Hope as Aspirations, Agency, and Pathways:
Poverty Dynamics and Microfinance in Oaxaca, Mexico

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Abstract: Work in positive psychology by Snyder (1994) decomposes hope into aspirations, agency, and pathways. Operating in the context of an economic model developed with this framework, we review the literature on hope from philosophy, theology, psychology, and its relationship to emerging work on aspirations in development economics. We then present one-month follow-up results from an experimental study based on a hope intervention in Oaxaca, Mexico among 601 indigenous women with access to microfinance loans. Our early experimental results suggest that the intervention raised aspirations approximately a quarter of a standard deviation, significantly raised a hope index among the treated subjects, and had positive but statistically insignificant results on enterprise revenues and profits.

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1. Introduction

Much research in development economics has been devoted recently to the study of poverty dynamics. The possibility of multiple equilibria in economic outcomes and, thereby, poverty traps has been particularly compelling as both a research focus and a motivation for development policy and program design. The majority of the research on poverty traps has concentrated on dynamics arising from external constraints such as missing credit, labor, and land markets or structural features such as locally increasing returns to scale in production. Recent work in behavioral economics, however, has illuminated the potential for development traps based on internal psychological phenomena. These phenomena may take the form of internal constraints (Sen, 1999), such as a belief that one is not capable of engaging successfully in certain types of economic activities or domains of economic life. They may also take the form of a recursive trap in which low income produces feelings of helplessness that then result in feelings of low self-efficacy, and a resulting low application of effort into one or more economic activities further resulting in low income and a continued sense of helplessness.

In this research we address the subject of hope, which may form a key component to breaking cycles of poverty. While hope (usually articulated contextually as *confidence* or *expectations*) has played a central role in understanding multiple equilibria and low-equilibrium traps in macroeconomics (e.g. Diamond, 1982; Murphy et al., 1988), it is less often invoked in microeconomics. And although development practitioners routinely reference the importance of hope in work among the poor, microeconomists have only recently engaged hope as a subject worthy of serious research.

Understanding the role hope plays in shaping poverty dynamics is a daunting pursuit because the two subjects are nuanced and complex when viewed in isolation. Yet, even a fleeting reflection suggests that the interactions and interdependency between hope and poverty dynamics are potentially potent and therefore deserving of attention from development economists. This complex relationship will only be understood though the accumulation of careful theoretical and empirical study. The work described in this paper constitutes an initial offering in this direction.

One must begin with clear working definitions of the concept of hope – definitions that can be operational in the context of poverty interventions. As we will argue subsequently, hope has a number of components that may operate both individually and jointly in breaking cycles of

poverty. Furthermore, it is important to understand whether hope as a phenomenon is substitutionary or complementary to more tangible interventions in areas such as health, schooling, and finance. We favor the latter. That is, there must be a tangible basis for hope that stems from reality, but at the same time, reality may not create its own hope. Patterns of hopelessness may persist even when an intervention that relieves tangible economic constraints offer the potential for economic advancement, and if they are not accompanied by important psychological changes, their impacts are unlikely to be fully realized. Throughout this paper, we explore the complementarity between hope and more standard economic interventions.

Our inquiry into the economics of hope is structured in four parts: In section 2, we provide an introduction to the psychological literature on hope and importantly related concepts. In section 3 we review the theoretical and empirical literature in development economics related to hope, which in this literature has largely been reduced to material aspirations. Here we also review a simple economic model of hope we develop in Lybbert and Wydick (2016) that uses a reference-dependent utility framework to incorporate three essential elements of hope from the positive psychology literature: aspirations, agency and pathways. We use this simple model to differentiate aspirations from the broader concept of hope and to show how hope shapes economic development outcomes and the impact of different types of interventions. We then illustrate how recent empirical results in development economics can be more clearly understood in this hope framework. In section 4, we present one month follow-up results from a randomized controlled trial among microfinance borrowers. In the Oaxaca Hope Project, we experimentally test the effects of an intervention that includes all three components of hope. Results show the intervention significantly raised aspirations and had a positive but yet statistically insignificant impact on short-term small business outcomes. In section 5, we conclude with reflections on the complex interplay of hope and poverty dynamics.

2. The Psychology of Hope

Psychology began to explore the concept of hope systematically in the 1950s with the emergence of positive psychology as a new field of study within the discipline. In response to complaints that the field had focused too much on pathologies and had overlooked positive psychological phenomena (K. Menninger 1959), a branch of psychology took up this challenge to understand hope and other "healthy" psychological attributes as part of what would ultimately become defined as the subfield of positive psychology (M.E. Seligman and M. Csikszentmihalyi

2000). This new branch of psychology proved to be the fertile ground that ultimately gave rise to new thinking about the psychology of hope.

As described in Froh (2004), positive psychology initially developed around the study of human virtues, psychological attributes such as happiness, encourage, love, forgiveness, and hope. An individual's influence over the factors that shape one's life, and more specifically the perception of this influence, has formed a key component of positive psychology. Rotter (1954) was instrumental in pioneering the notion of an individual's "locus of control," the belief of individuals regarding the factors that shape their lives (H.M. Lefcourt 1982, J.B. Rotter 1966, 1954). An individual's locus of control is conceptualized as being either internal or external or some combination of these extremes. It is generally defined as a forward-looking assessment of the determinants of future outcomes, but this is clearly related to past experiences and lessons learned from these experiences. A peasant, for example, may view a successful harvest as purely at the mercy of the weather or fate, or may view his own attention to his plot as primary in determining the harvest.

Building on Rotter, Bandura (1977) developed the concept of "self-efficacy," a person's perception of his competence in achieving goals and objectives.[1] Self-efficacy and the locus of control are powerful explanatory mechanisms by which an individual explains cause and effect around life's happenings, forming one's so-called "attributional style". How we assign causality to the events that happen around us is directed by our attributional style. One student, for example might explain a bad grade as caused by an unkind teacher, while another may explain it by a lack of study effort. Attributional style is fundamental to our perception and narrative that we assign to our lives.

Snyder expands on these ideas to conceptualize *hope* as consisting of three key elements: three important components: goals, agency, and pathways. In this way and individual must possess a goal, conceive of a pathway to that goal, and finally believe that he or she has the agency to execute the chosen pathway toward the particular goal. Snyder's version of aspirational hope

[1] Judge et al. (2002) argue that these two concepts along with the other two that compose the four dimensions of core self-evaluations (neuroticism and self-esteem) measure the same, single factor.

thus differentiates itself strongly from a kind of "wishful hope" that is optimistic, but embodies low agency and views positive change as originating from outside the locus of control.

3. Hope and Aspirations in Development Economics

The traditional approach of development economics has been an approach to poverty that has almost exclusively focused on the relief of *external* constraints, where these constraints might include credit, education, health, infrastructure and so forth. Yet it may be that internal constraints, one's locus of control, self-efficacy, and attribution style, are just as important to economic development as external constraints. In development economics, this forms the basis of an exciting new literature that tries to break new ground in the understanding of the causes of poverty traps.

