



**National  
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Economic  
Research**

# THE ECONOMICS OF POVERTY TRAPS

Edited by Christopher B. Barrett,  
Michael R. Carter, and Jean-Paul Chavas



Hope as Aspirations, Agency, and Pathways: Po...

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# **The Economics of Poverty Traps**



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**A National Bureau  
of Economic Research  
Conference Report**



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**Christopher B. Barrett,  
Michael R. Carter,  
and Jean-Paul Chavas**

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# Hope as Aspirations, Agency, and Pathways

## Poverty Dynamics and Microfinance in Oaxaca, Mexico

Travis J. Lybbert and Bruce Wydick

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### 4.1 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 culturally imposed internal constraints (Sen 1999) that create a belief that one is incapable of engaging successfully in certain types of economic activities or domains of economic life. They may also take the form of a recursive trap

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in which low income produces feelings of helplessness that then result in feelings of low self-efficacy that reduce effort and reinforce the cycle of low income and a continued or deepened 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 has played a central role in understanding multiple equilibria and low-equilibrium traps in macroeconomics, usually articulated contextually as *confidence* or *expectations* (e.g., Diamond 1982; Murphy, Shleifer, and Vishny 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 even 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 through the accumulation of careful theoretical and empirical study. The work described in this chapter 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 a substitute or complement to more concrete and conventional 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. In other words, patterns of hopelessness may persist even when an intervention that relieves real economic constraints offer the potential for economic advancement—and if such an intervention is not accompanied by elevated aspirations or an expanded vision of what is possible, its impacts are unlikely to be fully realized. Throughout this chapter, 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 4.2, we provide an introduction to the psychological literature on hope and related concepts. In section 4.3 we review the theoretical and empirical literature in development economics related to hope, which has largely been reduced to material aspirations. In section 4.4 we summarize a simple economic model of hope we develop in Lybbert and Wydick (2018) 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 4.5, 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 4.6, we conclude with reflections on the complex interplay of hope and poverty dynamics.

## 4.2 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 (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 (Seligman and 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 and attributes such as happiness, courage, 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 (Rotter 1954, 1966; Lefcourt 1982). An individual’s locus of control is conceptualized along a continuum ranging from internal to external according to the individual’s perception of the forces that shape experiences and outcomes. The more an individual assigns influence to personal initiative and responsibility, the more internal her locus of control. The more influence she attributes to other people and forces out of one’s control, the more external her local of control. While it is generally defined as a forward-looking assessment of the determinants of future outcomes, locus of control clearly reflects past experiences and lessons learned from these experiences. Locus of control also tends to betray a broader view of the forces that shape outcomes for everyone; thus, an individual with an external (internal) locus of control may believe that nobody (anybody) can succeed on the basis of significant personal effort alone. A smallholder farmer, for example, who views

a successful harvest as purely the fortuitous result of weather, fate, or luck (external locus of control) may also ascribe external forces as the dominant explanation of other farmers' performance as well.

Building on Rotter, Bandura (1977) developed the concept of "self-efficacy," a person's perception of his competence in achieving goals and objectives.<sup>1</sup> In contrast to locus of control, self-efficacy is individually focused more than representing a global view and is often domain-specific, such as one's perceived ability to solve math problems (see Wuepper and Lybbert [forthcoming] for additional discussion of these and other related concepts). Both self-efficacy and the locus of control are powerful explanatory mechanisms by which an individual explains cause and effect of their experiences, 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 of causal relationships and of the "production functions" that govern the outcomes we care about. It shapes, at the deepest levels, the internal narrative through which we make sense of our lives and formulate our broader worldview. Thus, our actions and reactions in daily life often bear the fingerprints of our individual attributional style.

Snyder expands on these ideas to conceptualize *hope* as consisting of three key elements: goals, agency, and pathways. An individual must have a goal, see a pathway to reaching that goal, and believe that she is able to achieve the goal by progressing along this pathway. This understanding of hope nests the concepts of locus of control and self-efficacy within the agency component (Wuepper and Lybbert, forthcoming), yet the causal relationship between the three components of hope is less than straightforward. A greater sense of personal agency and the ability to conceptualize pathways in pursuit of a goal create the basis for the formation of aspirations, but aspirations may also motivate the conceptualization of pathways and a desire to increase agency in a particular domain. Snyder's version of aspirational hope thus differentiates itself strongly from a kind of "wishful hope" that is optimistic, but embodies low agency and views positive change as originating from external forces.

### 4.3 Hope and Aspirations in Development Economics

Traditionally, development economics has conceptualized poverty as primarily the product of *external* constraints such as credit, education, health,

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. The concept is referred to interchangeably as "perceived self-efficacy" and "self-efficacy."

infrastructure, and technology. Based on this approach, poverty alleviation hinges on relieving these external constraints. With greater appreciation for the role of internal constraints that arise from one's self-efficacy, agency, and aspirations, relaxing these external constraints may be insufficient. Moreover, relieving internal constraints may require a broader set of interventions that are less conventional and more creative than standard economic interventions. This growing awareness forms the basis of an exciting new literature in development economics that tries to break new ground in the understanding of the root causes of poverty traps.

Economic research related to hope and aspirations has its origin in the work of anthropologist Arjun Appadurai (2004). In this framework, aspiring to an improved standard of living first requires the "capacity to aspire." Appadurai (2004) 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 Ray (2006), Bogliacino and Ortoleva (2013), Genicot and Ray (2014), and Dalton, Ghosal, and Mani (2016) and for promising new efforts to provide quantitative measures of hope such as in Bloem et al. (forthcoming).

