



13<sup>th</sup> Annual  
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# Poverty dynamics and child development: Evidence from the Growing up in Ireland study

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# Research Background

- **Household poverty** is associated with **children’s outcomes**, including cognitive ability, education, and social & behavioural development (Bradbury et al., 2015; Treanor, 2020; Washbrook et al., 2014).
- Effects can be direct and indirect via **parental well-being** (Brooks-Gunn and Duncan 1997; Yeung et al., 2002) and the **home learning environment** (Conger et al., 2000; Cooper and Stewart, 2020).
- Evidence on the specific **mechanisms** through which poverty affects child outcomes over time is mixed.

# Research Question

- What is the association between poverty duration and children's cognitive and socio-emotional outcomes at age 9?
- What are the **channels** through which poverty affects child outcomes between ages 3 and 9?

## **Family Investment Model**

**H1:** Poverty affects children's outcomes (cognitive and socio-emotional) through the home learning environment.

## **Family Stress Model**

**H2:** Poverty affects children's outcomes via parental mental health.

## **Hybrid Model**

**H3:** Variation in child well-being by household poverty can be explained both by the home learning environments and parental mental health.

*'Growing Up in Ireland'* (GUI) - national longitudinal study.

2008 ('Infant') birth cohort from Researcher Microdata Files.

Wave	Age	Sample	Fieldwork starts	Fieldwork ends
Wave 1	9 months	11,134	September 2008	March 2009
Wave 2	3 years	9,793	January 2011	August 2011
Wave 3	5 years	9,001	March 2013	September 2013
<del>Wave 4</del>	<del>7/8 years</del>	<del>5,344</del>	<del>March 2016</del>	<del>June 2016</del>
Wave 5	9 years	8,032	June 2017	February 2018

**Structure equations modeling (SEM) analysis performed on 7,500 children (67%), who took part in Wave 1, 2, 3 and 5.**

*"Growing Up in Ireland (GUI) is funded by the Department of Children, Equality, Disability, Integration and Youth (DCEDIY). It is managed by DCEDIY in association with the Central Statistics Office (CSO). Results in this report are based on analyses of data from Research Microdata Files provided by the Central Statistics Office (CSO). Neither the CSO nor DCEDIY take any responsibility for the views expressed or the outputs generated from these analyses."*

# Measures: Cognitive ability

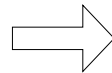
- 9 months: Ages and Stages Questionnaire.
  - Communication, gross motor skills, fine motor skills, problem solving, and personal-social development sub-scales.
    - 1 latent factor (**43%** of total variance).
- 3 years & 5 years: British Ability Scales
  - Naming Vocabulary and Picture Similarity sub-scales.
    - 1 latent factor (**70%** of total variance at age 3; **64%** at age 5).
- 9 years:
  - Drumcondra Primary Reading Test Revised.
  - Selective Attention Test.
    - 1 latent factor (**56%** of total variance). Mean 100, SD 15.

# Measures: Socio-emotional and behavioural functioning (SDQ)

- 9 months: Ages and Stages Questionnaire.
  - Communication, gross motor skills, fine motor skills, problem solving, and personal-social development subscales.
    - 1 latent factor (43% of total variance).
- 3 years, 5 years & 9 years : Strengths and Difficulties Questionnaire
  - Emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems.
    - 1 latent factor (45% of total variance at age 3; 47% at age 5; 52% at age 9).

## Townsend (1979): relative deprivation

“**lack the resources** to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong.”



**Household Income**



Disposable equivalized annual household income after taxes and benefits (quintiles).

**Material Deprivation**



Enforced lack of socially perceived necessities.

**Financial Strain**



Difficulty making ends meet.

- All the study waves: 9 months, 3 years, 5 years and 9 years
  - Lowest income quintile, number of items deprived, difficulty making ends meet.
    - 1 latent factor (55% of total variance at 9 month; around 54% at age 3, age 5 and age9).



# Measures: Home learning environment

## 9 months

- Mother: Frequency of talking to the baby while doing other things.

## 3 years

- How often anyone in the family: reads to the child; helps the child learn ABC or alphabet; helps the child learn numbers or counting; helps the child learn songs, poems or nursery rhymes; plays board games with the child; paints, draws or colours with the child

## 5 years

- How often the mother played with the child using toys, games or puzzles; visited the library; read the child; used a computer with the child in educational ways; and went to educational trips together (e.g. museums).