Economic research related to hope and aspirations has its origin in the work of Appadurai (2004). In this framework, aspiring to an improved standard of living first requires the "capacity to aspire." Appadurai (2004), an anthropologist, considers this capacity to be fundamentally shaped by social forces in the sense that aspirations form as part of the ethos, possibilities and norms of an individual's reference community. While economists might capture some of this capacity to aspire by adding parameters or constraints to utility functions, this fails to reflect the richness of the idea that aspirations in the framework of Appadurai are jointly-determined and shaped through time, suggesting direct social influences on individual preferences. Appadurai argues that the target, intensity and composition of aspirations in any given community reflect the dominant worldviews and ideologies about the nature of worldly possessions and their relative value to social relations, as well as deeper ideas about the meaning of life, family, community, and death. Appadurai's work laid the basis for the development of economic models that have sought to better understand the role that aspirations play in economic development such as D. Ray (2006), F. Bogliacino and P. Ortoleva (2013), G. Genicot and D. Ray (2014), and P.S. Dalton et al. (2016).

Ray (2006) expands Appadurai's conception of aspirations to introduce a several concepts that help to structure both theoretical and empirical research on the topic: *aspirations window*, the *aspirations gap*, and *aspirations failure*. One's *aspirations window* is made up of her world, or perceptions of one's world, of individuals similar to herself. The set of persons in one's aspirations window establishes boundaries, or at least reference points, around future possibilities. The aspirations window is made up of individuals who are perceived to possess sufficiently similar

capability and capacity, individuals likely sharing important traits which might include skin color, gender, or religion. The degree of social mobility also strongly influences one's aspirations window. Ray's concept of an *aspirations gap* is the difference between the standard of living to which one aspires and one's present circumstances. If the aspirations gap is too narrow, it reduces the rewards to productive effort, yet if it is too wide, it produces a sense that the aspiration unattainable, leading to frustrated aspirations. A*spirations failure* occurs when an individual's effort is stymied to some degree by limited aspirations rather than structural constraints. Thus in the presence of aspirations failure, internal constraints may become binding relative to external constraints.

Empirical analysis of the determinants and impact of aspirations has become one of the liveliest research areas in applied development economics. We next review a selection from this emerging literature. Our objective is not to provide a comprehensive survey of this work, but rather to summarize a few of the studies that have become – or are likely to become – influential in this area of inquiry.

Interesting new evidence appears to show that role-modeling plays a significant role in driving aspirations among the poor. Beaman et al. (2012), for example, use a natural experiment in West Bengal to study the impact of role modeling and its effect on aspirations of young girls and of their parents for the lives of their young girls. In their study area of West Bengal, one-third of all elected chief councilors of villages, the "Pradhan," must be reserved for females. The researchers surveyed 8,453 adolescents aged 11-15 and their parents in 495 villages, where questions included in the survey strongly focused on aspirations, and the closing of the aspirations gap between boys and girls. Questions included asking if the parent would like 1) the child to at least graduate from secondary school; 2) the child to marry at an age above 18; 3) the child to have an occupation different than housewife or what the in-laws prefer; 4) whether the desired occupation is a doctor, engineer, scientist, teacher or a legal career; and 5) the child to become the Pradhan. The same aspirations-focus questions were asked to the children themselves. The randomized nature of the village-district set aside policy allowed for an estimation of causal effects from the existence of a female Pradhan to the aspirations of young girls in that particular village district. What they find is that the existence of a female Pradhan caused the gender gap in aspirations in these districts to close by 25% in parents' aspirations and 32% in adolescents' aspirations in villages assigned to a female leader for two election cycles.

They also find that the gender gap in adolescent educational attainment was erased and that girls in villages with a female Pradhan spent less time on household chores.

In another study in India, Jensen and Oster (2009) study the impact of cable television in households and its effect on women's aspirations. They use a three-year panel data set on individuals, finding that exposure to cable television to cause increases school enrollment for younger children, decreases in the adult acceptability of domestic violence toward women, increases in women's autonomy. The introduction of cable TV is even associated with decreases in adult women's fertility. Jensen and Oster also find that differences in attitudes and behaviors between urban and rural areas decreased between 45 and 70 percent within two years of the introduction of cable TV.

Glewwe, Ross, and Wydick (2015) carry out an experiment in Indonesia among 540 children living in the slums of Jakarta, about half of whom were internationally sponsored through Compassion, one of the leading child sponsorship organizations worldwide. Children sponsored through Compassion are provided with school tuition, school uniforms, nutritious meals, healthcare and have access to a an afterschool tutoring program that focuses not only on supplemental academic training, but on the development of spiritual formation, character growth, and socio-emotional skills, especially in the area of self-esteem and aspirations. Direct questions were surveyed with standard questions on self-esteem and aspirations. Children were given a new box of 24 colored pencils and asked to "draw a picture of yourself in the rain." The use of children's drawings has been well developed in the clinical psychology literature (see for example, Koppitz, 1968; Thomas and Silk, 1990; and Furth, 2002). A detailed psychology literature has shown that drawings often yield important information into the minds and feelings of children. This literature empirically correlates children's self-portraits that have missing facial features, fingers, and feet for example, with extreme shyness and insecurity. Those drawn with a dark color or single colors are indicative of depression, hopelessness and anxiety, tiny figures with hopelessness and low self-esteem. Monster figures are correlated (not surprisingly) with aggression.

In this study, identification of causal impacts was carried out through exploiting an age-eligibility rule, which dictated that only children nine years old and younger were eligible for sponsorship when the program was rolled out into the local neighborhood. Factor analysis was used to generate three factors identified as happiness, hopelessness, and self-efficacy based on their correlations with survey questions and mainly with drawing characteristics. OLS (ordinary

least squares) and IV (instrumental variable) estimations found that child sponsorship caused children to be 0.24 (OLS) to 0.55 (IV) standard deviations higher in happiness, 0.13 (IV) to 0.33 (OLS) standard deviations higher in self-efficacy, and 0.40 (OLS) to 0.80 (IV) standard deviations lower in hopelessness. Here we see evidence of substantial impacts from a program with an intervention comprised not only of tangible economic interventions (that affect avenues and agency), but of interventions intended to augment noncognitive skills, character, self-esteem, grit, and aspirations.

What is the impact of augmented aspirations? Wydick, Glewwe, and Rutledge (2013) carry out a six-country on the long-term impact of Compassion's sponsorship program through a survey obtaining data on 10,144 adults, 1,860 of whom began sponsorship from 1980 to 1992. A similar age-eligibility rule existed during this period (where a child had to be age 12 or younger to be sponsored instead of 9 years old as in Indonesia) that facilitated identification of causal effects from the program. Although it is difficult to separately identify the relative impacts of the tangible interventions that are a part of sponsorship with the higher aspirations in childhood created by the program, impacts of sponsorship in adulthood are found to be substantial. Sponsorship resulted in an increase in schooling completion of 1.03-1.46 years, a 12-18 percentage point increase in secondary school completion (over a baseline rate of 44.5 percent), and an increase in the probability of white collar employment in adulthood of 6.6 percentage points over a baseline rate of 18.7 percent. Sponsored children were also more likely in adulthood to be community and church leaders. In a separate paper studying economic impacts on income and wealth and demographic impacts on marriage, childbearing, Wydick, Glewwe, and Rutledge (forthcoming) find sponsorship resulting in an increase in monthly income of $13-19 over an untreated baseline of $75, mainly from higher labor market participation, positive impacts on adult dwelling quality in adulthood, and increased probability of mobile phone ownership. There is also some evidence of modest effects on childbearing later in adulthood among those sponsored earlier in the program's history when baseline birthrates were higher.

