

Poverty, Aspirations, and the Economics of Hope: A Framework for Study with Preliminary Results from the Oaxaca Hope Project

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Bruce Wydick

Department of Economics, University of San Francisco
Kellogg Institute of International Studies, University of Notre Dame
Center for Effective Global Action (CEGA)

Joint with

Travis Lybbert

University of California at Davis
Center for Effective Global Action (CEGA)

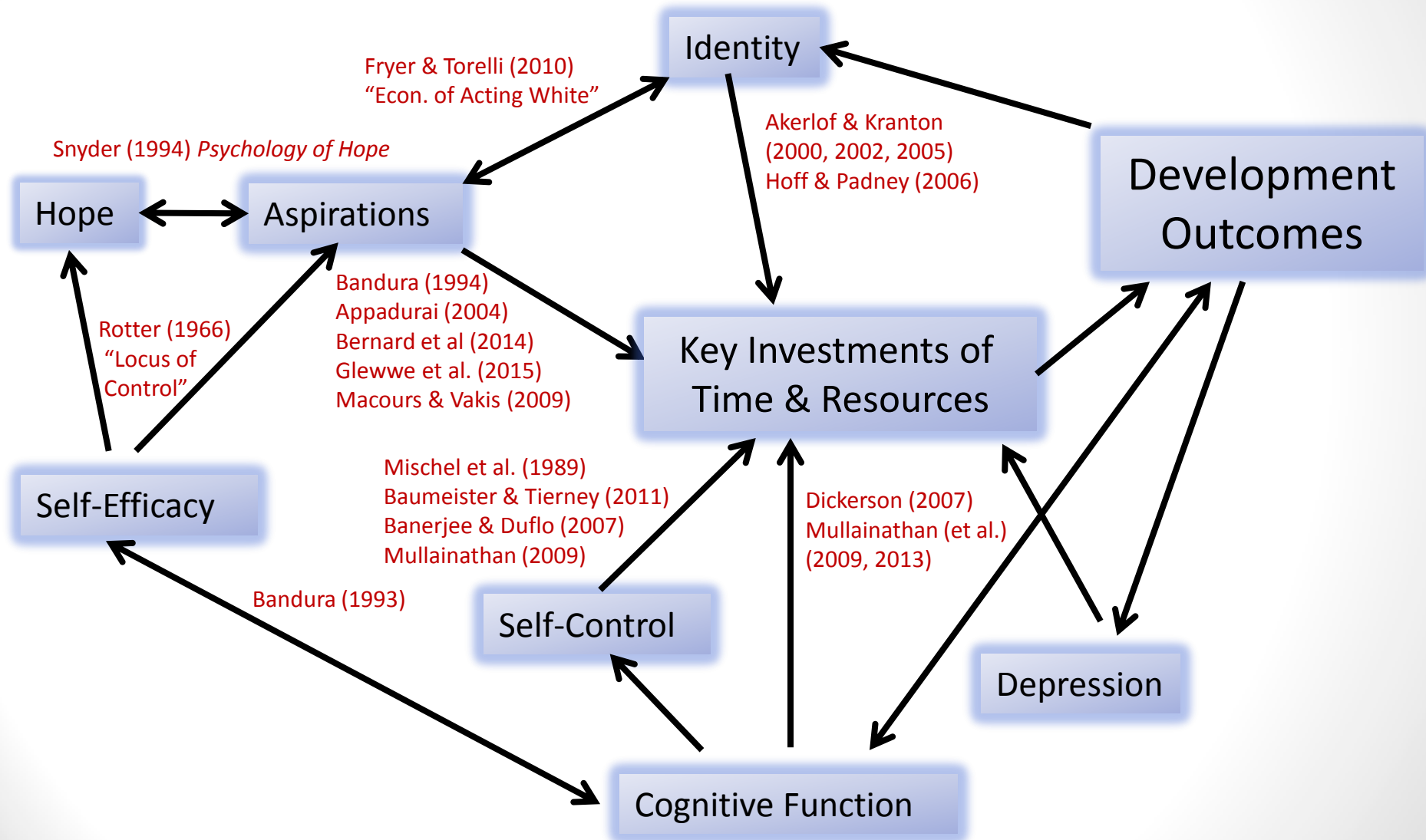
Questions of this Research:

- What is hope and how much do hope and aspirations matter in economic development?
- IF they do matter, can we change them?
- IF we can change them, can we measure the effect of these changes?

Outline:

- Background on Hope as a research concept
- Outline an economic model of hope
- Relate cases derived from model to new literature
- Description of Oaxaca Hope Project RCT
- Some early results after one-month follow-up survey
- Conclusions and implications for development

Influence of Psychological Factors on Economic Development:



Hope

What is hope? Hope is both a **noun** and a **verb**:
(Webster's)

1. (Noun) Desire accompanied by expectation of or belief in fulfillment, e.g.

“When they started their life together, they were young and full of *hope*.”

“Rescuers have not yet abandoned *hope* that more survivors will be found.”

“He had little *hope* of attending college.”

- 2a. (Verb) to cherish a desire with anticipation

David **hopes that** it may rain on his field tomorrow.”

- 2b. (Verb) to desire with expectation of attainment

“David **hopes to** irrigate his field this coming Saturday.”

Aspirations

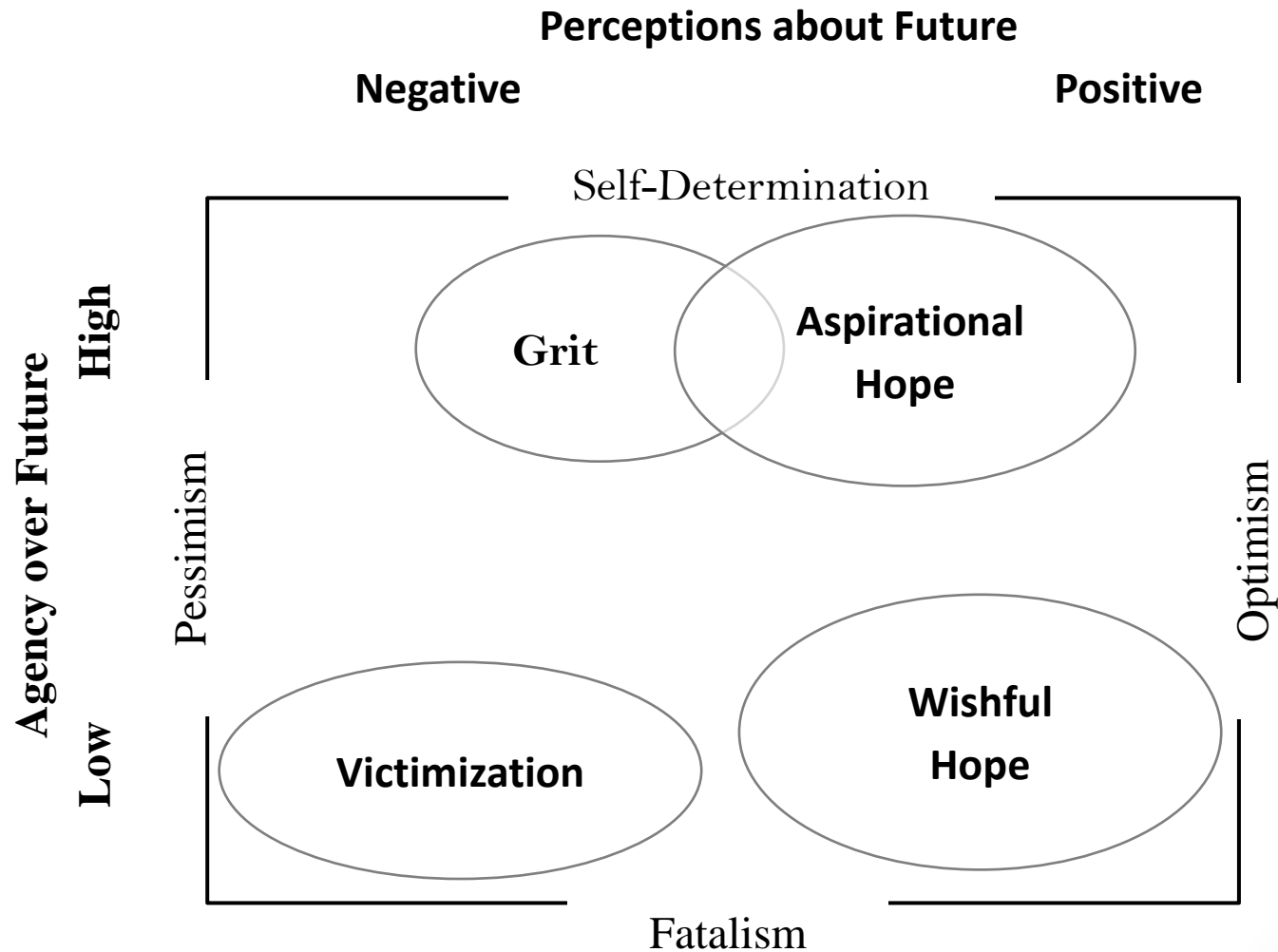
Key difference between “hope that” (2a) and “hope to” in (2b):