# Measures: Parental depression scale

## 9 months

- Mother: The Centre for Epidemiological Studies-Depression (CESD Scale)

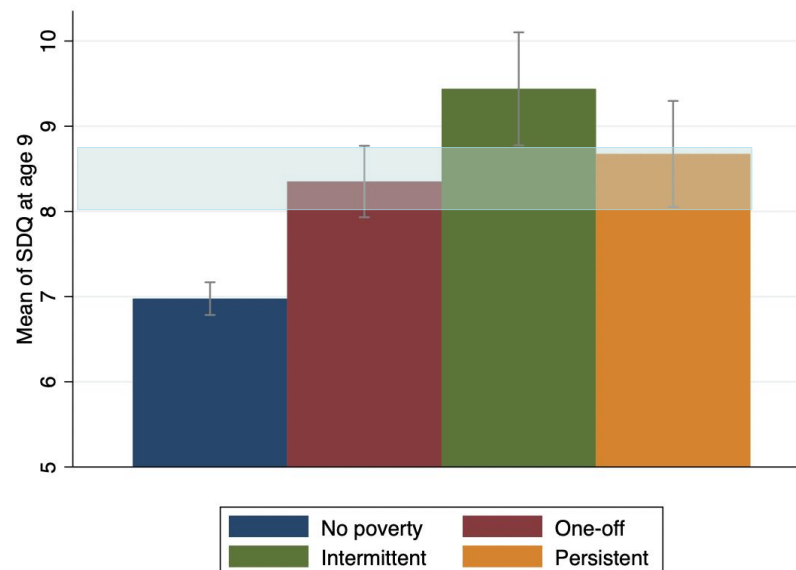
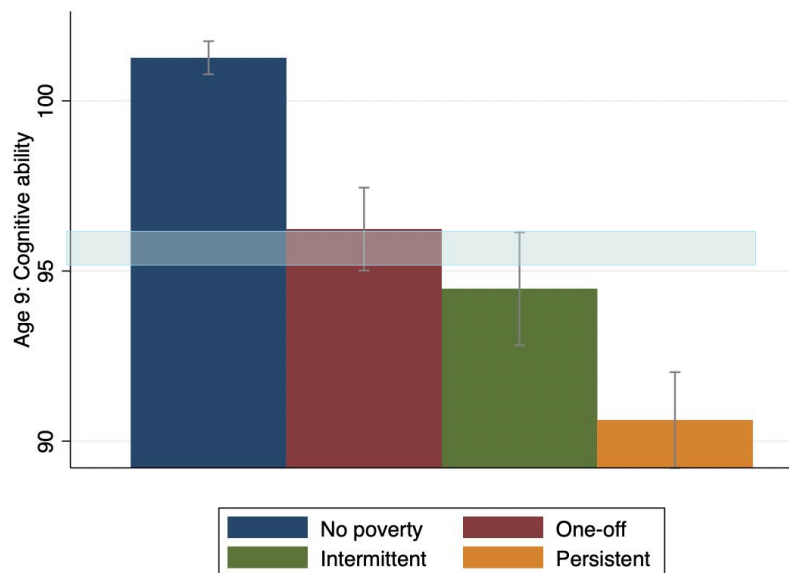
## 3 years

