The first 1,000 days

The role of maternal wellbeing in child development

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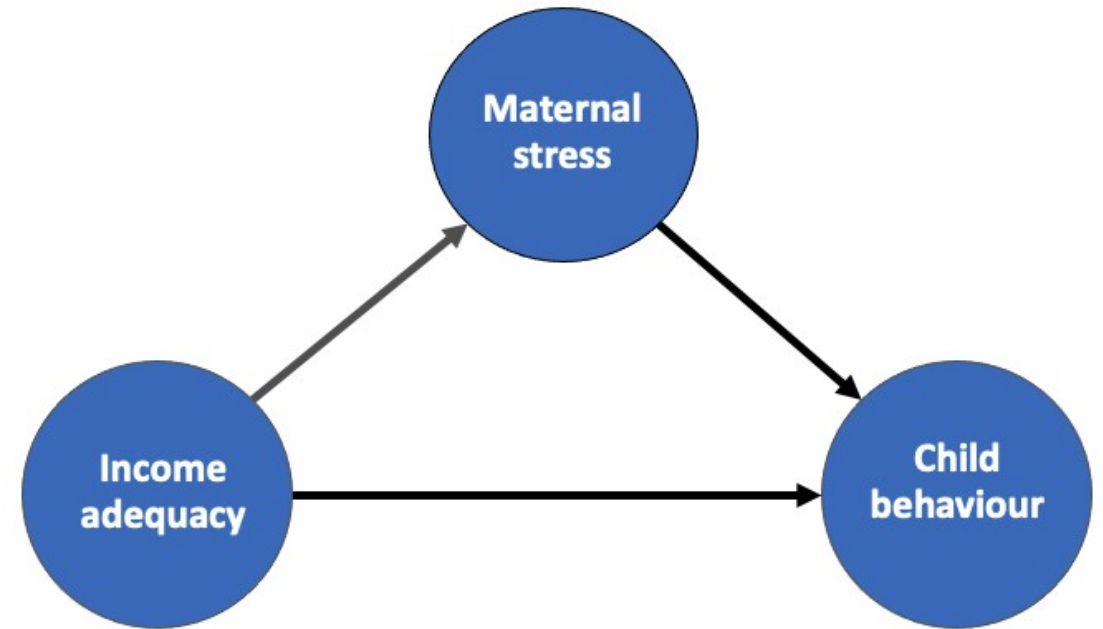# Contents

What was I interested in?

Two key research questions:

1. Does adequate household income help protect children from developing behaviour problems?

2. What role does maternal stress play in the relationship between income and child behaviour problems?

Figure 1: Conceptual model

Method

- Sample
- Variables
- Analytical approach

Growing up in New Zealand

- A contemporary child-focused longitudinal study following 6,852 families in the Auckland and Waikato regions, starting in 2009/10.

- Broadly generalisable to the New Zealand population in terms of ethnicity and socio-demographic variables (at the beginning).

- My research focuses on mother and child data (mother-reported) from the pregnancy to 8-year-old waves.

- Partners were also interviewed in the earlier waves.

Variables

Child behaviour

Developed from the Strengths and Difficulties Questionnaire (SDQ). The SDQ covers five domains: conduct, hyperactivity, peer relationships, emotional problems, strengths.

I focus on the four problem behaviour domains which are added together for an overall difficulties score.

Figure 1: Conceptual model
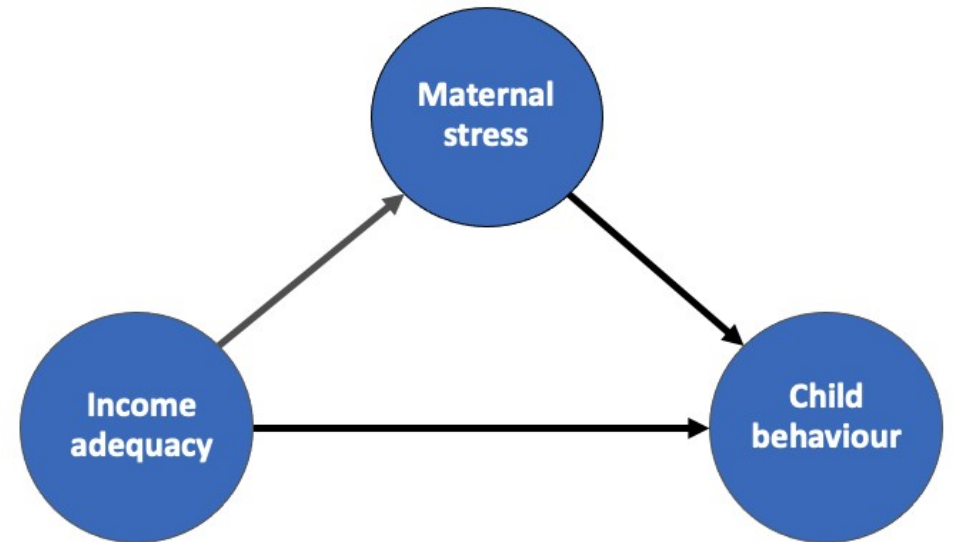
Variables cont.

