reported measures of self-image, as well as on future-oriented behaviour measured by savings and health choices during and after the program. We also find persistence in related savings outcomes fifteen months after the program. Our experimental design and findings enable us to rule out several alternative explanations. We argue that our findings highlight the need to address psychological constraints in alleviating the effects of poverty and social exclusion.

JEL Codes: O12, I30, D87

Key words: self-image, social exclusion, stigma, future-orientation, savings, sex workers, India

*We thank Patricio Dalton, Amrita Dhillon, Maitreesh Ghatak, Victor Lavy, Rocco Macchiavello, Sharun Mukand, Biju Rao, Chris Woodruff as well as various seminar participants for useful comments and feedback. We gratefully acknowledge funding from ESRC through the Centre for Competitive Advantage in the Global Economy (CAGE). Mani would also like to acknowledge the hospitality of the Institute for Advanced Study where she was a Deutsche Bank Member, and the Centre for Health and Well-being at Princeton University, where she was a Visiting Research Associate during the academic year 2014-15, when this paper took its current shape.

[†]Corresponding Author: Sanchari Roy, Department of Economics, University of Sussex, Brighton, Falmer BN1 9SL; United Kingdom; email: sanchari.roy@sussex.ac.uk; tel: +44 (0)1273 877978

1 Introduction

The large body of economics literature on poverty and social exclusion examines the role of various resource constraints that are *external* to an individual in perpetuating these phenomena. Such external constraints could be in the form of poor access to credit, education and nutrition. They may even include poor access to information about the returns to certain activities, such as education¹ or health precautions.² Nevertheless, such external constraints on access to material resources or information do not seem to fully explain certain kinds of self-defeating behaviours of those so marginalized. To take a few examples, they do not explain why the poor fail to enrol in assistance programs they are eligible for,³ or why they do not adopt cheap, preventive health measures⁴ or proven low-cost technologies that they have ample exposure to and information about.⁵

These behaviours prompt us to consider an alternative view: that many life choices and decisions are influenced not just by our material resources or information about the world around us – but as much, if not more, by our *perception of ourselves*. As the pre-eminent psychologist Alberto Bandura puts it, “People’s beliefs in their efficacy influence the choices they make, ... how much effort they mobilize in a given endeavor, how long they persevere in the face of difficulties and setbacks ... ” [Bandura, 1982]. But people are not born with perfect self-knowledge. In fact, the psychology literature regards introspection as quite inaccurate [Nisbett and Wilson, 1977] and argues that learning about ourselves is an ongoing process. In this process, just as our beliefs about the external world are likely to be influenced by our life experiences and the social milieu in which we reside, so are our beliefs about ourselves.

This idea of imperfect self-knowledge and hence the role of *self-image* on individual behaviour has also been acknowledged in the theoretical economics literature [Benabou and Tirole, 2002, Koszegi, 2006]. However, its implications for economic choices have not been empirically explored. This paper takes a first step towards empirically studying the role of self-image in determining individual life choices, in the context of social exclusion. An individual’s self-image may become distorted under conditions of poverty and social exclusion, given the stigma and social distance they typically imply. Such a distorted self-image could then become an independent source of disadvantage, triggering ‘internal’ (psychological) constraints that limit efforts and hence outcomes of the poor and marginalized. In this project, we exam-

¹See Jensen [2010], Nguyen [2008].

²See Dupas [2011].

³See Bertand et al. [2004], Moffit [1983].

⁴See Katz and Hofer [1994].

⁵See Duflo et al. [2011].

ine whether interventions that alleviate such internal, self-image based constraints, triggered by stigma and social exclusion, can lead to better life choices and outcomes.

The stigma of poverty is real: As Adam Smith himself observes in *The Theory of Moral Sentiments*, “[T]he reason poverty causes pain is not just because it can leave people feeling hungry, cold and sick, but because it is associated with unfavourable regard...the poor man...is ashamed of his poverty.” In a personal account of the humiliations of poverty in twenty-first century America, Tirado [2014] highlights how much such regard matters: “You have no idea how strong the pull to feel worthwhile is. It’s more basic than food...”.⁶ Several other groups around the world face social exclusion and stigma too: racial and ethnic minorities (e.g. African-Americans in the US, low caste groups in India) and women (especially in a patriarchal society), to name a few. Existing evidence documents how society perceives members of such excluded groups with unfavourable regard.⁷

What does such unfavourable regard do to an individual’s self-image? As the celebrated sociologist Erving Goffman points out in his classic work on stigma, “[t]hose who have dealings with [the stigmatized individual] fail to accord him respect and regard ...; he echoes this denial by finding that some of his own attributes warrant it” [Goffman, 1963]. Such prejudice may thus lower an individual’s belief about how much his effort matters for his life outcomes: this creates a “self-fulfilling pessimism about the returns to effort for certain activities” [Loury, 1999]. Hoff and Pandey [2006] provide experimental evidence of how members of a discriminated group internalize society’s low expectations from them that, in turn, affect their performance. A distorted self-image or identity may also limit the set of actions and choices that a person would regard as appropriate for her [Akerlof and Kranton, 2000]. A few papers in the economics literature discuss how such a sense of stigma may underlie some self-defeating choices of those so marginalized – from the non-take up of benefits that people may be eligible for under government programs [Moffit, 1983, Currie et al., 2001] to a reluctance to open and use bank accounts for savings and daily transactions [Bertand et al., 2004]. Tirado [2014] also gives a first-person account of how the indignities that come with poverty take away the motivation to strive: “Poverty is bleak and cuts off your long-term brain....We don’t plan long term because if we do, we’ll just get our hearts broken. It’s best not to hope.”

⁶Linda Tirado was a down-and-out woman whose blog post on why poor people like herself make self-defeating life choices went viral over the internet, when it was picked up by the Huffington Post. Tirado [2014] is a book that she wrote by invitation, elaborating on the ideas expressed in her original post.

⁷E.g. according to the World Values Survey 2001, 60% of Americans believe that the poor are lazy and lacking in will-power. Loury [1999] describes how African-Americans in US are subject to public derision, often owing to their “purported intellectual inadequacy”. Similar contemptuous attitudes are also found to exist against low caste people in India [Srinivas, 1951, Deshpande, 2007].

At a broader level, the specific examples cited above speak of a failure among the poor and marginalized, to take charge of their lives. In this paper, we ask the question: Can reshaping individuals' self-image provide the basis to change the actions and outcomes of those so marginalized by mitigating the demotivating effects of social exclusion and stigma? We first outline a simple, stylized framework with reference-dependent preferences that captures Goffman's idea of how stigma impairs self-image and diminishes individuals' perception of their abilities. This results in self-fulfilling pessimism with regard to future-oriented life endeavours. To study these mechanisms empirically, we chose to work with a population that undeniably faces considerable stigma and social exclusion: sex workers in India. We conducted a randomized impact evaluation of a training program with an exclusive psychological focus on improving participants' self-image as the foundation to motivate greater effort and positive change – without relaxing any material resource constraints.⁸

The stigma that sex workers in India face compounds the prejudices against sex workers in most countries with the strong gender bias that is widespread in India. Sex workers seem to internalize this stigma to a considerable degree.⁹ A substantial fraction of women are driven to this profession due to poverty and desperation from abandonment [Nag, 2006]. Further, as is the case with other poor people, sex workers in India are often denied access to commonly available formal services such as credit, healthcare and education, owing to the stigma associated with their profession. In our interactions with them, their words echo the feelings of hopelessness that Tirado's words convey. As one of our program participants put it: "I have lost everything...(and) ended up in these blind alleys [only to] face torture and society's contempt."

The basic building block of the training program is to re-orient sex-workers' self-image, both at an individual level and as a collective, as a way to restore faith in their ability to take charge of their lives. Based on this foundation of a positive self-image, the program also suggests pathways for them to take charge of their future lives. Consistent with our focus on the psychological dimensions of social exclusion, we collected baseline and endline data on a range of (self-reported) outcomes related to self-image, including sense of shame, self-worth, self-efficacy, comfort in public interaction, happiness, aspirations and decision-making power.¹⁰ We also tracked changes in participants' orientation towards the future, as measured by their choices

⁸For our study, we partnered with Durbar, an NGO that has worked for the welfare of sex workers in Kolkata, India for over twenty-five years.

⁹Many of them refer to themselves as "*Hum log bahut kharab aurat hain*" which translates to "We are very bad (fallen) women" [Mukherjee and Das, 1996].

¹⁰In our setting, shame is measured with respect to sex-workers' occupation; self-worth is defined in terms of whether they consider themselves as 'fallen' women. Taken together, these two variables capture the moral dimension of self-image. Self-efficacy captures their perception of their own competence/capacity to handle various challenges and situations.

across savings products with different maturity periods and interest rates (collected over the course of the training program),¹¹ and their health-seeking behaviour.

We find strong and significantly positive effects of the training program on self-reported outcomes related to self-image. Endline comparisons reveal that relative to the control group, sex workers assigned to the treatment group are, on average, 40 percentage points (pp) less likely to report feeling ashamed of their occupation (compared to a baseline mean of 0.63), and 68 pp more likely to report having high self-worth (compared to a baseline mean of a mere 0.18), the latter being consistent with lower shame. They are also 0.43 standard deviations more likely to report feeling a greater sense of self-efficacy, as well as 12 pp more likely to report being happy (compared to a baseline mean of 0.50). Using a difference-in-difference specification, too, the estimated effects of the training program with respect to these outcomes are found to be of a similar order of magnitude.

Secondly, we also find a strong positive impact in terms of future-oriented behaviour of the participants, as measured by their savings choices and health-seeking behaviour, relative to the control group. Specifically, sex workers assigned to the treatment group are 25-50 pp more likely to choose a future-oriented savings product (fixed deposit) than a present-oriented one. Interestingly, we find that in the early stages of the training program, the choices of the treatment group look very similar on average to those of the control group, but over the course of the program, a distinct divergence emerges between the two groups that persists till the end.

We attribute such observed change in future-oriented behaviour of the treatment group to a more positive self-image induced by exposure to the training program. Several design features of our program as well as other facets of our findings persuade us that this is a reasonable conclusion. For instance, the design of our savings products allows us to discount explanations such as change in self-control. Our evidence also undercuts other possible explanations for the observed changes in behaviour, such as reciprocity among program participants or a change in aspirations of sex-workers.¹² Further, we are able to exploit experimental variation in the composition of our training groups (measured as the fraction of co-resident group members) to disentangle the impact of program content from that of greater group interaction. We find that it is the former, not the latter, that explains our results.

¹¹As discussed in Section 4.2 later, control group participants, who were also offered the same savings products, were given access to all factual information related to these savings options so as to ensure that the treatment group had no informational advantage.

¹²We find no difference in self-reported aspirations of the treatment group relative to the control group, whereas the former do report higher levels of happiness. This finding on aspirations is consistent with Durbar's conscious policy choice to empower sex-workers within their existing situation rather than to actively encourage them to get out of their trade. See [Bernard et al., 2011, 2014] for evidence on aspirations-driven changes in behaviour induced by programs using role-models for adults, and [Glewwe et al., 2013] for children.

We also observe a positive impact of the training program on health-seeking behaviour: Sex workers in the treatment group are on average 9 pp more likely to report having visited a doctor since the program’s commencement relative to the control group. This is remarkable, since the baseline levels of such doctor visits in this sample was already quite high at approximately 77%. Since sex work, by its very nature, puts a lot of stress on the physical condition of the sex worker, investment in physical health is very important for future sustainability and hence, a higher frequency of doctor visits may be interpreted as further evidence of devoting higher effort towards securing one’s future following exposure to the training program. What is also striking to note here is that we observe this change in health-seeking behaviour despite no explicit mention of health issues at any time during the training. This gives us greater confidence that the observed changes are not driven by any unobserved information advantages conferred on the treatment group relative to the control group over the course of training.