- Mother: CESD Scale

## 5 years

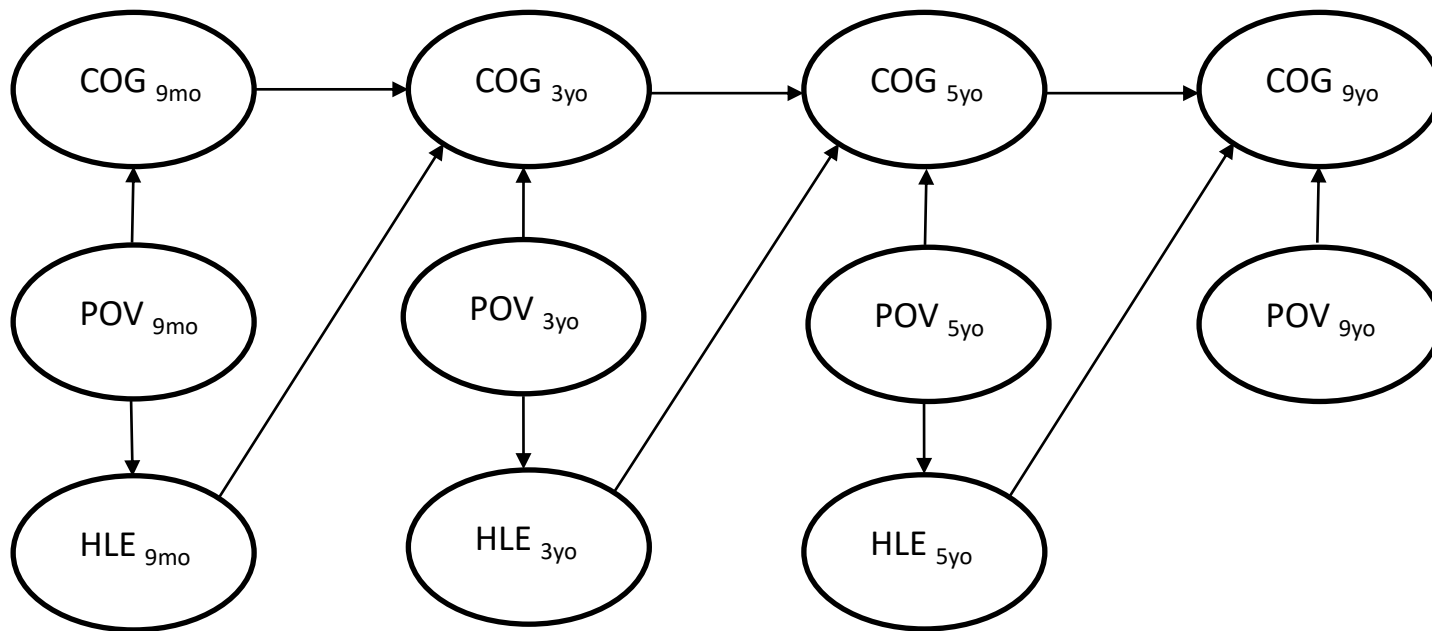
- Mother: CESD

# Descriptive Results



The figure above categorises the histories of household income poverty into four items: no poverty, one-off, intermittent (two) and persistent (three to four).

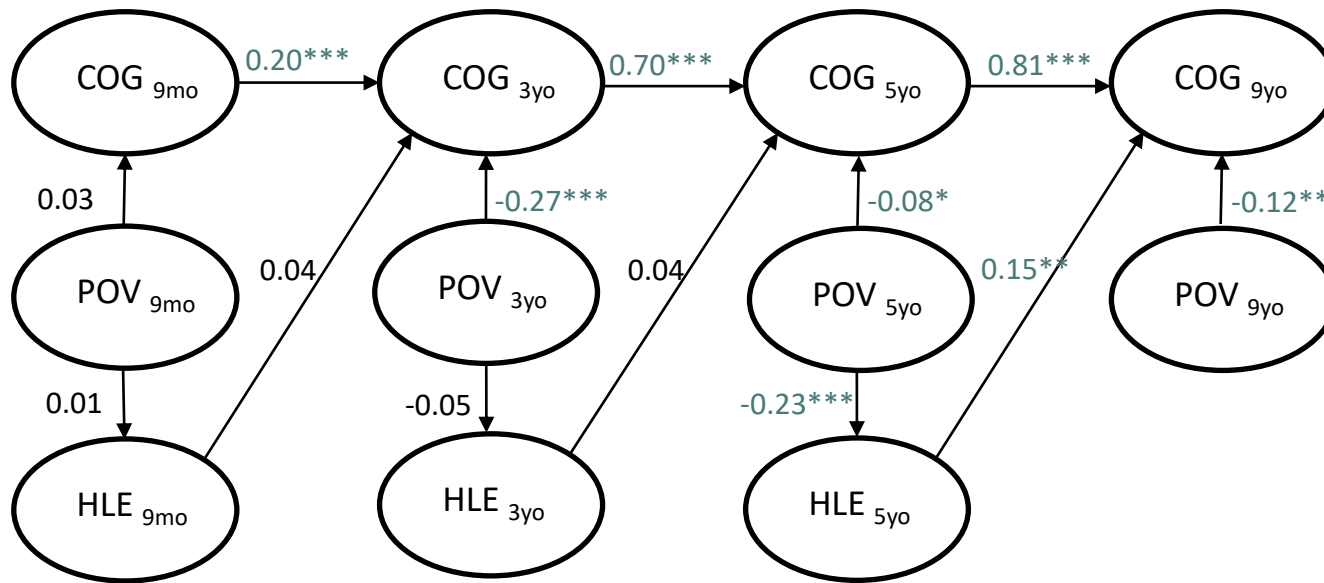
# Conceptual Model: Family investment Model (Value added + lagged input)