Wishful hope which may motivate fatalism
vs.

Aspirational hope which may motivate proactivity

- Different world views throughout history and today have strongly emphasized one type of hope over another.
- Related to locus of control.

The Space of Agency and Optimism



Work in Economics Related to Hope and Aspirations

Theoretical:

- Appadurai (2004) “Capacity to Aspire”
- Ray (2006)
- Genicot and Ray (2014, *NBER*)
- Dalton, Ghosal, & Mani (2014, *EJ*)

Experimental/Empirical:

- Bernard, Dercon, Orkin, and Taffesse (2014) Ethiopia
- Macours & Vakis (forthcoming, *EJ*), CCT Nicaragua
- Karlan et al. (ongoing), ICM Philippines
- Beaman et al. (2012, *Science*), India
- Wydick, Glewwe, and Rutledge (2013, *JPE*)
- Glewwe, Ross, & Wydick (2015), Indonesia

Children's Drawings and Psychological Characteristics

(Drawing and Attribute Ranking from Factor Analysis Score: **Happiness**)



Happiness, 17th percentile



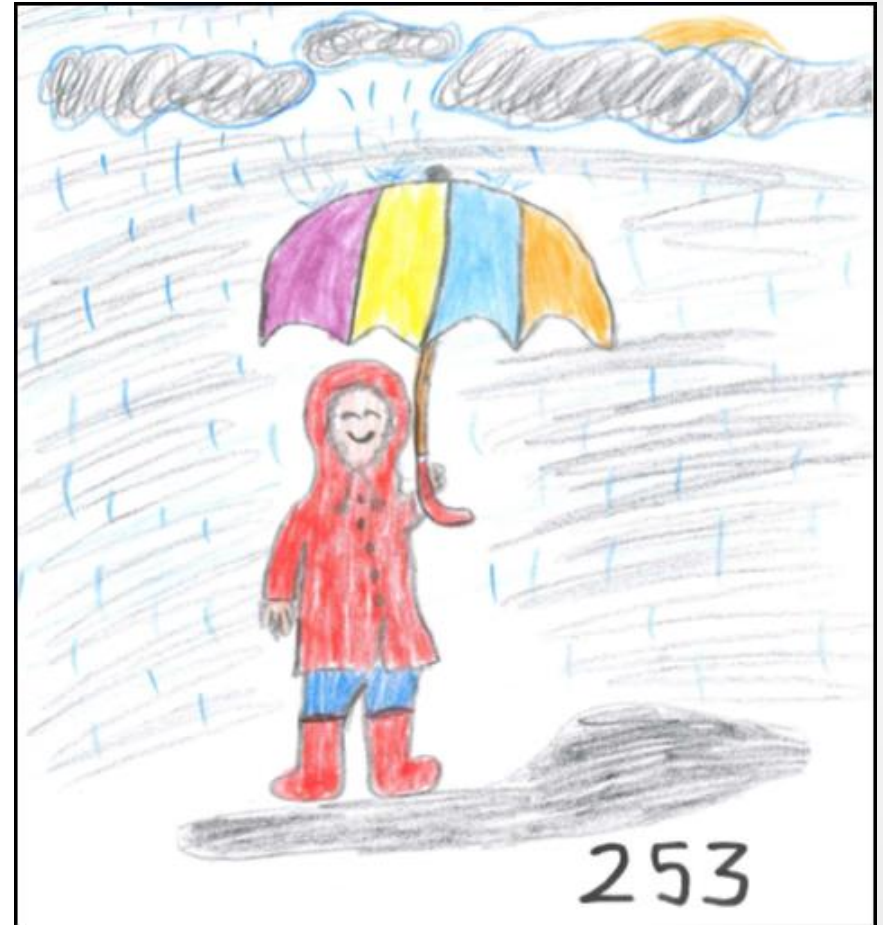
Happiness, 92nd percentile

Children's Drawings and Psychological Characteristics

(Drawing and Attribute Ranking from Factor Analysis Score: **Self-Efficacy**)



Self-Efficacy, 8th percentile



Self-Efficacy, 94th percentile

Children's Drawings and Psychological Characteristics

(Drawing and Attribute Ranking from Factor Analysis Score: **Hope**)



Hope, 15th percentile



Hope 93rd percentile

Drawing Analysis Results

Using psychometric indices, international sponsorship causes children in Indonesia to (mean across specifications)

- Exhibit much higher levels of **hope** (0.66σ)
- Be more **happy** (0.42σ)
- Have higher **self-efficacy** (0.29σ)

The Psychology of Hope

R. Snyder (1994) classic *The Psychology of Hope* identifies **three characteristics** of hope:

1. Goals/Aspirations
2. Agency/Self-Efficacy
3. Pathways/Avenues

E.g. A woman living in poverty **establishes a goal** of expanding her clothing business, has a reasonable basis for **believing she is capable** of her realizing her aspiration, and **identifies the pathway** to her goal as obtaining a microfinance loan and getting additional small-business training.

A Model of Hope Based in the Psychology of Hope

An Aspirations-dependent Utility Function

Should satisfy the following four properties:

1. Marginal utility is higher immediately below A than it is just above it. For small ε , this implies that $\frac{du}{dY}\big|_{Y=A-\varepsilon} > \frac{du}{dY}\big|_{Y=A+\varepsilon}$.
2. There is increasing marginal utility in outcomes below the aspiration and decreasing marginal utility in outcomes at and beyond the aspiration, *i.e.* $\frac{d^2u}{dY^2} > 0$ for $Y < A$ and $\frac{d^2u}{dY^2} < 0$ for $Y \geq A$.
3. As aspirations grow in importance to utility, gains in utility become uniquely a function of realized aspirations, *i.e.* as $\alpha \rightarrow 1$, $u = c_1$ for $\forall Y < A$ and $u = c_2$ for $\forall Y \geq A$, where $c_2 > c_1$ and c_1, c_2 are constants.
4. Utility is increasing in higher realized aspirations, *i.e.* $u(Y_2, A_2) > u(Y_1, A_1)$, where $Y_1 = A_1$, $Y_2 = A_2$, and $Y_2 > Y_1$.

