

# Dynamics of Multi - Dimensional Poverty Among Children in Ethiopia: Evidence from Longitudinal data of Young Lives Study

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# Introduction

- Among the SDGs, the following four are directly related to the wellbeing of children
  - SDG 1.2 - Reduction by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
  - SDG 2.2 (improve nutrition) ,
  - SDG 1.3 (improvement in health),
  - SDG 1.4 (improve access to education),
  - SDG 4 (ensure inclusive and equitable quality education) - :
- several others in SDG such as [ending poverty and hunger, access to water and sanitation services](#) also affect child wellbeing

# Introduction

- Hence looking the multidimensionality of child wellbeing is crucial
- Evidences in Ethiopia shows that there are substantial variations in achievement in the different dimensions of child wellbeing
- Hence it is crucial to take a multidimensional approach to study childhood poverty
- In recognition of this, the current study takes a multidimensional approach to identify the determinants of child wellbeing and the dynamics of childhood poverty

# Objective of the study

- Construct a multi-dimensional deprivation index based on the capability approach
- Conduct a dynamic analysis
  - Identify the transition of children across the poverty categories (chronically poor, transient poor and never poor)
- Analyse poverty trajectories of children by gender of child and location
- Compare the results of MODA with children's' perception of poverty
- Explore the determinants of poverty dynamics (in and out)

# Method and data

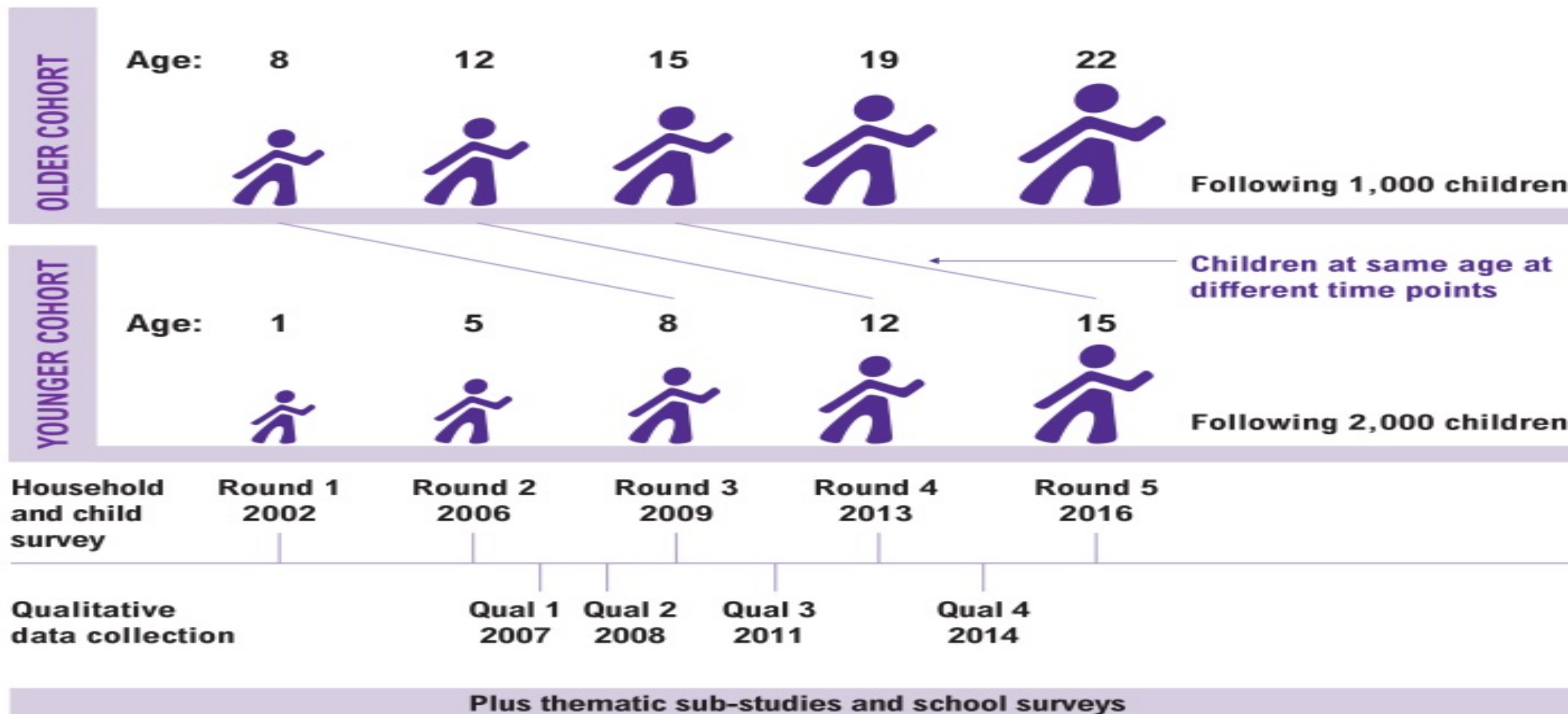
- We use multidimensional poverty index know as **Multiple Overlapping Deprivations Analysis (MODA)**
  - Developed by UICEF
  - Specifically focus on children
- Built on literature of **chronic child poverty** we investigated persistence and dynamics of MODA
- We use econometric analysis to identify associated factors with movement of children in and out of multidimensional poverty
- We use Young Lives Study data – longitudinal data that follows two cohorts children
  - Quantitative – 4 rounds - both Younger and older cohorts
  - Qualitative – 4 rounds (2007, 2008, 2011 and 2014) from the older cohort children and their households – 60 children (3 rural and 2 urban sites).