A common concern with psychological interventions is that their effects may be purely short term, with no lasting impact. It is therefore encouraging that we also see positive impacts on participants’ related savings outcomes fifteen months after the program. We find that, following up on their original savings choices, treated participants are more likely to keep their fixed deposit accounts open and to have higher balances in them. Overall, our findings suggest that improving self-image of stigmatized individuals can play an important motivating role in enhancing their life choices and outcomes.

Our work makes two valuable contributions. First, it draws attention to the importance of self-image in decision-making and links it to the role of stigma as a potential explanation for self-defeating behaviours and lack of motivation among the poor and socially marginalized.¹³ Second, it fills an important gap by providing among the first randomized evaluations of the impact of improving impaired self-image on economic choices – and in a developing country setting. Recent work in psychology has lamented about the lack of rigorous evidence on which psychological interventions are effective [Wilson, 2011]. Further, Haushofer and Fehr [2014] point out the great need for such evaluations, especially in the context of developing countries. Our study fills a gap on both these counts. Moreover, our program content is unique in its exclusive focus on mitigating psychological constraints as a way to raise effort and improve life outcomes among the marginalized. This is in contrast to several recent initiatives that focus on relaxing material resource constraints through skill training and provision of capital.¹⁴

¹³For example, using cross-country data, Haushofer [2013] shows that poverty is associated with lower motivation.

¹⁴See McKenzie and Woodruff [2013] for a review of these training programs for the poor, as

Our work is related to an important emerging behavioural economics literature that focuses on the link between poverty and mental resources. Departing from the standard economic model, this literature recognizes that mental and psychological capacities are also scarce resources that are depleted by poverty. Mani et al. [2013] find evidence that financial stress due to poverty may tax cognitive capacity. Haushofer and Shapiro [2013] highlight the causal impact of poverty on stress, through an evaluation of the role of unconditional cash transfers. Conceptually, the program we study is closest in spirit to the psychology literature that has focused on re-shaping personal narratives as a way to help change individual behaviour.¹⁵ A similar mechanism may underlie the effect that role models have in re-shaping individual choices and societal attitudes. An example of this is La Ferrara et al. [2012], which describes how soap opera characters impacted fertility choices of young female viewers in Brazil.

The rest of the paper is organized as follows. Section 2 sets the stage by providing a simple conceptual framework of how self-image distorted by stigma may affect individual actions related to (future) life outcomes. Section 3 gives a brief description of the setting of our study. Section 4 details the training content and experimental design while Section 5 describes the data and evaluation methods. Sections 6 and 7 presents our main empirical findings while Section 8 discusses the medium-term results. Section 9 concludes.

2 Self-Image, Stigma and Individual Choice: A Conceptual Framework

In what ways may self-image affect the choices a person makes and hence her life outcomes, and how may stigma distort such self-image? In order to articulate the thinking behind the approach of the training program we evaluate, this question needs to be addressed first. To do so, we outline a simple conceptual framework, using a stylized three-period model. In our model, individuals make some investment choices (related to health, wealth or skill development) where actions initiated today pay off in the long term, provided people have the ability to overcome interim challenges. It has three key elements: First, it captures Goffman’s observation cited earlier that people who face stigma internalize it by believing that their (poor) attributes and abilities warrant it. Second, there is complementarity between actions/effort undertaken today and self-perceptions about such ability, resulting in

well as Banerjee et al. [2011] and Bandiera et al. [2013] for such programs aimed at the ultra-poor.

¹⁵See Wilson [2011] for a wide-ranging description of such methods and its applications. [Hall et al., 2014] examines the effects of self-affirmation methods in improving the inclination to seek benefits from anti-poverty programs.

self-fulfilling pessimism that arises as a consequence of stigma [Loury, 1999]. Finally, there is a reference-dependent component to individual utility, whereby action choices undertaken today affect the outcome that individuals expect to achieve (i.e. their reference point). Therefore, even if actions chosen today entail no material cost (such that it never hurts to be more ambitious), individuals do not like to try and fail.¹⁶ The model details follow.

Consider an individual who has to make a decision about an investment opportunity that presents itself today, i.e. at $t = 0$ in a three period world, where $t = 0, 1$ or 2 . This opportunity could be of a financial nature, or it could be something related to skill development or improving long term health. A key feature is that the gain from this activity is deferred to two periods from today, while the likelihood of realizing this gain depends upon choices and attributes realized earlier. Specifically two factors matter: (i) the action $e = 1$ or 0 that the individual chooses today (invest in wealth/health/skill, or not) and (ii) her innate ability $\alpha \in [0, 1]$ to overcome challenges next period (period 1). For simplicity, we will assume that she is sure to face one or more such challenges next period ($t = 1$). A unit of initial resources (say wealth, or health) yields her a return $(1 + R)$ ($R > 0$) at $t = 2$ provided she chooses to invest (i.e. $e = 1$) and her ability α is sufficiently high, in a sense made precise below. If however, she chooses action $e = 0$ today, but her ability to overcome the period 1 challenge she faces is not high enough, she simply ends up where she started at $t = 0$ at the end of period 1, i.e. with a return of 1. Thus, her expected return from the investment is $e\alpha(1 + R) + (1 - e\alpha)$.

Individual utility is affected by the returns from this investment in wealth, skill or health two periods from now at $t = 2$.¹⁷ In addition, there is another reference-dependent component to individual utility which is affected by her action at $t = 0$. This component captures the idea that a person's actions change her expectations about herself and/or the outcome she should achieve. In this context, the very act of investing (or putting in effort) could raise her expectations towards a better financial future, or better skill/health outcomes. Alternatively, such an action may also send her a signal about herself (e.g. "I invest, hence I'm a person who takes

¹⁶We introduce this feature of costless action to align with the particular design features of the savings products in our experiment, that were offered to measure future-oriented action among participants in response to the training program. The rationale behind this design feature, as explained in Section 7.2, was to make it possible to rule out alternative explanations involving self-control for observed savings choices.

¹⁷For simplicity of exposition, we assume no discounting of such later returns. Our decision to abstract away from discounting issues is driven by our empirical findings. We observe no significant differences across treatment and control participants' savings choices in the first few rounds of weekly meetings, which we interpret as indicative of similar levels of patience. Of course, a broader interpretation of the ability parameter α would include any attributes that could be shifted through a change in self-image, which may include patience/perseverance.

charge of her life”), and she may aspire to live up to this more positive self-image. For either/both of these reasons, her action choice at $t = 0$ can shift her reference point. Given these features of a person’s utility, her objective is to maximize:

$$U(e; \alpha) \equiv e\alpha u(w_0(1 + R)) + (1 - e\alpha) [u(w_0) + v_e(\cdot)]$$

where $u(\cdot)$ represents returns from material gains and $v_e(\cdot)$ represents the reference-dependent component of utility that is affected by her investment action choice.¹⁸ When $e = 1$, the reference point is $u(w_0(1 + R))$ and when $e = 0$, the reference point is $u(w_0)$. Using the simple ‘expected-versus-realized’ outcome interpretation of reference-dependent utility, the function $v_1(\cdot)$ above can be elaborated as

$$v_1(\cdot) = [u(w_0) - u(w_0(1 + R))]$$

with $v_0(\cdot) = 0$. Finally, a word about individuals’ ability parameter α . Their self-knowledge about their ability is very limited. Instead, their self-perception of this ability is very much influenced by a signal s they receive from society about how it values them. A low signal from society is a case where a person faces social stigma. In the spirit of the Goffman quote cited earlier, we assume that a stigmatized person internalizes and justifies this stigma by believing herself to be of lower ability, α than what she would have with a higher social standing. In short, facing stigma lowers self-perception of a person’s ability.

Let us now consider the decision-making process of a person facing this investment opportunity. If, having chosen to invest at $t = 0$, she then fails to overcome the challenge she faces in period $t = 1$ and abandons the investment, she ends up not just at her (lower) initial wealth (or health) level; the reference dependent component of her utility is lower too, which captures her disappointment that her period 1 behaviour (and outcome) did not live up to her higher expectations. If so, she is worse off ex-post than someone who chose not to invest at $t = 0$ and ended up with the same material outcome as herself. Of course, a person who chooses higher initial effort at $t = 0$ and is able to face the period 1 challenge achieves a higher overall utility level than both these other cases. Taking these various possible outcome scenarios into account, in a world with discrete effort (action) choices, a person will therefore choose to invest in this opportunity ($e = 1$) iff $U(e = 1; \alpha) \geq U(e = 0; \alpha)$, i.e.:

$$\alpha u(w_0(1 + R)) + (1 - \alpha)[u(w_0) + v(\cdot)] \geq u(w_0)$$

From the left-hand side of the above expression, notice that $U'(\alpha) > 0$ when $e = 1$,

¹⁸The expression $v_e(\cdot)$ does not appear in the first part of $U(\cdot)$ where investment yields a high return because the value of $v_e(\cdot)$ reduces to zero in this case.

since $v(\cdot) < 0$ if the individual's action is $e = 1$ in period 0, but she breaks her investment commitment at $t = 1$. In contrast, on the right-hand side α does not matter when $e = 0$. It follows that there is a threshold value $\bar{\alpha}$ such that when $\alpha \geq \bar{\alpha}$, $e = 1$ and when $\alpha < \bar{\alpha}$, $e = 0$. In other words, there is complementarity between self-perceived ability α and action taken at $t = 0$ in period 1. Since a person who faces stigma has a lower self-perception about her ability, she is more likely to end up choosing not to invest in improving her wealth or health outcome, and hence end up with a low effort and low outcome.

So far, we have considered the case where an individual takes her perception of her ability α as given and chooses action e . We could extend this by considering the plausible scenario where effort e and the perception of α are required to be mutually consistent: higher the realized outcome, the more positive a person's ex-post perception of her ability. In our setting, an outcome $w_0(1 + R)$ at $t = 2$ (and hence $e = 1$) would be associated with a high perceived value of $\alpha_H > \bar{\alpha}$ and an outcome w_0 (and hence $e = 0$) would result in a perceived ability $\alpha_L < \bar{\alpha}$. The simple notion of equilibrium here is that a pair (e, α) are required to be mutually consistent, i.e. e is optimal given α and α is consistent with the realized outcome given e . Then our stylized model leads to multiple equilibria, where $(e = 1, \alpha = \alpha_H)$ is one possible self-fulfilling outcome and $(e = 0, \alpha = \alpha_L)$ is the other. This scenario can be interpreted as corresponding to the notion of self-fulfilling pessimism described by Loury [1999].

This simple framework thus sheds light on why a training program, that sends a more positive social signal s and hence improves sex workers' self-image through their perception of their own ability, can lead to investment towards better future outcomes. Consistent with our stylized model, we find that in our sample, there exists a negative and significant correlation between sex workers' sense of shame about their occupation and their measures of self-efficacy at baseline. It is also those sex workers who report a higher sense of shame initially (in baseline) who are more responsive to the training program: compared to high shame sex-workers in the control group, they are more likely to choose the future-oriented (fixed deposit) savings options, in response to the training program. These results are reported in Table A1 in the Appendix.

Next, we describe the program setting and then its content in greater detail.

3 The Setting

According to Nag [2006, pp. 271-80], it is estimated that there are between 2 and 3 million sex workers in India. Most of them originate from families of low social

status and poverty and remain poor most of their lives. They live in miserable housing and sanitary conditions, eat inadequate and non-nutritious food and lack financial security. Sex workers living in brothels, who are the focus of the present study, are typically engaged in the profession full-time. Based on surveys of such sex-workers in the metros of India, Nag [2006] reports that over 90% of them are illiterate.

The brothel-based sex work industry in Kolkata, the city in eastern India where our study is located, is estimated to include about 18,000 women located in different ‘red-light’ areas across the city [AIIHPH, 1992]. While the largest of these areas in terms of size is Sonagachi, with an estimated population of around 4000-6000 prostitutes [Rao et al., 2003, JISC, 2009], our three study localities of Bowbazar, Kalighat and Chetla are more medium-range in this respect, with a mean of around 500.¹⁹ A vast majority of the sex workers (approx. 80% in our sample) are migrants from impoverished rural parts of nearby districts in the state of West Bengal (of which Kolkata is the capital) or neighbouring countries like Nepal and Bangladesh. Extreme poverty has often been cited as being, directly or indirectly, one of the prime reasons for women ending up in this profession [Basu et al., 2004].