A Model of Hope Based in the Psychology of Hope

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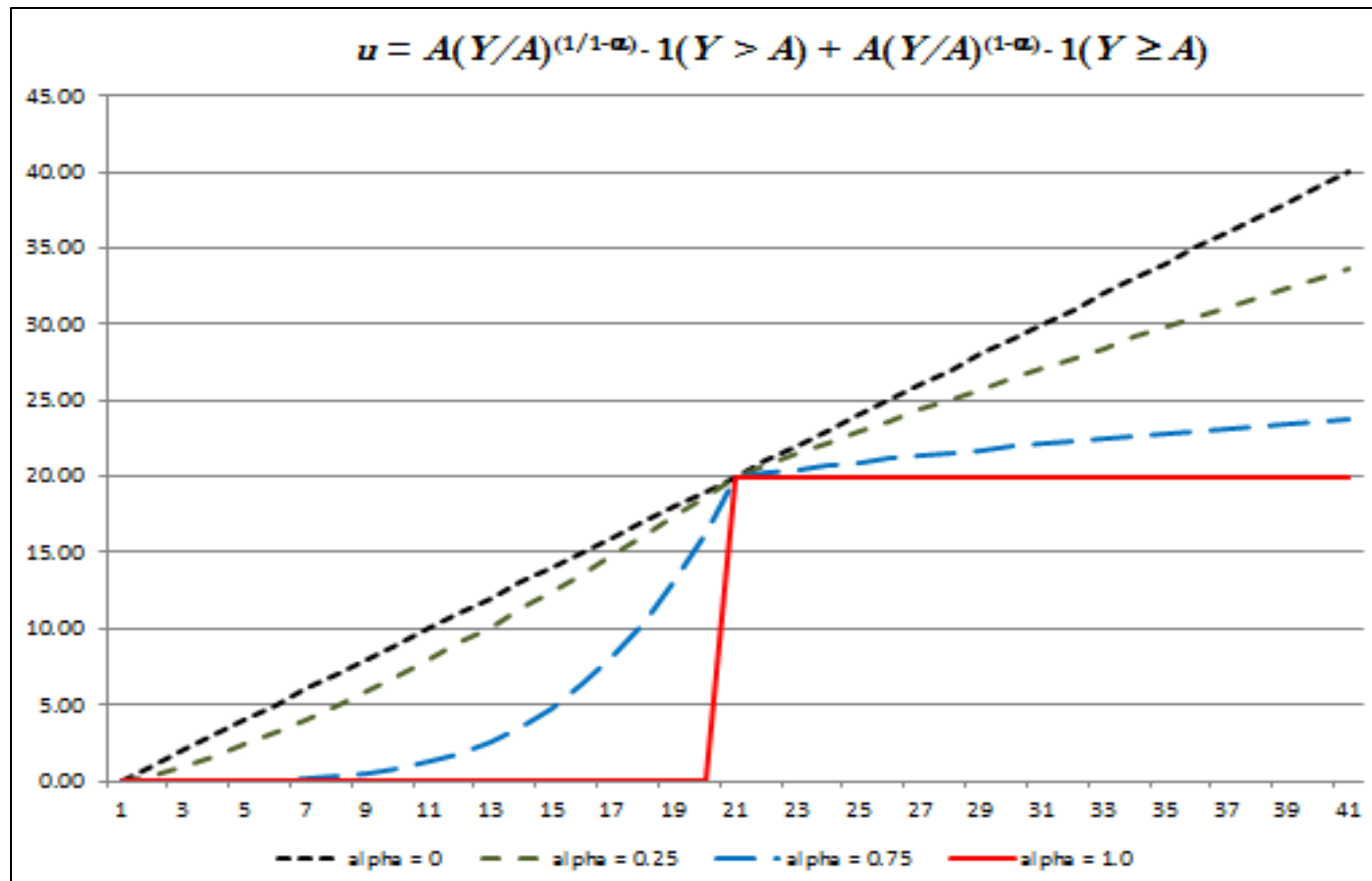
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The following utility function satisfies these four properties:

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

- Aspirations-based utility based on different weights of aspiration importance (α):



A Model of Hope

Agency and Avenues

A complete production structure reflecting both agency and avenues – is given by

- $Y = \pi_1 e + \pi_2 v$ (2)

- $E[Y] = \begin{cases} \pi_1 e & \text{if } e < \bar{e} \\ \bar{Y} & \text{if } e \geq \bar{e} \end{cases}$ (3)

where $\pi_1 \bar{e} = \bar{Y}$.

- Assume that effort is costly in utility terms at an increasing rate according to the function $c(e)$ where $c'(e) > 0$, $c''(e) > 0$ and $c(0) = 0$.

- The agent in this economic model of hope solves the problem

$$\max_e U = E[u] - c(e)$$

subject to (1) – (3).

A Model of Hope

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A Model of Hope

Low Self-Efficacy and Internalized Constraints:

- To account for misperceptions of agency and avenues, we generalize the production function in (2) and (3) such that individuals make decisions on their *perception of* agency:

$$\tilde{\pi} = \begin{cases} \pi & \text{if } e_t < e^0 \\ \rho_{\pi}\pi' & \text{if } e_t \geq e^0 \end{cases}$$

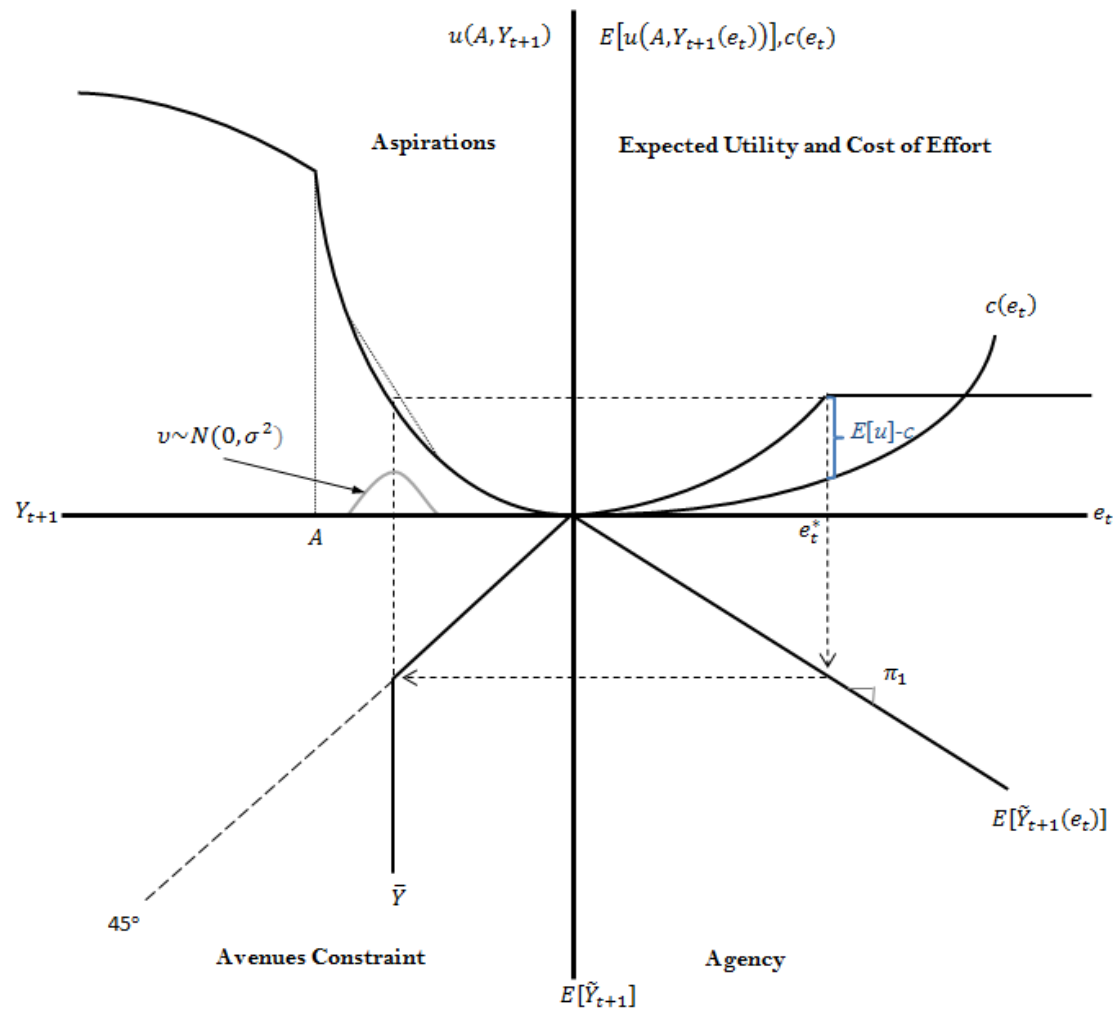
and their *perception of* avenues:

$$\tilde{\bar{Y}} = \rho_{\bar{Y}}\bar{Y}$$

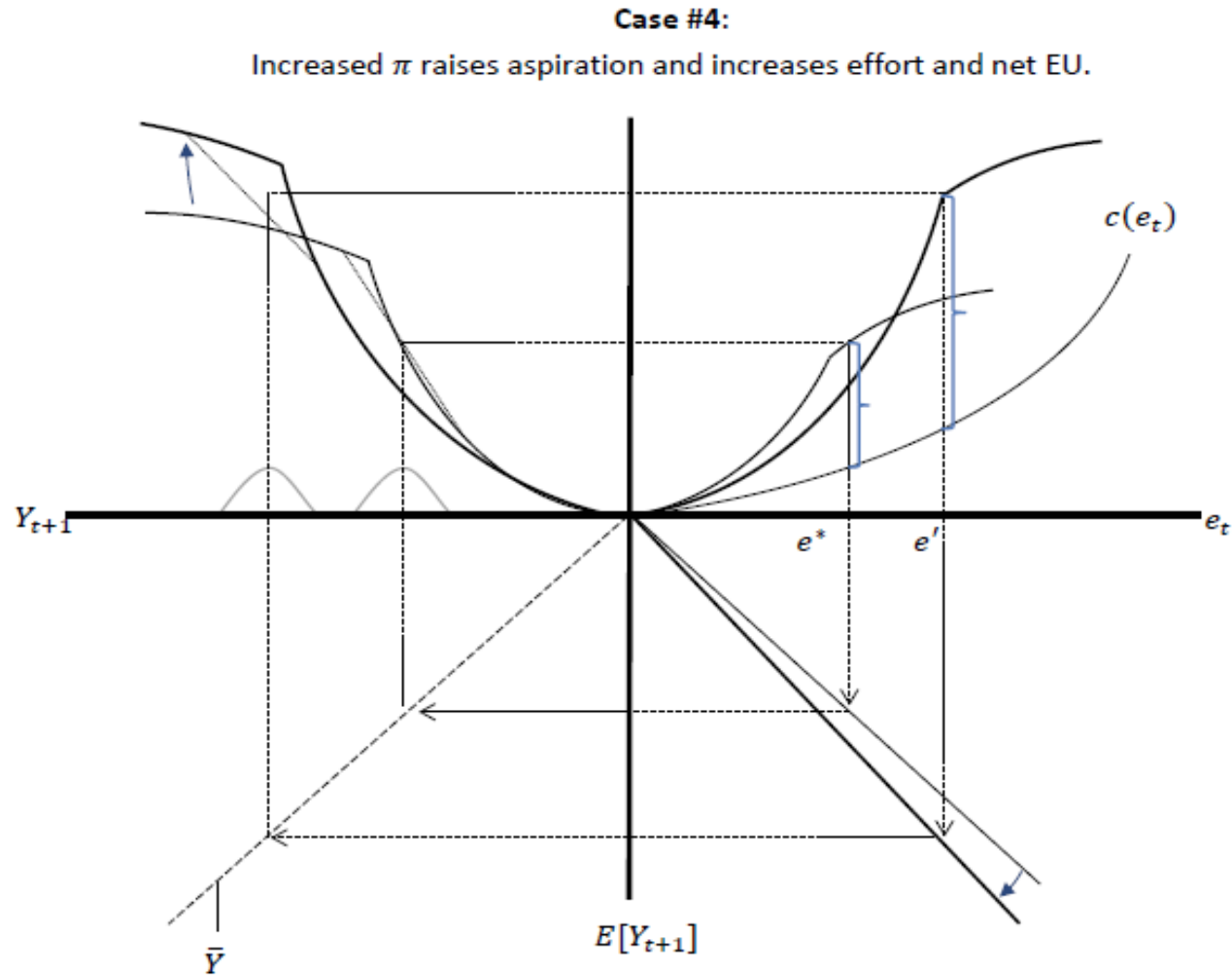
- Note: Suppose $c(e_t) = \gamma e_t^2$, then as $\alpha \rightarrow 1$, $e^* = \rho_{\pi}\pi'/2\gamma$ and $A^* = (\rho_{\pi}\pi')^2/2\gamma$, but we don't assume optimal aspirations.

A Model of Hope

- Putting our model together we have:



- Case of International Child Sponsorship / Oaxaca Hope Project



Aspirations

- Could **aspirations** lie beneath most **successful** development interventions? (when they are successful)
 - Some educational interventions: textbooks, more teachers, ipads, scholarships, etc.
 - CCTs, UCTs
 - BRAC poverty graduation program
- Might a **lack of aspirations** lie behind most **failed** development intervention?
 - Lack of “by-in” by local communities for infrastructure project
 - Microfinance
 - TOMS Shoes

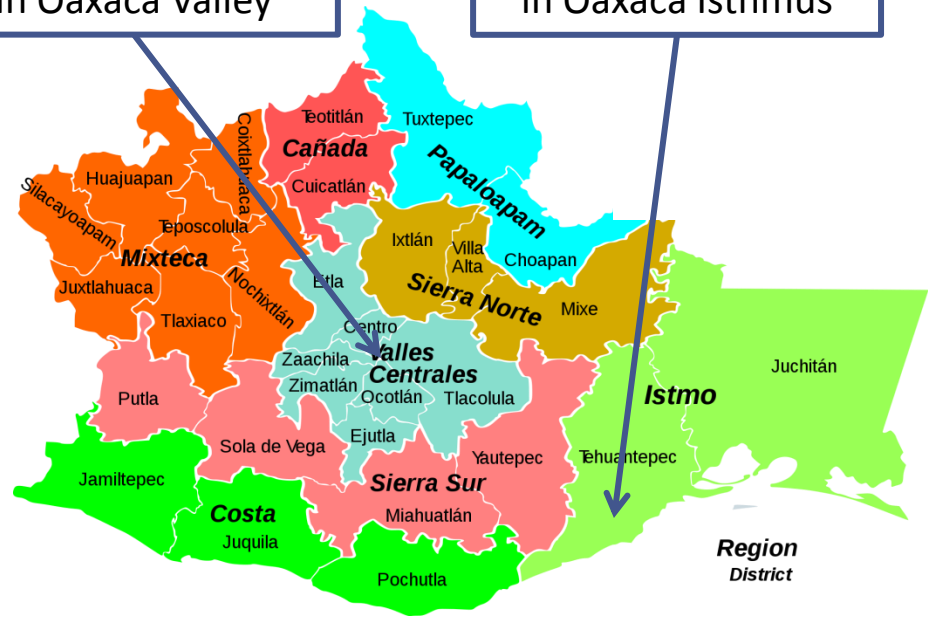
The Oaxaca Hope Project

- Joint research with Travis Lybbert, U.C. Davis, Irvin Rojas, U.C. Davis, Bob Dowd, Notre Dame.
- NGO Partner: Fuentes Libres, 52 community banks in Oaxaca, Mexico.



