

# Incentives and Improved Economic Outcomes: A Field Experiment in Medellin, Colombia

MA IDEC Candidates 2013:

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# Family Independence Initiative

- Social capital is key
- Current welfare system isn't enough
- Cultural groups meet, set personal goals, and receive payment for achievement
- Bottom-up approach rather than Top-down
- Results?
  - Increased Savings 240%
  - Increased Homeownership 17%
  - Increased Earnings 23%

## Current Poverty Program Critique

Beaulier & Caplan (2007)  
 Bertrand et al. (2004)  
 Haagh (2011)  
 Sen (1999)

Goals	Groups	Incentives
<p><b>Goal Setting Theory</b>                      Locke &amp; Latham (1990)                      Locke (2002)</p>	<p><b>Self Help Groups</b>                      Festre (2010)                      Tripathy &amp; Padhi (2011)                      Wydick et al. (2011)</p>	<p><b>Monetary</b>                      Locke et al. (1968)                      Pritchard &amp; Curtis (1973)                      London &amp; Oldman (1976)                      Loewenstein et al. (2012)                      Rose &amp; Manley (2011)</p> <p><b>Nonmonetary</b>                      Kerr et al. (2011)                      Ashraf, Bandiera, &amp; Jack (2012)</p> <p><b>Crowding Out</b>                      Bazerman et al. (2009)</p>

# Experimental Design

No Goal, No Group, No Prize: CONTROL GROUP 1	No Group	Group
Flat Payment	TREATMENT GROUP 2	TREATMENT GROUP 3
Incentivized Payment	TREATMENT GROUP 4	TREATMENT GROUP 5

## Components:

Goal Setting, Group Meetings, and Monetary Incentives  
Random Assignment, Small Business Owners

# Experimental Design

No Goal, No Group, No Prize: <b>14USD</b> <b>for participation</b>	No Group	Group
Flat Payment	<b>17USD</b> <b>regardless of achievement</b>	
Incentivized Payment	<b>3USD for no achievement</b> <b>19USD for achievement</b>	

## Components:

Goal Setting, Group Meetings, and Monetary Incentives  
Random Assignment, Small Business Owners

# Experimental Design

No Goal, No Group, No Prize: CONTROL GROUP 1	No Group	Group
Flat Payment	TREATMENT GROUP 2	TREATMENT GROUP 3
Incentivized Payment	TREATMENT GROUP 4	<b>FII MODEL</b>

## Components:

Goal Setting, Group Meetings, and Monetary Incentives  
Random Assignment, Small Business Owners

# Survey Design

**Figure 3: Meeting and Survey Schedule for all Groups**

Project Meeting		1*	2	3	4	5*	6	7*
Group		June 2012	July 2012	Aug. 2012	Sept. 2012	Oct. 2012	Nov. 2012	Dec. 2012
Control	1	-Ranking	No meeting	No meeting	No meeting	-Midline -Goal Survey	No meeting	-End-line -Goal Survey (with project feedback)
Treatment	2	-Demographic	Goal Survey	Goal Survey	Goal Survey		Goal Survey	
	3	-Baseline						
	4	-Goal Survey						
	5							
Add'l Control	1	No meeting	No meeting	No meeting	No meeting	No meeting	-Ranking -Demographic -End-line -Goal Survey	

\*Meetings 1, 5, and 7 indicate that the Control and Treatment groups completed the same surveys

- 7 total meetings
- Around 30 subjects per group
- Average number of survey questions: 30
- Based on recall: Min 4 weeks, Max 6 months
- Baseline and End line Control Group

# Research Questions

- Can the FII Model be replicated? If so...
  - Component is most effective for achievement levels?
    - Group Settings
    - Incentives
  - Component is most effective for improving economic outcomes?
    - Setting a goal
    - Group Settings
    - Incentives



# Summary Statistics

*Means (Std. Dev.)*

	Control	Add'l Control	Treatment	Min	Max	T v C P-value
<b>Age</b>	42.63 (10.49)	40.50 (11.24)	40.03 (11.67)	18	67	0.48
<b>Education</b>	2.42 (0.90)	2.14 (0.73)	2.08 (1.05)	1	5	0.30
<b>Gender</b>	0.53 (0.51)	0.62 (0.50)	0.59 (0.49)	0	1	0.88
<b>HH Size</b>	3.79 (1.13)	3.62 (1.32)	3.92 (1.57)	1	10	0.41
<b>At Baseline</b>						
<b>Monthly Sales Value</b>	2.42 (1.12)	-	2.45 (1.38)	1	6	0.81
<b>Self Esteem</b>	3.41 (0.49)	-	3.47 (0.61)	2.5	4	0.91
<b>Risk Loving</b>	6.40 (1.91)	-	6.37 (1.83)	1	10	0.66
<b>Obs.</b>	19	21	119	159		