Income adequacy

A subjective income measure.

"How well does your (and your partner's combined) total income meet your everyday needs for such things as accommodation, food, clothing and other necessities? Would you say you have not enough money, just enough money, enough money, or more than enough money?"

Figure 1: Conceptual model
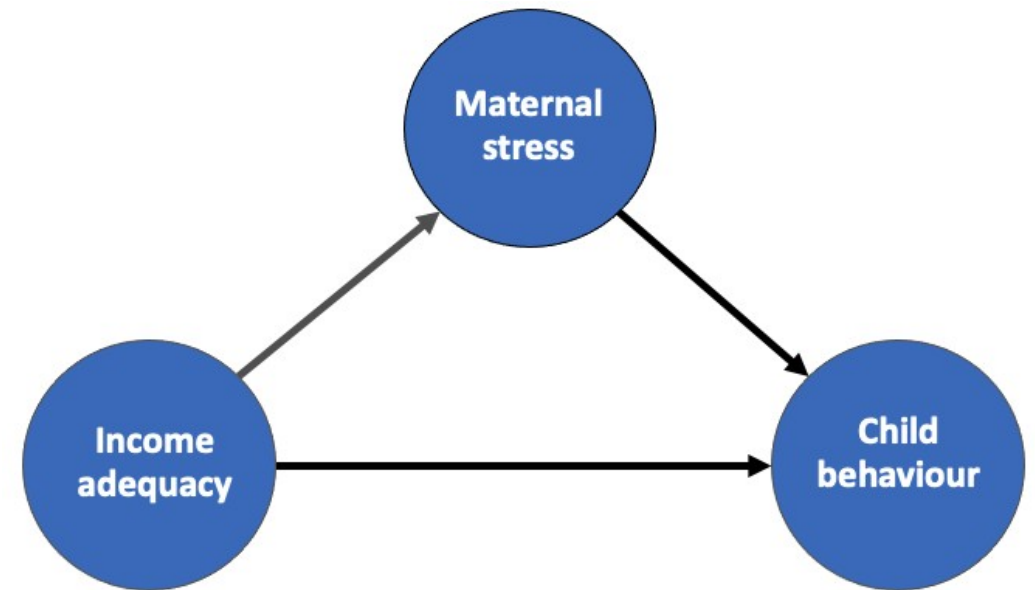
Variables cont.

Maternal stress

The maternal stress variable is a summation of answers to 7 questions on mother's stress covering worry about:

- a disabled or ill family member (adult or child)
- *current* housing difficulties
- balancing work and family life
- family members not getting on
- another child's behaviour
- being the parent of this child (in the study)
- who does household chores

Figure 1: conceptual model
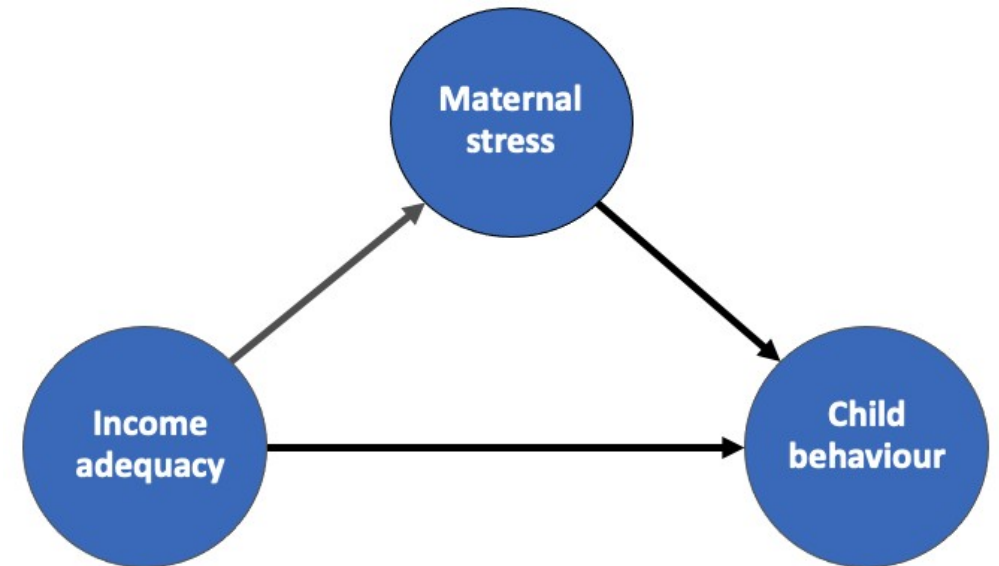
Two analytical approaches to longitudinal data

1. Differences *between* groups

Compares the outcomes for different income groups, while controlling for things that can be measured in the data.