Ray (2006) expands Appadurai's conception of aspirations to introduce 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* consists of the people one perceives to be similar enough to oneself that they provide a useful benchmark for formulating one's own aspirations. This set of persons establishes boundaries around and reference points regarding future possibilities. The similarity that is the basis of the aspirations window may hinge on capability and capacity, including salient traits such as skin color, ethnicity, gender, religion, or socioeconomic class. The degree of social mobility strongly influences the breadth of 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, rewards to productive effort are low. If it is too wide, the gap can make the aspiration seem unattainable, leading to frustration. *Aspirations failure* occurs when

an individual's effort is stymied by limited aspirations rather than structural constraints. Thus in the presence of aspirations failure, internal constraints may bind before external constraints.

By adapting aspirations and other psychological concepts to the poverty literature in anthropology and economics, Appadurai and Ray offer an excellent point of departure for exploring the complementarity between hope and poverty traps. Such an exploration may be treacherous, as one must always exert care in transporting terms and ideas across disciplines and cultures. For example, the context in which much psychological theory is developed, tested, and practiced differs greatly from most of the developing world. The constraints people face and their adaptations to these constraints differ in substantive ways. As a result, bridging from Snyder to the Appadurai and Ray (and beyond) is complicated by semantic and even philosophical differences. We nevertheless believe there are great potential insights from this effort.

Building on the conceptual and theoretical work of Appadurai and Ray, empirical analysis of the determinants and impact of aspirations has become one of the liveliest research areas in applied development economics. In our review of 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 age eleven to fifteen 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 (a) the child to at least graduate from secondary school; (b) the child to marry at an age above eighteen; (c) the child to have an occupation different than housewife or what the in-laws prefer; (d) whether the desired occupation is a doctor, engineer, scientist, teacher, or a legal career; and (e) the child to become the Pradhan. The same aspirations 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. In villages assigned to a female leader for two election cycles, exposure to a female Pradhan caused the gender gap in aspirations in these districts to close by 25 percent for parents and 32 percent for adolescents. The gender gap in adolescent educational attainment was closed completely, and 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 and find that exposure to cable television causes increases in school enrollment for younger children, decreases in the adult acceptability of domestic violence toward women, and 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 (forthcoming) carry out an experiment in Indonesia among 526 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, health care, and have access to an after-school tutoring program that focuses not only on supplemental academic training, but on spiritual development, character growth, socioemotional skills, self-esteem, and aspirations. In addition to direct questions on self-esteem and aspirations, children were given a new box of twenty-four colored pencils and asked to "draw a picture of yourself in the rain," a standard technique in child psychology.<sup>2</sup>

In this study, identification of causal impacts is based on 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. Ordinary least squares (OLS) and instrumental variable (IV) estimations found that child sponsorship significantly raises sponsored children's levels of happiness (0.42 standard deviations), self-efficacy (0.29 standard deviations), and hope (0.66 standard deviations). Here we see evidence of substantial impacts from a program with an intervention comprising not only tangible economic interventions (that affect avenues and agency), but 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 study on the long-term impact of Compassion's sponsorship program through a survey obtaining data on

2. The use of children's drawings has been well developed in the clinical psychology literature (see, e.g., Koppitz 1968; Thomas and Silk 1990; Furth 2002). A detailed psychology literature has shown that drawings can reveal 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, and tiny figures are associated with hopelessness and low self-esteem. Monster figures are correlated (not surprisingly) with aggression.

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 twelve or younger to be sponsored instead of nine 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 and childbearing, Wydick, Glewwe, and Rutledge (2017) 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 birth-rates were higher.

In a cash transfer program in Nicaragua, Macours and Vakis (2014) utilized 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 participants and leaders among the 3,000 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 the impacts of an array of outcomes were on that particular household within the productivity intervention. Leaders were not allocated equally among program assemblies during program rollout, although there was an average of four leaders per assembly. Having one additional leader (given the productive investment package) increased household income from non-agricultural activities by about US\$3.30, and the value of the animal stock by roughly US\$12.00. 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 their follow-up research, Macours and Vakis (chapter 9, this volume) find that even two years after the conditional cash transfers stopped, the former beneficiaries of the transfers who lived in close proximity to these influential leaders continued to display significantly higher investments in the education and nutrition of their children as well as higher expectations and aspirations for them. As a result there is evidence that exposure to those who can augment aspirations may exhibit long-term impacts that are complementary to a tangible intervention such as cash transfers.

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.<sup>3</sup> Each of the goals was accompanied by a strict verification procedure and rated in terms of difficulty. Other crosscut treatments included being part of 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 constitutes 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.

In work that lays an important foundation for our own experimental results we present here, Bernard et al. (2013) study aspirations through a field experiment in Ethiopia. In this project, researchers contracted with film producers to create four fifteen-minute documentaries featuring families telling their personal narrative of escape from poverty. From a total of sixty-four villages, experimenters selected eighteen households from each village, and each of these eighteen households were allocated to one of three groups: a treatment group (that watched the documentary), a placebo group

3. 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 business 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), making a payment to improve credit score, purchasing a durable good for the home, applying for an education grant, attending an adult literacy course, or joining the health security system.

(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 reported 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. found no direct impact on educational enrollments or expenditures on children's education, but reported evidence of school enrollment and expenditures based on every additional friend in the village who viewed the documentary. While there are some caveats to the results of the study related to overtesting, 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.

#### **4.4 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 modeling framework that we develop and present in greater detail in Lybbert and Wydick (2018).

