

The Impact of a Community Development and Poverty Reduction Program on Early Childhood Development in Morocco

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Outline

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Motivation for studying community driven development (CDD)

- Problem: How to ensure development programs meet community needs
- CDD programs (ideally) solve this problem by incorporating the community into the development process
 - Participation of beneficiaries to increase inclusion and efficiency
 - Ultimately supposed to improve development outcomes, reduce poverty (Mansuri & Rao 2004; Wong 2012)
- There are relatively few evaluations of CDD programs
 - Existing evaluations mostly on impact of CDD programs on poverty reduction/income generation
 - Little on human development or ECD

This study

- Examines whether CDD programs can promote human development, specifically early childhood development
 - Indirectly, by improving income and reducing poverty
 - Directly, by activities supporting early health, nutrition and education
- Specific program examined is the Moroccan National Human Development Initiative (INDH)
- Uses specially designed impact evaluation panel data to evaluate INDH in rural areas

Why is ECD so important?

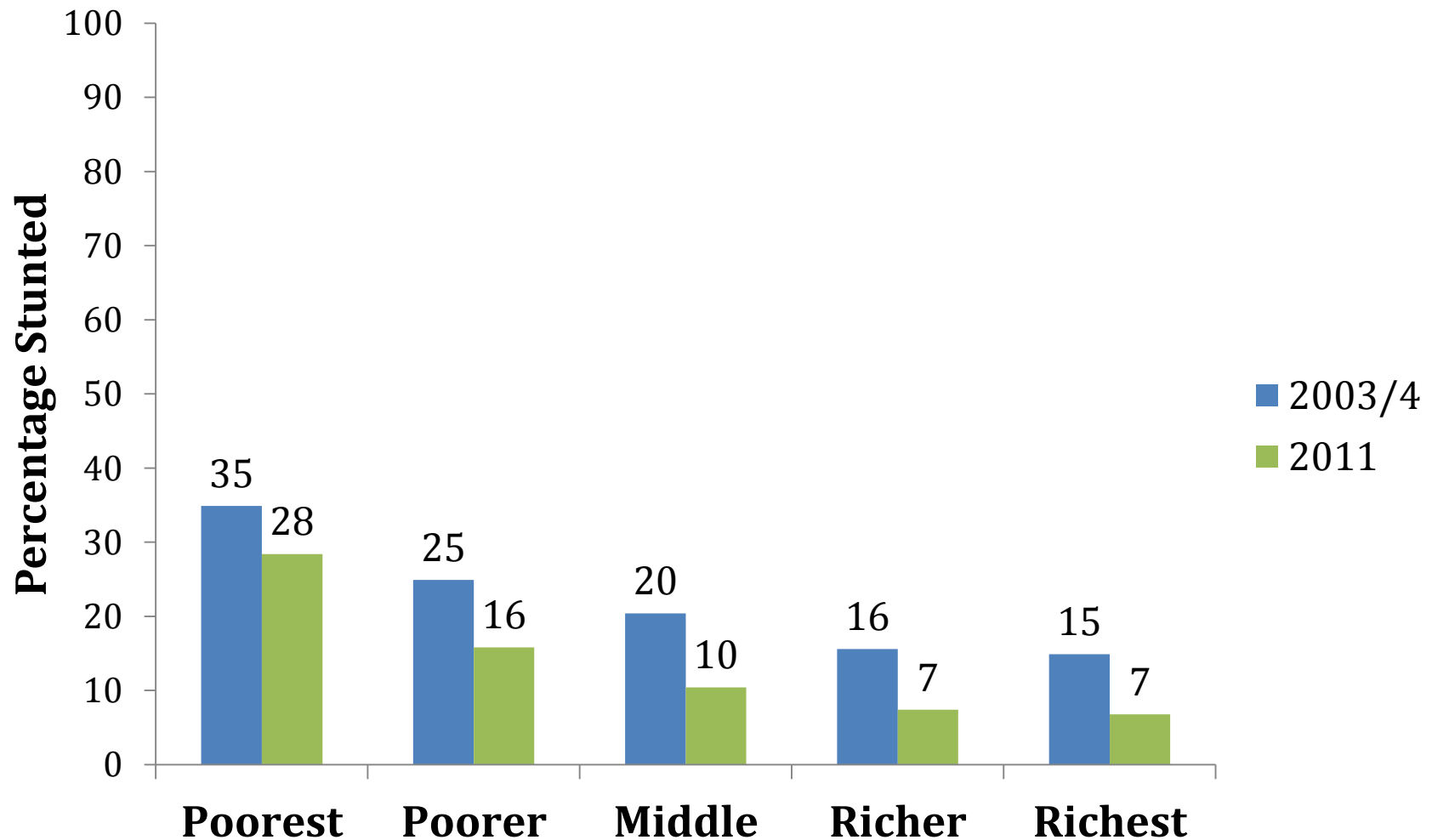
- Large body of evidence on the importance of early childhood development (ECD)
 - Early experiences have lifelong implications for health, cognition, and behavior (Almond & Currie 2011)
- ECD extremely sensitive time for development
 - Deficits in early development are more difficult or impossible to reverse later in life (Shonkoff & Phillips 2000)
- ECD important in intergenerational transmission of socio-economic status
 - Key role in poverty, inequality (Case, Lubotsky, & Paxson, 2002; Currie & Moretti, 2007)