I have used multivariate OLS regression and an instrumental variable approach.

Data from **2-year-old** wave (my PhD research)

2. Differences *within* the same individual/family (over time)

Looks at the same people over time (e.g. compares periods when income is higher or lower). Factors that don't change over time but can't be measured, such as a mother's upbringing can be controlled for.

I have used a fixed effects approach.

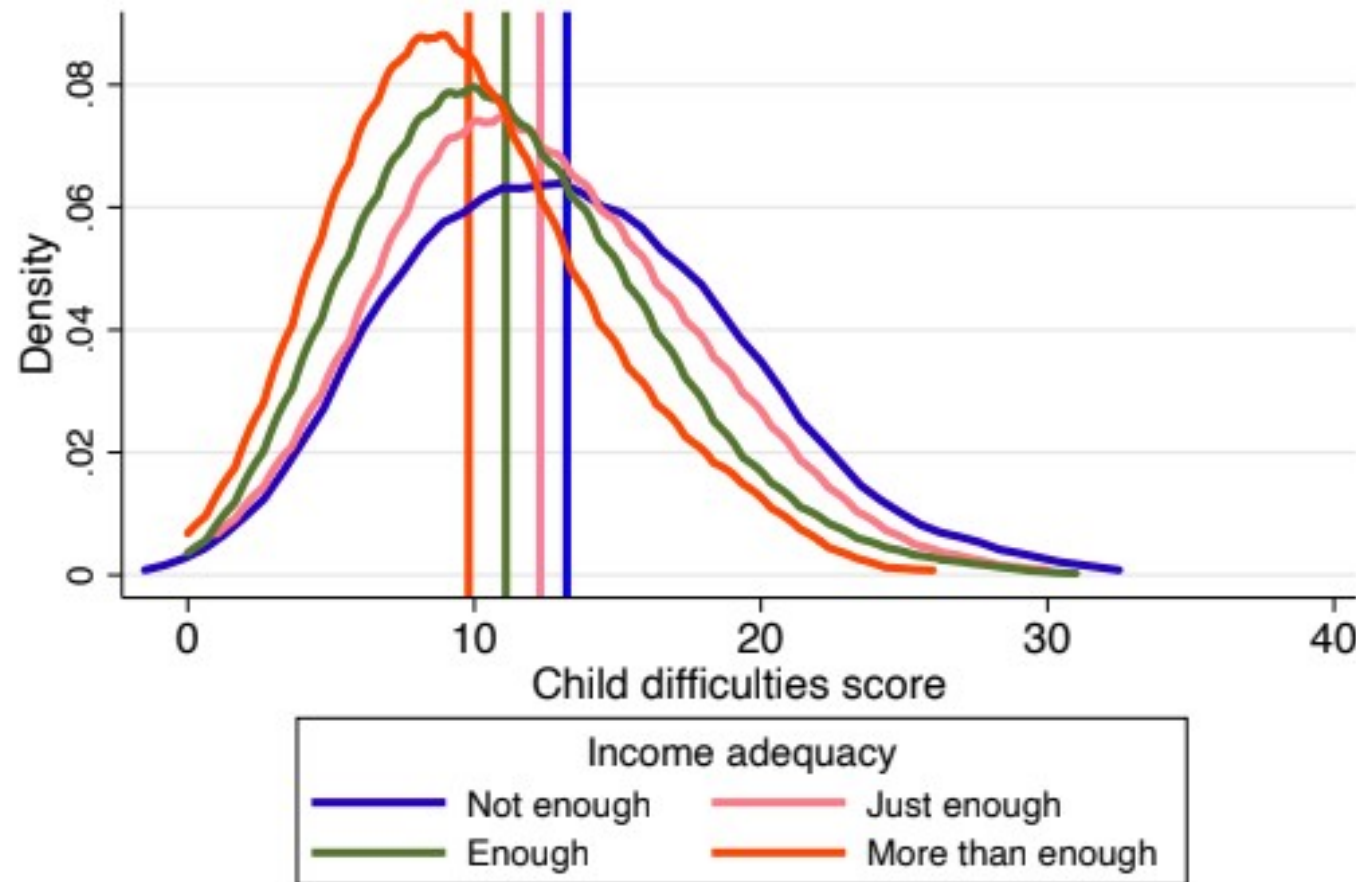Data from **pregnancy to 8 years old** (recent post-doc project)
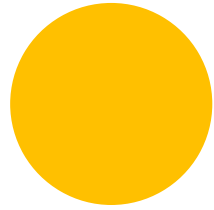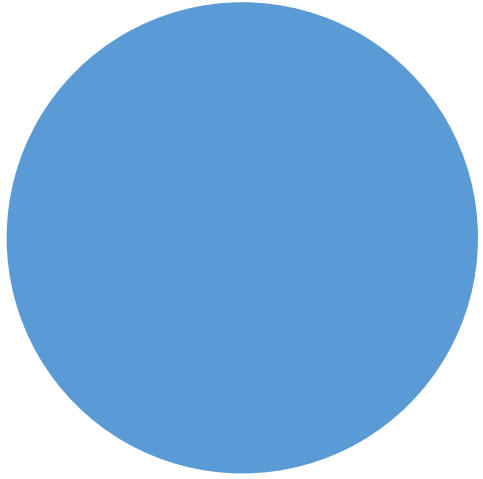
Between group results