The model we present serves a number of purposes in relationship to our experiment. First, it rigorously defines Snyder's psychological components of hope in the context of a formal economic model. Second, it demonstrates how these different components may each work to yield better development outcomes. Third, it explores the relationships of these components, both with each other and with tangible interventions such as microfinance, and how they may yield complementary effects with one another and with the tangible economic interventions focused primarily on relieving external constraints. Note that while we believe the model adequately serves these three purposes and motivates the structure of the microfinance experiment we evaluate empirically, it is not designed to generate predictions that are directly tested in our subsequent empirical analysis.

The 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 (nontraditional) 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, we broaden 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 1,000 pesos).

In Lybbert and Wydick (2018) we propose that an aspirations-based utility function should satisfy four properties: (a) discontinuity at the aspiration, where marginal utility is higher just below it than above it; (b) convexity in the utility function below the aspiration and concavity above it; (c) gains in utility become increasingly a function of whether an aspiration is realized as aspirations grow in importance; and (d) 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.

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

At intermediate values of  $\alpha$ , 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  $\alpha_1$  reflects the strength of aspirations below  $A$  and  $\alpha_2$  above  $A$ , then in the case where  $\alpha_2 = \alpha_1 / (\alpha_1 - 1)$ , it simplifies to the standard concave neoclassical utility function. This allows for the potential testing of utility against its deviation from the standard neoclassical form in cases where structural estimation of the function is possible.

In the most basic formulation of Lybbert and Wydick (2018), Snyder’s component of 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  $\pi$  and  $\pi_v$  indicate the respective contributions of effort and the random shock to total production. Pathways in the model are the absence of constraints on  $Y$ . 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  $v$  such that  $E[Y_{t+1}] = \begin{cases} \pi e_t & \text{if } e_t < \bar{e} \\ \bar{Y} & \text{if } e_t \geq \bar{e} \end{cases}$ , where  $\pi \bar{e} = \bar{Y}$ . The final component to the model is a function that gives the cost of effort,  $c(e_t)$ , where

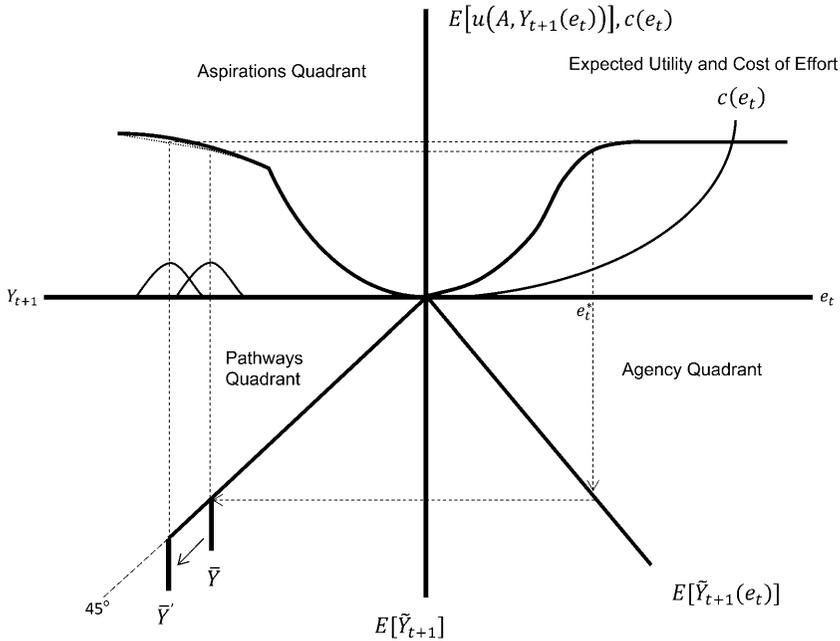
effort is costly at an increasing rate, that is,  $c'(e_t) > 0$ ,  $c''(e_t) > 0$ , and  $c(0) = 0$ . The agent then solves the problem. Individuals thus choose optimal effort to maximize  $E[u_{t+1}] - c(e_t)$ .

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 exogenously 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"). Indeed, even in Snyder's conceptualization of hope, it is not just agency that is relevant, but the perception of agency in a given domain that is important. Snyder likewise understands the perception of pathways in their constraints to be equally important to behavior as what is actual. 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 4.1. 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 4.2, 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 form of child sponsorship (Wydick, Glewwe, and Rutledge 2013, 2017) in which the intervention not only increases agency through an after-school tutoring program (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 multifaceted intervention as "integral (or integrated) development," programs designed



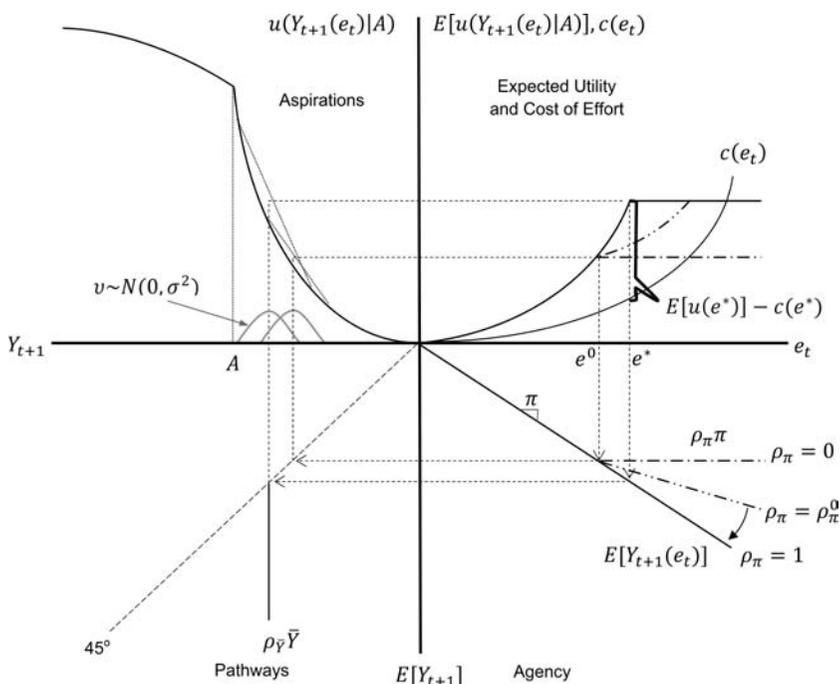
**Fig. 4.1** A new pathway opens, such as releasing a credit constraint, but this fails to have substantial impacts due to low aspirations