**COG:** Cognitive ability. COG<sub>9mo</sub>: Ages and Stages Questionnaire (10 months) - communication, gross motor skills, fine motor skills, problem solving, and personal-social development. COG<sub>3yo</sub> and COG<sub>5yo</sub>: Naming Vocabulary and Picture Similarity from the British Ability Scales. COG<sub>9yo</sub>: Drumcondra Primary Reading Test Revised and the Selective Attention Test. **POV<sub>t</sub>**: lowest income quintile, number of items deprived, difficulty making ends meet.

**HLE:** Home learning environment. HLE<sub>9mo</sub>: Frequency of talking to baby. HLE<sub>3yo</sub> and HLE<sub>5yo</sub>: Frequency of reading to child, etc.

# SEM results (standardised coefficients): Poverty and child cognitive development



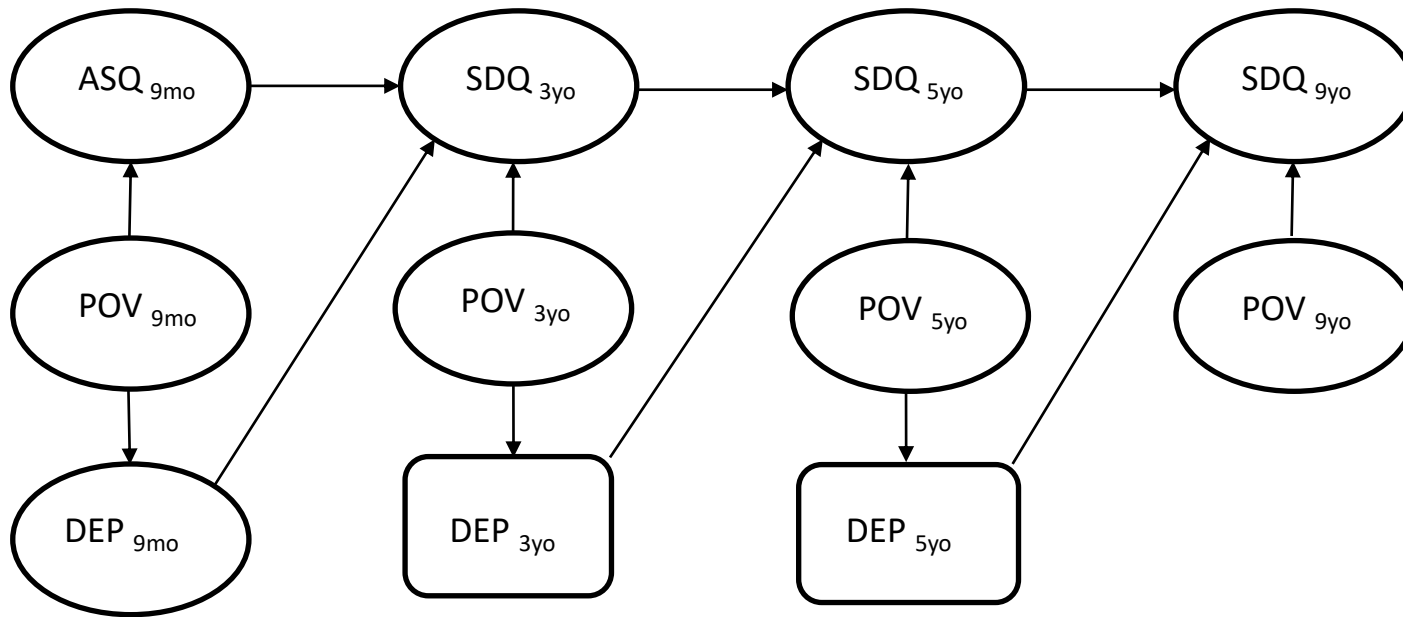
Total effects on cognitive ability at 9 years:  
 POV<sub>3yo</sub> → -0.16\*\*\*  
 POV<sub>5yo</sub> → -0.10\*\*  
 POV<sub>9yo</sub> → -0.12\*\*