Sex work sites in these areas consist of a number of houses that serve as brothels, as well as small businesses (e.g. liquor shops, food stalls, teashops etc.) that have grown around these brothels to support sex workers and their clients. Within these brothels, sex workers live and work under primarily three types of contracts. The first type is one in which the sex worker pays a fixed rent to the owner for a room in the brothel and works independently (*self-employed*). The second type is one in which the sex worker splits her daily earnings 50:50 with the owner in return for lodging and use of room (*adhiya*). The third is one where the sex worker (typically very young) effectively works as a bonded labourer to the owner who has paid a lumpsum amount in advance for her to her family or a trafficker (*chukri*). Due to the efforts of Durbar in the prevention of under-age prostitution, *chukri* contracts have almost disappeared from these areas.²⁰ A fourth type of contract also exists, called a ‘flying’ contract, in which the sex worker is not resident in the brothel but comes to work there from outside the ‘red-light’ area. She typically hires a room from the owner of the brothel on a per-hour or per-act basis to carry out her services.

Sex workers in India are severely stigmatized owing to their profession – as is true for sex-workers in most parts of the world.²¹ In the Indian setting, sex workers seem

¹⁹In terms of size, Bowbazar is the largest area and Chetla is the smallest. According to Durbar’s census of these 3 areas in 2012, the total number of sex workers in Bowbazar is 621, in Kalighat is 559 and in Chetla is 297.

²⁰In our sample, the percentage of *chukri* contracts is less than 1%.

²¹See for instance, Bradley [2007] for a study on stigma against sex workers and Tomura [2009] for a description of the psychological impacts of facing such stigma in the USA. Freed [2003] describes

to internalize this stigma to a considerable degree. For example, approximately 62% of the respondents in our baseline survey said they felt ashamed of their occupation. This sense of shame and inferiority is also reflected in the account of a sex-worker's statement in [Nag, 2006, pp. 103] who reports that "when they look at each others' faces, or the faces of their clients, inside the brothel, they do not feel anything bad about themselves; but out on the road, they cannot look in the face of any person talking to them, their heads drop in shame."

Further, the ambiguous legal status of activities related to sex work in India effectively criminalizes the profession, leaving the workers vulnerable to exploitation by other stakeholders in the sex trade, e.g. brothel owners, pimps, local goons, police etc. [Evans and Lambert, 2008]. Their sense of being 'fallen' women also leads to undue tolerance of such exploitation, rather than challenging it. For instance, Gupta [2011] reports her initial surprise when, while talking to a group of 102 sex-workers outside of Delhi, they claimed that they faced no violence. More probing revealed that they were not considering being slapped, having broken bones and even worse acts as violence, simply because their understanding was that "he (the client) paid for it, so why is it violence?"

Feelings of shame and inferiority, and the exploitation that comes with them, create feelings of helplessness, and often results in their inability to take charge of their lives. A sex-worker in Araria, Bihar, writing about her efforts to form a self-help group in her red-light area of Khawaspur, says "I was hesitant about approaching women older than me. I would go to cautiously to the women and ask them to join the group and begin saving a portion of their earnings. They would say: Why? Our lives are going to end this way, why should we save?" [Nat, 2011]

The training program offered by Durbar stems from the premise that to improve sex-workers' life outcomes, what is needed is a change in their 'mind set' that lets them break free of their self-imposed internal constraints, in response to social stigma. It persuades sex workers to adopt such a change in mindset by plausibly reshaping their self-image in a positive direction. Based on this foundation of a positive self-image, the training program also suggests them pathways to take charge of their future lives.

how sex-workers in Cambodia internalize negative societal attitudes towards them, feeling shame and despair.

4 Training Content and Experimental Design

4.1 Training Content

The training program was developed and conducted by our local partner Durbar, an NGO working with sex workers in Kolkata over the last two decades. It consisted of 8 weekly sessions, during which experienced trainers associated with the NGO attempted to reshape sex-workers' impaired self-image through interactive discussion and verbal persuasion.²²

Given that most sex workers' current self-images are heavily burdened by their past experiences, the training program began with Session 1 focusing on the need to reconsider past experiences and modes of thinking, to be able to look to the future. Session 2, a core building-block of the training program, then built on this theme by working on re-casting the sex-worker's current self-image. It raised comparisons of sex workers with members of mainstream society, to bring out how they are not any different from them, and hence have equal right to lead a fulfilling and dignified life. This point was emphasized by initiating a discussion on whether (or not) they could look upon themselves as just another person who is trying to make an honest living (as opposed to a thief or dishonest person), and whether (or not) they could consider themselves as entertainment service providers, rather than someone performing a morally depraved act.

Based on this foundation of a more positively recast self-image of the participants, the remaining sessions of the program focused on various pathways to improve their future life outcomes, both at an individual as well as at a collective level.²³ Thus, Session 3 focused on the importance of saving money as a means of securing their future.²⁴ It highlighted the establishment of the cooperative bank, USHA, for sex workers as an excellent example of how sex workers' beliefs in their collective ability to improve their future could bring about positive change.²⁵ The session also provided information on various savings options available within USHA. In order to isolate the impact of the psychological empowerment dimension of the training program, it was important to ensure that the treatment group did not have any

²²The psychology literature identifies verbal persuasion or exhortation as a key way to improve people's beliefs that they possess the capabilities to exercise control over events in their lives, and achieve what they seek. If people receive realistic encouragements in this regard, they will be more likely to exert greater effort and to become successful [Wood and Bandura, 1989].

²³We did not, however, attempt to 'orient' the participants towards any specific life goals.

²⁴This is especially important in the case of sex workers because ostracization from their family often means they have no one to fall back on when they are past their working prime, or in times of crisis. Sex workers typically face problems in accessing formal banks, not only due to the stigma attached to their profession, but also because they are often unable to provide a certified identity card, e.g. voter registration card or ration card.

²⁵USHA is associated with Durbar.

informational advantage over the control. To achieve this, identical information on these savings options was provided to the control group as well.

Session 4 focused on the issue of violence in their daily lives. Be it from clients, landlords, partners or the police, the session engaged participants on what constitutes violence and how to deal with it and/or challenge it. The key point that was emphasized is that sex workers do not *deserve* violent treatment just because they are in a profession that society considers ‘fallen’ or ‘bad’ - something that is again linked to their self-image (theme of Session 2). Sessions 5 and 6 emphasized the role of trust, mutual support and organization among sex workers in collectively taking charge and improving their shared life outcomes. This was not only with respect to dealing with issues like violence but also to asserting their legal and political right to greater social acceptance. Session 7 focused on a discussion about the sex workers’ children, and the need to instill in them a positive self-image so as to empower them to strive for a better future. Session 8 summarized the key messages of the entire program.

Every attempt was made to keep the program content authentic, while being sensitive to the vulnerable state of the participants. Towards this end, the trainers who conducted the program were members of Durbar with long-standing associations with the community of sex workers, including a former sex worker herself.

It is to be noted that the training program consciously avoided any discussion of pathways out of the profession in the form of encouragement or suggestions on escape routes. Neither did it provide any information on alternative employment opportunities. The program focused entirely on boosting psychological factors (by improving impaired self-image) while keeping the external environment (or information thereof) unchanged.

4.2 Experimental Design

Brothels in ‘red-light’ areas of Kolkata are typically located in one to three storey residential buildings or houses with multiple rooms, where these sex workers live and work. Thus, they do not fit into the image of neon-lights and women out on the street, typically associated with such areas in developed countries. In our three study areas – Kalighat, Bowbazar and Chetla – sex-workers are housed across 98 brothels.²⁶ As a first step, eligible sex workers were selected from a complete list of sex workers living in these three study areas compiled by Durbar in January 2012. The eligibility criterion was that a sex worker had to be 35 years of age or less at the time in order to be a participant in the study. This resulted in a sample frame of 816 sex workers across these 98 brothels, of which 341 lived in Bowbazar, 277

²⁶The distribution of brothels by study area is: 45 in Bowbazar, 30 in Kalighat and 23 in Chetla.

in Kalighat and 198 in Chetla.²⁷ Out of this, we then randomly sampled 233 in Bowbazar, 136 in Kalighat and 98 in Chetla, giving us a final baseline sample of 467 surveyed sex workers living in 98 brothels across our three study areas.²⁸

Next, we randomized two-thirds of these brothels (66 out of 98) into treatment as follows. In each area, we first ranked the brothels according to the number of eligible women. Then we formed groups of three brothels by putting three consecutive brothels from this ranking in the same triplet. Within each of these triplets, we randomly selected two brothels to be part of the treatment group and one brothel to be part of the control group. All surveyed sex workers in the treatment brothels were invited to participate in the training program, while the surveyed sex workers in the control brothels were not. Thus, the treatment group comprises of 264 sex workers, while the control group consists of 203 sex workers.

All sessions of the training program was held in a pre-designated venue in each location, except the last session which was held in an offsite location. The conditions for the treatment and control groups were kept as similar as possible. Control group participants were offered the same savings products as the treatment group. Significant care was taken to ensure that both groups had access to exactly the same factual information about these savings options. Savings decisions of treatment group participants were presented to them at the end of each weekly training session. To maintain parity, control group participants were also required to come in each week to make their savings choices – except that their choices were not preceded by the weekly training session. The justification offered to them for the weekly meetings to make their savings choice was that they were part of a study, for which maintaining this protocol was necessary.

At the end of each of the 8 sessions of the training program, we provided a token payment of Rs. 100 (approx. 1.57 USD) to all program participants,²⁹ and offered them three options regarding how they would like to receive this payment:

1. as an injection directly into their current account

²⁷The original sample frame constructed from the list compiled by Durbar in January 2012 consisted of 855 sex workers across the 98 brothels in the three study areas, but 39 sex workers left Bowbazar between the compilation of the list and the conduction of our baseline survey a few months later, leaving us with a sample frame of 341 sex workers for Bowbazar. No sex workers left in either Kalighat and Chetla.

²⁸Our rule of thumb was to randomly select 50% sex workers from Kalighat and Chetla and 100% from Bowbazar to be part of our study. Hence our survey sample in Bowbazar included 108 eligible but untreated sex workers living in the treatment brothels, who were included for the purpose of studying spill-over effects of the training program. Given that in this paper, we do not focus on spill-over effects, we exclude these sex workers from our analysis.

²⁹This payment was offered as a ‘thank you’ gift to the participants - for participating in the training program for those in the treatment group and for participating in the baseline survey for those in the control group.

2. as a contribution to a fixed deposit
3. as a contribution to a fixed deposit where the participant would match our payment with an equal amount provided by herself, up to a specified amount limit

The key difference across these three products is in the extent to which they require future-oriented action from the participants. Product 1 requires no future-orientation as all the benefits are immediately available. Product 2 requires some future-orientation since the returns from a fixed deposit are only available at maturity a year later (i.e. there is a lock-in period of one year). Product 3 requires even greater future-orientation given that the participant has to contribute her own funds over and above what is offered as part of the training, with the returns from this total investment being only available a year later. The interest rates offered differ across these three products: the interest rate is 8% for the first product, 12% for the second and 15% for the third.

In order to minimize the chances of spillovers among participants, whereby they could observe and mimic each other's choices, we asked each participant to reveal her choice to us in a separate room after the completion of the training session. We also ensured that she was not able to return to the training room (where the remaining participants from her group were sat) after having declared her choice. Our aim is to examine the difference in the rate of take-up of these options between the treatment and the control groups across sessions, and interpret these differences in light of the impact of the training program on the degree of future-oriented behaviour.