to exploit complementarities between economic, psychological, spiritual, and social interventions.<sup>4</sup> 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.

#### 4.5 Short-Term Effects in the Oaxaca Hope Project

Here we present one-month follow-up results from a microfinance experiment in Oaxaca, Mexico, that follows from the theoretical framework outlined above. 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 nonprofit, 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.

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



**Fig. 4.2 Graphical depiction of the economic model of hope**

Note: 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.

Part of the work of Fuentes Libres involves the operation of fifty-two 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 percent located in and around the periurban 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 contribution of twenty pesos per week is required of each community bank member. The size of the fifty-two community banks range from about six to thirty members, the median size being thirteen 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, and 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 twenty-six matching pairs consisting of A and B groups were formed. A single coin was then flipped to determine whether the twenty-six A-banks or twenty-six B-banks would be selected into treatment status, with 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 4.1 shows that treatment and control were well-balanced over twenty-four 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.<sup>5</sup> 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  $3 \times 3$  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 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.

#### 4.5.1 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 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 thirty-five-minute documentary was filmed in Oaxaca and produced and edited in Sacramento, California, under the direction of film studies

5. 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"; and "I have specific goals and plans for the future growth of my business." Questions regarding agency included "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 than the actions of others"; "I often have difficulty leading and influencing my friends and neighbors"; and "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"; and "I understand the different ways to succeed in business."

**Table 4.1** Means and balancing tests

Variables	Age (1)	Education (2)	Religion (3)	Number of children (4)	Number of children < 18 (5)	Bank leader (6)	Clothing business (7)	Food business (8)
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	Grocery business (9)	Hope-3 index (10)	Hope-7 index (11)	Happiness index (12)	Optimism index (13)	Aspirations index (14)	Agency index (15)	Avenues index (16)
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	Future orient. (17)	Spiritual obv. index (18)	Business hours (19)	Weekly sales (20)	Weekly profits (21)	Weekly savings (22)	Employees (23)	Plans for employees (24)
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

*Note:* Regression of variable on treatment only. Clustered standard errors in parentheses.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

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: \_\_\_\_\_

GOD GIVES ME HOPE...

1. ASPIRATIONS:  
"Take delight in the LORD,  
and he will give you the desires of your heart." (Psalm 37:4, NRSV)

2. ABILITIES:  
"I can do all things through him who strengthens me." (Philippians 4:13, NRSV)

3. AVENUES:  
"In all your ways acknowledge him,  
and he will make straight your paths." (Proverbs 3:6, NRSV)

MY GOALS:  
WEEKLY SALES: \_\_\_\_\_ WEEKLY SAVINGS: \_\_\_\_\_ MY FUTURE GOAL: \_\_\_\_\_

**Fig. 4.3** Original Spanish text and English translation of the goal-setting magnet provided to women in treated groups

*Note:* English versions of Bible verses are from the New Revised Standard Version Bible, © 1989 National Council of the Churches of Christ in the United States of America. Used by permission. All rights reserved worldwide.

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 twenty-six treatment groups received a three-by-eight-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 nongovernmental organization, an inspirational scripture verse was given under each of these three words (see figure 4.3). 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 four-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.

To enhance the quality of our microenterprise data, loan officers carried out a short review of basic accounting and bookkeeping with *both* treatment and control groups approximately two months before the experiment. However, the intervention carried out during the treatment carefully avoided imparting any such hard business skills to the women in treated community banks. Based on the strong compliance with this design feature, we are confident that any differences between the groups at end line are either idiosyncratic or are due to the hope intervention.

Five weeks after the baseline survey and the completion of the hope curriculum, we conducted a follow-up survey 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-in-differences using experimental data with baseline and follow-up surveys (McKenzie 2012). Our specification is

$$y_{ijt} = \alpha + \tau \text{Treat}_j + \theta y_{ijt-1} + X'_i \beta + \varepsilon_{it},$$

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

#### 4.5.2 Results

We created indices of our variables based on Kling, Liebman, and Katz (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.

**Table 4.2** ANCOVA estimations: psychology

Variables	Happiness (1)	Optimism (2)	Aspirations (3)	Agency (4)	Pathways (5)
Hope group	0.099 (0.094)	0.098 (0.077)	0.244*** (0.077)	0.054 (0.073)	0.036 (0.084)
Observations	555	555	555	555	555
R-squared	0.096	0.118	0.206	0.191	0.237
Variables	Future orientation (6)	Risk-aversion reduction (7)	ANOVA agency (8)	Hope-3 index (9)	Hope-7 index (10)
Hope group	0.125* (0.073)	0.031 (0.092)	-0.005 (0.021)	0.149* (0.074)	0.174** (0.085)
Observations	555	592	548	555	555
R-squared	0.148	0.173	0.073	0.298	0.291

*Note:* ANCOVA regressions include controls for baseline value of impact variable, age, education, religion, number of children, children under age eighteen, bank leader, dwelling index, loan officer, type of business, and missing baseline data. Clustered standard errors at community group level in parentheses.