21 Community Banks
in Oaxaca Valley

31 Community Banks
in Oaxaca Isthmus



Randomization:

Cluster Randomization using Pairwise Matching of Community Banks:

- Used loan officer focus group to rank factors most heavily influencing borrowing group performance.
- Matched groups by hierarchical process of
 1. Same Loan Officer
 2. Size of group
 3. Experience of Group
 4. Age of Members
 5. Similarity of Microenterprises
- 52 Community Banks (Female): 26 treatment, 26 control.
- 601 Microfinance Borrowers: 326 treatment, 275 control.

Intervention:

Goal: Increase aspirational hope for microenterprises among women in the randomly selected community banks through three main interventions.

1. **Creation and Screening of Documentary Film** on best borrowers within the organization.
2. **Goal Exercise** with refrigerator magnets →

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: _____

3. **Hope Curriculum**, intensive in first month but carried out continually for 12 months. Focus on development of "Los Tres A's": *aspiraciones, habilidades, avenidas*.

Data (baseline, 1 month and 12 month surveys):

On Hope

- 5 questions used to create Aspirations Index
 - 5 questions used to create Agency Index + ANOVA
 - 5 questions used to create Avenues out of Poverty Index
- + data on future-mindedness, risk-aversion, spiritual values.

Business Performance, impacts on

- Community bank savings, Gross enterprise revenue, Net profits, Employees in enterprise

Impact Estimator: ANCOVA

$$y_{ijt} = \alpha + \tau Treat_j + y_{ijt-1} + \mathbf{X}_i' \boldsymbol{\beta} + \varepsilon_{it}.$$

Measuring *self-efficacy*

- We use ANOVA-type technique on the following matrix:

A. ¿Cuál es su mejor estimación de sus ventas semanales en las siguientes situaciones?

	Mala Suerte	Suerte Normal	Buena Suerte
<u>Máximo</u> Esfuerzo y Muchas Horas	Ventas _____	Ventas _____	Ventas _____
Esfuerzo y Horas <u>Normales</u>	Ventas _____	Ventas _____	Ventas _____
<u>Mínimo</u> Esfuerzo y Pocas Horas	Ventas _____	Ventas _____	Ventas _____

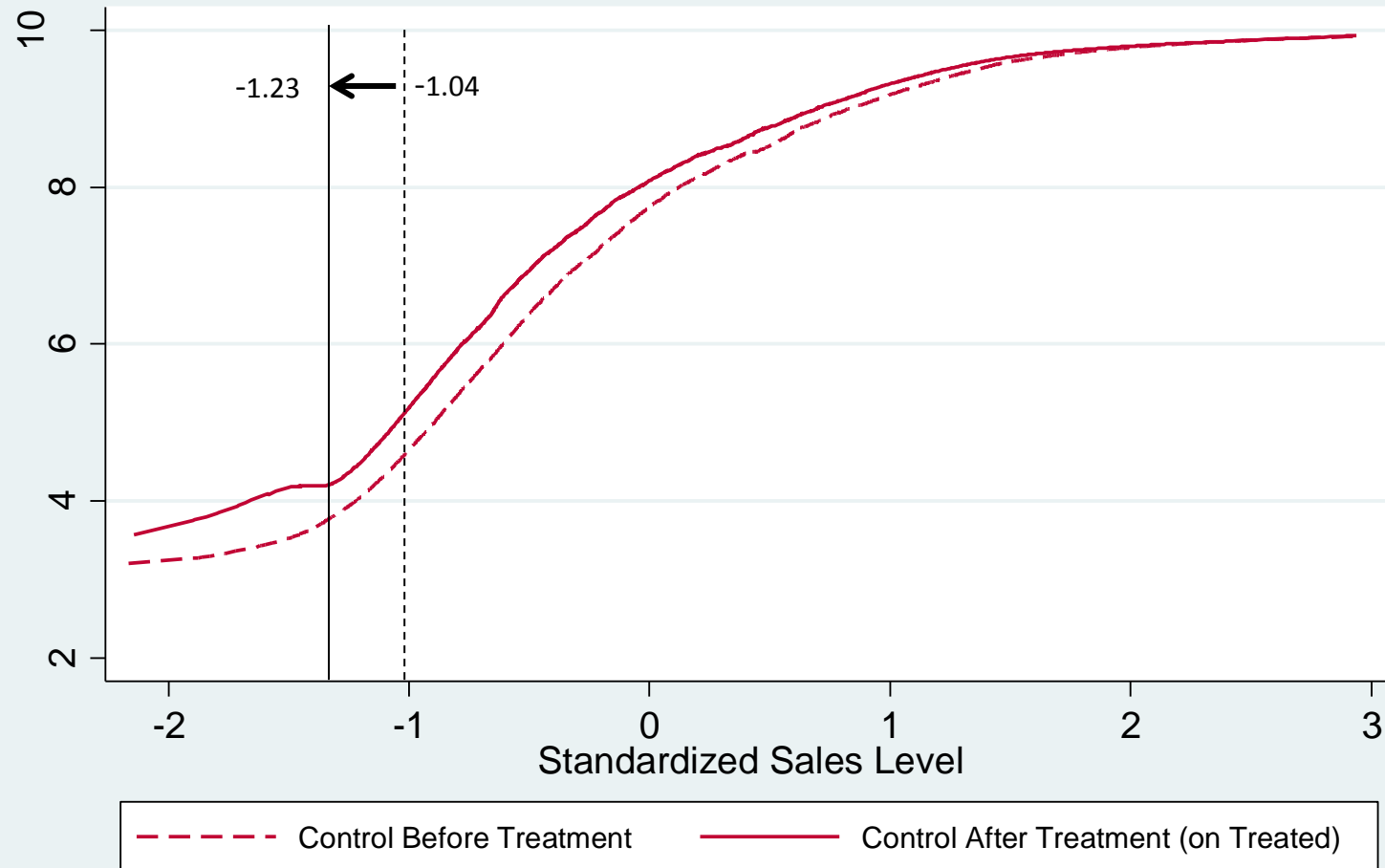
- Measure of agency is BSS/TSS, where

$$\text{BSS} = \sum_{j=1}^{R=3} c_j * (\bar{e}_j - \bar{\bar{e}})^2, \text{ TSS} = \sum_{i=1}^{C=3} \sum_{j=1}^{R=3} (e_{ij} - \bar{\bar{e}})^2$$