One concern here may be that the amount of money offered to the participants (Rs. 100 i.e. approx. 1.57 USD per week) was too small to reflect choices over the available savings options in any credible way. However, this amount is equal to 40% of their median daily earnings of approx. Rs. 250 (approx. 3.92 USD), and hence not entirely insignificant. Moreover, due to the nature of their trade, sex workers manage their finances on a day-to-day basis [Evans and Lambert, 2008], which is consistent with the anecdotal evidence on the popularity of daily savings schemes in these 'red-light' areas. Hence the decision regarding the choice of the savings products offered as part of the experiment is a real one.

5 Data and Evaluation

5.1 Data

In Feb-April 2012, we conducted a baseline survey that collected detailed information on a number of psychological outcome measures, as well as socio-economic

characteristics, past histories and occupational details of the sex workers. As reported earlier, our baseline sample consisted of 467 sex workers across 98 brothels in the three ‘red-light’ study areas of Kolkata. The training program was carried out between October and December 2012, during which we collected weekly data on the savings choices of our subjects. For the treatment group, refusal to attend the training program was low at 3.8%.³⁰ The follow-up survey, again focusing on the same questions as in baseline, was conducted in January-February 2013. Attrition from the baseline to the follow-up/endline was about 7% and not significantly different between treatment and control, leaving us with a sample of 437.³¹

Table I presents descriptive evidence on the individual characteristics of the sex workers in our study areas. The average sex worker is 32 years old, most likely Hindu, and with very little formal education. Approximately 70% of those in our sample are married, and have been in this profession for an average of 9 years. Close to half of them are self-employed. Sex workers appear to suffer a loss of around 26% in prices they can charge for their service by using condoms.³² Average monthly earnings are approximately Rs. 9000 (approx. 141.15 USD). A vast majority of these sex workers are members of Durbar but fewer than half have bank accounts.³³

Sex workers in treatment and control brothels also appear to be similar on most of these observable characteristics, with the exception of religion, marital status and the proportion of *adhiya* sex workers. However, all our endline results presented below are robust to the inclusion of these and other baseline characteristics as controls.³⁴ Our difference-in-difference results account for any level differences between the treatment and control groups in terms of baseline characteristics.

Construction of Psychological Outcome Variables

The first set of outcome variables that we focus on in this paper includes various

³⁰Refusal to attend is measured as the proportion of invited sex workers (and part of the baseline) who failed to turn up on the first week of the training program. Failure among the control group to turn up to give us their savings choices in the first week is not significantly different at 4.4%.

³¹This attrition rate is significantly lower to those reported in other studies that evaluate the impact of various training programs for the poor: e.g. Bandiera et al. [2013] report an attrition rate of 13% for the Targeted Ultra- Poor program conducted by BRAC in rural Bangladesh over 4 years. Banerjee et al. [2011] find that 17% of their original baseline sample in West Bengal attrit over an 18-month period, while Morduch et al. [2012] report an attrition rate of 12% over 3 years in Andhra Pradesh.

³²Though this is a sizeable loss, it is still significantly lower compared to the estimates of Rao et al. [2003] who reported estimated losses of 66-79% in a similar population of sex workers in Kolkata. This could be because condom usage has increased significantly, thanks to Durbar’s sustained effort over the last decade, in generating awareness among sex workers in Kolkata regarding value of practicing of safe sex.

³³Having a bank account here refers to having an account with USHA, Durbar’s banking arm.

³⁴Baseline controls include age, education, religion, marital status, whether or not has fixed client, contract, whether or not member of Durbar, whether or not has bank account and log of reported monthly income.

self-reported measures of self-image. Self-image being a multi-dimensional concept, we attempt to capture key aspects of it, including the moral dimension (shame and self-worth) and the competence dimension (self-efficacy). We also look at related measures such as comfort in public interaction, happiness, aspiration for own future, and decision-making power.

As described in detail below, some of these variables – shame, self-worth, happiness and aspiration – are constructed from individual questions asked in the survey. The other variables – self-efficacy, comfort in public interaction and decision-making power – are constructed on the basis of a set of questions asked in the surveys.

Shame: This measure is constructed on the basis of the question: “Are you ashamed of your occupation?” The answer options are “1-Yes”, “2-Sometimes”, “3-Never”. A binary variable for shame is constructed that equals 1 if the answer is 1 or 2 and zero otherwise.

Self-worth: This measure is constructed on the basis of the question: “How do you view yourself?” The answer options are “1-Bad woman”, “2-Fallen woman”, “3-Woman with no future”, “4-Service provider/entertainment worker”, “5-Somehow managing life”, “6-Criminal”. A binary variable for self-worth is created that equals 1 if the answer is 4 and zero otherwise.

Given that sex workers’ sense of shame and inferiority stems largely from the moral social sanctions against their profession, the variables shame and self-worth in our context are closely connected and inversely related to each other.

Self-efficacy: This is constructed on the basis of the following question: “Do you feel capable of: resolving a situation of conflict with the police; resolving problems with the landlord/lady; resolving problems with local youths; resolving problems with goons; resolving problems with your pimp; resolving problems with your madam; dealing with aggressive clients; dealing with emergencies like sudden illness; developing a new skill to engage in another occupation; making plans for a future business; determining your child’s future; buying property.” The answer options for each of these situations are: “1-Strongly agree”, “2-Agree”, “3-Neither agree nor disagree”, “4-Disagree”, “5-Strongly disagree. For each of the 12 scenarios described above, a binary variable is created that equals 1 if the answer is either 1 or 2, and 0 if the answer is 3, 4 or 5. These 12 binaries are added up to generate an agency score between 0-12, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

Comfort in Public interaction: This measure is constructed on the basis of the following question: “Are you comfortable about: speaking in meetings; participating in public processions; interacting with a police officer; talking about your profession with your children; talking about your profession with your neighbour; talking about your profession to the police; allowing your children to bring home their friends.”

The answer options are same as above. For each of the 7 scenarios described above, a binary variable is created that equals 1 if the answer is either 1 or 2, and 0 if the answer is 3, 4 or 5. These 7 binaries are added up to generate a comfort score between 0-7, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

Happiness: This measure is constructed on the basis of the question: “On a scale of 1-5, how happy would you classify yourself to be in life?” The answer options are “1-Very happy”, “2-Somewhat happy”, “3-Indifferent”, “4-Somewhat unhappy”, “5-Very unhappy”. A binary variable for happiness is created that equals 1 if the answer is either 1 or 2 and zero otherwise.

Aspiration: This measure is constructed on the basis of the question: “Where do you see yourself five years from now?” The answer options are “1-Own a house”, “2-Become a peer worker”, “3-Become an organization member of the NGO, Durbar”, “4-Become a madam”, “5-Leave this profession”, “6-Same as now”, “7-Don’t know”. A binary variable for aspiration is created that equals 0 if the answer is either 6 or 7 and 1 otherwise.

Decision-making power: This measure is constructed on the basis of the following question: “For each of the following, specify who takes the decision: number/choice of customer; financial matters; children’s future; purchase of clothes and jewellery; own medical treatment; condom usage with babu (fixed client); condom usage with other ordinary client.” The answer options for each of scenarios are “1-Self”, “2-Husband/babu”, “3-Other family member”, “4-Madam”, “5-Pimp”, “6-Other sex workers”, “7-Durbar official”. For each of the 7 scenarios described above, a binary variable is created that equals 1 if the answer is 1, and 0 otherwise. These 7 binaries are added up to generate a decision-making score between 0-7, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

Construction of Future-Orientation Variables

The second set of outcome variables that we measure focus on participants’ ‘future-orientation’, as captured by their actions related to savings and health. The primary variable in this context uses the choices made by the participants across the various savings products with differential maturity periods and interest rates as described above. If a participant chooses Product 2 or 3 then she is classified as displaying future-oriented behaviour. If she chooses Product 1, she is present-oriented. A binary variable is constructed to measure present-orientation which equals 1 if Product 1 is chosen and 0 otherwise.

An alternative approach of measuring future-orientation is by focusing on health-seeking behaviour. Since sex work, by its very nature, puts a lot of stress on the

physical condition of the sex worker, investment in physical health is very important for future sustainability. We proxy health-seeking behaviour with the frequency of visits to the doctor. In particular, the measure is based on the question: “When was the last time you visited your doctor regarding your physical health?” The answer options are “1-A week or less ago”, “2-A month or less ago”, “3-A year or less ago”, “4-More than a year ago”, “5-More than 5 years ago”. A binary variable for health seeking behaviour is constructed that equals 1 if the answer is either 1 or 2 and zero otherwise.

Table II reports the baseline of key outcome variables. There appear to be no significant baseline differences between treatment and control groups along any of these dimensions.

5.2 Estimation

In order to evaluate the impact of the training program on psychological outcomes of our subjects, we estimate the following regression specification:

$$Y_{ijl} = \alpha_l + \beta T_{jl} + \epsilon_{ijl} \quad (1)$$

where Y_{ijl} indicates the outcome of interest for individual i living in brothel j in area l . T_{jl} is a binary variable equal to 1 if the individual lives in a treatment brothel (a brothel whose eligible residents were invited to participate in the training program). The coefficient β captures the average difference in outcomes of individuals living in a treatment brothel relative to individuals living in a control brothel, and identifies the intention-to-treat (ITT) parameter. It is close to the average treatment-on-treated effect, since less than 4% of those invited to the training program refused to attend. α_l denote area fixed effects and are included to improve efficiency since randomization was stratified by locality [Bruhn and McKenzie, 2009].

We also estimate the program impact by using a difference-in-difference strategy as follows:

$$Y_{ijlt} = \alpha_l + \beta T_{jl} + \gamma Post_t + \delta T_{jl} * Post_t + \epsilon_{ijlt} \quad (2)$$

In this case, the program effect δ is identified by comparing changes in individual outcomes before and after the training program in treatment brothels, to those in control brothels, within the same area. This controls for time-varying factors common to individuals in treatment and control brothels, as well as time-invariant heterogeneity with area. $Post_t$ is a binary variable that denotes the endline survey.

A key concern regarding the validity of the estimates of the program effect is that of contamination between the treatment and control brothels. However, our pilot survey indicates that interaction among sex workers within brothel is far more

intense compared to across brothel: more than 75% of a random sample of 50 sex workers reported that all their close friends live in the same brothel as they did. Hence, using brothel as the unit of randomization minimizes the risk of contamination. Standard errors are also clustered at the brothel level throughout to account for the fact that outcomes are likely to be correlated within brothel.

In order to evaluate the impact of the training program on future-oriented behaviour of our subjects, as measured by their choices across saving products after each weekly training session, we estimate the following regression specification:

$$S_{ijls} = \alpha_i^s + \rho T_{jl} + \epsilon_{ijls} \quad (3)$$

where S_{ijls} is a binary variable which equals 1 if the individual chooses product 1 as opposed to products 2 or 3, and 0 otherwise. The subscript s denotes the order of the weekly training session. Since both products 2 and 3 entail some degree of future-orientation, we club them together. We estimate equation 3 above separately for each session.

6 Impact on Psychological Outcomes

Tables III and IV presents the ITT estimates of the training program’s impact on various psychological outcome variables. Panel A presents the simple differences between treatment and control groups in the endline survey, using Specification 1. Column 1 in Panel A of Table III indicates that sex workers assigned to the treatment group are 40 percentage points (pp) less likely to report feeling ashamed of their occupation compared to their counterparts in the control group (relative to a baseline measure of 0.63). Column 2 indicates that they are also 68 pp more likely to report having higher self-worth than those in the control (relative to a baseline mean of a mere 0.18). It is reassuring to find that the self-worth results are consistent with those for shame, since in the context of our study, these two variables may be regarded as being inversely related. The treatment group is also 0.43 standard deviations more likely to report feeling a greater sense of self-efficacy than those assigned to the control group (column 3), and 0.30 standard deviations more likely to report feeling greater comfort/ease in public interaction (column 4). Panel B of Table III presents the difference-in-difference estimates using Specification 2. The findings are found to be robust to this alternative specification and estimated coefficients are of a similar order of magnitude.