2 years of age
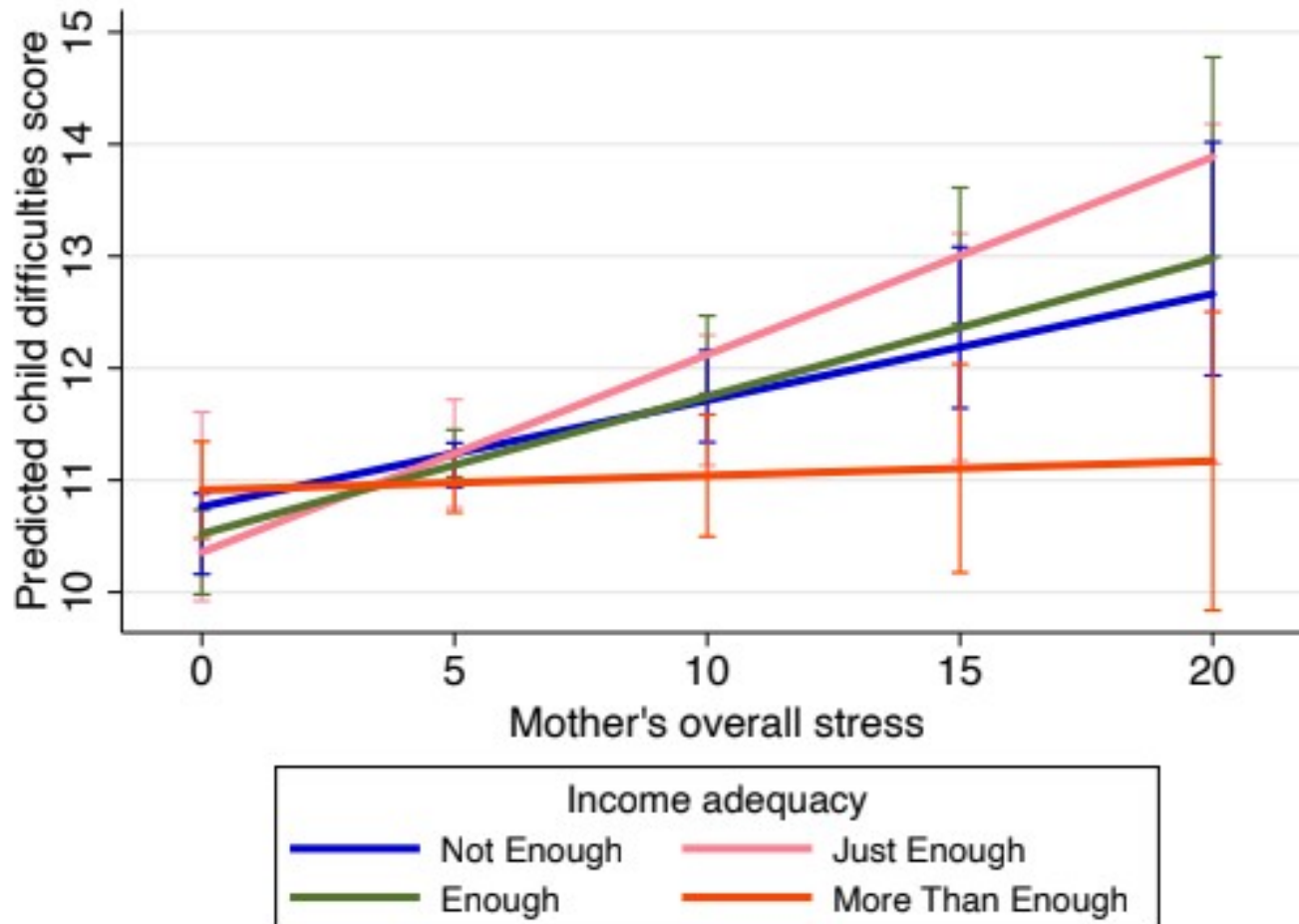
Income and child behaviour

Figure 2: Child difficulties score at 2 years by income group

- There is a clear income gradient to child difficulties scores.