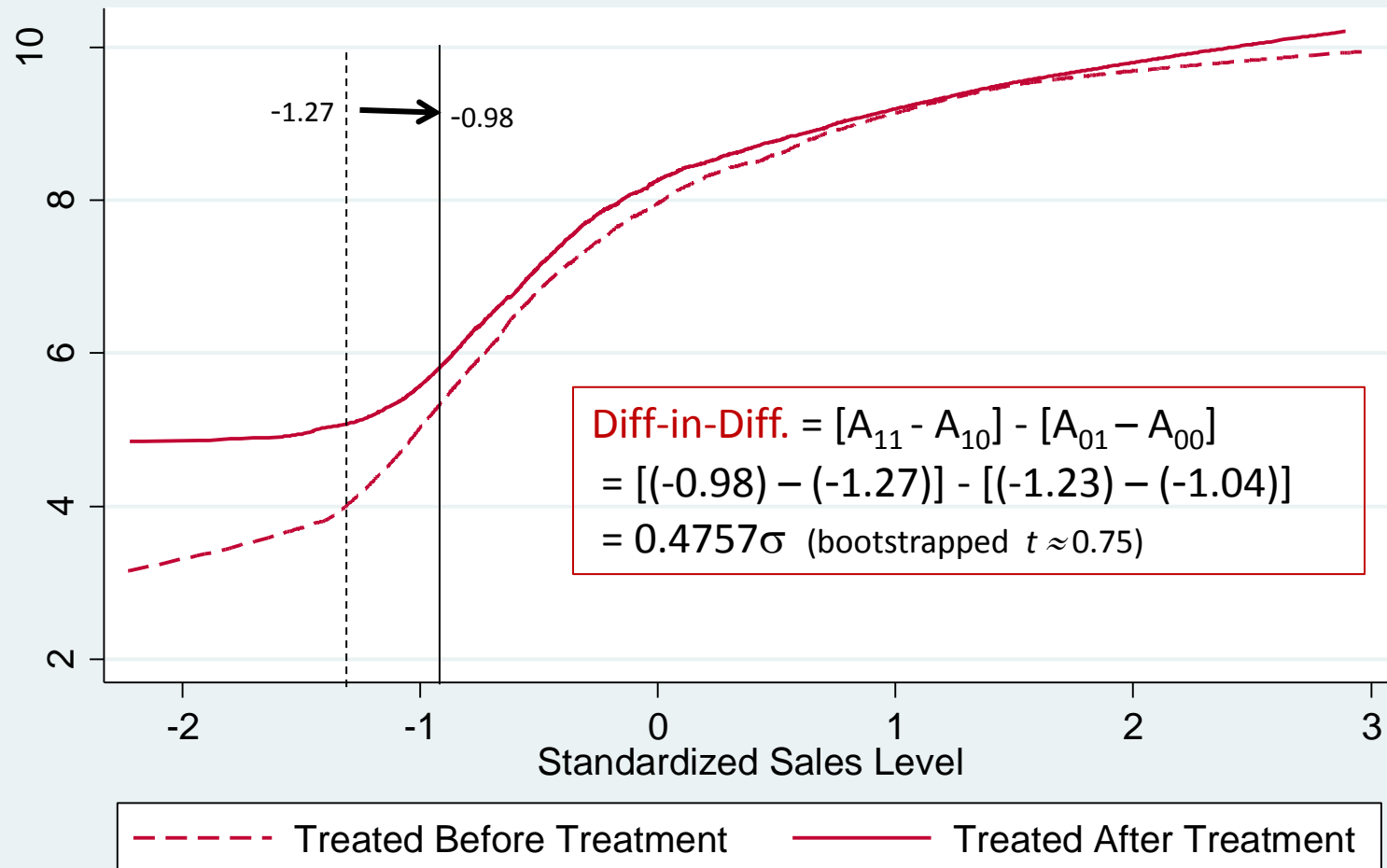
- Yields **agency coefficient**, $a \in [0,1]$ for every woman.