Next, column 1 in Panel A of Table IV indicates that the treatment group is also 12 pp more likely to report that they are happy in the endline, which corresponds to an increase of 25% from the baseline mean. However, no significant impact is

observed on the level of aspiration (column 2). This finding is consistent with the program’s focus on re-casting self-image rather than directing them towards specific types of future goals.

Column 3 indicates that the training program had no impact on sex-workers’ self-reported decision-making power. Baseline level of decision-making power were already quite high amongst this population: 77% sex workers in our sample report taking *all* decisions on their own, while 93% report taking more than 50 percent decisions on their own. Thus, with relatively less margin for improvement, it not surprising that the training program has very little additional impact on the decision-making power of the participants.

Panel B of Table IV shows that these results are robust to a difference-in-difference specification, although the point estimate for happiness is no longer statistically significant under this specification. Nonetheless, the fact that the magnitude of the coefficient is still very comparable to that obtained using Specification 1 is reassuring.

7 Impact on Future-Oriented Behaviours

7.1 Saving Product Choices

The training program was designed to create a more positive self-image among participants, with a view to encourage actions to take charge of their future. The core findings on their future-oriented actions are presented in Figure 1. Each bar represents the proportion of individuals opting for Product 1 (present-oriented option) instead of either Product 2 or 3 (future-oriented options) in a particular session. For the control group, the proportion of individuals choosing the present-oriented option remains more or less unchanged in the early sessions, rising somewhat in the later sessions. The proportion of individuals in the treatment group choosing the present-oriented option is similar to that in the control group up to session 3, but drops dramatically from session 4 onwards. This suggests a significant increase in the degree of future-orientation among the treatment group, as captured by their savings choices, over the course of the program. Moreover, this relative increase in future-oriented behaviour among the treatment group does not appear to be driven by changes in the behaviour of the control group in the later sessions.³⁵

Table V presents the ITT impact estimates of the training program using Spec-

³⁵Regarding why there is no significant difference in the choices of the treatment and control group for the first few sessions, there could be several potential explanations including time taken to absorb the content of training before applying it to choices, role of trust for the trainers, status-quo bias etc.

ification 3 on choices over savings products, and confirms the patterns observed in Figure 1. There is no statistically significant difference in the propensity to choose the present-oriented option between the treatment and control groups up to session 3 (columns 1-3), with the coefficients being small in magnitude. But in session 4, the treatment group is 25 pp less likely to choose the present-oriented option than the control (column 4), which increases to approximately 50 pp in session 5 (column 5) and remains more or less stable till the end of the program.³⁶ The regression coefficients from Table V are plotted in Figure 2, where each dot on the solid line is the coefficient of the interaction of the treatment dummy and relevant session dummy (a 95% confidence interval is plotted by broken lines). These coefficients are close to 0 and insignificant until session 3 and negative and significantly different from zero session 4 onwards.

Figure 2 uses variation across individuals. However, attrition may lead to estimation bias if different kinds of individuals attrit in the treatment relative to control, even when the average rate of attrition is not significantly different between these two groups. Hence, Figure 3 plots the coefficients from the regression including individual fixed effects. It is reassuring that Figure 3 closely resembles Figure 2, thereby mitigating the concern over selection to some extent.

It is worth pointing out that the similarity in the initial savings choices across the treatment and control group suggests no innate differences in their degree of patience towards future outcomes. For this reason, our conceptual framework abstracts from discounting issues.

In the last session of the program, the participants were also given the option to overturn their decisions in the last seven sessions in favour of their decision in the final session. Approximately, 33% of the participants made such a switch in the final session. We examine the proportion of participants who decided to overturn their earlier decisions in favour of a future-oriented decision. The results are presented in Table VI. The dependent variable is a dummy that equals 1 if the participant chooses to overturn her past session choices (at least one of which was the present-oriented option, Product 1) in favour of either Product 2 or 3, and zero otherwise. Column 1 of Table VI indicates that the treatment group is 32 pp more likely to switch to a future-oriented product in the last session relative to the control group.

We also examine heterogeneous treatment effects by baseline levels of stigma captured by shame. The results are reported in Table A1 in the Appendix. Consistent with the predictions of our conceptual framework in Section 2, we find that

³⁶The regression results presented in Table V cluster standard errors at the brothel level. However, since the training was imparted to women in groups of size 15-17, there arises a possibility that outcomes could be correlated within these training groups. The results are found to be robust when standard errors are clustered at the training group instead of brothel level (not reported here).

participants who reported suffering from a greater sense of shame in the baseline are more responsive to the training program: they are 9–13 pp more likely to choose the future-oriented savings option than the present-oriented one, relative to those who report lower shame.

To summarize, our results show a strong improvement in reported measures of self-image as well as a gradual shift towards more future-oriented savings choices among the treatment sex workers relative to control. It seems reasonable to infer that these changes are triggered by the positive effects of the training program on sex-workers' on self-image.

7.2 Alternative Explanations

In this section, we attempt to rule out some potential alternative explanations for our findings related to the savings choices of the sex workers.

Group effects

By design, the program uses a group format to deliver psychological training, and thus provides a natural platform for social interaction. Given that in the baseline there is greater interaction among sex workers living in the same brothel rather than across brothels, the training program may present an opportunity to meet new people and learn from their experiences. Hence, it is possible that the effect of the training program on savings behaviour was being driven by such 'exposure to new people'. To examine this concern, we exploit experimental variation in the fraction of women in the training group coming from a different brothel than the participant, since members of the same brothel could have ended up in different training groups as a result of random assignment. The results are reported in Table VII. We find no differential impact on saving product choices by group composition measured in this way. This suggests that our findings are unlikely to be driven by the greater potential for interaction with new people presented by the format of the training program.

Self-control

Another alternative channel that is known to affect future-oriented choices is issues related to an individual's self-control. Given that this channel is widely studied in economics [Gul and Pesendorfer, 2001, Fudenberg and Levine, 2006, Ashraf et al., 2006], it would be useful to clarify why this channel is unlikely to be driving our results. In principle, the training program could have made a sex worker more aware of her lack of self-control as a reason for poor life outcomes. Such awareness could then make her more future-oriented in her savings choices, as a commitment device.

In a standard framework, self-control problems arise due to dynamic inconsistency in preferences: there are two selves: the current self at $t = 0$ (who is making the decision to invest in the high-return-illiquid asset or the low-return-liquid asset) and the future self at $t = 1$ (who will face a temptation to consume early and so liquidate the high-return-illiquid asset early). A key element of investment products designed to tackle self-control issues is that the investment in a financial product made by the $t = 0$ self cannot be liquidated by the $t = 1$ self without cost, until the maturity date. This is not true in our setting. A participant could always liquidate the high return-illiquid asset at some intermediate stage and still get the return she would have had she invested in the low return-more liquid asset. Thus investment in the illiquid asset does not act as a commitment device in our context, implying that self-control cannot be the explanation for participants' more future oriented choices.

Furthermore, the content of the training program does not attempt to explicitly address self-control issues in any way.

Reciprocity

A third alternative mechanism could be that the participants choose the 'right' options (i.e. the future-oriented options) as a reciprocity gesture to the trainers (who are from Durbar) for spending time training them. This channel seems an unlikely explanation in our context, for several reasons. First, if reciprocity were to be the driving mechanism, then one would expect the participants in the training program to make the 'right' choice from the first session itself. The divergence in the choice behaviour between treatment and control groups from the fourth session is less easy to explain using this mechanism. Second, such a reciprocity gesture, if present, is more likely to be observed for those participants who are members of Durbar, since their relationship with the NGO is a repeated game. Participants who are non-members, on the other hand, should not exhibit a similar pattern of choices regarding these savings product over the course of the training. However, we find that there is no differential effect of being a member of Durbar (measured at baseline) on participants' choice (Table VIII). In other words, members and non-members are equally likely to take up the future-oriented options over the course of the intervention. The rate of take-up of membership of Durbar does increase in the treatment group relative to the control in the endline compared to baseline ($\approx 7\%$ points) but this is not statistically significant, and is primarily being driven by Bowbazar. However, the pattern of saving product choice is similar across all three localities in our study (results not reported). Finally, the participants revealed their choices not to the trainers themselves but to members of our field staff, towards whom the participants are less likely to feel such a sense of obligation. Hence, it appears unlikely that reciprocity is driving our results.

Changing Aspirations

Fourthly, could the impact of our training program be working through raising the level of aspirations? To address this concern, it is important to point out that our training program did not actively seek to change the opportunity set of our participants or to orient their goals in any specific direction *per se*. Secondly, as noted in Section 6, we find no impact on self-reported aspirations of the treatment group relative to the control as well as baseline measures. So based on the evidence, it is highly unlikely that higher aspirations explain our savings results. Further, self-reported happiness improved. If aspiration levels were being raised as a result of our training program, then one would expect the opposite impact on happiness due to the fact that the gap between current and desired outcomes would have increased.

7.3 Health-seeking Behaviour

Next, we examine the impact of the training program on health-seeking behaviour (proxied by frequency of visits to the doctor), as an alternative measure of future-oriented behaviour among the participants. Column 1 in Table IX indicates that the treatment group is 9 pp more likely to have visited a doctor in the recent past compared the control, which represents an improvement of 12% of the baseline mean of 0.77. This result is replicated using a difference-in-difference specification in Column 2, and although the coefficient is no longer statistically significant at conventional levels, the magnitude is very similar to that obtained in Column 1. However, McKenzie [2012] argues that when outcomes have low autocorrelation, it is more efficient to use ANCOVA instead of difference-in-differences to estimate treatment effects. In case of health-seeking behaviour, the correlation between baseline and endline levels is -0.01. Hence, we check using ANCOVA in column 3 of Table IX and find the treatment effect to be once again positive and significant. This result is particularly noteworthy since there was no explicit discussion on health issues during any of the training sessions.

8 Medium-term Impacts

A common concern with the effects of psychological empowerment methods is about their persistence over the long run. The findings presented above focus on immediate program impacts, i.e. those measured either during, immediately after, or within three months of the conclusion of the program – which may raise some skepticism about the ‘true’ and enduring impact of the training program. In the context of saving behaviour in particular, we are interested in testing whether the overall positive response to the training program is merely a short-term ‘feel-good’ response to

a new type of training, or whether it is representative of a more lasting change in participants' behaviour. To address this issue, we examine the participant's likelihood of closing the program accounts twelve and fifteen months after the program ended. We also look at their final account balances fifteen months after the program ended. This fifteen-month post-intervention data was obtained for only two of our three original study localities, Kalighat and Chetla, due to multiple issues of tracking participants in Bowbazar. Hence, our sample for these medium-term impacts consists of 228 women (out of the original 230 in these two localities: two could not be traced).

Table X reports the results on likelihood of program account closures at various points in time. The dependent variable is a binary variable that takes the value 1 if the account has been closed at a given point in time and zero otherwise. The three points in time we focus on are: immediately after the program ended (December 2012), twelve months after the program ended (January 2014) and fifteen months after the program ended (March 2014). Column 1 indicates that the treatment group is 53 pp less likely to close their program account(s) immediately after the program ended (control mean is 0.57).³⁷ This pattern continues to hold up to twelve months after the program (column 2). However, for the sample of accounts that still remained open immediately after the program, there is no significant difference between treatment and control in terms of account closures after twelve months (column 3). This suggests that some participants in the treatment group closed their accounts once they had received their due pay-offs from their savings product choices after the lock-in period of twelve months was over. However, any concern that such a mechanical reason is key driver of lower account closures in the treatment group overall is allayed by the fact that even fifteen months after the program (i.e. when the lock-in period is no longer binding), the treatment group continues to be significantly less likely to close their accounts relative to control (columns 4-5).

The program accounts could be either fixed deposits or standard savings accounts, depending on the final choices made by the participant at the end of the training program. Table XI shows that the impact on rate of account closure 15 months after the program is similar for both types of accounts. Table XII presents the results for balances in these program accounts. Column 1 shows that the treatment group has significantly higher balances in their fixed deposit accounts than their control counterparts.³⁸ On the other hand, there is no significant impact on

³⁷Out of the 228 individuals in this sample, 107 have a single program account while the remaining 121 have two program accounts.