# What is Young Lives Study

- Young Lives Study is an international study of childhood poverty that tries to look at the causes and consequences of childhood poverty who are born in poverty
  - 12,000 children in Peru, Vietnam Undra Pradesh state of India, and Ethiopia
- Young Lives in Ethiopia follows **2000 children of younger** cohort and **1000 children of older cohort** for 15 years so far.
- Among others, we have followed the physical growth, mental development, school progression, transition from school to work, skill development of the children and youth as well as food security situation of household and children every 3-4 years

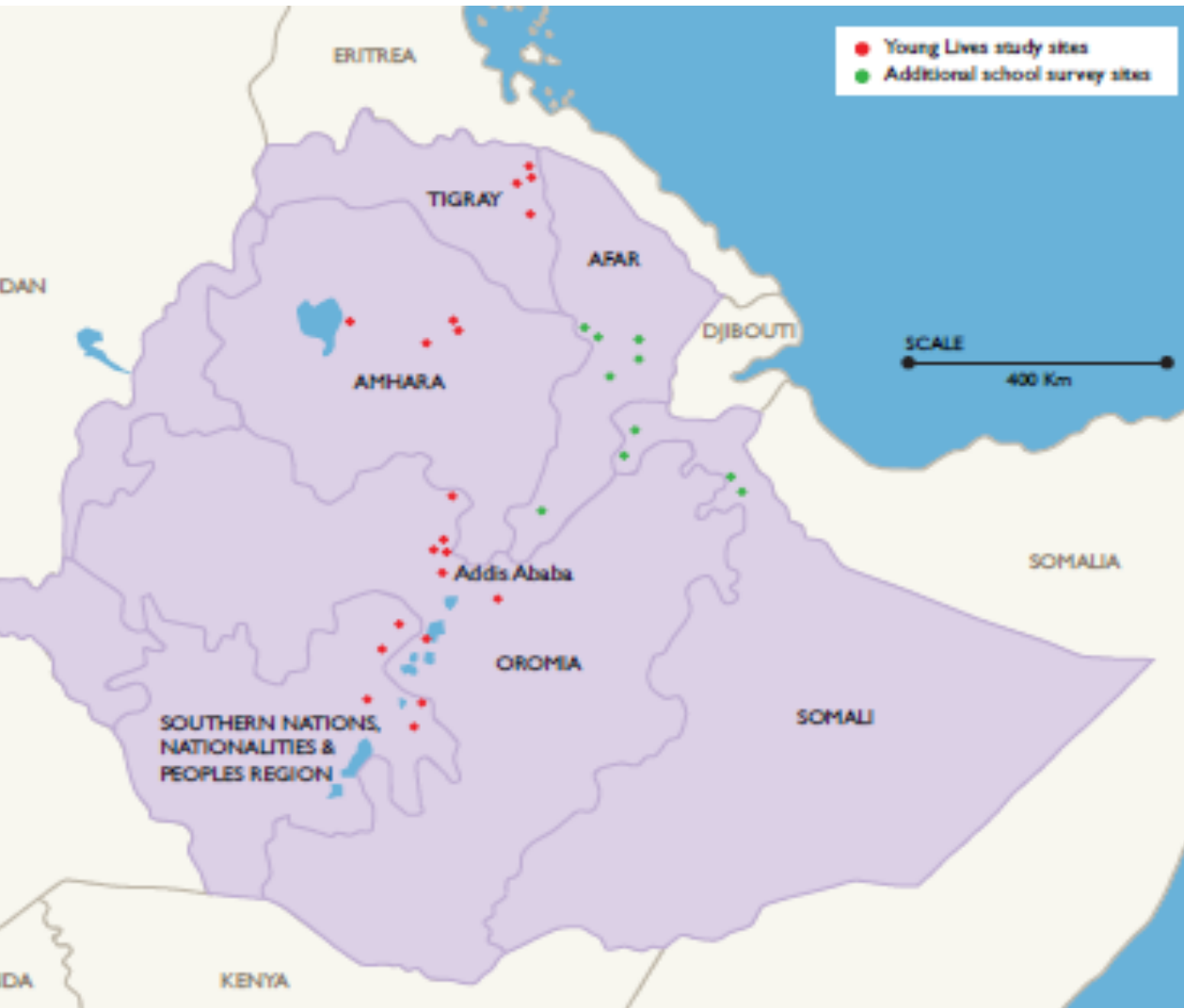
*Young Lives is designed as a panel study investigating the changing nature of childhood poverty*

**Young Lives longitudinal data collected in 4 countries:  
Ethiopia, India (Andhra Pradesh and Telangana), Peru, Vietnam**



# Sampling design

Ethiopia



## Four stages sampling process:

1. Regions (Amhara, Oromia, SNNPR, Tigray and Addis Ababa, accounting for 96% of national population)
2. Woredas (districts) (3-5 districts in each regions, 2 total)
3. Kebele (at least 1 for each woredas)
4. 100 young children (born in 2001-02) and 50 older children (born in 1994-5) were selected within the sites.

## Criteria to select districts:

1. Districts with food deficit profile
2. Districts which capture diversity across regions and ethnicities in both urban and rural areas
3. Manageable costs in term of tracking for the future rounds

## Comparing with DHS and WMS 2000: 2000:

Poor hh are over-sampled, but YL covers the diversity of children in the country including up to 75% percentile Ethiopian population.



# Multidimensional poverty

- The traditional poverty assessment - income based measures - disregards some non-income based measures
- The non-income dimension of poverty are more vital for improving the design and effectiveness of poverty reduction policies (Ballon and Krishnakumar, 2010)
- The introduction of the capabilities approach by Amartya Sen which views poverty from a multidimensional perspective built the theoretical basis for multidimensional poverty analysis
- The concept of capability has been extremely influential at both academic and policy levels

# Multidimensional poverty ...

- Among the multi-dimensional indicators are the **Multiple Overlapping Deprivations Analysis (MODA)** developed with a particular focus on childhood deprivations.
- The MODA is motivated by the **Multi-Dimensional Poverty Index (MDPI)** designed by OPHI.
- The MDPI has three dimensions selected based on MDG and is calculated for the overall population regardless of age groups.
  - health, education and living conditions (Alkire and Foster, 2010; Calderon and Kovacevic, 2015).