Education: Illiterate=1, primary=2, high school=3, associates degree=4, university and postgraduate=5  
Female=1

# Summary Statistics

*Means, (Std. Dev.)*

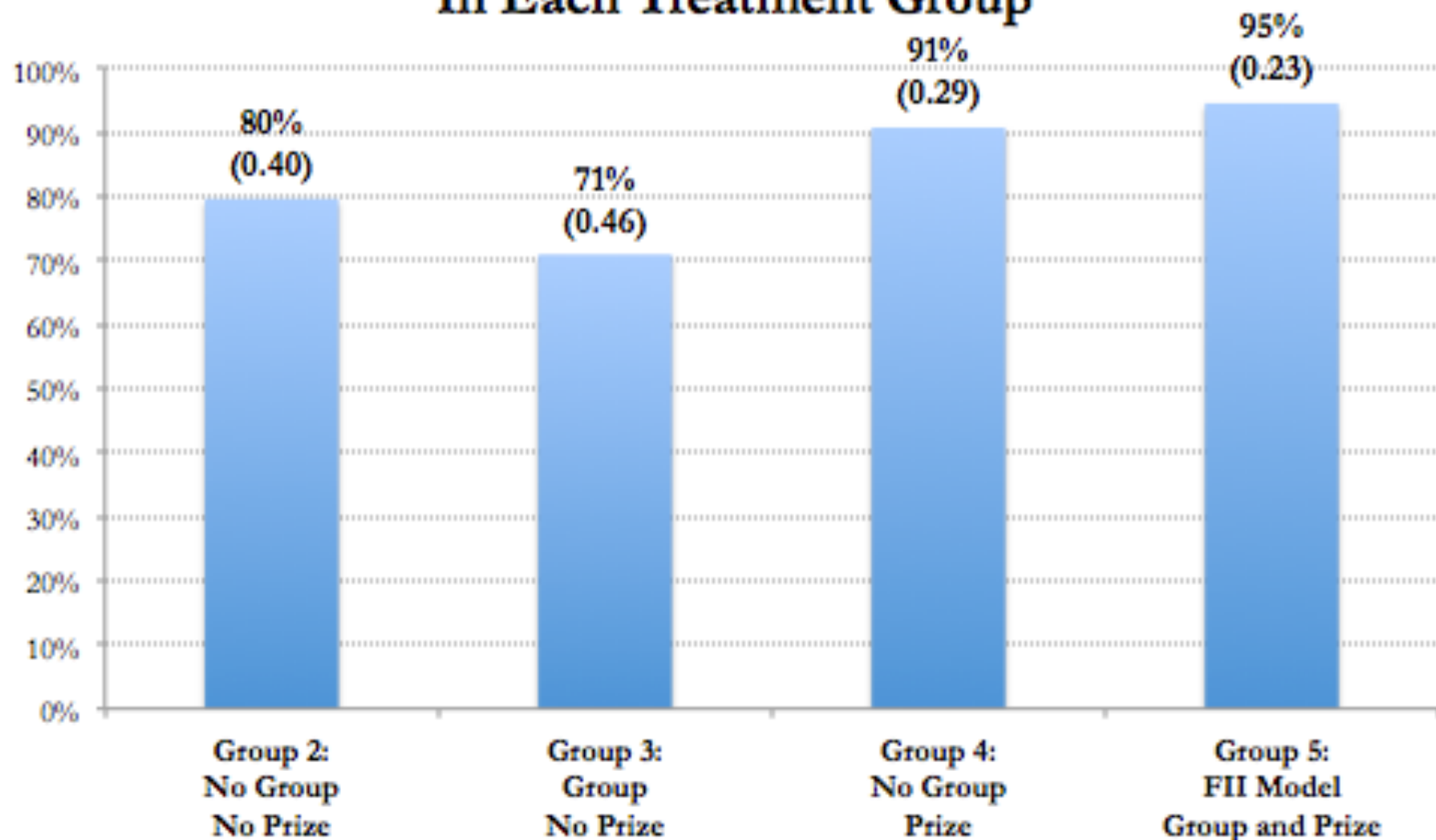
	Control	Add'l Control	Treatment	Min	Max	T v C P-value
<b>HH Income Class</b>	1.88 (1.00)	1.95 (0.97)	1.83 (0.96)	1	3	0.11
<b>Owens:</b>						
<b>Motorcycle or Car</b>	0.53 (0.51)	0.57 (0.51)	0.41 (0.49)	0	1	0.06*
<b>Home</b>	0.76 (0.43)	0.38 (0.50)	0.46 (0.50)	0	1	0.04**
<b>Owens functioning:</b>						
<b>DVD Player</b>	0.56 (0.50)	0.29 (0.46)	0.54 (0.50)	0	1	0.15
<b>Refrigerator</b>	1.00 (0.00)	1.00 (0.00)	0.96 (0.19)	0	1	0.11
<b>Television</b>	1.00 (0.00)	1.00 (0.00)	0.98 (0.15)	0	1	0.21
<b>Washer</b>	0.82 (0.39)	0.76 (0.44)	0.77 (0.42)	0	1	0.53
<b>Observations</b>	19	21	119	159		