Longitudinal weights used. N= 4,942. SRMR: 0.054. CD: 0.929.

\*\*\*p<0.001; \*\*p<0.01; \*p<0.05.

**Controls:** child gender, low birth weight, whether there are other children under 18 in the household (COG<sub>9mo</sub>); whether there are 3 or more children in the household (including the study child), whether the PCG has a university degree or equivalent, and whether the PCG has a co-resident partner (HLE<sub>t</sub>).

# Conceptual Model: Family stress model

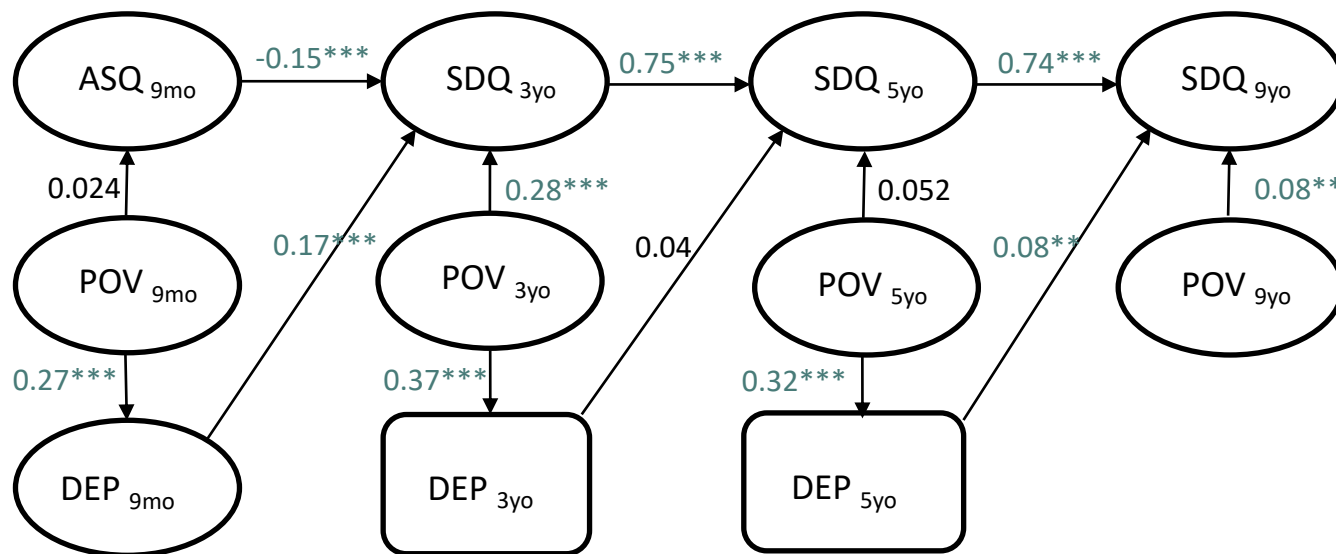


**SDQ:** Strengths and Difficulties Questionnaire. ASQ<sub>3yo</sub>: Ages and Stages Questionnaire (9 months);

SDQ<sub>3yo</sub>, SDQ<sub>5yo</sub> and SDQ<sub>9yo</sub>: emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems.

**STRESS:** Primary caregiver (Mother)'s stress score. STRESS<sub>9mo</sub>: Parental rewards, Parental stressors, Lack of control, Parental satisfaction sub-scales. STRESS<sub>3yo</sub> and STRESS<sub>5yo</sub>: Parental stress score (0-30).