## Multidimensional poverty ....

- Building on the MDPI, the MODA is developed by UNICEF to shed more light on children's deprivations.
  - MODA has 4 broad dimensions based on international standards, namely: **Survival**, **Development**, **Protection** & **Participation** (De Neubourg et al., 2012a).
  - MODA provides a platform to look into child wellbeing in a holistic manner by focusing on the children's access to goods and services that are vital to their development.

# Multidimensional poverty ...

- Adopting MODA for analysis of child wellbeing enriches the study in four ways.
  - First, MODA keeps the **child as the unit of analysis** instead of the household.
  - Second, MODA accounts for the heterogeneity of children's needs **across age groups** and adopts **a life-cycle approach**.
    - the analysis is normally done for **three different** childhood age groups - early childhood, primary childhood and adolescence.
  - Third, MODA illuminates child poverty by accounting for deprivations experienced **simultaneously across sectors**.
  - Fourth MODA allows to **capture the extent of the deprivations**
  - Fifth – **country context**
- Table 1 below shows

# Dimensions of the lifecycle approach (De Neubourg et al., 2012)

<b>Age (0-4)</b>	<b>Age (5-17)</b>
Nutrition	Education
Health	Information
Water	Water
Sanitation	Sanitation
Housing	Housing
Protection from Violence	Protection from Violence

Dimensions	Indicators	Deprivation Thresholds
		Age group 0-5
Nutrition	Underweight	Deprived if children are below two standard deviations from the median of the reference population
	Wasting	Deprived if children are below two standard deviations from the median of the reference population
	Number of meals per day	Deprived if the child has eaten less than three times in a day
	Number of food items consumed per day	Deprived if the child has consumed less than three food items per day
Health	Skilled birth attendant	Deprived if child was not born with a skilled birth attendant
	Measles vaccination	Deprived if child has not taken this vaccination
	BCG vaccination	Deprived if child has not taken this vaccination

Dimensions	Indicators	Deprivation Thresholds
		Age group 5-17
Education	School enrolment	Deprived if child is not enrolled in school
	Primary school completion	Deprived if older than 14 years old but has not finished primary school
Information	Access to information	Deprived if child does not have access to one of these items – <a href="#">radio, television, phone or a computer</a>
		All age groups
Shelter	Overcrowding	Deprived if living with more than four household members per room
	Roof and floor material	Deprived if unsustainable roof and floor material such as mud and thatch
Water	Access to improved water source	Deprived if no access to protected water
Sanitation	Access to improved sanitation	Deprived if child does not have access to flush toilets or pit latrine

# Threshold and categorisation after aggregation

- After aggregation, using Alkire & Foster (2010) the thresholds for levels of deprivation is done as follows:
  - **Non-poor:** Children that are deprived in less than 30% of dimensions
  - **Moderately poor:** Children that are deprived in more than 30% of dimensions
  - **Severely poor.** children deprived in more than 50% of the dimensions
- To identify the **dynamic deprivations of children**, we categorization as
  - **never poor** – non-poor in all rounds
  - **Rarely poor:** poor only once in 4 rounds
  - **transient poor** (poor in 2 or 3 rounds) and
  - **chronically poor** (poor in all 4 rounds)



# ANALYSIS RESULTS

# % of children deprived by dimension (YC)

	Y2002	Y2006	Y2009	Y2013
Survey Round	Roun1	Round 2	Round 3	Round 4
Health	48.0	17.1		
Nutrition	0.3	22.1		
Education			23.3	5.4
Information			36.9	25.2
Shelter	73.5	59.8	53.9	58.9
Safe water	53.4	24.1	16.2	11.1
Sanitation	62.1	45.3	27.0	22.6