The role of maternal stress

Figure 3: Child difficulties score at 2 years by stress and income (95% CI)


- Figure 3 is a margins plot from an ordinary least squares regression model estimating child difficulties.*

- Results shows that the association between stress and child behaviour is dependent on the mother's income group.

Instrumental variable results

Figure 4: IV results for child difficulties score at 2 years by maternal stress (95% CI)
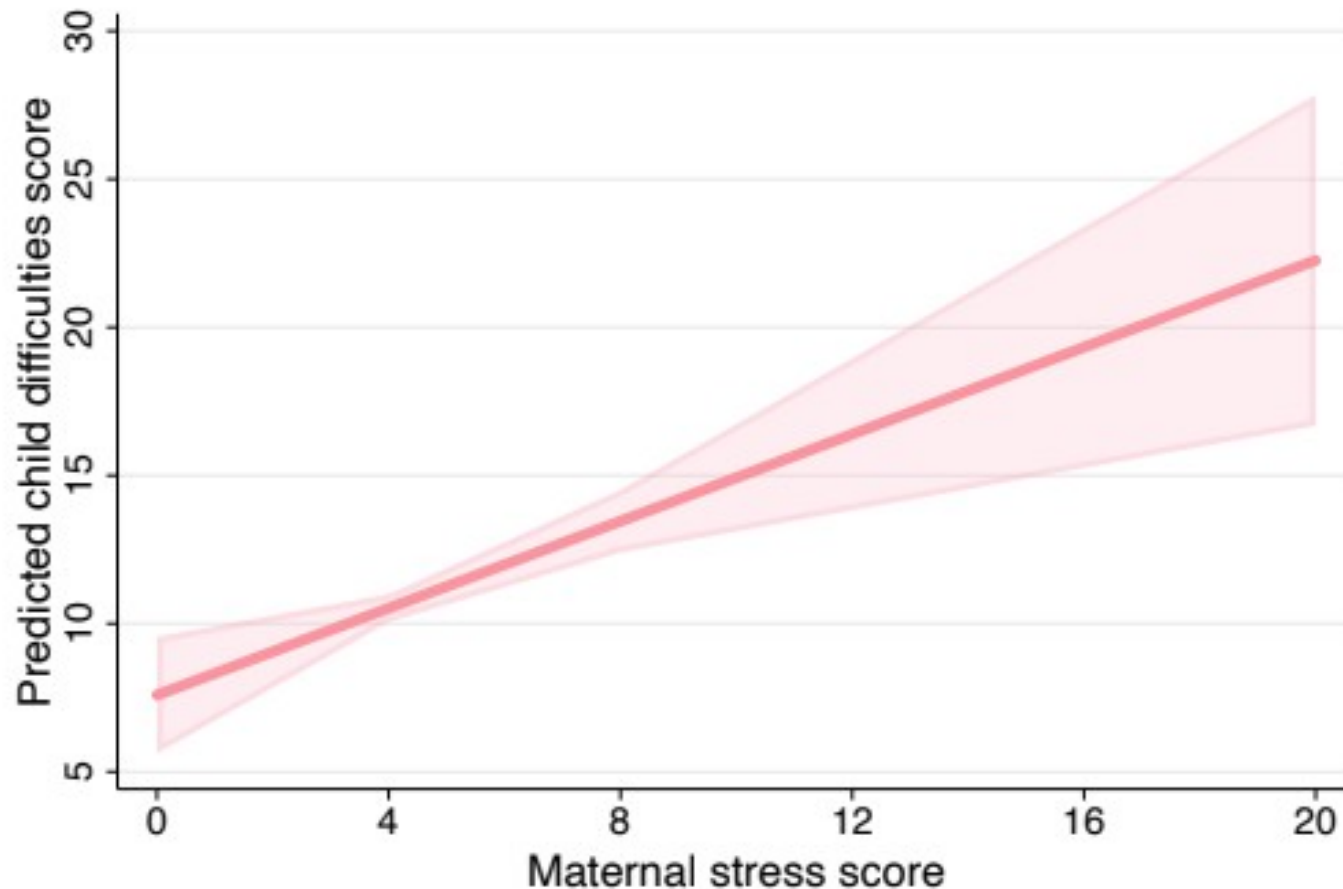
- Instrumental variable analysis is a technique from econometrics which uses "instrument" variables to better understand causality.