Why Study ECD in Morocco?

- Despite progress, a number of persistent ECD challenges
 - Deficits in health care (83% of children received prenatal care)
 - Infant mortality is 27 deaths per thousand births
 - 15% of children under 5 are stunted
 - 58% of children attend early childhood care and education
- Inequality in ECD is substantial, contributes to inequality throughout the life course



Stunting Rate by Wealth Quintile



Background: INDH

- To combat poverty and inequality, in 2005 Morocco launched the National Human Development Initiative (INDH)
 - Community driven development program
 - First phase: 2005-2010
 - US\$1.7 billion of spending, 700 local plans, 22,000 activities, 5.2 million beneficiaries
 - In rural areas, targeted communes with high poverty rates
 - Additional communes targeted in 2011-2015 (second phase of US\$2.1 billion)

What did INDH do?

- Income generating activities
 - Crops, livestock, small businesses
- Basic infrastructure and services
 - Water, roads, electricity
- Education
 - Schools & classrooms, crèches & preschools
- Health
 - Health centers, maternity centers, equipment and materials

Theory of Change

- How might INDH impact ECD?
 - Indirectly
 - Poverty/income is a strong predictor of ECD outcomes
 - Activities that increased income should decrease the risk for poor ECD
 - Previous evaluation in 2011 identified large economic impacts of INDH
 - Directly
 - Activities such as building health centers, maternity centers, pre-school classrooms

Data for Evaluating INDH

- Decision to evaluate INDH occurred after program rolled out
 - No data from before the program
- In rural areas, communities were targeted if poverty (map) rates were 30% or higher
 - Targeting allows for regression discontinuity design (RDD)
- National Human Development Observatory (ONDH) INDH impact evaluation panel survey
- Panel survey on the household level
 - Communes just above and below cutoff (27-32%)
 - 12 households per commune, 124 rural communes
 - Rounds in 2008, 2011, 2013 (71% of control in Phase II)

Outcomes

- Economic outcomes
 - Income
 - Consumption
 - Assets
 - All in 2013 dirham, annually, and per capita
 - US\$1=8.17 Moroccan dirham
- ECD outcomes
 - Prenatal care
 - Skilled birth attendant
 - Anthropometrics
 - Pre-primary attendance