In research on a cash transfer program in Nicaragua, Macours and Vakis (2014) utilize a two-stage randomized intervention that combined conditional transfers with other interventions aimed at protecting the asset base of the rural poor in six municipalities in the northwest part of the country. Both subjects and leaders among the 3000 subjects were randomly assigned to one of three different group interventions within randomly selected treatment communities. The three interventions consisted of a conditional cash transfer, the conditional cash transfer plus a

scholarship for occupational training, and a productivity treatment that combined a grant for productive investments with the conditional cash transfer. Macours and Vakis find that the higher the share of female leaders to a household's proximity, the larger where the impacts of an array of outcomes were on that particular household within the productivity intervention. Leaders were not allocated equally equal among program assemblies during program rollout, although an average of four leaders per assembly. Having one additional leader (given the productive investment package) increased household income from nonagricultural activities by about $US3.30, and the value of the animal stock by roughly $US12.00. Interestingly, like child sponsorship the intervention Macours and Vakis study is one that not only may improve agency (in this case through learning from group leaders) but also impact aspirations through the inspiration and role-modeling effects of leaders, and an intervention that yields large impacts.

In some cases it may be that the mere articulation of an aspiration is able to establish a new reference point for enterprise activity that stimulates higher effort and economic outcomes. Cassar et al. (2016) carry out an experiment in Colombia in which randomly selected microfinance borrowers were assigned to combinations of treatments, the first of which included setting an intermediate goal for their training or enterprise.[2] Each of the goals was accompanied by a strict verification procedure and rated in terms of difficulty. Other crosscut treatments included being included in a goal-realization support group, and the receipt of a small prize from the experimenter if a goal was realized. The combination of these treatments together comprises the approach of the Family Independence Initiative (FII) pioneered by Maurice Lim Miller, recipient of a MacArthur genius grant for the implementation of this model among low-income households in Oakland, California. Subjects formed into groups representing combinations of the above treatments were tracked over a six-month period. Results indicate that all of the treatments, including the support group and the prize, had significant impacts on enterprise outcomes, and that combined in the full FII package had large and significant impacts on enterprise revenues. But perhaps most interestingly, the mere articulation of the goal, the synthetic creation of aspirations, among subjects had by far the most significant impact on the economic outcomes of subjects.

[2] Subjects could choose from a menu of attending a marketing workshop, creating a business plan, implementing accounting practices, paying off an outstanding debt, purchasing a piece of businesss equipment, implementing a marketing strategy, obtaining one of six different licenses to legalize the enterprise, attending a job fair, saving 15,000 Colombian pesos every week (US$8.00), making a payment to improve your credit score, purchasing a durable good for your home, applying for an education grant, attending an adult literacy course, or joining the health security system.

In work that lays an important foundation for our own experimental results we present here, Bernard, Dercon, Orkin, and Taffesse (2014) study aspirations through a field experiment in Ethiopia. In this project, researchers contracted with film producers to create a four 15-minute documentaries featuring families telling their personal narrative of escape from poverty. From a total of 64 villages experimenters selected 18 households from each village, and each of these 18 households were allocated to one of three groups: a treatment group (that watched the documentary), a placebo group (that watched standard Ethiopian TV entertainment), and a control group that was only surveyed. Local social network data was obtained to study peer effects of the intervention.

Bernard et al. found after six months since the intervention at baseline, that the documentary had a significant impact on an aspirations index with components consisting of income, wealth, social status, and educational aspirations for children, both in direct effects and from the number of friends who had attended the documentary. They also report positive impacts on future-oriented *behaviors* six months after the screening, including changes in savings, time spent in business relative to leisure, demand for microfinance, and investments in children's education. Bernard et al. find no direct impact on educational enrollments or expenditures on children's education, but do report evidence of school enrollment and expenditures based on every additional friend in the village who viewed the documentary. There are some caveats to the results of the study related to over-testing, Bernard et al. provide some early evidence that it may be possible to increase aspirations through the kind of direct intervention we carry out through our field research in Oaxaca, Mexico.

4. Oaxaca Hope Project: Theoretical Framework

As an initial exploration into the economics of hope, we conducted a randomized controlled trial in collaboration with a microfinance lender in Oaxaca, Mexico. This experimental work was structured within a modelling framework that we develop and present in greater detail in Lybbert and Wydick (*forthcoming*). In this section, we review the basic components of the model and describe our empirical strategy that is based on it.

Our model is derived from the components of aspirational hope developed in Snyder (1994): goals, agency, and pathways. We find that Snyder's conception of hope lends itself nicely to economic modeling, where some of the more basic ideas can be captured in a (non-traditional) utility maximization subject to productivity parameters and constraints. A simple extension of

the model can account not just for actual agency (productivity) and constraints (closed pathways), but the *perception* of agency (self-efficacy) and pathways.

While goals form the central component of the Snyder framework, Lybbert and Wydick (2016) broadens this notion through the development of an aspirations-based utility function. Following Appadurai (2004), we assume that aspirations are exogenous and shaped by household context, culture, and history. Aspirations may be in discrete space (a secondary school degree) or form a reference point in continuous space (microenterprise sales of 1000 pesos).

In Lybbert and Wydick (*forthcoming*) we propose that an aspirations-based utility function should satisfy four properties: 1) Discontinuity at the aspiration, where marginal utility is higher just below it than above it; 2) Convexity in the utility function below the aspiration and concavity above it; 3) Gains in utility become increasingly a function of whether an aspiration is realized as aspirations grow in importance; and 4) Utility is increasing in higher realized aspirations.

These four properties are satisfied by the following, where $u(Y|A)$ is an aspirations-based utility function over a continuous outcome Y and an aspiration A, $\alpha \in [0,1]$ denotes the strength of aspirations in utility, and where $1(\cdot)$ is the indicator function.

$$u(Y|A) = A\left(\frac{Y}{A}\right)^{(1/1-\alpha)} \cdot 1(Y < A) + A\left(\frac{Y}{A}\right)^{(1-\alpha)} \cdot 1(Y \geq A)$$

At intermediate values of α, the function generates a parameterized version of the Kahneman and Tversky (1979) value function where the aspiration A serves as a reference point. A handy property of this function is that it can be seen as a generalization of a neoclassical utility function that allows for aspirations: If the strength of aspirations is allowed to vary such that α_1 reflects the strength of aspirations below A and α_2 above A, then in the case where $\alpha_2 = \frac{\alpha_1}{\alpha_1 - 1}$, it simplifies to the standard concave neoclassical utility function. This allows for the potential testing of utility against its deviation from the standard neo-classical form in cases where structural estimation of the function is possible.

In the most basic formulation of Lybbert and Wydick (2016), agency is modeled as productivity and the blockage of a pathway is modeled by an output constraint for a given activity. Effort at time t is given as e_t and, along with a random shock in the next period v_{t+1}, produces the outcome Y_{t+1} at time $t + 1$, or $Y_{t+1} = \pi e_t + \pi_v v_{t+1}$, where the coefficients π and π_v indicate the respective contributions of effort and the random shock to total production.