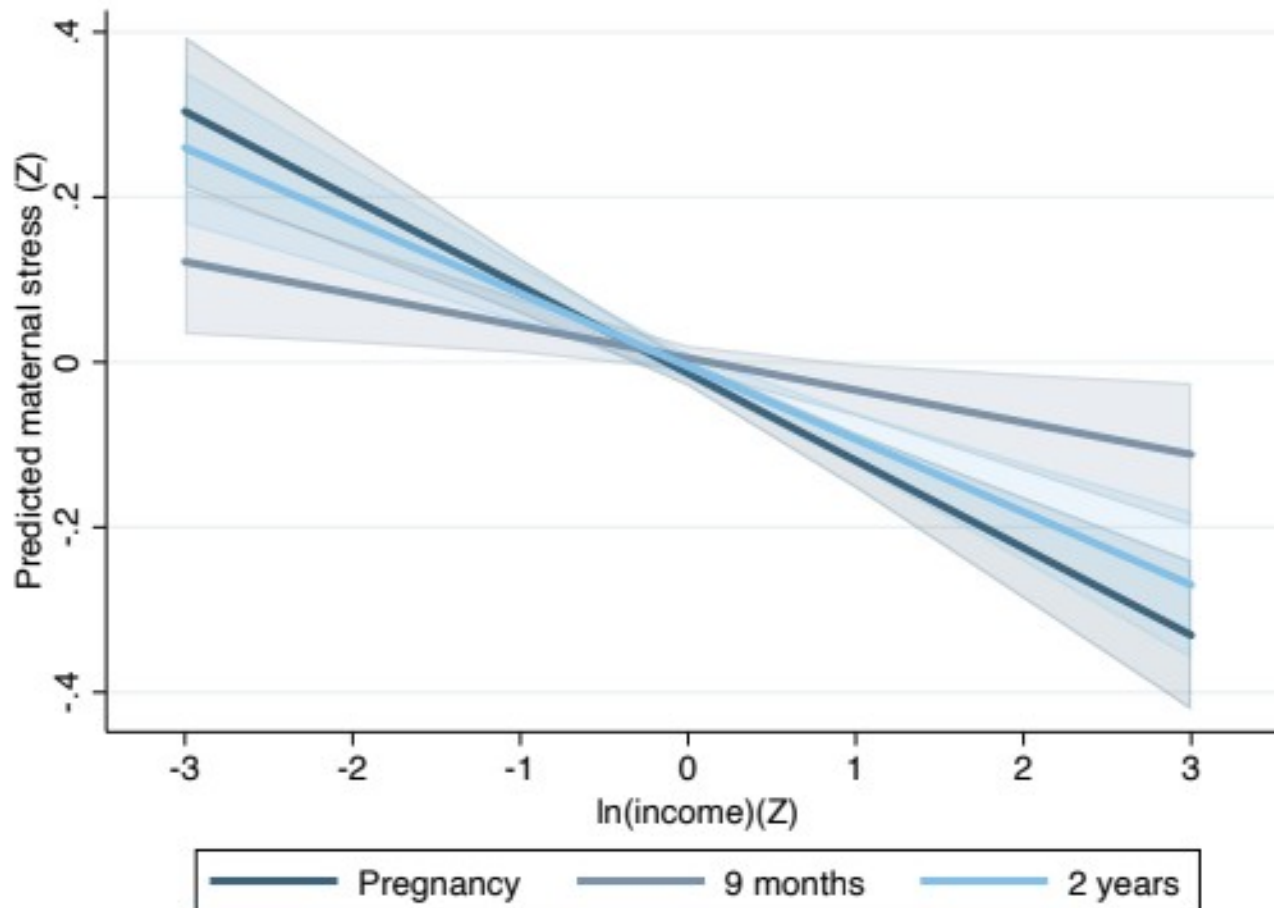- Figure 4 confirms higher levels of stress are associated with more behaviour problems.
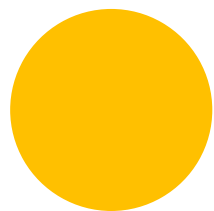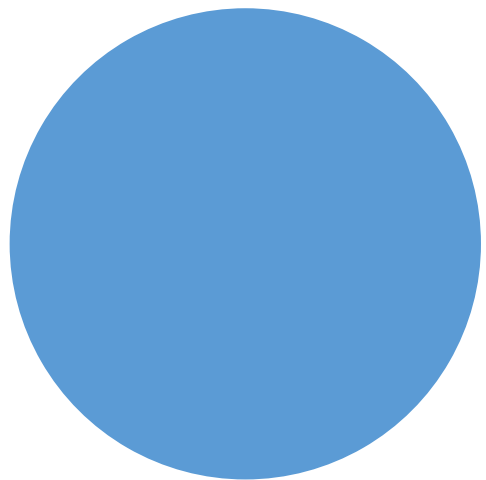
Within family results

Pregnancy – 8 years

Income and maternal stress

**Figure 5: FE results for maternal stress by household income (95% CI)**

- Figure 5 shows results for a fixed effects regression from pregnancy to 2 years of age.