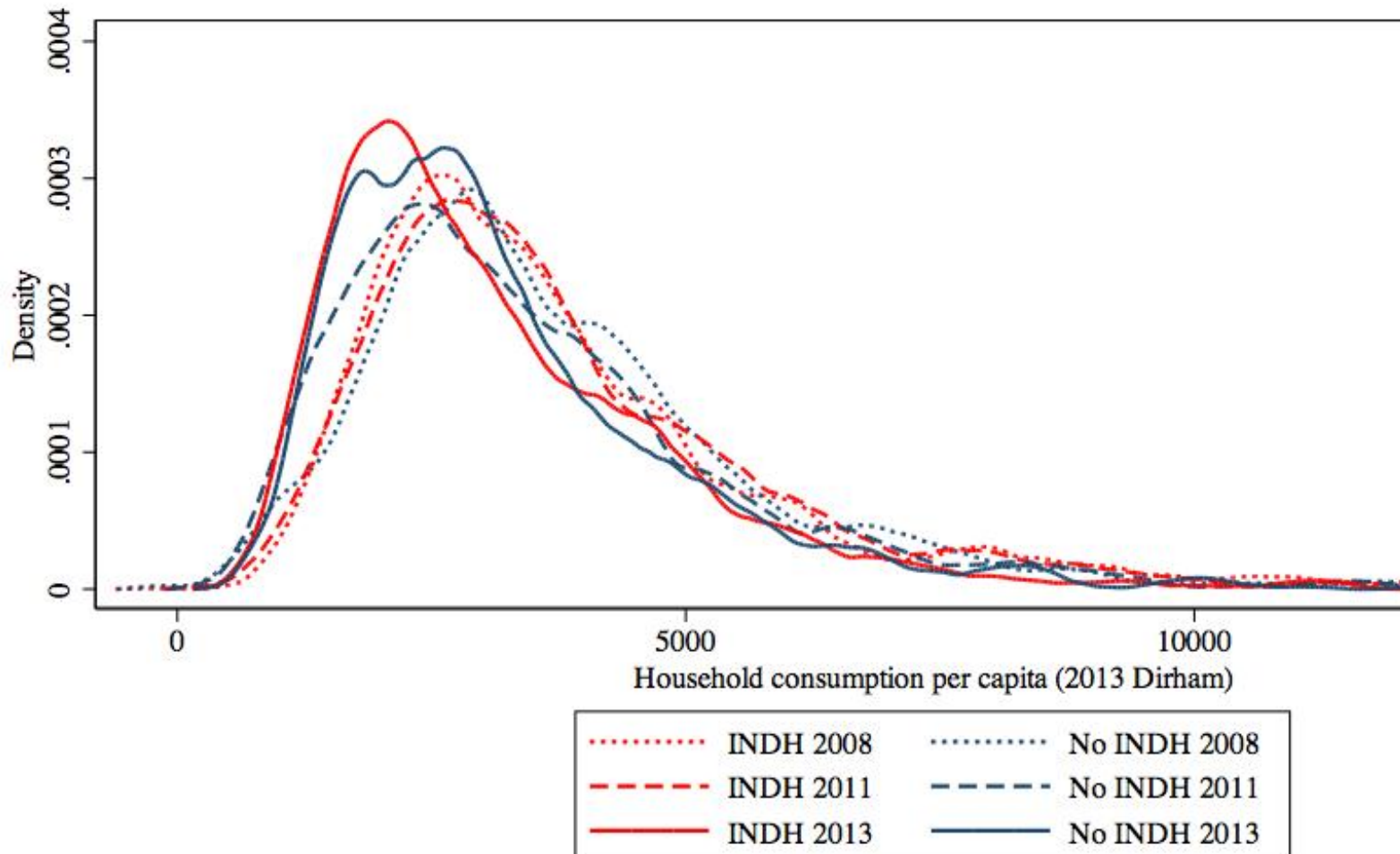
Methods

- Regression models
 - Controlling for poverty rate
 - Also in log terms, quantile (median) regressions for economic outcomes
 - Logistic models for binary ECD outcomes
- Commune fixed effects
 - With interactions between treatment and 2011 or 2013
 - To estimate any additional impacts in 2011 or 2013 as compared to 2008
- RDD
 - “Jump” in outcome at treatment threshold (30% poverty rate) should be due to program
 - Assuming a continuous relationship in the absence of the program

Balance

- Checked for balance of characteristics in treatment and control communes
 - Could only look at characteristics not affected by program
- Only clear difference was in terms of household size
 - Higher poverty (treatment) households were larger
- Estimate economic outcomes all in per capita terms

Distribution of economic outcomes



ECD outcome descriptives

	2008		
	Control	Treatment	Total
Prenatal	54.72	54.44	54.57
Delivery	52.52	47.78	50.00
Height-for-age	-1.76	-1.85	-1.81
Weight-for-age	-0.15	-0.34	-0.25
Weight-for-height	1.26	1.05	1.15
Preschool	10.67	7.69	9.09

*p<0.1; **p<0.05; ***p<0.01

Economic outcomes: OLS

	Consumption					
	OLS			Median		
	2008	2011	2013	2008	2011	2013
INDH	584*	932**	75	424*	664**	68
	(332)	(453)	(352)	(239)	(310)	(316)
Community poverty rate	-206*	-172	-44	-165**	-149	-45
	(105)	(145)	(113)	(83)	(120)	(97)
Constant	9758***	8442**	4484	7975***	7276**	4046
	(2979)	(4125)	(3204)	(2367)	(3433)	(2743)
N(Observations)	8986	9002	8608	8986	9002	8608