Pathways in the model are the absence of production constraints for a given outcome. Beyond an outcome constraint, $\bar{Y}$, marginal product of effort becomes zero. While the possibility exists that $Y_{t+1} > \bar{Y}$, this cannot occur through individual agency, but only via high realizations of the random shock υ such that $E[Y_{t+1}] = \begin{cases} \pi e_t & if\ e_t < \bar{e} \\ \bar{Y} & if\ e_t \geq \bar{e} \end{cases}$, where $\pi\bar{e} = \bar{Y}$. The final component to the model is a function which gives the cost of effort, $c(e_t)$, where effort is costly at an increasing rate *i.e.* $c'(e_t) > 0$, $c''(e_t) > 0$ and $c(0) = 0$. The agent then solves the problem. Individuals thus choose optimal effort to maximize $E[u_{t+1}] - c(e_t)$.

While an optimal aspiration A^* can be derived as endogenous to the model, we do not assume that individuals choose aspirations optimally. This is based on evidence that aspirations in large measure are established exogenously by local context Appadurai (2004). However, we do allow for the idea that aspirations can be altered exogenous through an intervention.

An important extension to the model, which is key to the intervention in our experimental work, allows not just for *actual* agency and pathways, but the individual's *perception* of agency (self-efficacy) and *perception* of pathway blockage (what Sen (1999) calls "internal constraints"). These distinctions are important because traditional approaches in development economics have focused on increasing productivity (e.g. schooling, vocational and business training) and relieving real economic constraints (e.g. microcredit, land reclamation, construction of infrastructure), and in the model these interventions could very well lead to greater levels of effort and economic welfare. However, the model helps illustrate that interventions that increase self-efficacy and that remove internal constraints may have equal or greater impact if it is the latter rather than the former that are binding.

Consider the impact of a conventional economic intervention in Figure 1. Here a constraint is released (a pathway is opened) but where aspirations lie below these constraints. Because aspirations represent the binding constraint (rather than the more obvious economic constraint), effort, outcomes, expected utility, and net expected utility remain unchanged. In the case where an intervention that relaxes an economic constraint is released when aspirations are high, this may result in substantial impacts in the form of greater effort, higher outcomes, higher

expected utility, and higher net expected utility. But when aspirations (or self-efficacy) is low, release of the economic constraint fails to affect these welfare measures.

In Figure 2, however, we depict an intervention that increases self-efficacy and internal constraints in the context of an intervention in which economic constraints have been released. A primary example of this may be some forms of child sponsorship (Wydick et. al., 2013) in which the intervention not only increases agency through an after-school tutoring programs (and avenues through the provision of tuition, uniforms, and other materials so that children may continue in school), but intentionally devotes resources to increasing aspirations about educational and vocational outcomes. Some practitioners refer to this kind of multi-faceted intervention as "integral (or integrated) development," programs designed to exploit complementarities between economic, psychological, spiritual, and social interventions.[3] Our hope intervention in Oaxaca takes just such an approach in the context of a group of women who have had economic constraints ostensibly released via access to microfinance loans, but at least anecdotally have realized only very small impacts from microcredit.

5. Short-Term Effects in the Oaxaca Hope Project

Here we present one-month follow-up results from experimental work in Oaxaca, Mexico that is carried out within the theoretical framework of this paper. A presentation of the longer-term impacts of the intervention will be forthcoming in subsequent work. Our experiment was implemented with our field partner, *Fuentes Libres*, a non-profit a faith-based organization affiliated with the Evangelical Covenant Church that is engaged in a number of activities to promote justice and economic opportunity for impoverished women of all faith backgrounds in the state of Oaxaca Mexico.

Part the work of *Fuentes Libres* involves the operation of 52 community banks in the state of Oaxaca. About 60 percent of these community banks are located near the Mexican Isthmus that separates the Caribbean from the Pacific Ocean in the southern part of the country with the remaining 40% located in and around the peri-urban regions of the state capital of Oaxaca City. All of the roughly 600 community bank members are female. Meetings in the community banks occur weekly, where women pay off current loans and make savings deposits. A minimum savings

[3] The United Nations Development Programme, the Organization of American States, Save the Children, World Vision, Compassion International are several of many development organizations that espouse an integrated development approach.

contribution of 20 pesos per week is required of each community bank member. The size of the 52 community banks range from about six to thirty members, the median size being 13 members.

We carried out a stratified cluster randomization using pairwise matching. Groups were matched into pairs by a hierarchical process based on focus group interviews with loan officers to rank factors in order of the importance to community bank performance. To form matched pairs, community banks were first clustered by loan officer, then among those with the same loan officer, banks were matched by size. When there were more than two banks of nearly identical size, community banks were then matched by number of loan cycles, then if close similarities continued to exist, respectively by age of members, and then by similarity of microenterprises within the group until 26 matching pairs consisting of A and B groups were formed. A single coin was then flipped to determine whether the 26 A-banks or 26 B-banks would be selected into treatment status, the other chosen for control. In total, 601 community bank members took part in the experiment, 326 in the 26 treatment banks and 275 in the 26 control banks. Table 1 shows that treatment and control were well-balanced over 24 variables at baseline.

The baseline survey obtained data on basic control variables such as age, marital status, and education. It also contains sets of five questions each on aspirations, agency, and conceptualization of avenues out of poverty.[4] These questions were designed to create indices capturing changes in Snyder's three components of hope. The survey also contained questions obtaining subjective measures of well-being and happiness, optimism, future orientation, risk-aversion, and spiritual questions oriented toward ascertaining an individual's perception of locus of control. Subjects also filled out a 3x3 matrix of hypothetical levels of sales based on interactions of three levels of work effort (high, medium, low) and three levels of "luck" (good, normal, and bad). Variation in sales across levels of effort relative to the total variation in the matrix yields a

[4] Questions to gauge aspirations included "It is better learn to accept the reality of things than to dream for a better future." "It is better to have aspirations for your family than to accept each day as it comes." "I am satisfied with the current sales and profits from my business." "It is wiser to establish business goals than to address situations as they arrive." "I have specific goals and plans for the future growth of my business." Questions regarding agency included a) On a scale of 0 to 10 how important is *hard work/being lucky* to prospering in business? hard work_____ being lucky_____ "My future is shaped mainly by my own actions rather by than the actions of others." "I often have difficulty leading and influencing my friends and neighbors." "Women like me can help bring about positive change in our community." Questions addressing pathways out of poverty included "I can find a way to solve most problems." "If my business sales are low, I know how to explore new markets." "I become discouraged easily when I encounter obstacles in my business." "If my current business fails, I could start a new business selling a different product." "I understand the different ways to succeed in business."

measure of self-efficacy or agency from an ANOVA-type calculation on the ratio of the variation in sales due to changes in effort over the total variation in sales within the matrix.

Treatment

There are three aspects to the hope intervention carried out among the community banks selected for treatment. First, a film crew from Sacramento State University produced a documentary on the four of the women who were deemed by the directors and loan officers to have been among the most successful in using their microloans to expand their enterprises. The 35-minute documentary was filmed in Oaxaca and produced and edited in Sacramento, California under the direction of film studies professor and documentary producer Robert Machoian. The documentary film was screened to treatment banks immediately after the baseline survey was carried out in these locations. Initial impressions were that the women took pleasure in seeing the film, and focus groups carried out after the film indicated that women found the film to be highly inspiring to them.