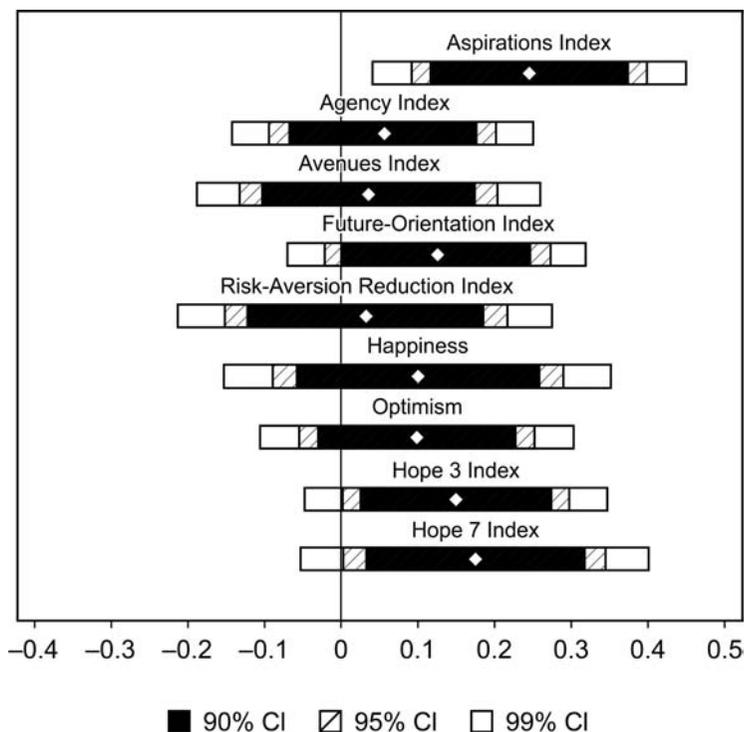
\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Our first results show impacts on psychological variables and are given in table 4.2 and figure 4.4. Our intervention clearly strongly impacted aspirations, and our aspirations index increased by  $0.24\sigma$ , significant at the 0.01 percent level. Point estimates point to increases in agency and pathways, but these are much smaller ( $0.054\sigma$  and  $0.036\sigma$ ) and not statistically significant, roughly half the size of their standard error. Columns (1) and (2) in table 4.2 show point estimates indicating that happiness and optimism increased approximately  $0.10\sigma$  under treatment, but the 95 percent confidence intervals of these estimates contain zero. Future orientation increases among the treated by  $0.13\sigma$ , significant at the 10 percent level. Smaller point estimate increases are seen in risk-aversion reduction ( $0.03\sigma$ ) and our ANOVA-based measure of agency actually shows a slight reduction ( $-0.005\sigma$ ).

Nevertheless, our Hope-7 index (which includes all seven of our variables potentially related to hope: aspirations, agency, avenues, happiness, optimism, future orientation, and risk-aversion reduction) increases significantly (at the 5 percent level) by  $0.17\sigma$  and our Hope-3 index (which contains only Snyder’s three components— aspirations, agency, and pathways) increases by  $15\sigma$ . 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 second 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



**Fig. 4.4** Impact estimates from hope intervention, ANCOVA estimations, one-month follow-up

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 4.3 and figure 4.5. We expected the number of hours per week that women dedicated to her business to increase with increased aspirations, however, our point estimates indicate a negative impact here, although statistically insignificant. Our ANCOVA point estimates find positive impacts on log sales (increase of 17.7 percent), log profits (increase of 19.1 percent), and log community bank savings (increase of 14.2 percent), although the 95 percent 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  $0.095\sigma$ , 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

**Table 4.3 ANCOVA estimations: business outcomes**

Variables	Business hours (1)	Log weekly sales (2)	Log weekly profits (3)	Log weekly savings (4)
Hope group	-1.104 (1.800)	0.177 (0.150)	0.191 (0.134)	0.142 (0.091)
Observations	550	551	549	544
R-squared	0.352	0.280	0.271	0.167

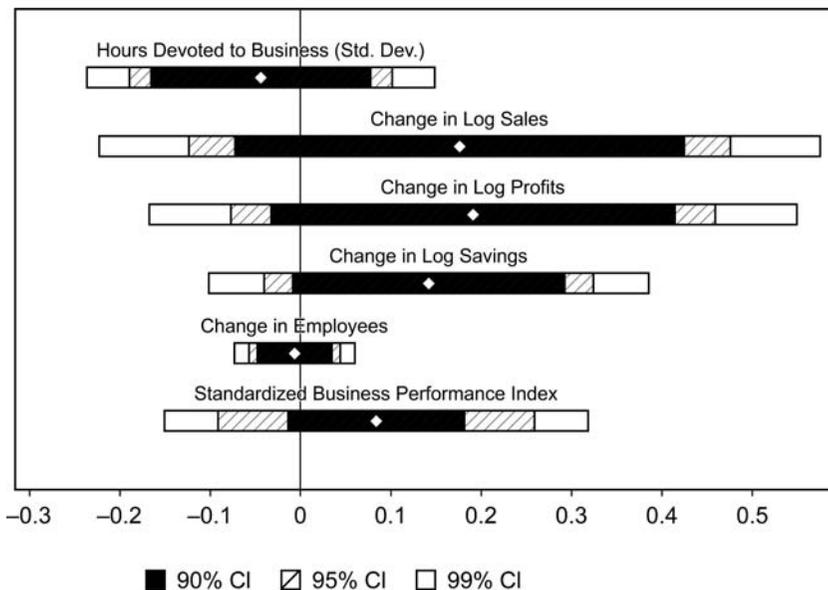
Variables	Employees (5)	Plans for employees? (6)	Bus. perform. index (7)	Anderson BP index (8)
Hope group	-0.006 (0.025)	-0.005 (0.041)	0.095 (0.091)	0.085 (0.088)
Observations	550	549	555	555
R-squared	0.354	0.242	0.336	0.335

*Note:* ANCOVA regressions include controls for baseline value of impact variable, age, education, religion, number of children, children under age eighteen, bank leader, dwelling index, loan officer, type of business, and missing baseline data. Clustered standard errors at community group level in parentheses.