Utility of Sales Levels: Control Groups

Before and After Intervention

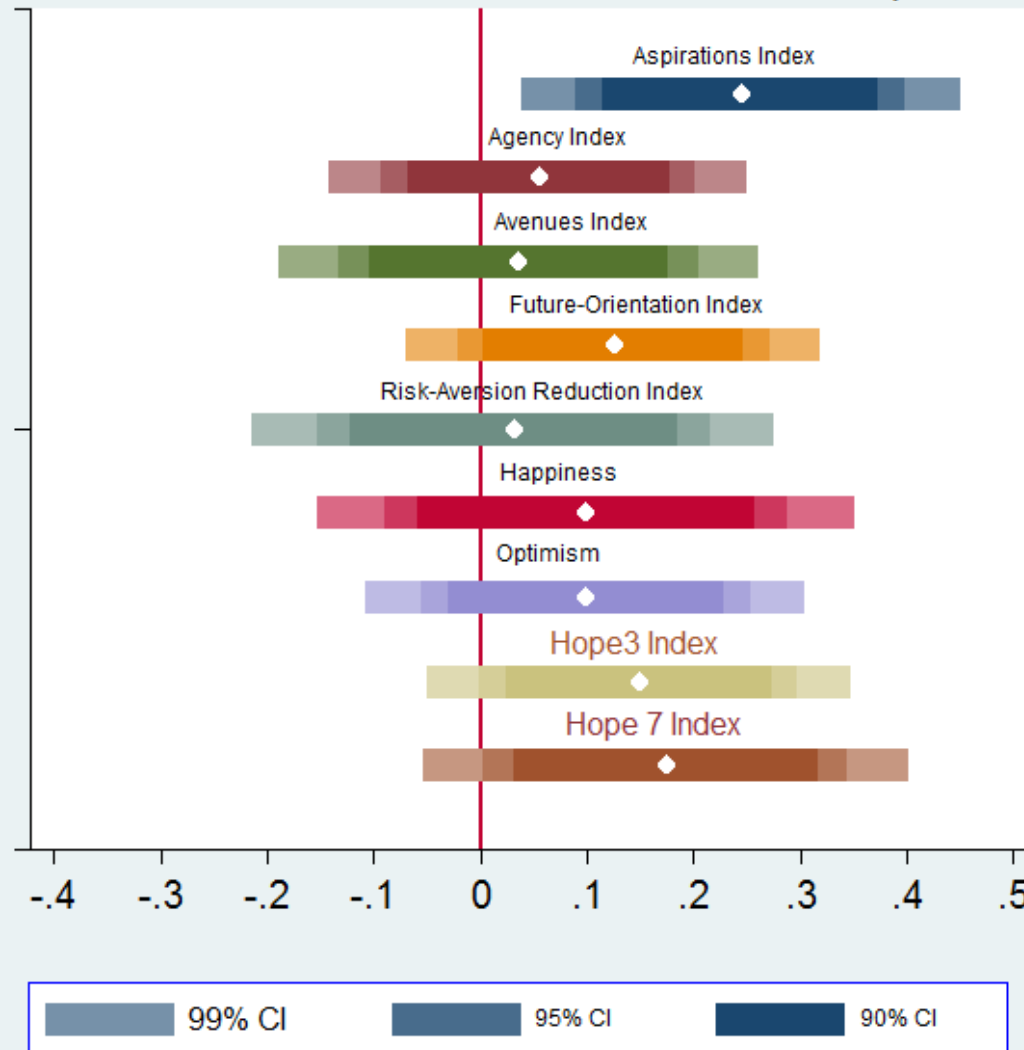


Utility of Sales Levels: Treated Groups Before and After Intervention



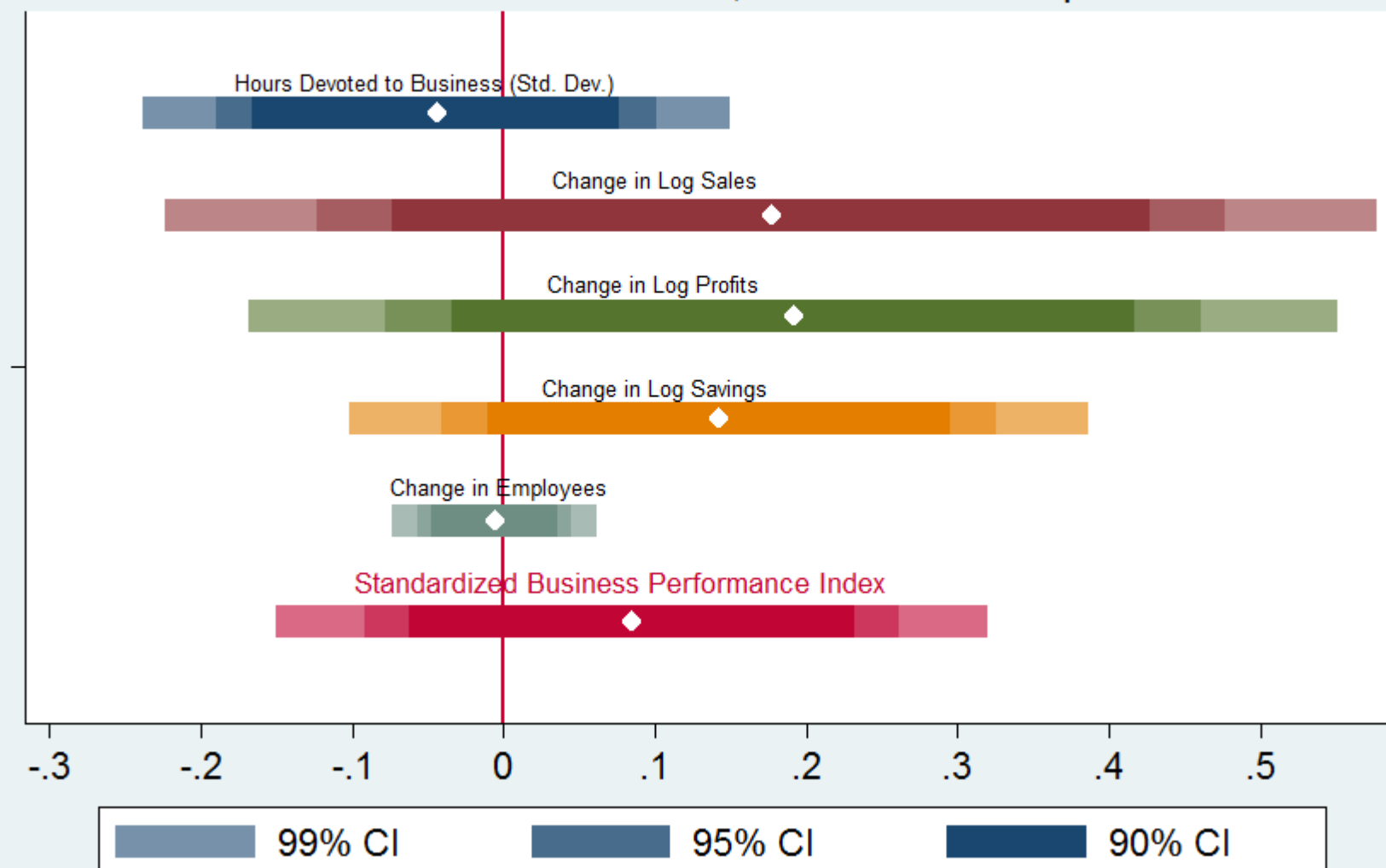
Impact Estimates from Hope Intervention

ANCOVA Estimations, 1-month follow-up



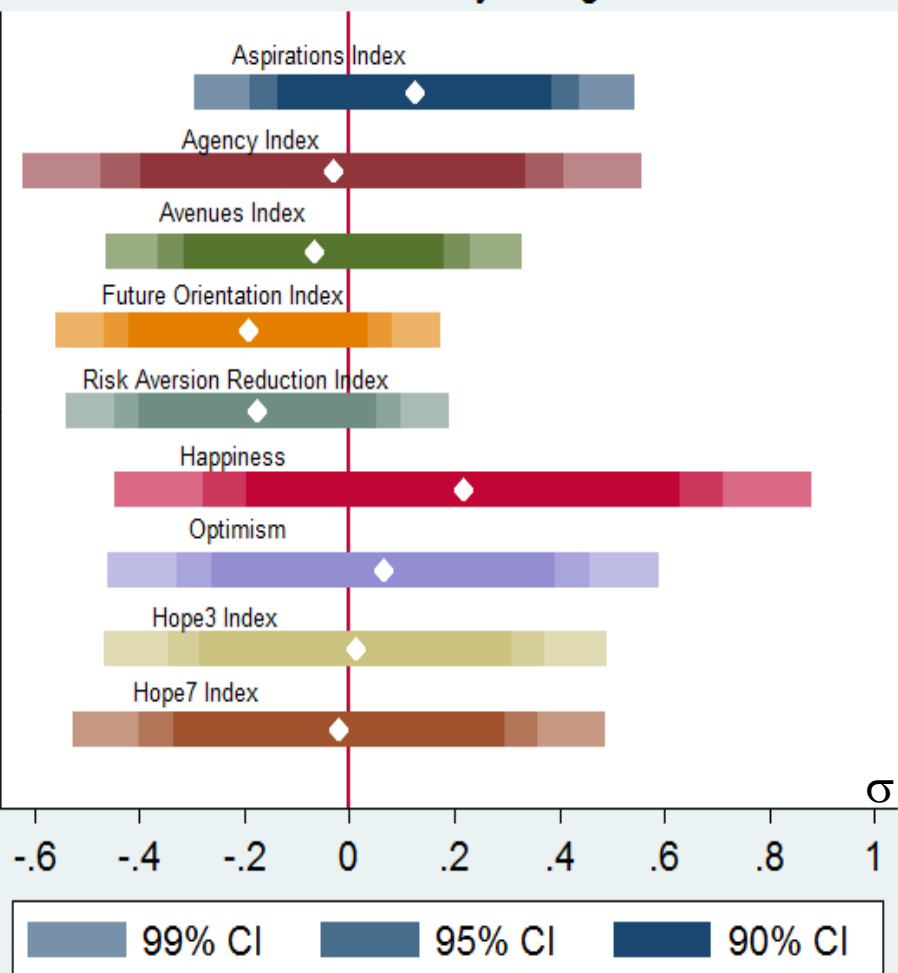
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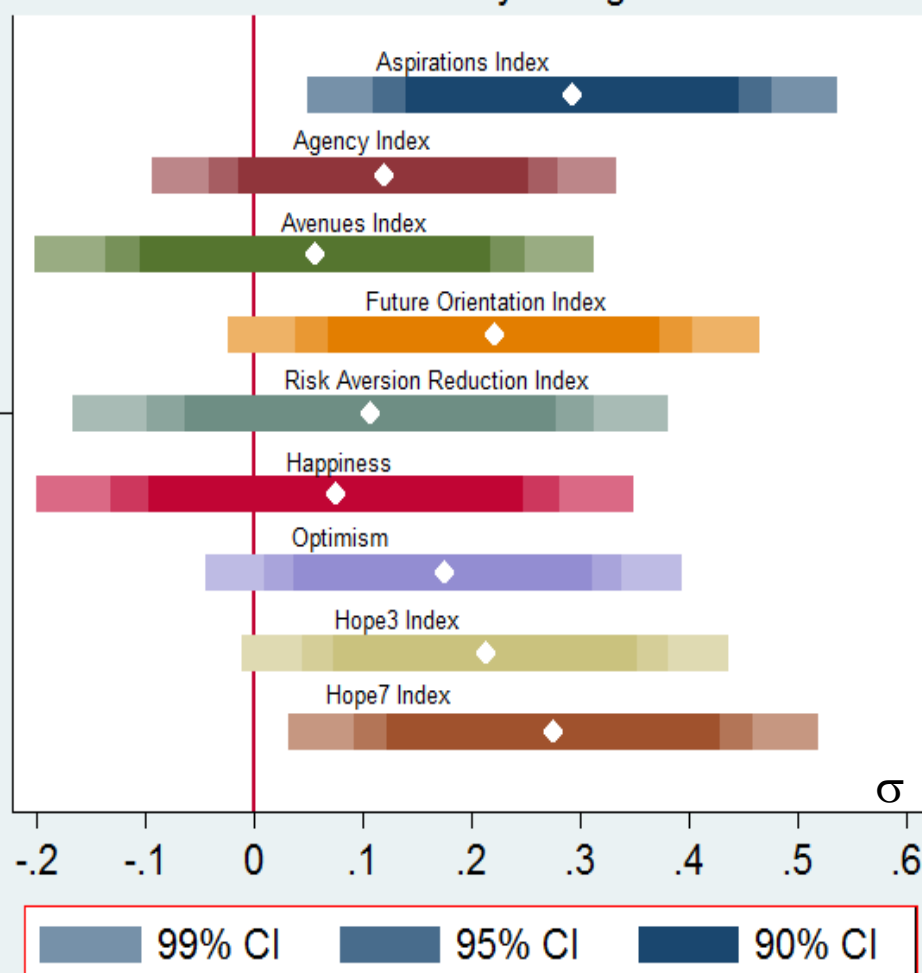
Protestant Women