- These results show that in periods where income* is higher, maternal stress is lower (when comparing the same mother over time)

- The effects size is larger during pregnancy and at 2 years, but smaller at 9 months of age.
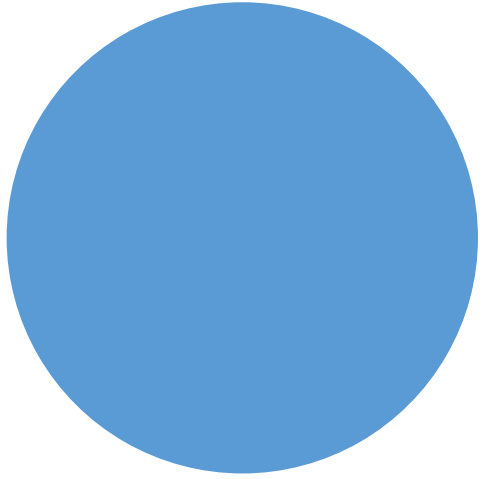
* Income is household income, adjusted for inflation and equivalized for household size.

Income and child behaviour

Figure 6: FE results for child difficulties by household income (95% CI)
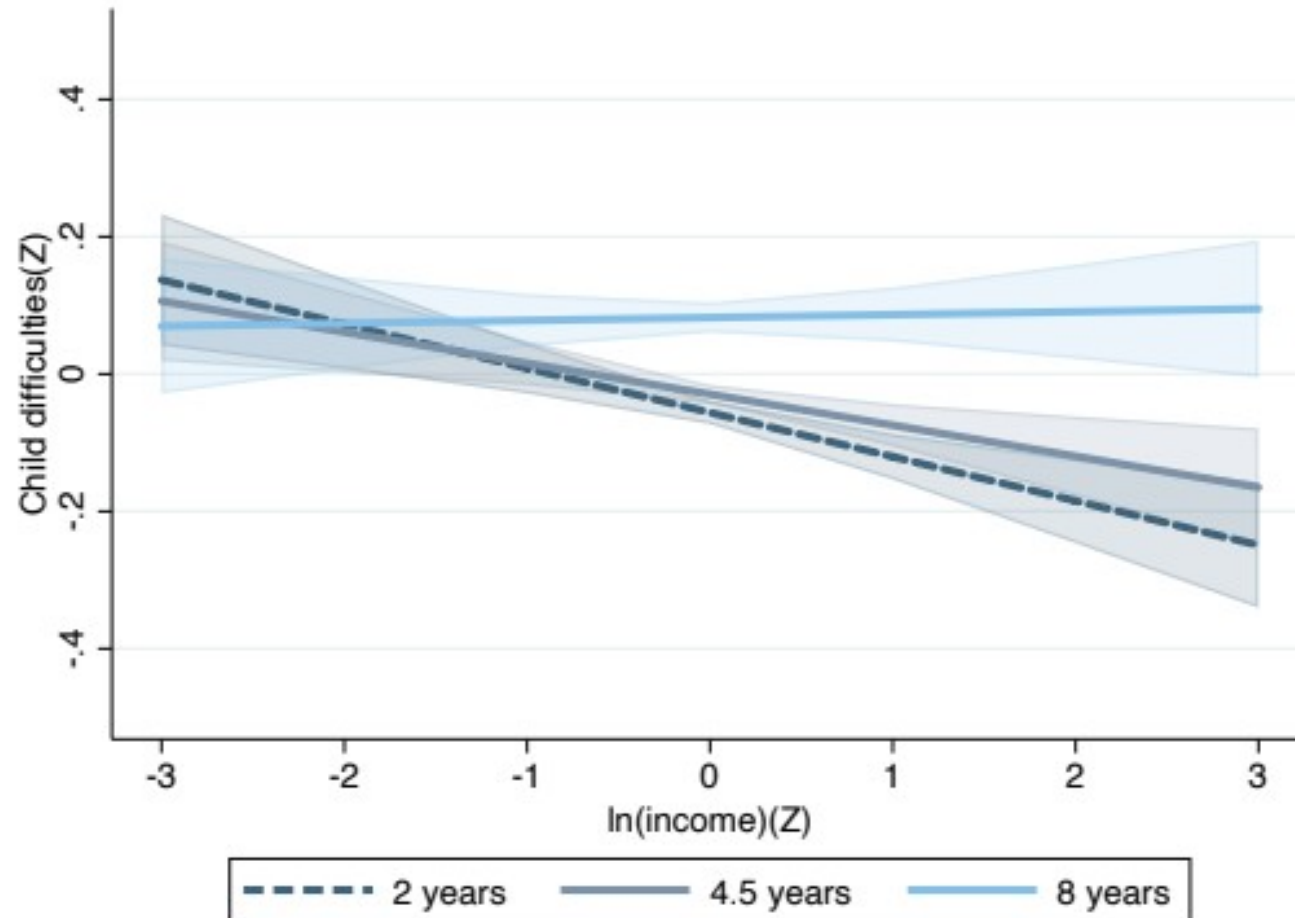
- Figure 6 shows results for a fixed effects regression from 2- 8 years of age.