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.

Could these effects have been created by other aspects of our intervention than augmenting aspirations, agency, and illuminating pathways out of poverty? While our experiment targeted only these phenomena in the design of the documentary, the reminder, and the hope curriculum, as is the case with many experiments it is possible that women in treated groups exerted more effort in their businesses simply because they felt that someone else cared about their performance or through other types of Hawthorne effects. While we cannot rule out such confounding effects, the design and implementation of the experiment attempted to avoid introducing such differences. Specifically, data collection and the weekly group meetings with loan officers were identical in both treated and control groups. Any such Hawthorne effects would have to come from the implementation of the hope treatment itself.

Our hope intervention continued for twelve 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.



**Fig. 4.5** Impact estimates from hope intervention, ANCOVA estimations, one-month follow-up

#### 4.6 Reflections on Hope and Poverty Dynamics

Can hopelessness among the poor create poverty traps? We have explored potential answers to this question throughout this chapter by considering potential complementarities between hope and poverty dynamics. A small but growing evidence base provides some support for an affirmative answer. Hopelessness can, it seems, create a vicious cycle in which pessimistic beliefs create a self-fulfilling prophecy leading to prolonged episodes of poverty. Indeed, in this volume (chapter 3), Haushofer and de Quidt 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 that embodies not only optimism about the returns to effort through perceived agency and self-efficacy, but is characterized first by a clear direction of intended and desired progress in the form of goals and aspirations and by the ability to visualize achieving these aspirations through specific and realistic pathways of progress.

Whether it is possible to break poverty traps by raising this kind of aspirational hope is an important question—to which our microfinance experi-

ment aims to contribute. We believe hope may play an important role in poverty dynamics in general, but a few caveats are worth noting. Relieving internal constraints should rarely be viewed as a substitute for relieving external constraints. In many cases, internal and external constraints are likely to be strong complements, but in others it may be that external constraints are binding and that interventions targeting internal constraints will have little impact at all. Well-intentioned practitioners and organizations have frequently implemented interventions to relieve external constraints with little effect on the intended beneficiaries. While there are many potential explanations for ineffective interventions, internal constraints may play an important role. Such internal constraints may reflect 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 underappreciated 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. Thus, the first question we as development economists should ask when poverty traps are invoked as an explanation of low standards of living is, “What is the structural, social or behavioral force behind the welfare dynamics that produce this presumed poverty trap?” The small but growing and exciting literature on the economics of hope may enhance our ability to address this critical question—and, through an improved understanding of the underlying forces at play, induce greater creativity in formulating policies and interventions that create integrative models of development aimed at alleviating chronic poverty in such cases. We intend this work to inroads into these research topics and questions at the intersection of behavioral and development economics.

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## Comment on Chapters 3 and 4

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Psychology has gone a long way in the analysis of personality, emotions, and mental states that can lead individuals to make decisions that classical economics would consider irrational. Economics provides a number of tools that allow the analysis of how such phenomena might affect poverty dynamics. A first step necessary to make progress in this area is for economists to assimilate the rich literature from psychology and other fields before integrating such insights into economic models.

This comment provides a discussion of the two preceding chapters, “Depression for Economists,” by Jonathan de Quidt and Johannes Haushofer and “Hope as Aspirations, Agency, and Pathways: Poverty Dynamics and Microfinance in Oaxaca, Mexico,” by Travis J. Lybbert and Bruce Wydick. De Quidt and Haushofer and Lybbert and Wydick both develop particularly valuable insights from psychology on depression and hope, respectively, in a language very understandable and relevant to economists. Each chapter also includes an analytical framework, some strengths and weaknesses of which this comment discusses. I also provide a broader discussion of the condition under which a behavioral poverty trap might emerge, and of future steps necessary to better understand the issue and to design policies that can address it.

### **Socioemotional Skills and Behavioral Poverty Traps**

As explained by Barrett, Carter, and Chavas (introduction, this volume) as well as Azariadis and Stachurski (2005), a poverty trap arises when

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poverty becomes self-reinforcing. A drop in capital leads to a reduction in productivity or wealth accumulation that perpetuates the low equilibrium. A central role of this volume is to enrich this approach by understanding that it can apply to multiple forms of capital, including skills broadly defined.

Many economists have given a central role to physical capital accumulation as a driver of economic growth (Harrod 1939; Solow 1956) before better incorporating human capital (Mankiw, Romer, and Weil 1992). The latter was initially narrowed to health and education before being refined to a whole set of cognitive and socioemotional skills that determine people's decisions and thus their generation and accumulation of wealth. The research in anthropology, psychology, and behavioral economics provides some mechanisms through which such skills can be affected by one's conditions (Appadurai 2004; Ray 2006; Laajaj 2017; Moya 2015; Carter 2016; Dalton, Ghosal, and Mani 2016). The bidirectional effect between skills (broadly defined) and economic conditions raises the possibility of a behavioral poverty trap, defined as a situation where poverty reduces some aspects of the skills of the agent, which in turn perpetuates the situation of poverty.