*p<0.1; **p<0.05; ***p<0.01

- Log models imply INDH caused approximately 12.5% increase in consumption in 2008, 20.7% in 2011
- No significant income or asset effects

Economic Outcomes: Commune FE

	Income	Wealth	Consumption
Round (2008 omitted)			
2011	347 (320)	6,051*** (2,176)	-383** (172)
2013	238 (252)	10,308*** (2,009)	-719*** (142)
INDH and round interactions			
2011 and INDH	326 (410)	5,747 (3,961)	444* (238)
2013 and INDH	478 (363)	4,657 (3,579)	-56 (211)
Constant	4,801*** (110)	12,348*** (1,158)	3,961*** (65)
N (Observations)	26,590	26,552	26,596

*p<0.1; **p<0.05; ***p<0.01

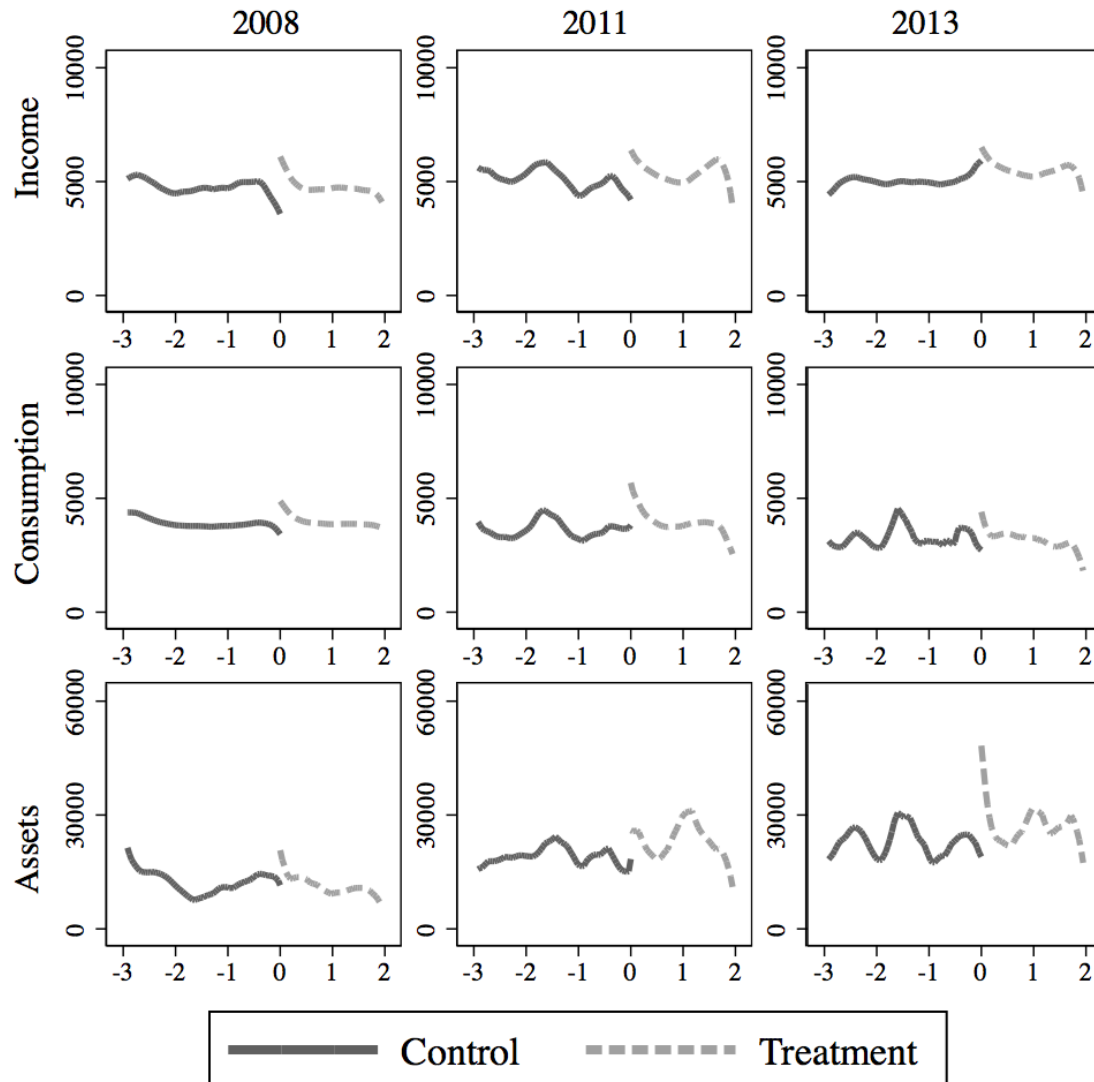
Economic outcomes: RDD

	Income	Log Income	Consump.	Log Consump.
2008				
50% bandwidth	2526***	0.337*	1529***	0.383***
100% bandwidth	1347**	0.383***	556	0.283***
200% bandwidth	519	0.229*	524	0.129
2011				
50% bandwidth	2189	0.182	2190**	0.439**
100% bandwidth	1488	0.281	1730**	0.294*
200% bandwidth	882	0.170	1002*	0.239*
2013				
50% bandwidth	597	0.561**	1740**	0.345
100% bandwidth	618	0.278	702	0.107
200% bandwidth	754	0.322	276	0.056

*p<0.1; **p<0.05; ***p<0.01

No significant asset effects

RDD: Economic outcomes graphs (50% bandwidth)



ECD outcomes: Logit model marginal effects

	Prenatal			Delivery		
	2008	2011	2013	2008	2011	2013
INDH	0.020 (0.093)	0.103 (0.096)	-0.300*** (0.100)	-0.014 (0.093)	0.058 (0.082)	-0.244** (0.101)
Community poverty rate	-0.009 (0.029)	-0.037 (0.032)	0.109*** (0.030)	-0.013 (0.031)	-0.051** (0.025)	0.072** (0.032)
N(Observations)	678	604	608	678	604	608

*p<0.1; **p<0.05; ***p<0.01

No significant pre-primary effects. No INDH interactions significant in community fixed effects models.

Anthropometric outcomes: OLS

	Height-for-age (z-score)		
	2008	2011	2013
INDH	-0.325 (0.374)	-0.060 (1.056)	1.331** (0.601)
Community poverty rate	0.095 (0.137)	-0.057 (0.296)	-0.273 (0.207)
Constant	-4.475 (3.940)	-0.344 (8.247)	5.208 (5.854)