After viewing the documentary, the borrowers in the 26 treatment groups received a 3x8-inch refrigerator magnet, articulating Snyder's three components of hope which were translated as *Aspiraciones*, *Habilidades*, and *Avenidas* in Spanish. Congruent with the faith-based nature of the NGO, an inspirational scripture verse was given under each of these three words (see Figure 3). At the bottom of the refrigerator magnet there were three spaces for women to write in personal goals for weekly sales in their enterprise, weekly savings in the community bank, and a long-term goal. Common goals were leasing a stall in a market, sending a son or daughter to high school or college, or adding a room to the house.

The third aspect of the intervention was a 4-week "hope curriculum," in which each of the components of hope were discussed for approximately half an hour during the weekly community bank meeting and a fourth week consisted of the discussion of several case studies. In these case studies women had to learn how to apply the different components of hope to practical microenterprise problems. The curriculum, however, was designed as much as possible to be scrubbed of any traditional type of business or financial training. Only the "soft-skills" of developing goals and aspirations, enhancing self-efficacy, and the practice of visualizing pathways from poverty were emphasized in the curriculum.

Five weeks after the baseline survey and the completion of the hope curriculum, a follow-up survey was undertaken that was virtually identical to the baseline survey. We present ANCOVA regressions that estimate impact at one-month (more specifically five weeks) after the

intervention is estimate impacts on psychological and business variables. We estimate intervention impacts using ANCOVA due to its greater efficiency than difference indifferences using experimental data with baseline and follow-up surveys (McKensie, 2012). Our specification is

$$y_{ijt} = \alpha + \tau Treat_j + y_{ijt-1} + \boldsymbol{X_i}'\boldsymbol{\beta} + \varepsilon_{it},$$

where $\boldsymbol{X_i}'\boldsymbol{\beta}$ are a vector of variables that include controls for age, education, religion, number of children, children under 18, bank leader, dwelling index, loan officer, type of business, and missing baseline data. ANCOVA estimates also control for the baseline value of the impact variable. The coefficient τ measures impact. The results we present are for only the first (one-month) follow-up survey.

Results

We created indices of our variables based on Kling et al. (2007) in which the dependent variables are de-meaned and standardized to give them equal weighting in an index that is also then standardized to give it mean zero and unit variance to provide a more comparable interpretation for impacts.

Our first results show impacts on psychological variables and are given in Table 2 and Figure 4. Our intervention clearly strongly impacted aspirations, and our aspirations index increased by 0.24σ, significant at the 0.01% level. Point estimates point to increases in agency and pathways but these are much smaller (0.054σ and 0.036σ) and not statistically significant, roughly half the size of their standard error. Columns 1 and 2 in Table 2 show point estimates indicating that happiness and optimism increased approximately 0.10σ under treatment, but the 95% confidence intervals of these estimates contain zero. Future orientation increases among the treated by 0.13σ, significant at the 10% level. Smaller point estimate increases are seen in risk-aversion reduction (0.03σ) and our ANOVA-based measure of agency actually shows a slight reduction (-0.005σ).

Nevertheless our Hope-7 Index (which includes all seven of our variables potentially related to hope: aspirations, agency, avenues, happiness, optimism, future orientation, risk aversion reduction) increases significantly (at the 5% level) by 0.17σ and our Hope-3 index (which contains only Snyder's three components, aspirations, agency, and pathways) increases by 15σ. The increase in the overall hope indices, however is due to two factors: first, that nearly every hope-related factor displayed positive point estimates, and secondly that the impact on

aspirations was substantial. Indeed the overall impact on hope was driven largely by increases in aspirations. It seems that, at least in the short-term, it is easier to raise aspirations than it is to increase self-efficacy or conceptualization of pathways out of poverty.

Impacts on small enterprise outcomes of the women in our study are shown in Table 3 and Figure 8. We expected the number of hours per week that a women dedicated to her business to increase with increased aspirations, however our point estimates indicate a negative impact here, although statistically insignificant. Our ANOVA point estimates find positive impacts on log sales (increase of 17.7%), log profits (increase of 19.1%), and log community bank savings (increase of 14.2%) although the 95% confidence interval for all of these includes zero. As we suspected after only a little more than a month after treatment, we find no increase in employees, or even plans for new employees. A standardized business performance index increases by 0.095σ, but is statistically insignificant.

In summary, we find some evidence that after one month our intervention increased aspirations and future orientation among women in treated community banks who received the hope intervention, but less evidence that other important psychological variables, such as agency, were impacted by the treatment. We find modest evidence for positive impacts on business performance, where point estimates are quite large, but cannot reject the null hypothesis of no impact at this early stage of follow-up.

Our hope intervention continued for 12 months during which subjects in treatment continued to engage in goal-setting exercises, self-esteem development, and exercises in conceptualizing pathways out of poverty via their microenterprises. In future work we will report one-year impacts from this longer-term intervention.

6. Reflections on Hope and Poverty Dynamics

Can hopelessness among the poor create a poverty trap? Hopelessness can create a vicious cycle in which pessimistic beliefs can create a self-fulfilling prophecy leading to prolonged episodes of poverty. Indeed in this volume, Haushofer and de Quidt (2016) present a model in which depression induced by a negative shock makes an individual so pessimistic regarding returns to any effort that effort is reduced to zero, creating a poverty trap dynamic. Hope is directly related to escape from this kind of trap in that hope creates optimism about the returns to effort. But while hope embodies optimism, aspirational hope as defined in modern positive psychology is different from optimism. Aspirational hope is a much richer concept embodies not only optimism about the returns to effort (agency/self-efficacy), but is characterized first by a clear direction in

which an individual wants to progress (goals/aspirations), and by a means of realizing these aspirations (conceptualization of pathways).

Whether it is possible to break poverty traps through a hope intervention is the subject of our field experiment. We believe this may be possible, but there are a number of caveats that must be taken into consideration about psychological interventions. First, relieving internal constraints should rarely be viewed as a substitute for relieving external constraints. In most instances they are likely to be strong complements, but in other instances it may be that external constraints are binding and that interventions targeting internal constraints will have little impact at all. In other instances practitioners will have implemented an intervention to relieve external constraints with little effect, and in these circumstances it may be that interventions in the area of internal constraints are necessary to overcome long periods of pessimism and "learned helplessness" that have developed over protracted periods of poverty and deprivation. This is the situation, at least anecdotally described to us by practitioners, that has existed among many indigenous women in Oaxaca, who have enjoyed access to resources such as microcredit for many years, but have realized very little real gain from these interventions.

As such, the ability to diagnose different varieties of poverty traps in practice is a critical but highly underutilized skill among both development economists and practitioners. Learning to differentiate between poverty traps in which psychological factors or strictly economic factors constitute the binding constraint is fertile new ground for development economists and practitioners alike and should form an important component to our research agenda.