A number of conditions are required for a behavioral poverty trap to emerge:

1. There are at least two possible dynamically stable equilibria;<sup>1</sup> for simplicity we will consider the case with two equilibria.
2. Individuals who behave optimally/rationally<sup>2</sup> would always find themselves in the high equilibrium (even if they start in the neighborhood of the low equilibrium).
3. The individual's skills are affected by her economic environment.
4. The skills that result from the low-equilibrium behaviors are such that it leads the person to decisions that perpetuate the low equilibrium.

De Quidt and Haushofer and Lybbert and Wydick both fit within this framework. De Quidt and Haushofer claim that negative economic shocks lead to depression, which is associated with pessimistic beliefs about the returns to individual effort, which can thereby generate a poverty trap if the individual reduces effort, thereby confirming and reinforcing the pessimistic beliefs. Lybbert and Wydick present a model where a lack of hope affects both one's preferences (via the utility function) and perceived return to effort, also causing a behavioral poverty trap.

1. Some other researchers have included single equilibrium situations as poverty traps (Carter and Barrett 2006). Whether one decides to include this in the concept of poverty traps is mostly a semantic debate. In this case we call it a trap only if there is a possible exit in the sense that another equilibrium is possible within the model.

2. Here rationality does not incorporate many forms of bounded rationality, or the fact that an optimum might incorporate psychological costs (e.g., the cost of having high hopes that go unsatisfied).

## Depression for Economists: Should Depression Adapt to Economists or Economists Adopt Depression?

De Quidt and Haushofer do a fantastic job at defining and explaining major depressive disorder (MDD; hereafter, “depression”) and its symptoms, in a language very understandable for economists, which is extremely valuable. They also propose a model where individuals derive utility from consumption, food, and sleeping, and where a strong negative shock lowers the beliefs about the returns to effort. As a result, individuals tend to revert to their natural tendencies in food or sleeping. This explains why depressed individuals often display either hypersomnia or insomnia and they tend to either overeat or lack appetite. The proposed model is intuitive and efficient in the sense that it explains a number of behaviors within a simple framework.

The main shortcoming of the analysis comes from the attempt to interpret the wide set of conditions that characterize depression within the limited framework of beliefs about the return to one’s effort. Although many syndromes do fit very well, others seem to affect elements other than beliefs: negative expectations may simply be a general pessimism (if pessimism is “neutral to effort,” expected future utility may fall holding the return to effort constant), reduction in gratification can be expressed with a flattening of the utility function without changing return to effort, and paralysis of the will and indecisiveness may reflect a higher cost of effort (or a consequence of the flattened utility). Hence as much as beliefs about the returns to one’s effort can, by itself, predict many observed behaviors, the whole range of effects may lead to a more complete understanding of depression and how it affects decisions.

The set of symptoms mentioned also map nicely with a number of socio-emotional skills: locus of control, self-efficacy, optimism, and tenacity are all skills that seem to be affected by depression and have been found to be good predictors of decisions and economic outcomes. It is also conceivable that the emotional effects of depression are likely to reduce patience and the ability to undertake risk. I used data from a skills-measurement exercise among 960 farmers in rural Kenya (Laajaj and Macours 2017) to look at correlations between depression and different socioemotional skills. Our analysis shows the numerous challenges related to the measurement of socioemotional skills, but also points at the Center for Epidemiologic Studies Depression (CESD) scale (a measure of depression) as one of the most consistent measures. Among the thirteen other socioemotional skills, CESD best correlates with (starting from the highest bivariate correlation coefficient estimate) neuroticism, metacognition, locus of control, and self-confidence,<sup>3</sup>

3. Neuroticism is a personality trait characterized by anxiety, moodiness, and frustration. Metacognition, sometimes defined as “thinking about thinking,” refers to the extent to which a person is aware of herself as a thinker and a learner. Locus of control is internal when an individual believes that she has a strong influence on what happens to her, but external when she believes it is mostly driven by factors outside of her control. Self-confidence can be defined as the trust in one’s abilities, qualities, and judgments.

which is very much in line with the symptoms highlighted by de Quidt and Haushofer. Depression may play a key role as a determinant of multiple skills and provide a key tool for understanding the mental processes under which skills might be affected. Further research in this area holds great potential for our understanding of the interactions between psychological factors and poverty dynamics.

The de Quidt and Haushofer model is a story about optimal behavior under imperfect information about the returns to one's effort. Under these conditions, a negative shock may lead to underinvestment as a consequence of Bayesian updating, and in extreme cases it might discourage the individual enough that she will not invest in effort anymore and thus not learn anymore and thereby remain in the low equilibrium. However, depression is diagnosed precisely when an attitude is excessively pessimistic with respect to one's experience. In practice, effort is multidimensional, and a failure in one type of effort may lead to the learning that this type of effort is ineffective. But complete discouragement of any form of effort may come from the "egocentric notions of causality" of depressed people (mentioned by de Quidt and Haushofer). This tells us first that a fully rational framework may miss fundamental elements of the concept of depression; its effects go beyond a Bayesian update, taking people away from the optimal reaction (under imperfect information). Furthermore, it raises fundamental questions: Why would some individuals associate the failure to a particular form of effort, and others to themselves and be discouraged? Is there an underlying skill such as emotional resilience that makes some individuals more prone to depression than others (in particular, depression triggered by a negative, exogenous event)? Could this skill be a common factor that explains the level and stability of multiple socioemotional skills, which themselves independently affect poverty dynamics? The introduction of this volume emphasizes the importance of understanding the determinants of resilience. The extent to which some individuals' skills are more or less affected by an adverse shock may play an important role in the persistence of poverty and is an area that remains relatively unexplored by economists.