# Econometric Model (1)

$$\Pr(\text{Achieved} = 1 | X_{it}) = \alpha + FII_i\beta_1 + Incentive\beta_2 + Group_i\beta_3 \\ + SE_{it}\beta_4 + R_{it}\beta_5 + Controls' \beta + e_{it}$$

- Probit Model
- Estimate overall effect of Groups, Incentives, and the FII Model on the probability of goal achievement
- Explanation of each variable
- Controls include age, education, gender, and time

## Average Achievement Per Person In Each Treatment Group



## Table 9: Marginal Effects for the Probit Model in Table 8

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES						
FII Model	0.14**			0.11**	0.11**	0.10**
	(0.03)			(0.04)	(0.04)	(0.05)
Incentive		0.18***		0.11**	0.08*	0.10**
		(0.03)		(0.04)	(0.05)	(0.05)
Group			-0.04	-0.06*	-0.08*	-0.06*
			(0.30)	(0.03)	(0.04)	(0.04)
Risk Level						0.00
						(0.01)
Self-Esteem						0.07**
						(0.03)
Controls	No	No	No	No	Yes	Yes
Obs.	571	571	571	571	571	563
Pseudo R <sup>2</sup>	0.04	0.07	0.00	0.08	0.10	0.11

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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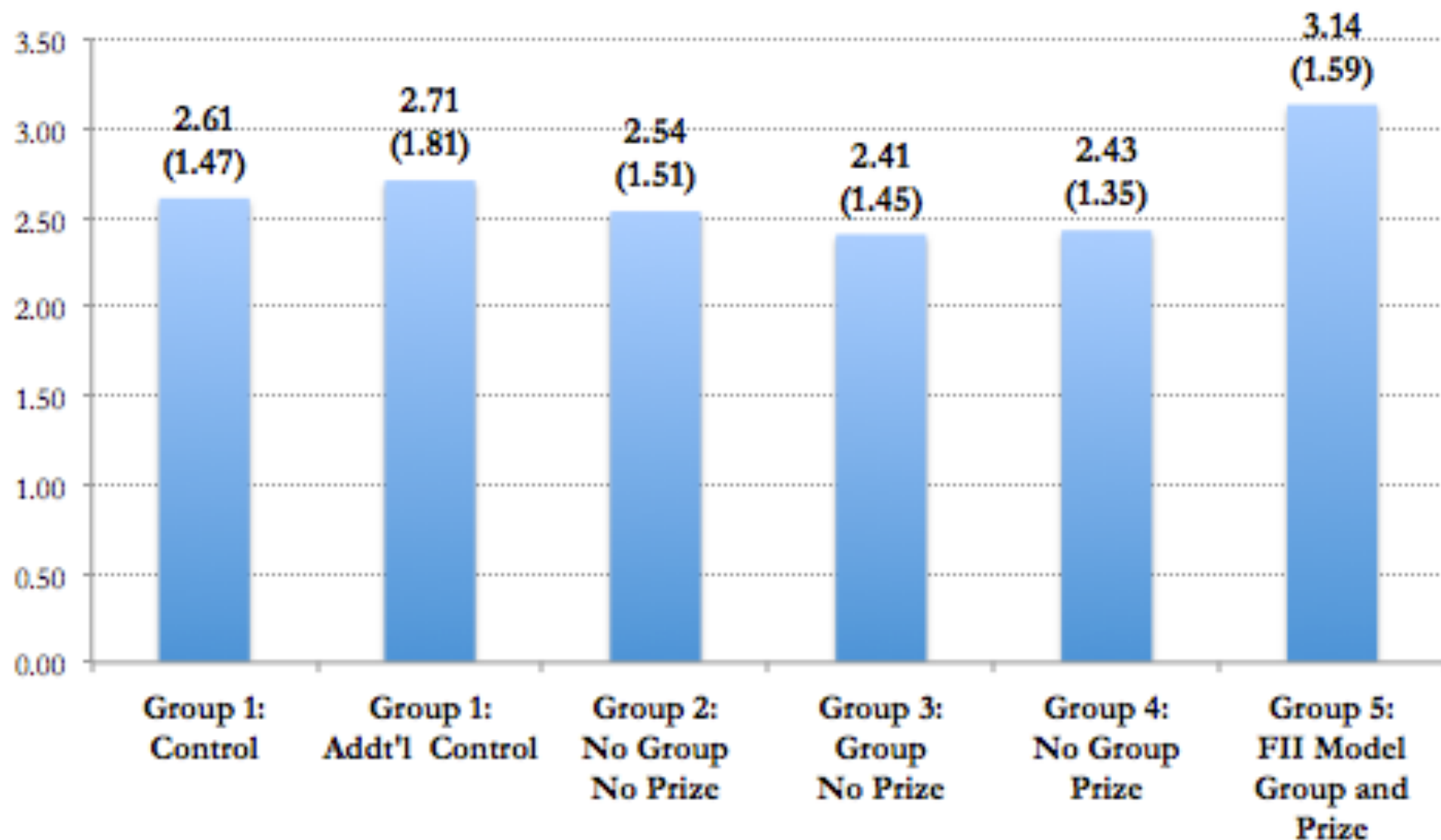
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# Econometric Model (2)