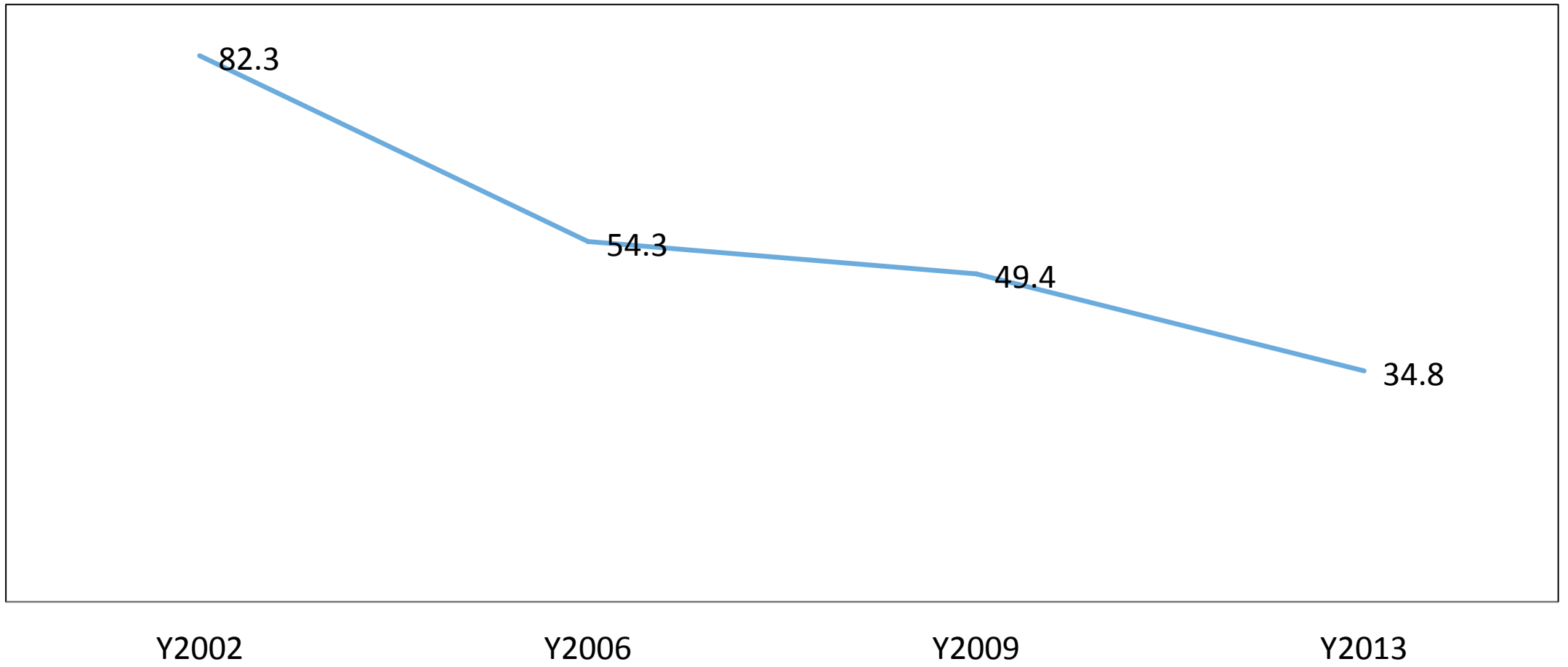
# Deprivation count for YC

Deprivations Count	Roun1	Round 2	Round 3	Round 4
0	1.5	20.45	24.26	26.91
1	16.17	25.26	26.38	38.39
2	37.44	28.77	25.27	22.32
3	33.43	17.73	16.99	9.82
4	11.41	6.54	6	2.24
5	0.05	1.26	1.11	0.32
N	1,998	1,912	1,884	1,873

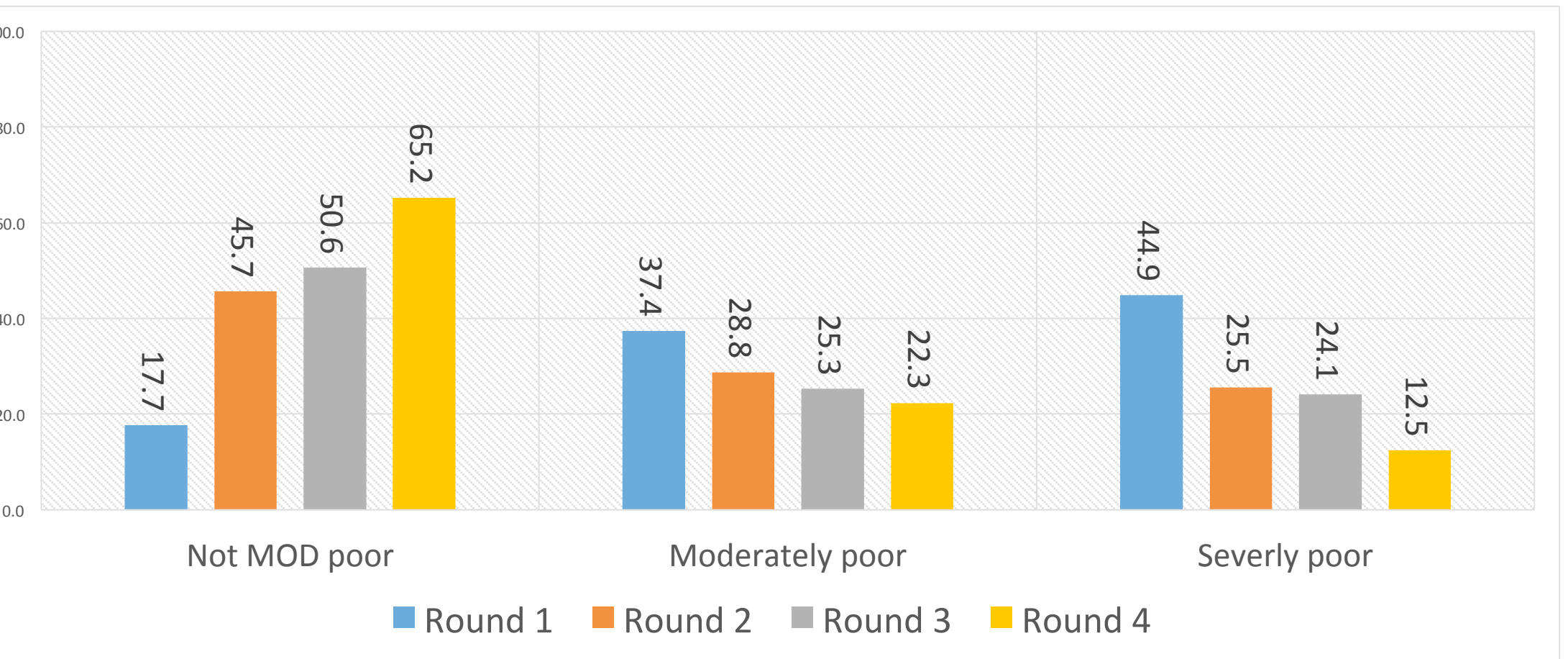
# Percent of children who are MOD poor

shows substantial decline, but higher than that of Income poverty, lower than MDPI based of DHS, HICS