# SEM results (standardised coefficients): Poverty and child socio-emotional & behavioural development



Total effects on SDQ  
difficulties at 9 years:

POV<sub>9mo</sub> → 0.024\*\*\*

POV<sub>3yo</sub> → 0.165\*\*\*

POV<sub>5yo</sub> → 0.055\*\*

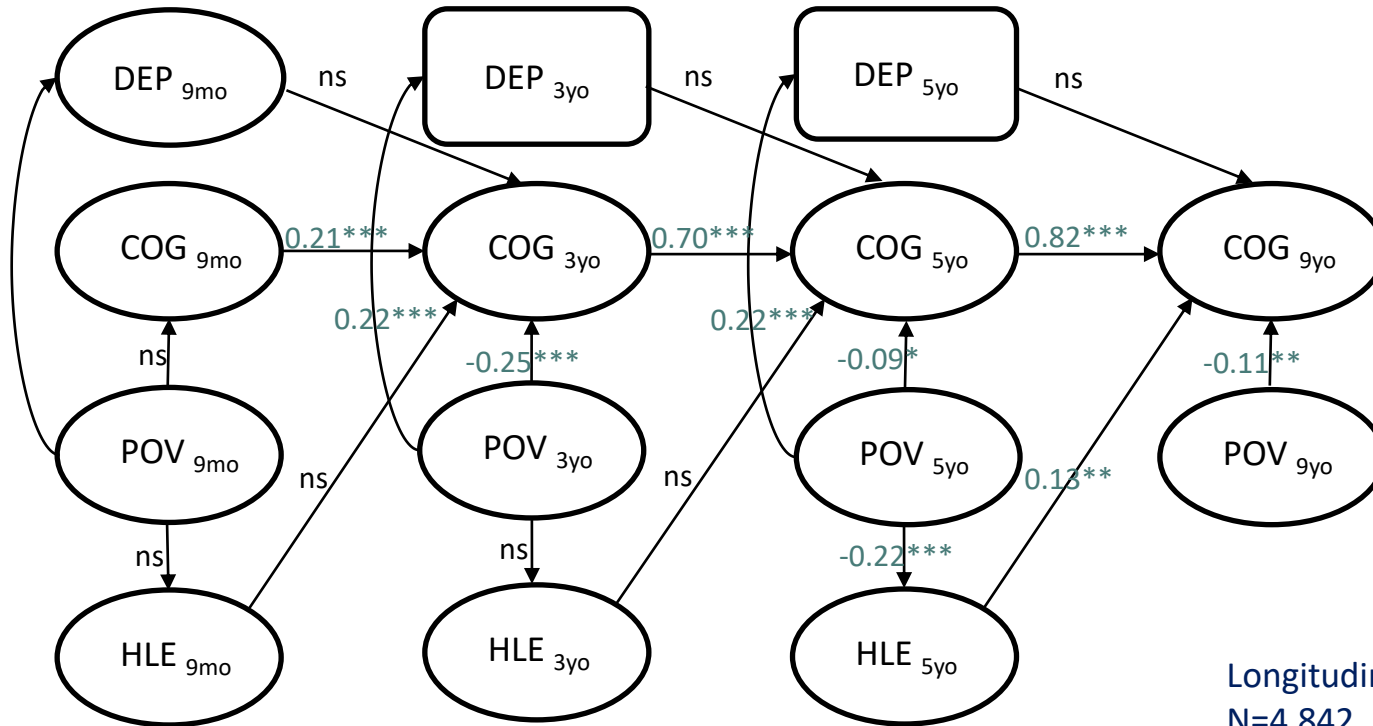
POV<sub>9yo</sub> → 0.082\*\*

Longitudinal weights used. N= 5,294. SRMR: 0.071. CD: 0.919.

\*\*\*p<0.001; \*\*p<0.01; \*p<0.05.

**Controls:** other children in the household, low birth weight, maternal education (in ASQ 9mo). lone parent family, large family, maternal education (in STRESS 9mo, STRESS 3yo, STRESS 5yo).