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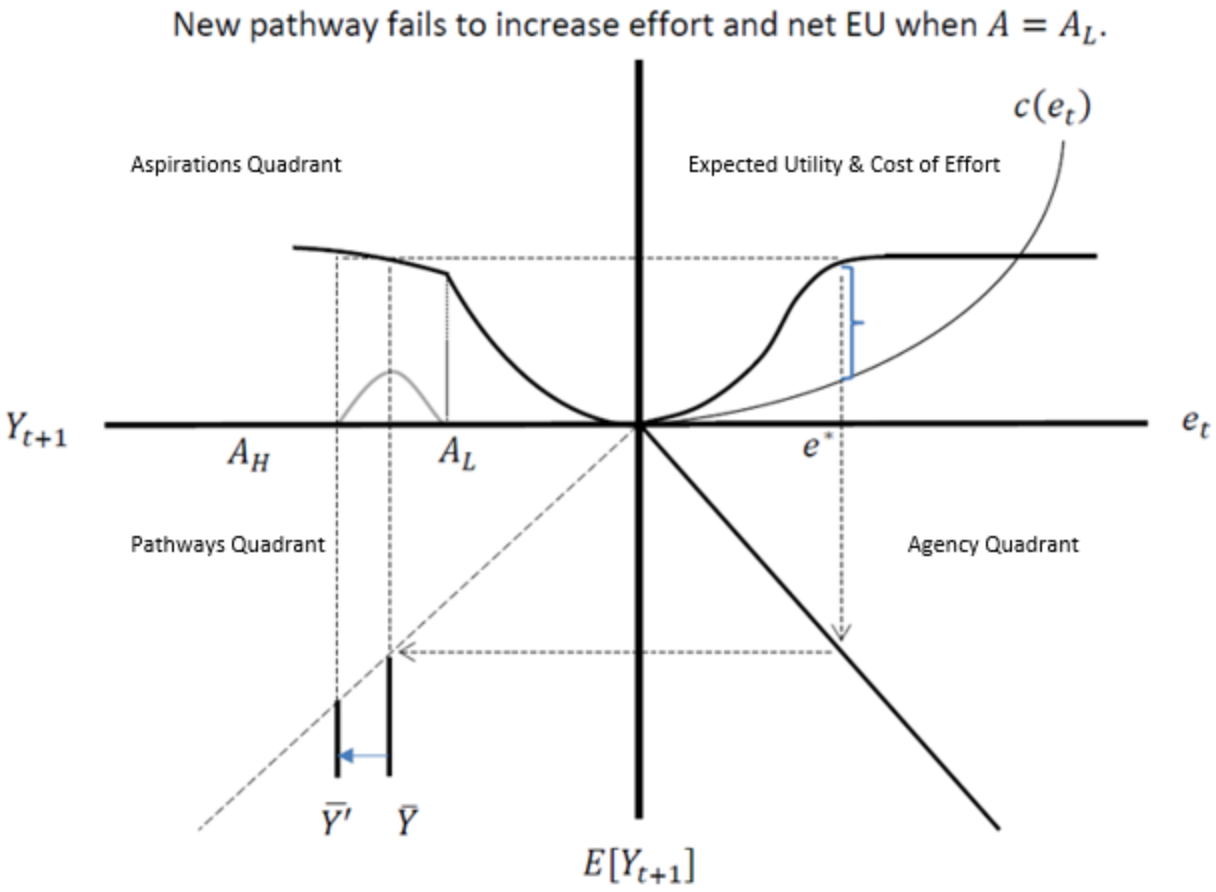

Figure 1: A new pathway opens, such as releasing a credit constraint, but this fails to have substantial impacts due to low aspirations.

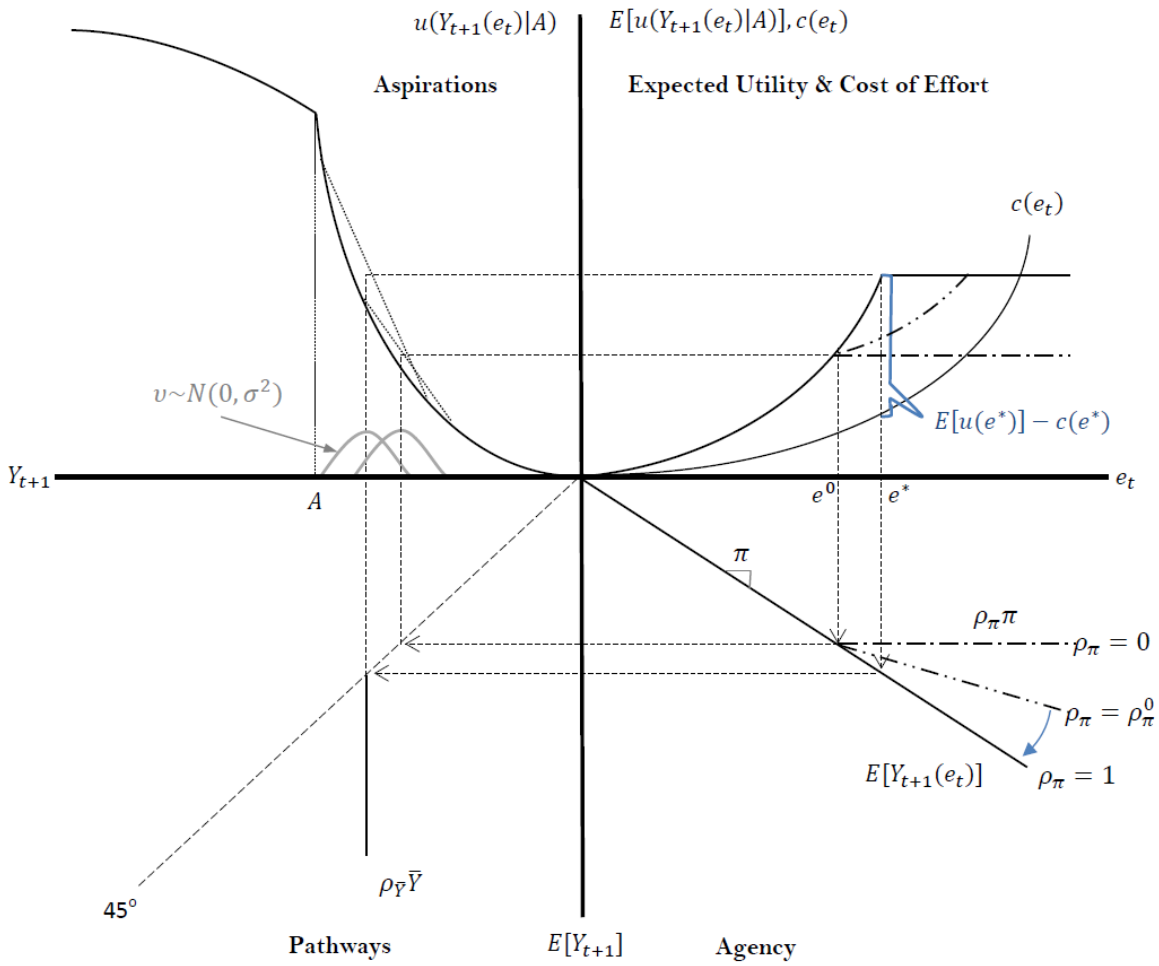

Figure 2: Graphical depiction of the economic model of hope with optimal effort (e^*) with "pathways" constraint binding below aspiration and optimal expected utility net of cost of effort depicted by $E[u]$-c. Increased perception of self-efficacy drives the individual from a low-effort trap to a higher effort and higher utility.