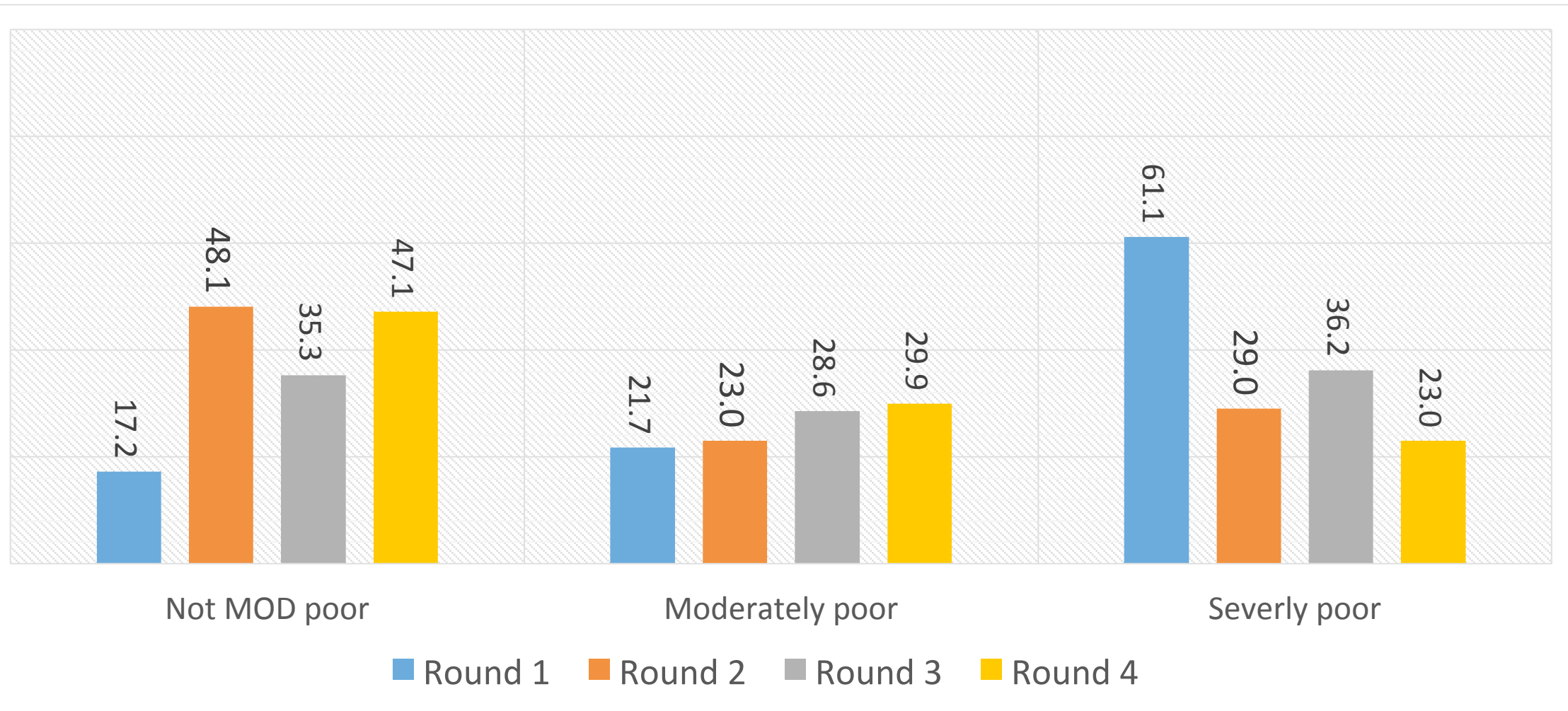
**% of children MOD poor over time**



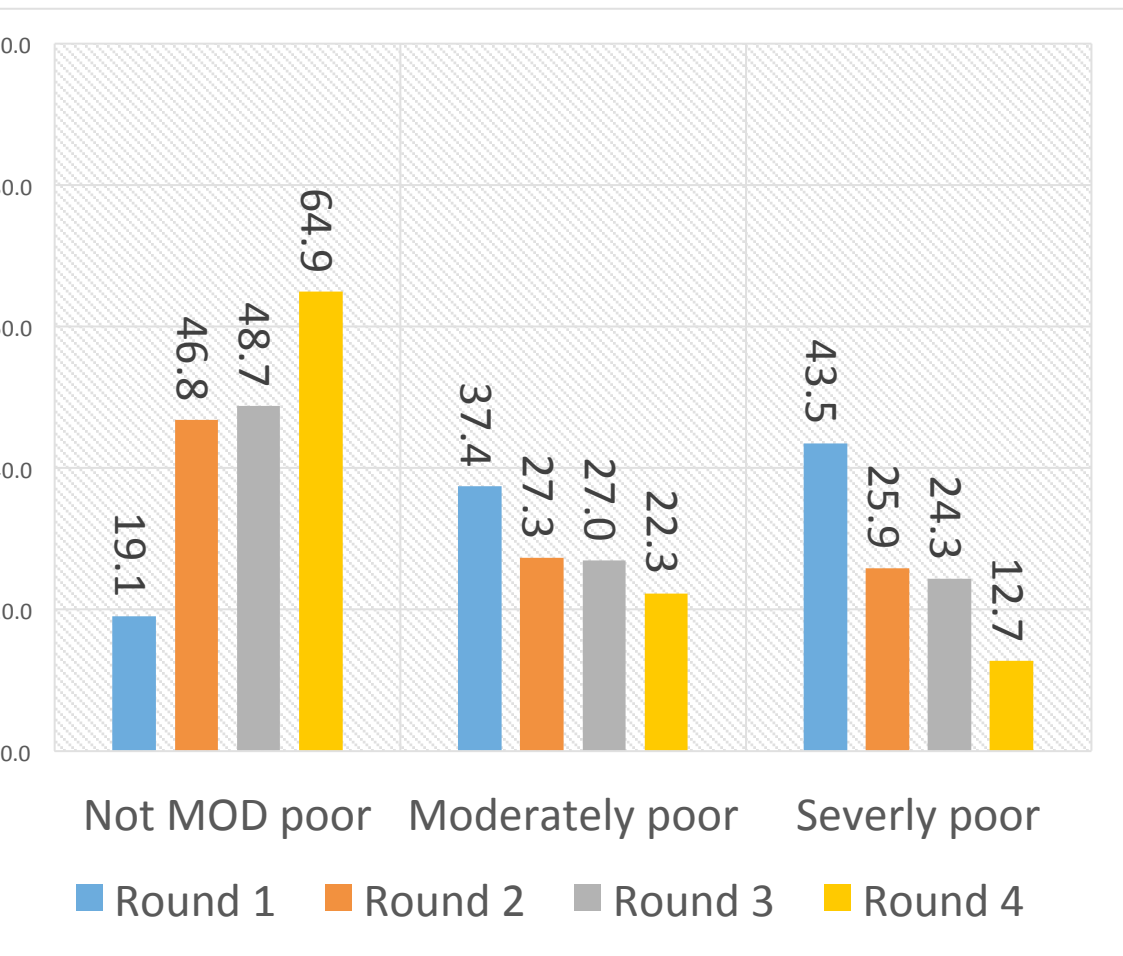
# Status of Poverty : Young cohort



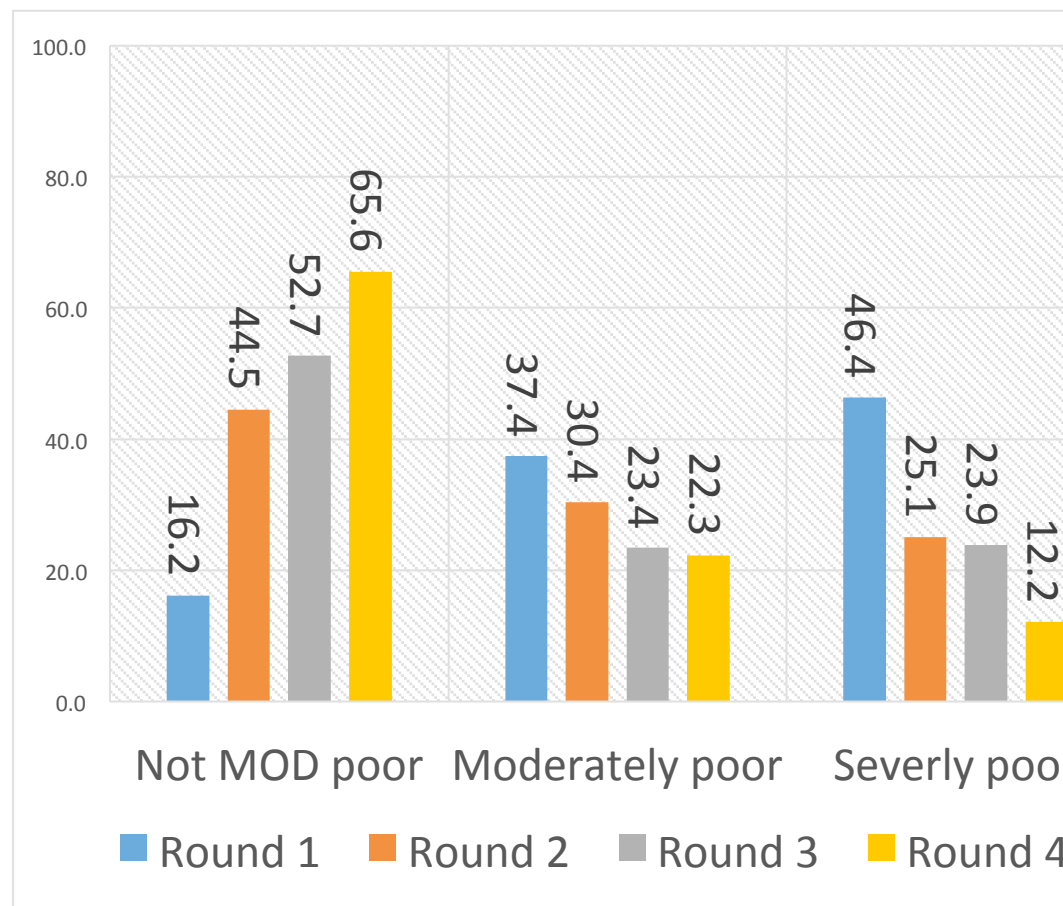