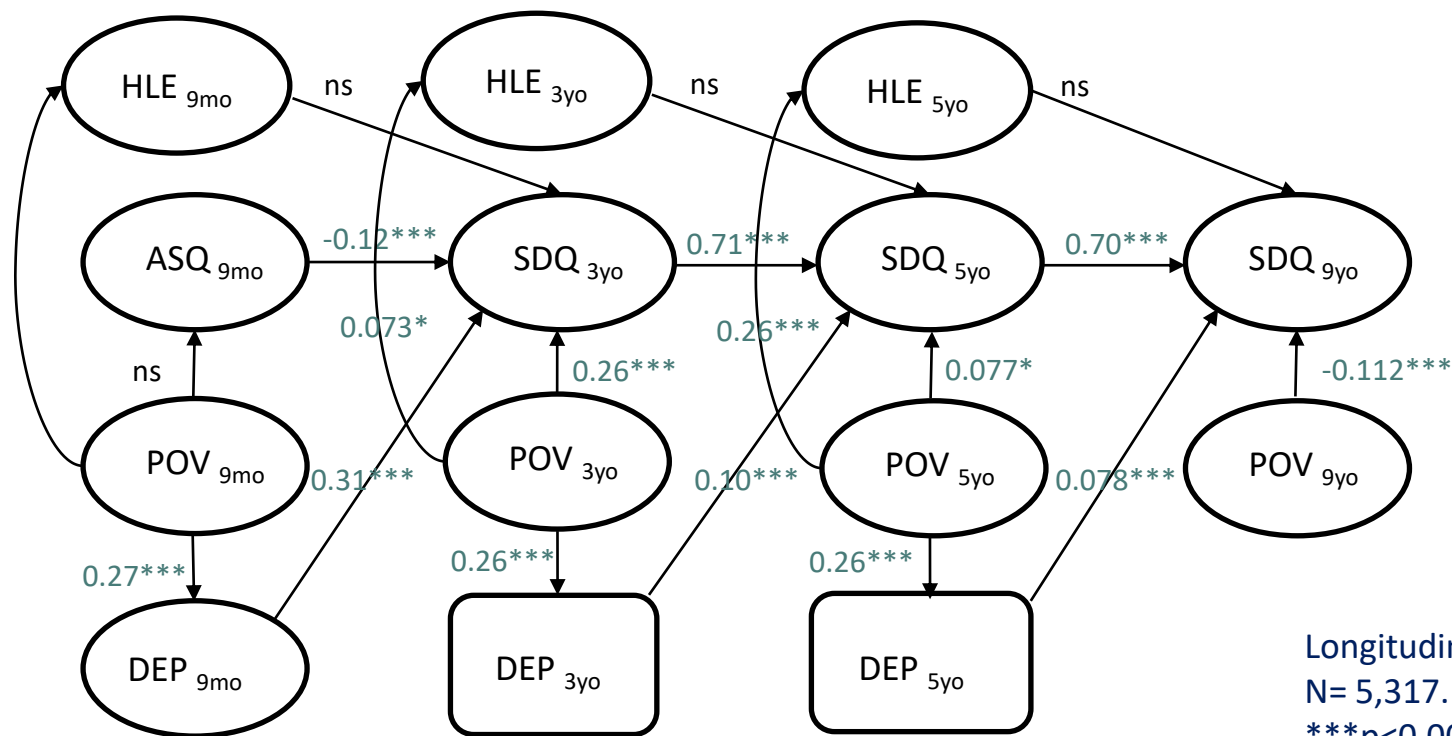
# Conceptual Model: Hybrid FIM + FSM I



Longitudinal weights used.  
N=4,842. SRMR: 0.065. CD: 0.93.  
\*\*\*p<0.001; \*\*p<0.01; \*p<0.05;  
ns p>=0.05.



# Conceptual Model: Hybrid FIM + FSM II



Longitudinal weights used.  
N= 5,317. SRMR: 0.056. CD: 0.988.  
\*\*\*p<0.001; \*\*p<0.01; \*p<0.05;  
ns p>=0.05.

# Conclusion

Children living in **persistent poverty** have **worse** outcomes at age 9 than their peers who were poor in just one wave or not at all.

**Poverty** in early childhood (age 3) is **negatively associated** with both current and later (age 5 and age 9) **cognitive** ability both directly and via the home learning environment.

Poverty at age 3 has a positive and strongly significant effect on their current SDQ difficulties at all waves, both directly and via parental mental health.

Although poverty is associated with greater parental depression, there is no independent effect of parental depression on cognitive ability (based on preliminary results).



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# Thank You!

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