Treatment Effects on Psychological Variables



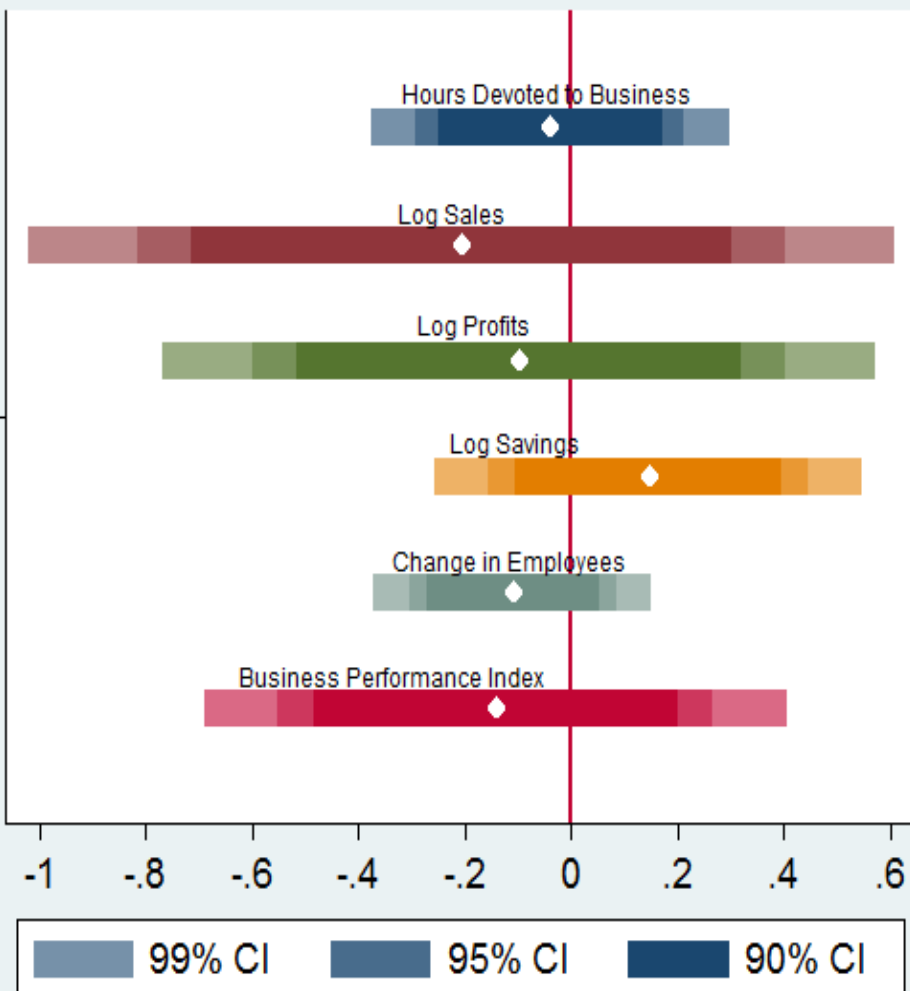
Catholic Women

Treatment Effects on Psychological Variables



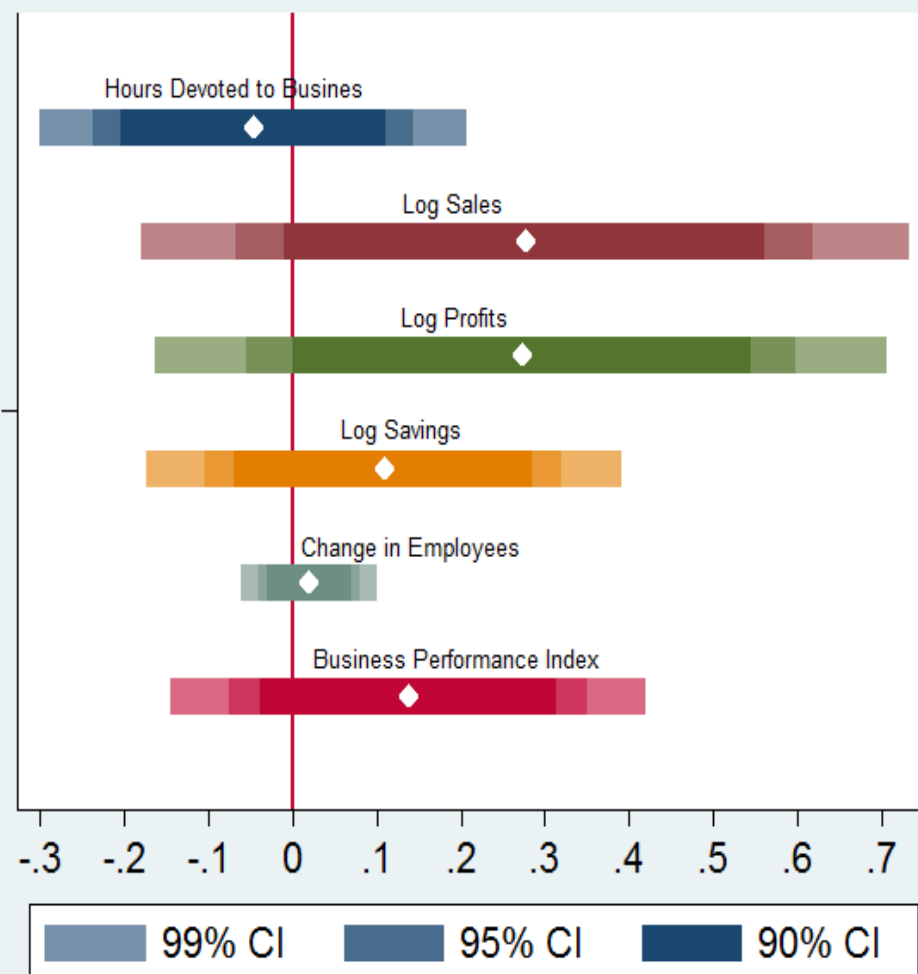
Protestant Women

Treatment Effects on Business Variables



Catholic Women

Treatment Effects on Business Variables



- What could be responsible for this?

Baseline Differences: Protestant vs. Catholic Women
(standard deviations, $n= 555$)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Aspirations	Agency	Avenues	Future Orientation	Risk Aversion	Happiness	Optimism	Hope3 Index	Hope7 Index
0.209**	0.144	0.050	-0.042	0.151	0.156*	0.288***	0.172*	0.154
(0.101)	(0.093)	(0.101)	(0.119)	(0.112)	(0.091)	(0.095)	(0.097)	(0.104)

- Baseline differences between Protestant and Catholic in business variables not significant overall.
- What did we do to the Catholic women of Oaxaca?

Key Questions Moving Forward...

- Will aspirational hope survive over ≥ 12 months?
- Will we be able to raise agency & avenues?
- Will we see real, sustained impacts on income?
- Will we find that the impacts from the hope intervention are bigger than we see from microfinance interventions themselves?
- Larger Question: Can a new human development framework evolve that incorporates importance of hope with insights of behavioral economics.

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