³⁸It should be pointed out here that of the 61 fixed accounts that were still open after 15 months, all but two belonged to women from the treatment group. While this is an encouraging outcome for the program in the sense that it encouraged higher take-up of the fixed deposit options, the balance results should be interpreted with caution.

balances in the savings accounts between the two groups (columns 2-3).

Overall, it is reassuring to find that the training program not only succeeded in changing behaviour in the short term, but that some of these effects persisted in the medium-term as well. These findings are thus encouraging for the sustainability of such initiatives.

9 Conclusion

In this paper, we take seriously the view that individual self-image is an important driver of one's life choices and that it may be distorted by stigma and social exclusion. We outline how self-image impaired by stigma may adversely affect the life choices and outcomes of the socially marginalized. Our main focus is on examining whether psychological empowerment – specifically, a training program focused on improving such an impaired self-image – can change the behaviour and life choices of a group of individuals that faces acute social exclusion: sex workers in Kolkata, India. Using a randomized control trial, we find that the training program generates strong positive response among participants, both in terms of self-reported measures related to self-image as well as future-oriented behaviour, as measured by their choice of savings products and their health-seeking behaviour.

While the findings of our paper pertain to a group that faces extreme negative social sanction, we believe that they are also relevant in general for other individuals who face social exclusion and stigma in some form, such as poor people, ethnic and racial minorities, and women in patriarchal societies. These findings suggest that the design of anti-poverty and anti-discrimination programs should factor in not just material deprivation, but also psychological barriers that impede such disadvantaged groups from breaking the vicious circle and achieving better outcomes in life.

In future work, it would be illuminating to implement similar training programs for other poor and excluded groups as well as the non-poor, so as to understand the generalizability of the current findings.

SAYANTAN GHOSAL, University of Glasgow, UK

SMARAJIT JANA, Durbar, India

ANANDI MANI, University of Warwick, UK

SANDIP MITRA, Indian Statistical Institute, Kolkata, India

SANCHARI ROY, University of Sussex, UK

References

- AIIHPH. *Report on the Community-based Survey of Sexually Transmitted Diseases/HIV Infection and Sexual Behaviour among Sex Workers in Calcutta, India*. Department of Epidemiology, All India Institute of Hygiene and Public Health, Calcutta, 1992.
- G. Akerlof and R. Kranton. Economics and identity. *Quarterly Journal of Economics*, 115(3):715–753, 2000.
- N. Ashraf, Dean Karlan, and Wesley Yin. Tying odysseus to the mast: Evidence from a commitment savings product in the philippines. *Quarterly Journal of Economics*, 121(2):635–672, 2006.
- O. Bandiera, R. Burgess, N. Das, S. Gulesci, I. Rasul, and M. Sulaiman. Can basic entrepreneurship transform the economic lives of the poor? IZA Discussion Papers No. 7386, May, 2013.
- A. Bandura. Self-efficacy mechanism in human agency. *American Psychologist*, 37(2):122–147, 1982.
- A. Banerjee, E. Duflo, R. Chattopadhyay, and J. Shapiro. Targeting the hardcore poor: An impact assessment. Working Paper, Massachusetts Institute of Technology, 2011.
- I. Basu, S. Jana, M. J. Rotheram-Borus, D. Swendeman, S. J. Lee, P. Newman, and R. Weiss. Hiv prevention among sex workers in india. *Journal of Acquired Immune Deficiency Syndromes*, 36(3):845–852, 2004.
- R. Benabou and J. Tirole. Self-confidence and personal motivation. *Quarterly Journal of Economics*, 117(3):871–915, 2002.
- T. Bernard, S. Dercon, and A. S. Taffesse. Beyond fatalism: An empirical exploration of self-efficacy and aspirations failure in ethiopia. Centre for the Study of African Economies (CSAE) Working Paper Series No. 2011-03, University of Oxford, 2011.
- T. Bernard, S. Dercon, K. Orkin, and A. S. Taffesse. The future in mind: Aspirations and forward-looking behaviour in rural ethiopia. Centre for the Study of African Economies (CSAE) Working Paper Series No. 2014-16, University of Oxford, 2014.
- M. Bertrand, S. Mullainathan, and E. Shafir. A behavioral economics view of poverty. *American Economic Review, Papers and Proceedings*, 94(2):419–423, 2004.

- M. S. Bradley. Girlfriends, wives, and strippers: Managing stigma in exotic dancer romantic relationships. *Journal of Acquired Immune Deficiency Syndromes*, 28: 379406, 2007.
- M. Bruhn and D. McKenzie. In pursuit of balance: Randomization in practice in development field experiments. *American Economic Journal: Applied Economics*, 1(4):200–232, 2009.
- J. Currie, J. Grogger, G. Burtless, and R. F. Schoeni. Explaining recent declines in food stamp program participation. *Brookings-Wharton Papers on Urban Affairs*, pages 203–244, 2001.
- Ashwini Deshpande. Caste. In Kaushik Basu, editor, *Oxford Companion to Economics in India*, pages 48–50. Oxford University Press, 2007.
- E. Duflo, M. Kremer, and J. Robinson. Nudging farmers to use fertilizer: Theory and experimental evidence from kenya. *American Economic Review*, 101(6):2350–90, 2011.
- Pascaline Dupas. Do teenagers respond to hiv risk information? evidence from a field experiment in kenya. *American Economic Journal: Applied Economics*, 3(1):1–34, 2011.
- C. Evans and H. Lambert. The limits of behaviour change theory: Condom use and contexts of hiv risk in the kolkata sex industry. *Culture, Health and Sexuality*, 10(1):27–41, 2008.
- W. Freed. From duty to despair: Brothel prostitution in cambodia. In M. Farley, editor, *Prostitution, Trafficking, and Traumatic Stress*, page 133146. Haworth Maltreatment and Trauma Press, Binghamton, NY, 2003.
- D. Fudenberg and D. K. Levine. A dual-self model of impulse control. *American Economic Review*, 96(5):1449–1476, 2006.
- P. Glewwe, P. Ross, and B. Wydick. Developing aspirations: The impact of child sponsorship on self-esteem and life expectations. Working Paper, University of San Francisco, 2013.
- E. Goffman. *Stigma: Notes on the Management of a Spoiled Identity*. Prentice-Hall, Englewood-Cliffs, NJ, 1963.
- F. Gul and W. Pesendorfer. Temptation and self-control. *Econometrica*, 69(6): 1403–1435, 2001.

- R. Gupta. A victimless crime? *Red Light Dispatch*, 4(9):3, 2011.
- C. C. Hall, J. Zhao, and E. Shafir. Self-affirmation among the poor: Cognitive and behavioural implications. *Psychological Science*, 25(2):619–625, 2014.
- J. Haushofer. The psychology of poverty: Evidence from 43 countries. mimeo, Princeton University, 2013.
- J. Haushofer and E. Fehr. On the psychology of poverty. *Science*, 344:862867, 2014.
- J. Haushofer and J. Shapiro. Household response to income changes: Evidence from an unconditional cash transfer program in kenya. mimeo, Princeton University, 2013.
- K. Hoff and P. Pandey. Discrimination, social identity, and durable inequalities. *American Economic Review, Papers and Proceedings*, 96(2):206–211, 2006.
- Robert Jensen. The (perceived) returns to education and the demand for schooling. *Quarterly Journal of Economics*, 125(2):515–548, 2010.
- JISC. Impact of support services provided to children of resident prostitutes in kolkata brothels. Technical report, Jayaprakash Institute of Social Change, Kolkata, 2009.
- S. J. Katz and T. P. Hofer. Socioeconomic disparities in preventive care persist despite universal coverage. *JAMA*, 272(7):530–534, 1994.
- B. Koszegi. Ego utility, overconfidence and task choice. *Journal of European Economic Association*, 4(4):673–707, 2006.
- E. La Ferrara, A. Chong, and S. Duryea. Soap operas and fertility: Evidence from brazil. *American Economic Journal: Applied Economics*, 4(4):1–31, 2012.
- Glenn C. Loury. Social exclusion and ethnic groups: The challenge to economics. Annual World Bank Conference on Development Economics, 1999.
- A. Mani, S. Mullainathan, E. Shafir, and J. Zhao. Poverty impedes cognitive function. *Science*, 341:976–980, 2013.
- D. McKenzie. Beyond baseline and follow-up: The case for more t in experiments. *Journal of Development Economics*, 99:210–221, 2012.
- D. McKenzie and C. Woodruff. What are we learning from business training and entrepreneurship evaluations around the developing world? *World Bank Research Observer*, 2013. July.

- R. Moffit. An economic model of welfare stigma. *American Economic Review*, 73 (5):1023–1035, 1983.
- J. Morduch, S. Ravi, and J. Bauchet. Failure vs. displacement: Why an innovative anti-poverty program showed no impact? CGAP mimeo, 2012.
- K.K. Mukherjee and D. Das. *Prostitution in Metropolitan Cities of India, Integrated Report of the Central Social Welfare Board’s Studies on Female Prostitutes and their Children in Six Metropolitan Cities of India*. Central Social Welfare Board (Govt. of India), New Delhi, 1996.
- M. Nag. *Sex Workers in India: Diversity in Practice of Prostitution and Ways of Life*. Allied Publishers, New Delhi, 2006.
- R. Nat. I convinced my sisters. *Red Light Dispatch*, 4(1):2, 2011.
- T. Nguyen. Information, role models and perceived returns to education: Experimental evidence from madagascar. MIT Working Paper, 2008.
- R. E. Nisbett and T. D. Wilson. Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84(3):231–259, 1977.
- V. Rao, I. Gupta, M. Lokshin, and S. Jana. Sex workers and the cost of safe sex: The compensating differential for condom use among calcutta prostitutes. *Journal of Development Economics*, 71:585–603, 2003.
- M. N. Srinivas. The social structure of a mysore village. *Economic and Political Weekly*, pages 1051–1056, 1951.
- L. Tirado. *Hand to Mouth: The Truth About Being Poor in a Wealthy World*. Virago Press, London, 2014.
- M. Tomura. A prostitutes lived experiences of stigma. *Journal of Phenomenological Psychology*, 40:5184, 2009.
- T. D. Wilson. *Redirect: The Surprising New Science of Psychological Change*. Penguin Group, London, 2011.
- R. Wood and A. Bandura. Social cognitive theory of organizational management. *Academy of Management Review*, 14(3):361–364, 1989.