- These results show that overall in periods where income is higher child behaviour problems are lower (when comparing the same child over time)

- However, the results are only significant for the two year and 4.5 year waves, not at 8 years.
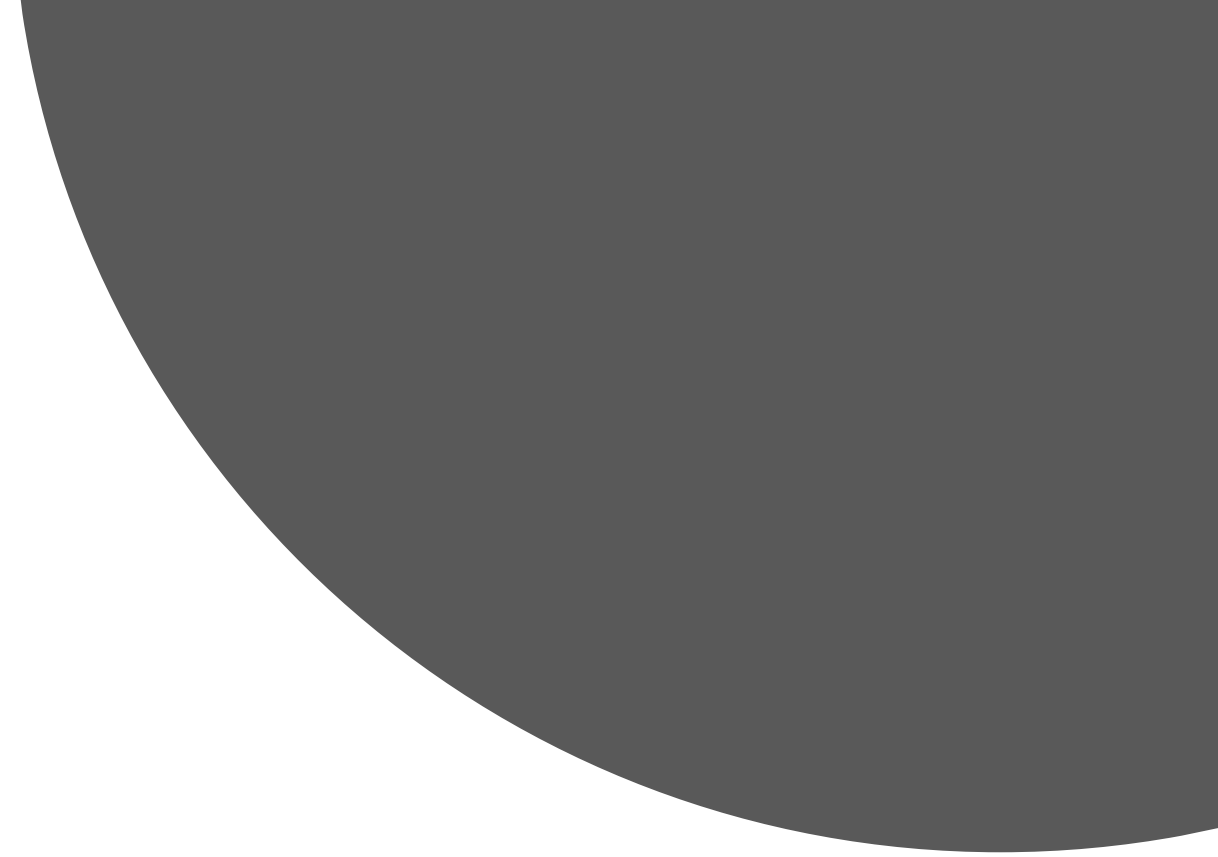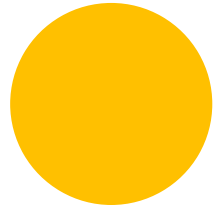
Conclusions

- Conclusion
- Policy relevance

Conclusions

Results suggest:

- Mothers who have a low or inadequate income have children with more behaviour problems.

- Maternal stress plays a role. Stress leads to two-year-old children's behaviour problems, but the strength of the relationship may be dependent on income levels.

- These relationships are concentrated in the early years.

Policy implications

This research was intentionally designed to assist in understanding the effect of poverty on parenting during the first 1,000 days.

- When informing policy development, evidence which compares *between* income groups is useful, however evidence which addresses differences *within* individuals/families addresses potential policy levers more accurately.

- Increasing household income would appear to protect children against the effects of maternal stress and improve behaviour problems.

- Any policy interventions to address maternal wellbeing are likely to benefit preschool children too.

Questions ?

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