Figure 3

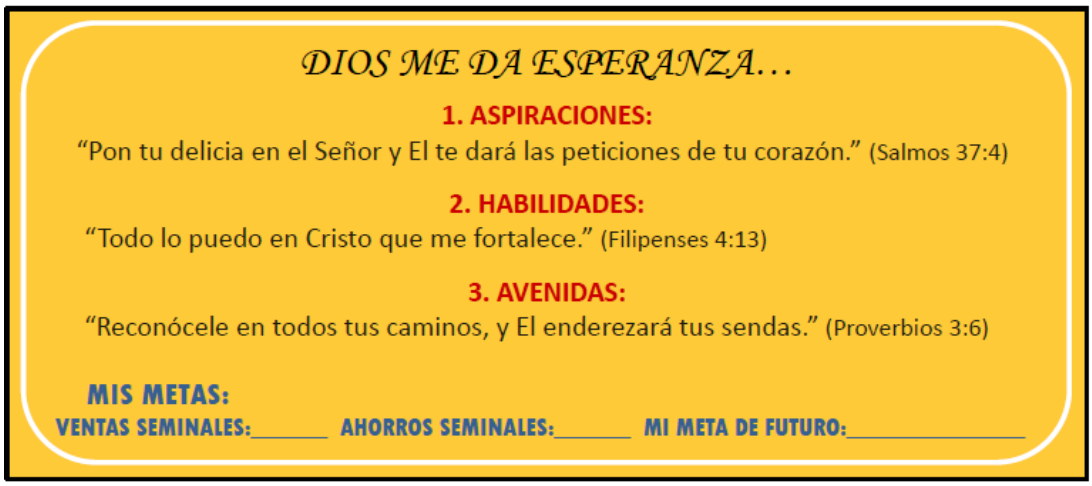
DIOS ME DA ESPERANZA…
1. ASPIRACIONES:
"Pon tu delicia en el Señor y El te dará las peticiones de tu corazón." (Salmos 37:4)
2. HABILIDADES:
"Todo lo puedo en Cristo que me fortalece." (Filipenses 4:13)
3. AVENIDAS:
"Reconócele en todos tus caminos, y El enderezará tus sendas." (Proverbios 3:6)
MIS METAS:
VENTAS SEMINALES:_____ AHORROS SEMINALES:_____ MI META DE FUTURO:_____

Figure 4

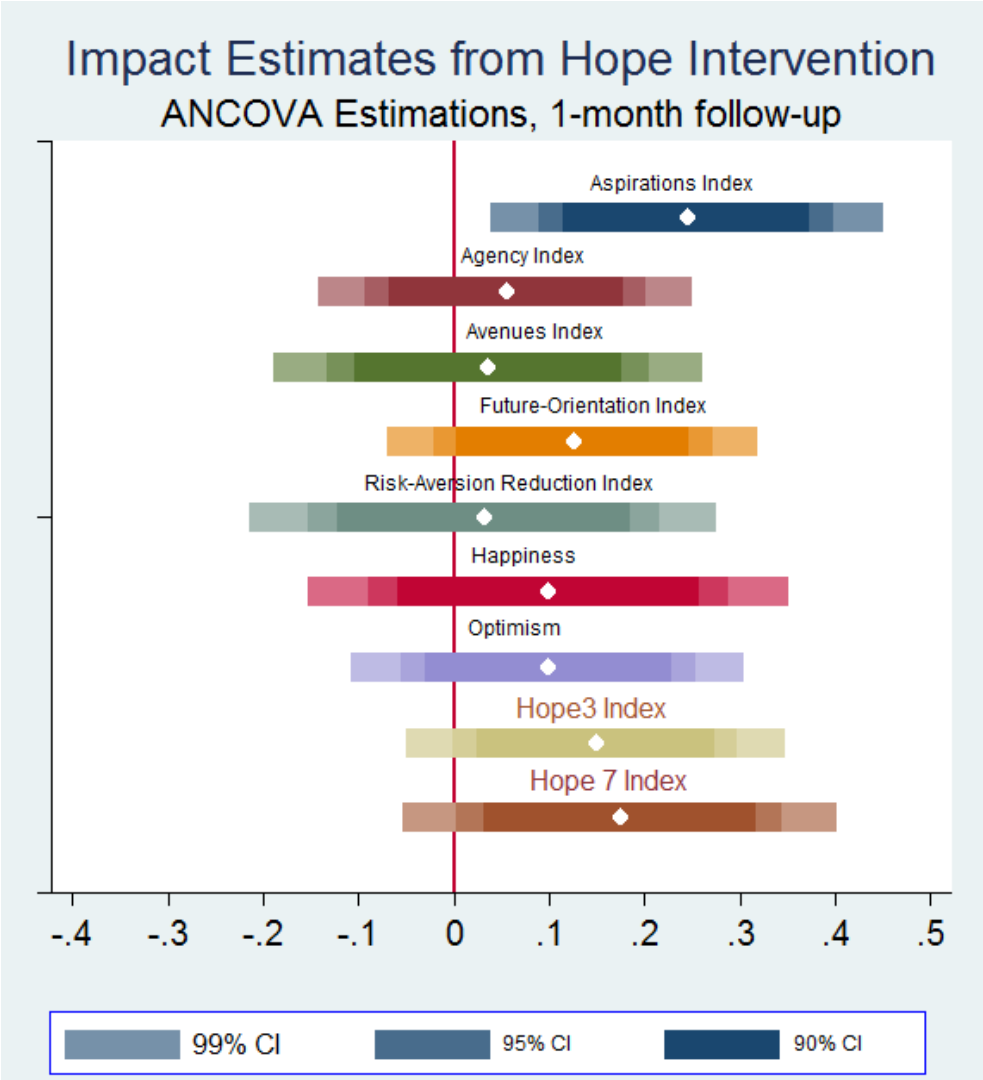
Impact Estimates from Hope Intervention
ANCOVA Estimations, 1-month follow-up
Aspirations Index
Agency Index
Avenues Index
Future-Orientation Index
Risk-Aversion Reduction Index
Happiness
Optimism
Hope3 Index
Hope 7 Index
-.4
-.3
-.2
-.1
0
.1
.2
.3
.4
.5
99% CI
95% CI
90% CI