# Status of Poverty : Older cohort



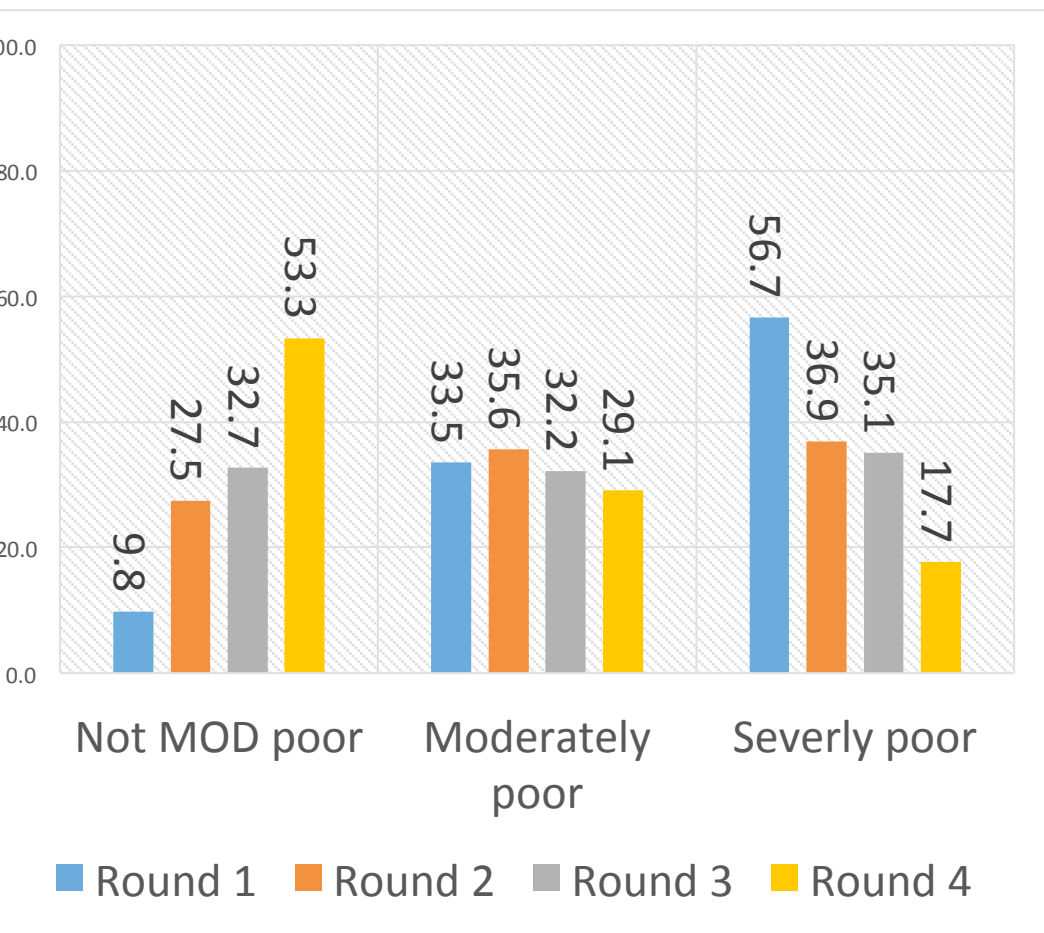
# Boys-



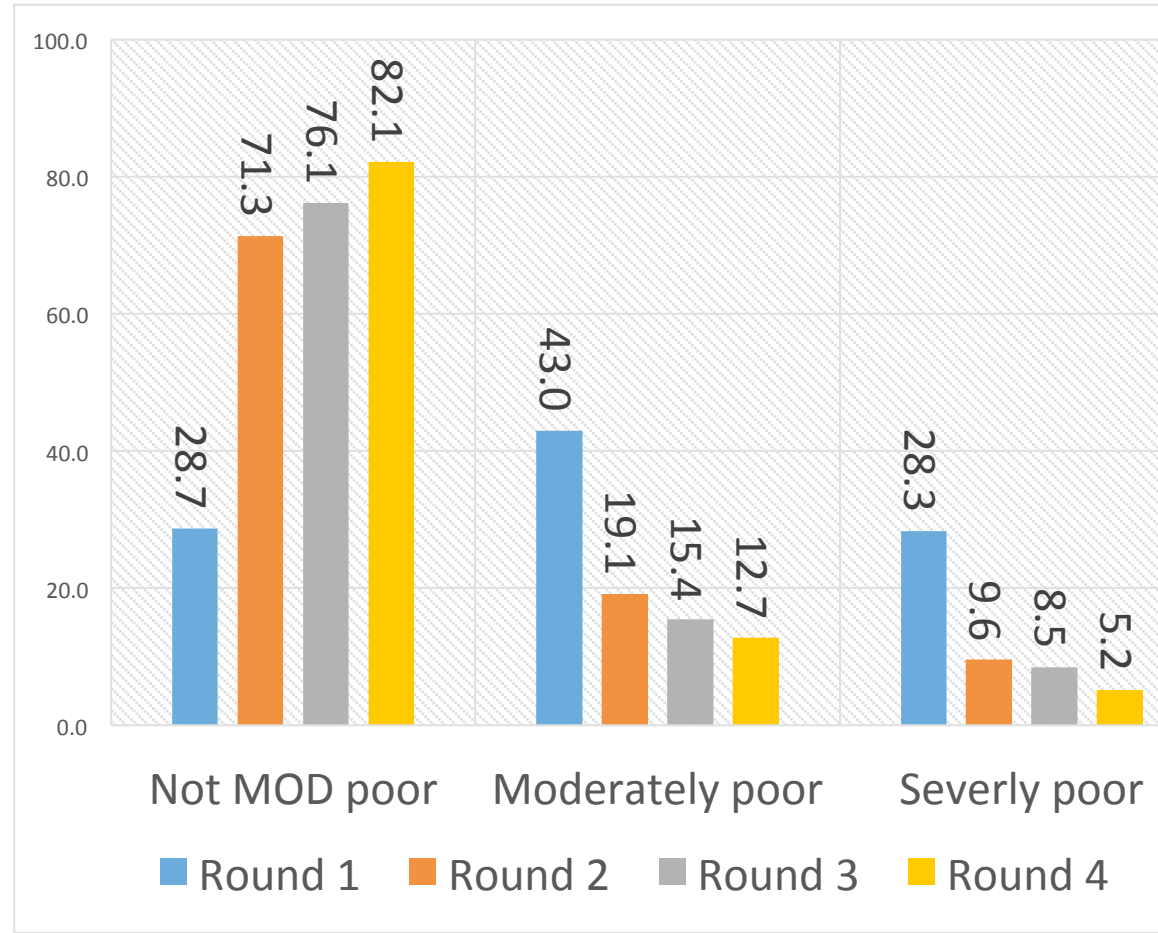
# Girls



# Rural



# Urban





# Determinants (predictors) of MOD of children

(pooled regression and fixed effect estimation)

$$D_{it} = \alpha_i + \beta_1 H_{it} + \beta_2 E_{it} + \beta_3 G_{ti} + \beta_4 S_{it} + \beta_5 L_i + \varepsilon_{it}$$

$$DP_i = \alpha + \beta_1 H_i + \beta_2 E_i + \beta_3 G_i + \beta_4 S_i + \beta_5 L_i + \beta_6 P_i + \varepsilon_i$$