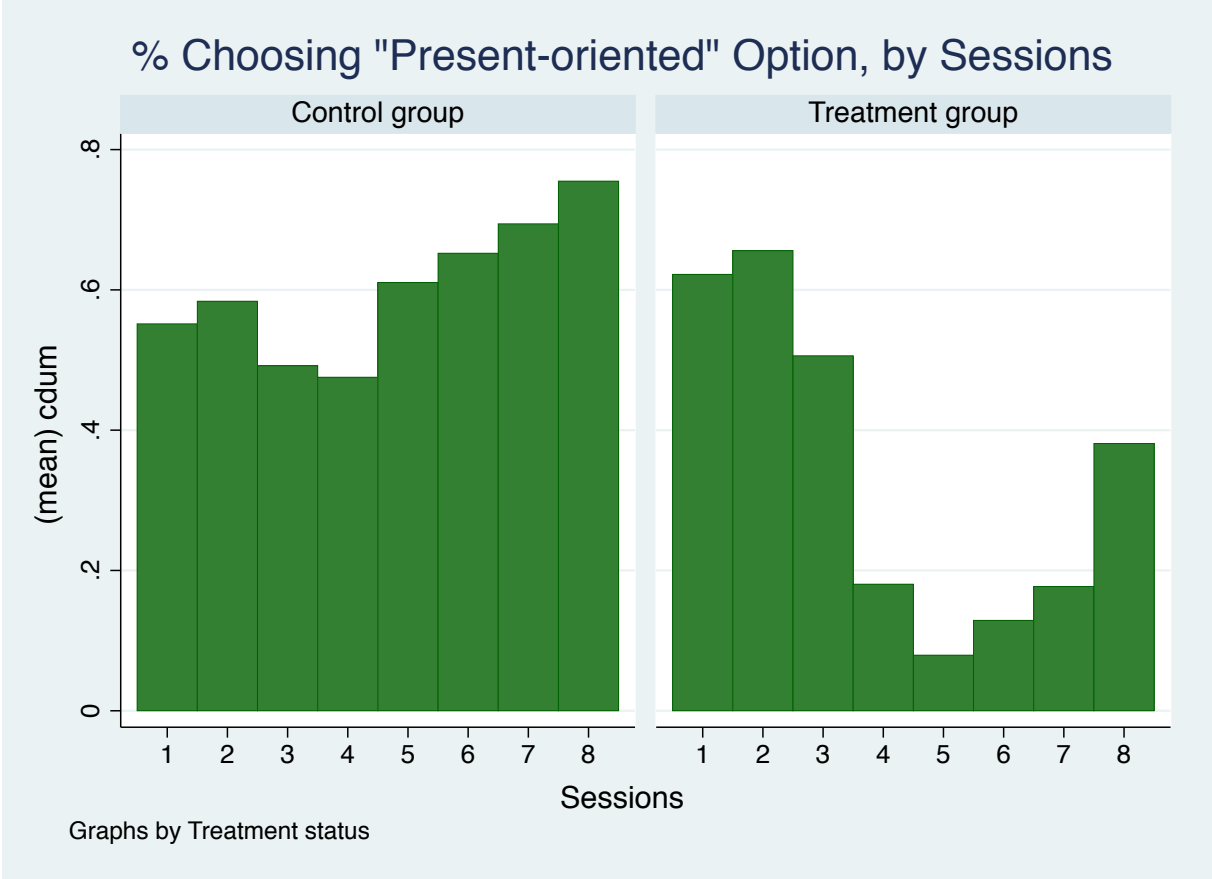


Figure 1: Percentage of sex workers choosing Product 1 (present-oriented option) as opposed to Products 2 and 3 (future-oriented options), by session

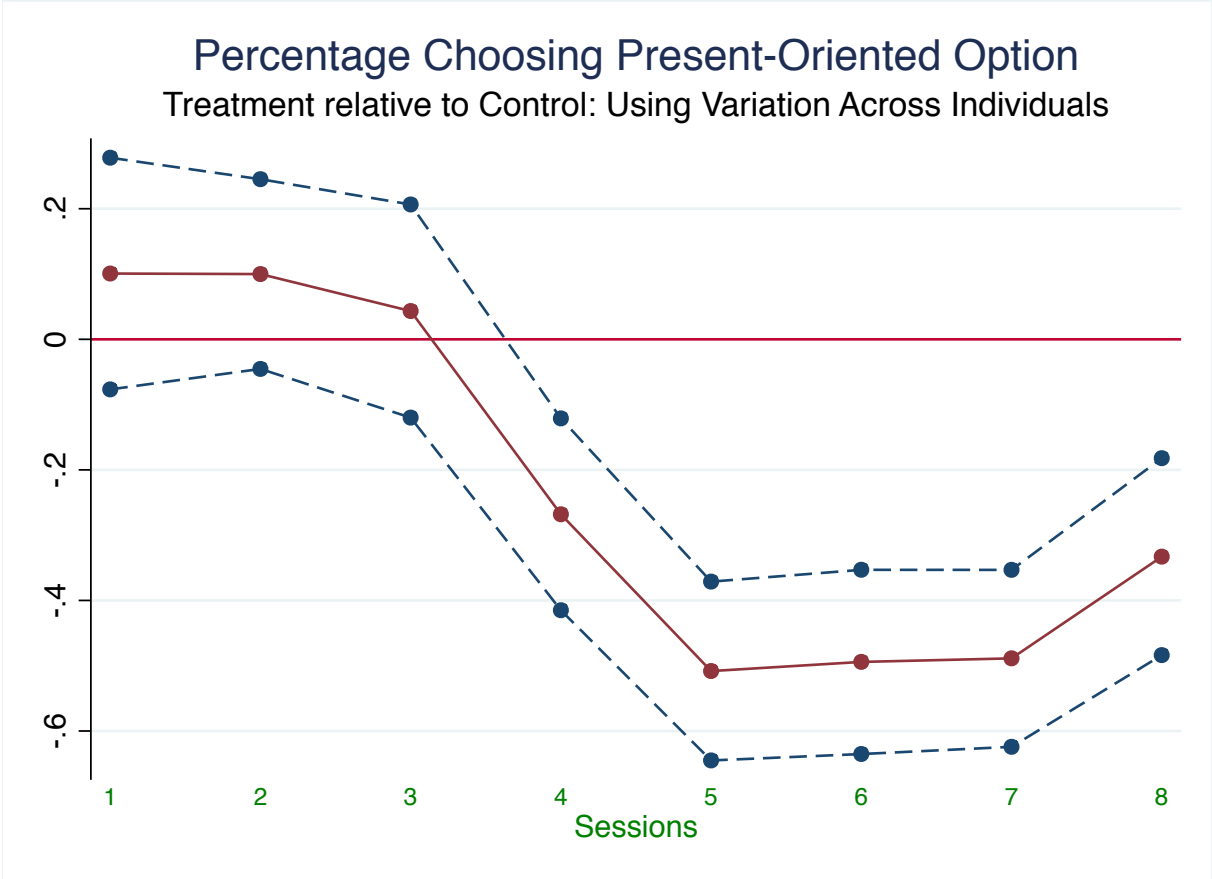


Figure 2: Coefficients of Interactions of Treat*Session Dummy in Savings Product Choice Regression

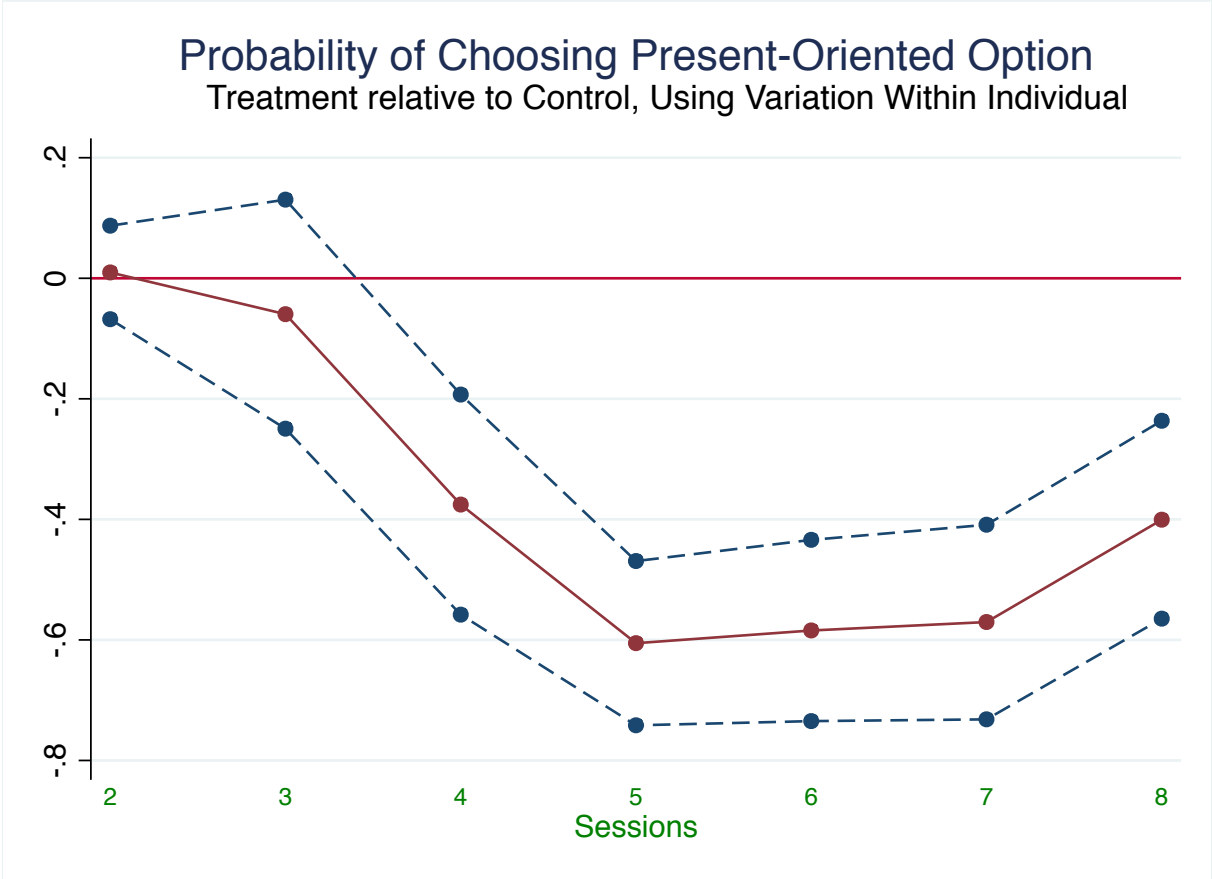


Figure 3: Coefficients of Interactions of Treat*Session Dummy in Savings Product Choice Regression, with Individual Fixed Effects

Table I: Summary Statistics – Individual Characteristics at Baseline

	Control	Treatment	Difference
Age (years)	32.47 (7.09)	32.08 (7.62)	0.38 [0.92]
Muslim (%)	0.13 (0.34)	0.22 (0.41)	-0.09** [0.04]
Low caste (%)	0.42 (0.49)	0.35 (0.48)	0.06 [0.05]
Education (years)	2.11 (2.92)	1.73 (2.81)	0.38 [0.26]
Married (%)	0.67 (0.47)	0.75 (0.43)	-0.09** [0.04]
Age at marriage (years)	15.75 (3.33)	15.77 (3.01)	-0.02 [0.33]
Has fixed client (%)	0.26 (0.44)	0.31 (0.46)	-0.05 [0.04]
Years in profession	9.36 (8.06)	8.87 (7.57)	0.49 [0.91]
<i>Adhiya</i> contract (%)	0.06 (0.24)	0.18 (0.38)	-0.12** [0.04]
Self-employed contract (%)	0.57 (0.50)	0.47 (0.50)	0.10 [0.07]
Flying contract (%)	0.37 (0.48)	0.36 (0.48)	0.01 [0.06]
Rate per sex act (w/ condom, Rs.)	129.13 (128.54)	121.06 (54.90)	8.07 [8.90]
Rate per sex act (w/o condom, Rs.)	175.00 (91.57)	150.00 (50.00)	25.00 [40.60]
No. of customers	3.13 (1.24)	3.14 (1.16)	-0.01 [0.14]
Monthly income (Rs.)	8576.63 (5617.70)	9701.32 (19434.31)	-1124.69 [1271.93]
Uses condom (%)	0.99 (0.10)	1.00 (0.00)	-0.01 [0.01]
Member of the NGO (%)	0.81 (0.39)	0.77 (0.42)	0.04 [0.04]
Has bank a/c (%)	0.43 (0.50)	0.45 (0.50)	-0.02 [0.06]
Observations	203	264	.

Notes: Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Default group for religion is Hindu, for caste is High Caste and for contract is Self-employed. Education refers to years of completed education. *Adhiya* contract implies that the sex worker is in a sharing contract where she splits her monthly earnings 50:50 with the landlady of the brothel. Self-employed contract, the omitted group here, implies that the sex worker pays the landlady a fixed rent from her monthly earnings and keeps the rest for herself. Flying contract implies that the sex worker does not reside in the brothels but comes to work there from outside the 'red-light' area. Bank account refers to having account with USHA, which is associated with the NGO.