$$\begin{aligned} \text{Salesvalue}_{it} = & \alpha + FII_i\beta_1 + Incentive_i\beta_2 + Group_i\beta_3 + Goal_i\beta_4 \\ & + SE_{it}\beta_5 + R_{it}\beta_6 + Controls' \beta + \varepsilon_{it} \end{aligned}$$

- Ordinary Least Squares Model
- Salesvalue is a monthly sales level from 1 to 6
- Estimate overall effects of treatment on the monthly sales level (measured in index points)
- Controls include age, education, gender, time and business type

## Average Monthly Sales Level Per Person Per Group



## Table 10: OLS Estimations on Monthly Sales Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES							
FII Model	0.40*** (0.13)				0.50** (0.22)	0.58*** (0.22)	0.57** (0.22)
Incentive		0.28*** (0.10)			0.08 (0.15)	0 (0.16)	0.03 (0.16)
Goal			-0.03 (0.11)		0.04 (0.15)	-0.07 (0.14)	0.05 (0.17)
Group				0.02 (0.11)	-0.21 (0.16)	-0.38** (0.16)	-0.30* (0.16)
Risk Level							-0.01 (0.03)
Self-Esteem							0.37*** (0.13)
Controls	No	No	No	No	No	Yes	Yes
Observations	936	936	936	936	936	936	817
Pseudo R <sup>2</sup>	0.04	0.04	0.04	0.04	0.04	0.06	0.06

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Controls	No	No	No	No	No	Yes	Yes
Observations	936	936	936	936	936	936	817
Pseudo R <sup>2</sup>	0.04	0.04	0.04	0.04	0.04	0.06	0.06

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Table 10: OLS Estimations on Monthly Sales Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES							
<b>FII Model</b>	<b>0.40***</b>				<b>0.50**</b>	<b>0.58***</b>	<b>0.57**</b>
	<b>(0.13)</b>				<b>(0.22)</b>	<b>(0.22)</b>	<b>(0.22)</b>
Incentive		0.28***			0.08	0	0.03
		(0.10)			(0.15)	(0.16)	(0.16)
Goal			-0.03		0.04	-0.07	0.05
			(0.11)		(0.15)	(0.14)	(0.17)
Group				0.02	-0.21	-0.38**	-0.30*
				(0.11)	(0.16)	(0.16)	(0.16)
Risk Level							-0.01
							(0.03)
Self-Esteem							0.37***
							(0.13)
Controls	No	No	No	No	No	Yes	Yes
Observations	936	936	936	936	936	936	817
Pseudo R <sup>2</sup>	0.04	0.04	0.04	0.04	0.04	0.06	0.06

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Preliminary Robustness Checks

- Performed bivariate probit models by gender
  - Women have a stronger impacts on goal achievement than men
  - FII Model is more significant for women
- Additional checks to be performed
  - Robustness checks with bootstrapping and standard errors

# Discussion

- The Family Independence Initiative CAN be replicated and in a developing country
  - Higher achievement levels across all estimations
  - Higher monthly sales values across all estimations
- Most successful component: Incentives
- Most successful combination:  
Goal Setting + Group Meetings + Incentivized Payments
  - Improved goal achievement
  - **Improved economic outcomes**



# Thank you!

- I look forward to your suggestions and comments.