### **Hope as Aspirations, Agency, and Pathways: Can Hope Bring New Exit Solutions to Poverty Traps?**

Lybbert and Wydick provide a particularly useful review of the psychological literature on hope and its three main components: aspirations, agency, and pathways. This maps again with some traditional socioemotional skills such as locus of control and self-efficacy. The authors propose a model where hope affects effort decisions in multiple ways: the goal setting affects utility, while agency and pathways affect beliefs. It shows how a lack of hope might generate internal constraints to development and potential poverty traps.

One may think of a number of alternative ways in which hope could be modeled: (a) given that “falling short of aspirations may be experienced psychologically as a shock” (as mentioned by the authors), then a discontinuity in the utility function at the level of the goal could represent the added satisfaction that comes from reaching one’s goal; (b) the time dimension is very important in the role of hope: the anticipation before reaching a goal generates utility or disutility (Loewenstein 1987; Laajaj 2017) that should be a function of aspiration, just like the utility at the time of achievement and after it, all leading to more complex utility functions and effects that will be affected by the lag between an effort and its potential reward; and (c) an alternative way to represent pathways would allow individuals to have multiple draws of  $\pi_v$ , the random shock of total production: this would mean that an individual with high pathways is less subject to random shocks because of her ability to find alternative solutions when facing a negative external shock.

I do not claim that the proposed alternatives are better, merely that they are also intuitive ways to model hope. This highlights a fundamental issue about the literature on internal constraints: given that utility functions and beliefs are never perfectly observable, we need to be cautious about results that require a model with specific, strong assumptions. Because it is infeasible to check the robustness of the conclusion to any viable alternative model, it may be preferable to start with models that are as broad as possible, and relatively minimalist in their assumptions.

On the other side, recent progress in survey methods are offering nonnegligible improvements in the estimation of utility functions and beliefs, even among populations with relatively low education. The authors’ estimation of locus of control, asking for expected sales under different scenarios of luck and work effort, is a good example of innovative survey methods to estimate beliefs and locus of control. There is, however, a fundamental issue that affects many measures of socioemotional skills. According to Lybbert and Wydick’s measure, a greater locus of control is inferred when the respondent’s answers show that she believes that sales are affected by her effort more than by luck. It is certainly true that the measure captures the respondent’s subjective perception (and thus agency). But it also captures exogenous reality; the respondent may be selling in a street where the demand is particularly low, have no access to credit, or any other external constraint that truly reduces the return to her effort. Hence the questions proposed capture not only the locus of control, but also external constraints that can prevent effort. Similar concerns apply to self-efficacy, of which standard questions broadly ask whether the person believes that she has many qualities. But one person may answer no because of some realism about a low level of education and cognitive skills, in which case, this is rather a standard lack of human capital constraint. But it would be attributed to psychological constraints if one jumps to the conclusion that it is capturing only socio-

emotional skills. Amartya Sen (1990) defines low development as the lack of capabilities, that is, the number of things that a person can be and do in her life. By definition, even without internal constraints, underdevelopment is associated with a reduced set of options. In order for the claim that internal constraints can cause poverty traps to gain credibility, this literature absolutely needs to find ways to distinguish this effect from a realistic observation by the poor of their reduced opportunities.

Following a new trend in the literature (Bernard et al. 2013), Lybbert and Wydick propose an intervention that directly targets aspirations. Their intervention includes videos, sessions, and magnets all aimed at encouraging hope. The immediate follow-up shows significant changes in aspirations and positive but not statistically significant impact on agency, pathways, and economic decisions and outcomes such as working hours, sales, savings, and so forth. One great potential of the study is that the results from this round and upcoming follow-up can tell us a lot about the dynamic evolution of hope, from early changes in aspirations levels to changes in behavior, and perhaps followed by changes in agency and pathways.

The existence of a vicious cycle between psychological factors and economic conditions lead to two types of interventions, depending on whether they affect psychology or economic conditions. Even though Lybbert and Wydick certainly have the best of intentions in their attempt to directly raise hope, their approach raises a number of concerns. Most theoretical models on the topic (including the one of the authors or, e.g., Genicot and Ray [2014]) find that aspirations are set at a given level for good reasons that include adjustments to a difficult reality or the reduction of frustrations or other psychological costs. Hence, at least for some individuals, an increase in hope may have negative effects. A video showing the most successful cases may inspire some, but it may also mislead others. It may push some people with lower skill or opportunities to invest and lose their money, and/or reach greater levels of frustration. Psychology research has shown the importance of treating people who suffer from depression. However, treating everyone for depression without prior testing of who suffers from it may generate mixed consequences. Interventions that focus on internal constraints can be received negatively by a population who may see it as a lack of consideration of the real constraints that they face. For these reasons internal constraints certainly deserve to be studied, but researchers and policymakers should be cautious before implementing interventions or policies that aim at directly changing psychological factors. It may be more effective and less risky for the populations if interventions first address external constraints and measure resulting behavioral changes and estimate the multiplier effects that might be generated. Research that documents aspirational effects of leadership within a community may also help design interventions that enhance this positive effect while limiting the risks mentioned (Beaman et al. 2012; Macours and Vakis 2014). Empirical research that combines credible exogenous variation

in economic conditions with rich measures of socioemotional skills and studies the changes resulting from an intervention remain quite scarce and offer a rich avenue for future research on the dynamic between economic and psychological changes in the path out of poverty traps.

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