Table II: Summary Statistics – Means of Key Outcomes at Baseline

	Control	Treatment	Difference
Shame (0/1)	0.66 (0.48)	0.61 (0.49)	0.05 [0.05]
Self-worth (0/1)	0.15 (0.36)	0.20 (0.40)	-0.04 [0.04]
Self-efficacy raw score (0-12)	0.43 (0.25)	0.41 (0.24)	0.02 [0.03]
Self-efficacy z-score	-0.02 (1.00)	-0.11 (0.99)	0.09 [0.11]
Public interaction raw score (0-7)	0.41 (0.27)	0.38 (0.28)	0.03 [0.02]
Public interaction z-score	0.01 (0.98)	-0.11 (1.04)	0.11 [0.08]
Happiness (0/1)	0.48 (0.50)	0.51 (0.50)	-0.02 [0.05]
Aspiration (0/1)	0.77 (0.42)	0.75 (0.43)	0.02 [0.05]
Decision-making raw score (0-7)	0.77 (0.15)	0.78 (0.15)	-0.01 [0.01]
Decision-making z-score	-0.11 (0.98)	-0.06 (1.01)	-0.05 [0.09]
Frequent health check (0/1)	0.76 (0.43)	0.77 (0.42)	-0.01 [0.05]
Observations	203	264	.

Notes: Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent.

Table III: Program Impact on Psychological Outcomes 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Endline				Panel B: Diff-in-Diff			
	Shame	Self-worth	Self-efficacy	Public interaction	Shame	Self-worth	Self-efficacy	Public interaction
Treatment	-0.40*** (0.04)	0.68*** (0.04)	0.43*** (0.09)	0.30*** (0.09)	-0.05 (0.04)	0.05 (0.04)	-0.05 (0.10)	-0.15* (0.08)
Post					-0.09 (0.06)	0.07* (0.04)	-0.14 (0.09)	-0.13 (0.08)
Treatment*Post					-0.35*** (0.06)	0.64*** (0.05)	0.51*** (0.13)	0.45*** (0.12)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.57	0.23	-0.16	-0.13				
Adj. R-sq	0.17	0.47	0.05	0.04	0.16	0.43	0.04	0.03
N	429	435	437	437	891	895	896	895

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns 1-4 report differences between treatment and control using endline survey while columns 5-8 use differences-in-differences. See text for details on the various outcome variables.

Table IV: Program Impact on Psychological Outcomes 2

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Endline			Panel B: Diff-in-Diff		
	Happiness	Aspiration	Decision -making	Happiness	Aspiration	Decision -making
Treatment	0.12** (0.05)	0.03 (0.04)	0.04 (0.10)	0.03 (0.05)	-0.00 (0.04)	0.04 (0.09)
Post				-0.00 (0.04)	-0.00 (0.03)	0.17* (0.10)
Treatment*Post				0.11 (0.07)	0.04 (0.05)	-0.01 (0.14)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.48	0.77	0.06			
Adj. R-sq	0.02	0.01	-0.01	0.01	0.02	0.00
N	437	434	437	897	893	896

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns 1-4 report differences between treatment and control using endline survey while columns 5-8 use differences-in-differences. See text for details on the various outcome variables.

Table V: Program Impact on Saving Product Choices

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.09 (0.07)	0.09 (0.06)	0.06 (0.06)	-0.25*** (0.05)	-0.51*** (0.06)	-0.50*** (0.05)	-0.48*** (0.06)	-0.36*** (0.06)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.55	0.58	0.49	0.48	0.61	0.65	0.69	0.75
Adj. R-sq	0.01	0.02	0.08	0.20	0.35	0.31	0.31	0.14
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences in choices made between treatment and control during the training program. The dependent variable is a dummy which equals 1 if the participant chooses present-oriented option Product 1 (payment is received as an injection to their current account with no withdrawal constraint) and 0 if she chooses either Product 2 (payment is in the form of a fixed deposit with a higher interest rate but a 1 year maturity period) or Product 3 (same as Product 2 but the participant matches our payment with an equal amount herself).

Table VI: Program Impact on Switching Behaviour

	(1)	(2)
	Switch to future-oriented product in last session	
Treatment	0.32*** (0.03)	0.36*** (0.05)
Area fixed effects	Yes	Yes
Sample	Full	15-month
Adj. R-sq	0.16	0.14
N	459	349

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences between treatment and control in the last session of the training program. The dependent variable is a dummy that equals 1 if the participant chooses to overturn her past session choices (at least one of which was the present-oriented option Product 1) in favour of either Product 2 or 3, and zero otherwise.

Table VII: Program Impact on Saving Product Choices, by Group Composition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sessions:	1	2	3	4	5	6	7	8
Treatment	-0.02 (0.12)	-0.13 (0.12)	-0.06 (0.12)	-0.23** (0.10)	-0.59*** (0.10)	-0.57*** (0.10)	-0.57*** (0.12)	-0.41*** (0.14)
Treatment*% of women from same brothel	0.31 (0.33)	0.63* (0.33)	0.44 (0.30)	-0.04 (0.26)	0.24 (0.23)	0.21 (0.23)	0.22 (0.30)	0.11 (0.37)
% of women from same brothel	-0.08 (0.24)	-0.21 (0.23)	0.09 (0.24)	0.04 (0.21)	-0.08 (0.21)	-0.06 (0.20)	-0.14 (0.26)	-0.10 (0.22)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.01	0.03	0.09	0.19	0.35	0.31	0.31	0.13
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences in choices made between treatment and control during various sessions of the training program. The dependent variable is a dummy which equals 1 if the participant chooses present-oriented option Product 1 (payment is received as an injection to their current account with no withdrawal constraint) and 0 if she chooses either Product 2 (payment is in the form of a fixed deposit with a higher interest rate but a 1 year maturity period) or Product 3 (same as Product 2 but the participant matches our payment with an equal amount herself).

Table VIII: Program Impact on Saving Product Choices, by NGO membership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.18 (0.13)	0.10 (0.13)	0.13 (0.11)	-0.17 (0.12)	-0.50*** (0.09)	-0.52*** (0.09)	-0.55*** (0.10)	-0.30** (0.12)
Treatment*NGO member	-0.12 (0.12)	-0.00 (0.13)	-0.08 (0.11)	-0.10 (0.12)	-0.00 (0.09)	0.03 (0.10)	0.08 (0.10)	-0.08 (0.13)
NGO member	0.08 (0.10)	0.03 (0.11)	0.01 (0.09)	0.08 (0.10)	0.04 (0.07)	0.01 (0.07)	-0.07 (0.06)	0.02 (0.07)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.01	0.01	0.08	0.19	0.35	0.31	0.31	0.13
N	445	429	431	424	409	391	393	360

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report differences in choices made between treatment and control during various sessions of the training program. The dependent variable is a dummy which equals 1 if the participant chooses present-oriented option Product 1 (payment is received as an injection to their current account with no withdrawal constraint) and 0 if she chooses either Product 2 (payment is in the form of a fixed deposit with a higher interest rate but a 1 year maturity period) or Product 3 (same as Product 2 but the participant matches our payment with an equal amount herself). Membership of the NGO, Durbar, is measured at baseline.

Table IX: Program Impact on Health-Seeking Behaviour

	(1)	(2)	(3)
	Health check		
Treatment	0.09** (0.04)	-0.00 (0.04)	0.10** (0.04)
Post		0.03 (0.05)	
Treatment*Post		0.08 (0.07)	
Health check at baseline			0.00 (0.04)
Area fixed effects	Yes	Yes	Yes
Control mean	0.79		
Adj. R-sq	0.01	0.01	0.01
N	424	882	416

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns 1 reports relative differences between treatment and control using endline survey, column 2 uses differences-in-differences, and column 3 uses ANCOVA that controls for the baseline values of the outcome variable. The dependent variable is a dummy that equals 1 if the participant reports having visited a doctor at least once in the previous month, and zero otherwise.

Table X: Program Impact on Account Closures

	(1)	(2)	(3)	(4)	(5)
	Dummy variable=1 if a/c closed:				
	Immediately after program	Up to 12 months after program		Up to 15 months after program	
Treatment	-0.53*** (0.05)	-0.40*** (0.06)	-0.05 (0.08)	-0.52*** (0.06)	-0.53*** (0.11)
Area fixed effects	Yes	Yes	Yes	Yes	Yes
Sample	Full	Full	A/c still open immediately after program	Full	A/c still open 12 months after program
Control mean	0.57	0.71	0.33	0.89	0.62
Adj. R-sq	0.36	0.14	0.01	0.23	0.24
N	349	349	283	349	202

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences between treatment and control at various points in time after the conclusion of the training program. The dependent variable in column 1 is a dummy that equals 1 if an account was closed immediately after the program ended, and zero otherwise. The dependent variables in columns 2-3 are dummy variables that capture if an account was closed up to 12 months after the program ended, while those in columns 4-5 capture if it was closed up to 15 months after the program ended.

Table XI: Program Impact on Account Closures 15 months After Program, by Account Type

	(1)	(2)	(3)	(4)
	Dummy variable=1 if a/c closed up to 15 months after program			
A/c type:	Fixed		Savings	
Treatment	-0.53*** (0.11)	-0.62*** (0.18)	-0.52*** (0.05)	-0.50*** (0.10)
Area fixed effects	Yes	Yes	Yes	Yes
Sample	Full	A/c still open 12 months after program	Full	A/c still open 12 months after program
Control mean	0.88	0.71	0.89	0.59
Adj. R-sq	0.16	0.22	0.24	0.24
N	121	80	228	122

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences between treatment and control 15 months after the conclusion of the training program. The dependent variable is a dummy that equals 1 if an account was closed up to 15 months after the program ended, and zero otherwise.

Table XII: Program Impact on Account Balances 15 months After Program

	(1)	(2)	(3)
	Log(Final Balance)		
A/c type:	Fixed	Savings	Savings
Treatment	0.89** (0.41)	-0.33 (0.24)	-0.22 (0.27)
Has two a/cs			-0.24 (0.41)
Area fixed effects	Yes	Yes	Yes
Sample	A/cs still open 15 months after program		
Adj. R-sq	0.01	0.10	0.09
N	61	93	93

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns report relative differences between treatment and control in final balances for accounts that were still open 15 months after the conclusion of the training program. 7 individuals were reported with joint balances, not separately for fixed or savings accounts, hence were dropped. The variable “has two a/cs” is a binary that takes the value 1 if the individual has two accounts (one fixed and one saving) and zero if she has only one account (saving). The reason why this variable is not identified in column 3 is because no individual in the sample has only fixed accounts. On the other hand, some individuals may have only savings accounts.

Appendix

Table A1: Impact on Payment Choices, by Baseline Levels of Shame

	(1)	(2)	(3)	(4)	(5)
	Dummy=1 if Present-oriented Option Chosen				
Treatment	-0.22*** (0.05)	-0.16*** (0.05)	-0.16*** (0.05)	-0.13** (0.05)	0.07 (0.63)
Treat*Shame		-0.10* (0.05)	-0.09* (0.05)	-0.13** (0.06)	-0.13* (0.07)
Shame		0.04 (0.04)	0.04 (0.04)	0.06 (0.04)	0.07 (0.05)
Area fixed effects	Yes	Yes	Yes	Yes	Yes
Session fixed effects	No	No	Yes	Yes	Yes
Controls	No	No	No	Yes	Yes
Treatment*Controls	No	No	No	No	Yes
Adj. R-sq	0.09	0.09	0.15	0.15	0.15
N	3304	3268	3268	3098	3098

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns 1-2 report relative differences in choices made between treatment and control across all sessions of the training program, while columns 3-5 include session fixed effects in order to estimate the treatment effect within session. The dependent variable is a dummy which equals 1 if, in a session, the participant chooses present-oriented option Product 1 (payment is received as an injection to their current account with no withdrawal constraint) and 0 if she chooses either Product 2 (payment is in the form of a fixed deposit with a higher interest rate but a 1 year maturity period) or Product 3 (same as Product 2 but the participant matches our payment with an equal amount herself).