- Where

- D is multiple overlapping deprivations (**deprivation counts**: Poisson , fixed effect),
- DP is a categorical variable capturing **poverty transitions** (multinomial logit model)
  - 0 if the child has never had derivations in more than 30% of the dimensions; - **Never poor**
  - 1 if the child experienced deprivations in more than 30% of the dimen in only one round; - **rarely poor**
  - 2 if the child experienced deprivations in more than 30% of the dimen in 2or 3 rounds -**Transient poor**
  - 4 if the child has experienced deprivations in more than 30% of the dimen. in all 4 rounds – **Chronic poor**
- H is the vector of household composition variables,
- E is the vector of education variables,
- G is a vector of gender of the child and the gender of the head of the household,
- S is the vector of socio-economic shocks experienced by the household and
- L is the vector of location variables
- P is a vector of policy variables mentioned above.

# Determinants (predictors) of MOD of children...

- Household composition a household matters
  - More dependency, more deprivation
    - the number of boys and the number of girls below the age of 7 were found to have a statistically significant positive association with increased deprivation of children
      - This is true for both male and female household members.
    - Similarly, the number of male household members above the age of 65 was found to have a positive association with deprivation of children
  - More working female- less deprivation
    - The number of female household members between the age of 17 and 65 was found to reduce the number of deprivations experienced by children, while that of male do not have effect
- Human capital player a big role
  - The average education of household members was also found to have a statistically significant decreasing effect on children's experience of deprivations

# Determinants of MOD of children...

- **Shocks is important determinant of MOD**
  - household's experience of idiosyncratic and covariate socio-economic shocks
    - Drought shock – covariate
    - idiosyncratic shocks such as employment loss, death of livestock
- **Place of residence matter**
  - Children from rural households experience deprivations in more dimensions than children that come from urban households.
- **No state dependence** : the coefficient of lagged deprivation is statistically **insignificant** showing the absence of state dependence – imply we can change

# Children's experience of chronic poverty (transition in status of poverty)

- The poverty transition variable has 4 categories:
  - with a base outcome of being **never MOD poor**,
  - MOD poor in just one round – **rarely poor**
  - in **transient poverty** (MOD poor in 2 or 3 rounds) and
  - MOD poor in all 4 rounds – **chronic poor**,
- Among the socio-economic shock variables that has strong positive association with **chronic poverty and transient poverty** is **illness of a household member**
- we can the effect of three more policy variables in our analysis
  - access to credit, size of irrigated land and access to extension

# Children's experience of chronic poverty (transition in status of poverty)....

- **access to credit** has a negative effect on the probability of being in transient poverty and chronic poverty category
  - However, the size of the effect is very small.
- The **size of land owned** by households is also found to have a negative effect on the probability of being in chronic poverty
- Use of **irrigation** has negative association with all three type of MOD
- We were **not able to find any significant association with extension services**, perhaps because extension service is correlated with access to credit, land size and use of irrigation

# Children's experiences of multidimensional poverty

(coincides well with MODA while qual ind. derived independently, [information not mentioned](#))

	Poverty indicators	Consequences of poverty
Urban	<ul style="list-style-type: none"> <li>No enough food and <b>wearing tattered clothes</b></li> <li>Living in very crowded housing</li> <li>No materials for learning, and not going to school at all</li> </ul>	<ul style="list-style-type: none"> <li>Exclusion and feeling of inferiority</li> <li>Poor educational outcomes</li> <li>Behavioural problems</li> <li>Worse future life</li> </ul>
Rural	<ul style="list-style-type: none"> <li>Not having enough food and clothing</li> <li>Living in poor housing</li> <li>Lacking school materials</li> <li><b>Not having enough land and livestock</b></li> </ul>	<ul style="list-style-type: none"> <li>Exclusion and feeling of inferiority</li> <li>Poor or no schooling</li> <li>Early marriage for girls (girls' group)</li> <li>Doing paid work instead of studying (girls' group)</li> <li>Worse future life</li> </ul>

# Concluding remarks

- The study benefits by using longitudinal data- Young Lives data- , which cannot be captured by cross-section
  - to capture the dynamics of multidimensional deprivation among children and
  - enables the identification of some determinants of poverty dynamics
- MODA and children's perceptions of poverty captured through **qualitative methods coincided** in many of the indicators except
  - 'information' in MODA, but not mentioned by children
  - Land and livestock - by rural children
  - Wearing tattered clothes – by urban children

# Concluding remarks...

- MODA - Multidimensionality –combinations of deprivations- gives better picture of children's wellbeing
- Young Lives data shows well the dynamics and **Multiple Overlapping Deprivation**
- Longitudinal – not just one time experience but over the course of their life
- MOD declines over time in in poor Ethiopian communities
  - Older cohort more deprived than the younger cohort showing decline overtime
  - Previous study shows marginal decline - using repeated cross section data
  - MDPI show very high poverty (87%)
- MOD is influenced by HH composition, socio-economic shocks, human and physical capital endowment, and access to credit and irrigation
- Household composition effect shows that family planning is important



# Concluding remarks...

- Human capital is the key to reducing poverty
- Idiosyncratic shocks are found to have positive association with chronic poverty indicating the **need for social protection, in addition to humanitarian aid**
- Access to **credit and promotion of irrigation** has to be strengthened to reduce MOD of children
- Size of land is important, but difficult as policy variables
  - Move people to place where there is unused land
- Finally, multidimensional poverty experienced over life course – more likely to show the intergenerational nature of poverty
- Thus, addressing multidimensional and time dimension of poverty means breaking Intergenerational Poverty