Figure 5

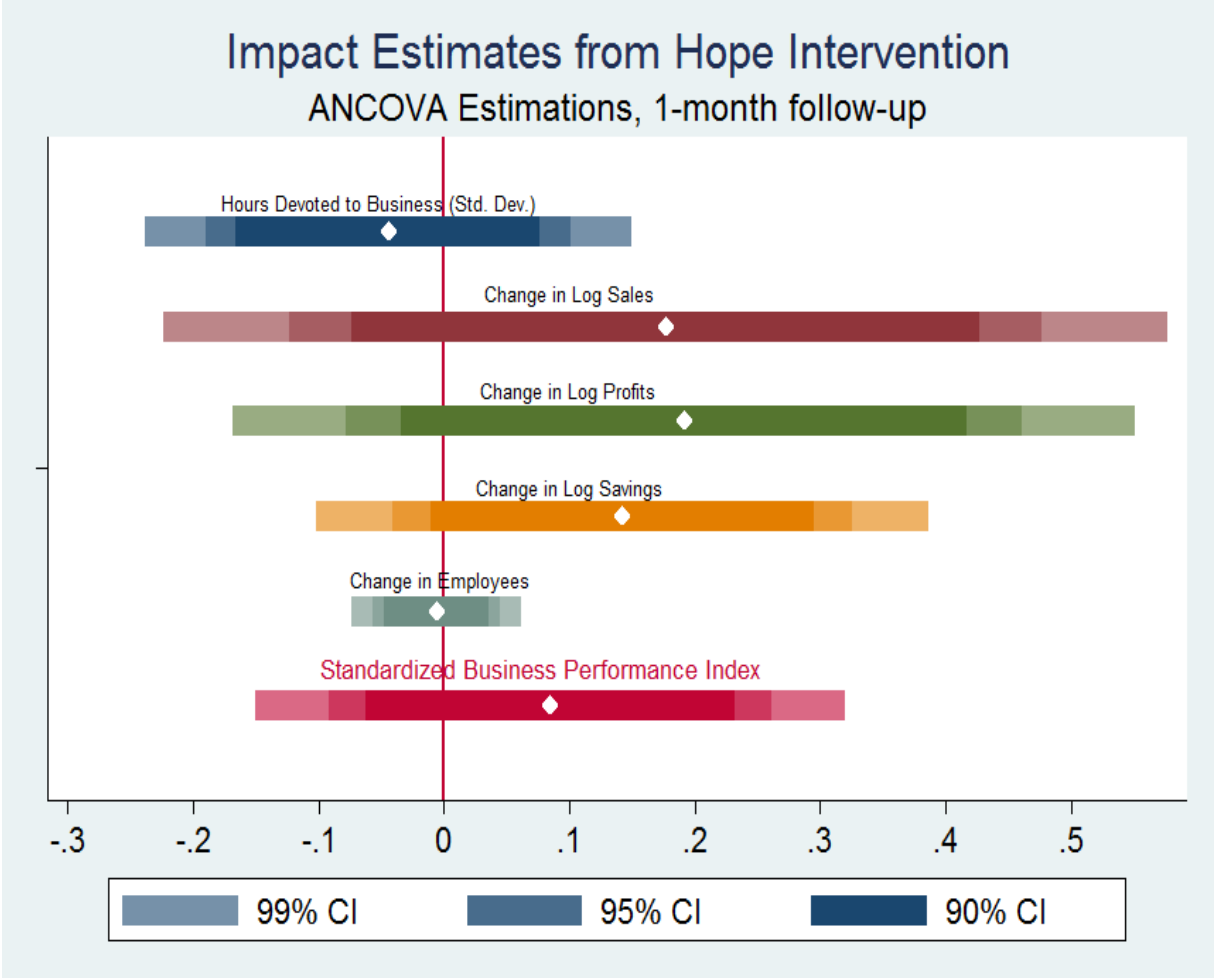
Impact Estimates from Hope Intervention
ANCOVA Estimations, 1-month follow-up
Hours Devoted to Business (Std. Dev.)
Change in Log Sales
Change in Log Profits
Change in Log Savings
Change in Employees
Standardized Business Performance Index
-.3
-.2
-.1
0
.1
.2
.3
.4
.5
99% CI
95% CI
90% CI

Table 1: Means and Balancing Tests

VARIABLES	(1) **Age**	(2) **Education**	(3) **Religion**	(4) **Number Children**	(5) **Number children<18**	(6) **Bank leader**	(7) **Clothing business**	(8) **Food business**
Hope group	2.670*	0.547	-0.068	0.099	-0.282**	-0.024	0.022	0.073*
	(1.350)	(0.601)	(0.062)	(0.218)	(0.130)	(0.028)	(0.037)	(0.042)
Baseline Control Group Mean	41.0	7.31	0.27	2.91	1.34	0.28	0.13	0.30
VARIABLES	(9) **Grocery business**	(10) **Hope3 Index**	(11) **Hope7 Index**	(12) **Happiness Index**	(13) **Optimism Index**	(14) **Aspirations Index**	(15) **Agency Index**	(16) **Avenues Index**
Hope group	-0.013	0.068	0.025	-0.022	-0.070	-0.047	-0.002	0.089
	(0.024)	(0.131)	(0.125)	(0.160)	(0.169)	(0.118)	(0.130)	(0.134)
Baseline Control Group Mean	0.064	-0.34	-0.054	8.68	8.62	-0.010	0.041	-0.112
VARIABLES	(17) **Future Orient.**	(18) **Spiritual Obv. Index**	(19) **Business Hours**	(20) **Weekly Sales**	(21) **Weekly Profits**	(22) **Weekly Savings**	(23) **Employees**	(24) **Plans for Employees**
Hope group	-0.044	0.005	-0.181	85.478	100.423	17.279	-0.001	-0.056
	(0.123)	(0.109)	(3.319)	(317.135)	(121.387)	(11.041)	(0.039)	(0.060)
Baseline Control Group Mean	-0.004	-0.062	35.3	2,274.1	827.2	46.5	0.106	0.543

Regression of variable on treatment only. Clustered standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, *$p < 0.10$

Table 2: ANCOVA Estimations: Psychology

VARIABLES	(1) **Happiness**	(2) **Optimism**	(3) **Aspirations**	(4) **Agency**	(5) **Pathways**
Hope group	0.099	0.098	0.244***	0.054	0.036
	(0.094)	(0.077)	(0.077)	(0.073)	(0.084)
Observations	555	555	555	555	555
R-squared	0.096	0.118	0.206	0.191	0.237

VARIABLES	(6) **Future Orientation**	(7) **Risk Aversion Reduction**	(8) **ANOVA Agency**	(9) **Hope3 Index**	(10) **Hope7 Index**
Hope group	0.125*	0.031	-0.005	0.149*	0.174**
	(0.073)	(0.092)	(0.021)	(0.074)	(0.085)
Observations	555	592	548	555	555
R-squared	0.148	0.173	0.073	0.298	0.291

ANCOVA egressions include controls for baseline value of impact variable, age, education, religion, number of children, children under 18, bank leader, dwelling index, loan officer, type of business, and missing baseline data. Clustered standard errors at community group level in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 3: ANCOVA Estimations: Business Outcomes

VARIABLES	(1) **Business hours**	(2) **Log Weekly Sales**	(3) **Log Weekly Profits**	(4) **Log Weekly Savings**
Hope group	-1.104	0.177	0.191	0.142
	(1.800)	(0.150)	(0.134)	(0.091)
Observations	550	551	549	544
R-squared	0.352	0.280	0.271	0.167

VARIABLES	(5) **Employees**	(6) **Plans for Employees?**	(7) **Bus. Perform. Index**	(8) **Anderson BP Index**
Hope group	-0.006	-0.005	0.095	0.085
	(0.025)	(0.041)	(0.091)	(0.088)
Observations	550	549	555	555
R-squared	0.354	0.242	0.336	0.335

ANCOVA egressions include controls for baseline value of impact variable, age, education, religion, number of children, children under 18, bank leader, dwelling index, loan officer, type of business, and missing baseline data. Clustered standard errors at community group level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.