N(Observations)	470	249	236

*p<0.1; **p<0.05; ***p<0.01

No significant weight-for-height or weight-for-age effects. No INDH interactions significant in community fixed effects models.

ECD outcomes: RDD

	Prenatal	Delivery	Weight for height
2008			
50% bandwidth	0.145	-0.158	1.287***
100% bandwidth	0.087	-0.095	0.874*
200% bandwidth	-0.003	0.003	0.234
2011			
50% bandwidth	0.301**	0.304***	-0.126
100% bandwidth	0.155	0.198**	-0.652
200% bandwidth	0.131	0.140*	0.062
2013			
50% bandwidth	-0.262	-0.224	-2.022
100% bandwidth	-0.206	-0.221*	-0.502
200% bandwidth	-0.238**	-0.183*	-0.854

*p<0.1; **p<0.05; ***p<0.01

No significant height- or weight-for-age effects or preschool effects.

Limitations

- No baseline data from before the program
 - Treatment not randomly assigned
- RDD method
 - If communities are similar right around cutoff, as good as random
 - Extremely sensitive to bandwidth
- Program expanded to control areas in 2011 onwards
- Generalizability
 - Just around cutoff for inclusion
 - Problems in implementing INDH, particularly coordination challenges

Summary

- **INDH had limited impact on economic outcomes**
 - Magnitude of impact in rural areas for Phase I roughly equivalent to costs
 - Economic impacts not durable
 - May be partly due to expansion in control areas
- **INDH did not improve ECD outcomes**
 - Appears to be no direct or indirect impact on this aspect of human development

Conclusions

- Will be difficult for Morocco to address poverty and inequality without improving ECD
 - Incorporating ECD more intentionally into INDH could increase its effectiveness (long term)
 - Potential future policy: Adding ECD targets and provide additional funding if targets met
- Consistent with other studies demonstrating that specific ECD targets and programs are needed to improve ECD, not just economic growth (Olken, Junko & Wong, 2011; Vollmer et al. 2014)