

## Appendix 3: Summary tables of studies by outcome

**Table A4: Studies examining the effect of income on intermediate outcomes (potential mechanisms)**

Study	Country	Method	Source of variation in money	Negative effect	No effect	Positive effect	Non-linear effect?	Notes
<b>Parenting behaviours and home environment *see also Gennetian and Miller (2002),</b>								
<i>Cancian, Yang and Slack (2013)</i>	US	Randomised controlled trial	Randomised evaluation of Wisconsin-Works (W-2) Program.			Reduction in alleged child abuse or neglect.	Low income sample.	On average those in treatment group received around only \$101 more than control in first and second year.
<i>Hamad and Rehkopf (2015)</i>	US	Quasi-experimental	Variation in EITC.			Improved HOME score <sup>1</sup> at the 4 year follow-up.	Low income sample.	Results for HOME score at 2 year follow up not significant, suggesting HOME effects more prominent in the long term.
<i>Akee et al (2010)</i>	US	Quasi-experimental	Casino profits distributed to all adult tribal members in Eastern Cherokee reservation.		Activities with the father.	Increased mother, father and overall parental supervision, fewer arrests of mothers and fathers and increase in activities with the mother.	Non-linear effect - greatest impact on poorest households and no significant effect on households not previously in poverty.	
<i>Votruba-Drzal (2003)</i>	US	Observational	Variation in income within households.			Increase in cognitive stimulation at home <sup>2</sup>	Greater impact on home environment for low income	

<sup>1</sup> HOME score from Home Observation Measurement for the Environment (HOME) includes interviewer observations e.g. whether the house is cluttered and questions to mother e.g. how often reads to child. Different number of items depending on age of the child. Scores are normalised by age.

<sup>2</sup> Measured as cognitive stimulation subscale of Home Observation for Measurement of the Environment (HOME) score. Items included for example how often someone at home reads to the child and helps with numbers and the alphabet. Questions are age appropriate for different ages.

Study	Country	Method	Source of variation in money	Negative effect	No effect	Positive effect	Non-linear effect?	Notes
							households (tested with nonlinear function).	
<i>Dearing and Taylor (2007)</i>	US	Observational	Variations in income within families.			Improvements in physical home environment and psychosocial home environment <sup>3</sup>	Non-linear effects – effects were biggest for families with lower income and homes that were of the lowest quality when children were 6 months old.	
<b>Maternal mental health *see also Gennetian and Miller (2002), Milligan and Stabile (2011), Evans and Garthwaite (2010) and Cesarini et al (2016)</b>								
<i>Boyd-Swan et al (2016)</i>	US	Quasi-experimental	Variation in EITC.		Being in top 2 or bottom 2 categories for happiness and self-satisfaction.	For married mothers reduction in symptoms of depression measured by CES-D <sup>4</sup> , increase in happiness, self-worth and self-efficacy.	Low income sample. Also re-run analysis restricted to lower income and subjective wellbeing results are stronger, though happiness results become marginally significant	Effects specific to married mothers – only one measure (feeling fearful) was significant for unmarried mothers.

<sup>3</sup> From Home Observation Measurement for the Environment (HOME) based on interviewer observations and questions. Authors divided the items into two scales: 1)Physical home environment included home structure, learning materials and outings and activities, 2)Psychosocial environment included parental warmth, responsiveness, learning stimulation and lack of hostility. Decisions about which category to place items were based on whether or not financial resources were necessary for them to take place, in which case would be categorised as Physical home environment. In further analysis the authors divide these into further sub-domains.

<sup>4</sup> Centre for Epidemiological Studies Depression scale which has 11 items. Significant reduction in overall score but when items analysed individually increase in EITC for married mothers is associated with decrease in five of the items: feeling depressed, lonely, sad, bothered, and talking less than usual, but not significant for appetite, feeling blue, feeling like everything is an effort, fearful, restless sleep and unable to get going.

Study	Country	Method	Source of variation in money	Negative effect	No effect	Positive effect	Non-linear effect?	Notes
							possibly due to reduction in sample size.	
<i>Dearing, Taylor and McCartney (2004)</i>	US	Observational	Variation in income within households.			Reduction in symptoms of maternal depression as measured by CES-D4	Strongest impact for poorest women, especially when income changes results in transition out of poverty.	Women were 1.48 times more likely to experience a shift from clinical to nonclinical status after transitions out of poverty.
<i>Wickham et al (2017)</i>	UK	Observational	Variation in income within households.			Moving into poverty increases odds of psychological distress as measured by the Kessler scale <sup>5</sup> .	Focus on low income.	
<b>Maternal physical health and health behaviours * see also Milligan and Stabile (2011), Evans and Gathwaite (2010), Raschke (2012) and Cesarini et al (2016)</b>								
<i>Mocan, Raschke and Unel (2015)</i>	US	Quasi-experimental	Skill-biased technology shocks.		Smoking and drinking during pregnancy.	For low-skilled mothers increase in prenatal care consumption and reduced delay in initiation.	Non-linear effect – increased earnings only had effect on low-skilled mothers.	
<i>Chung, Ha and Kim (2016)</i>	US	Quasi-experimental	Alaska Permanent Fund Dividend in 1982-3.		Number of prenatal care visits.	Beginning prenatal care use earlier.	Whole sample only.	
<i>Cowan and Tefft (2012)</i>	US	Quasi-experimental	Variation in EITC.			Reduction in smoking among single low educated mothers.	Low income sample. Find biggest effect on mothers with some college	

<sup>5</sup> The Kessler 6 scale measures how often in the past 30 days mothers have felt: so depressed that nothing could cheer them up; hopeless; restless or fidgety; that everything was an effort; worthless; nervous.

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							experience but no degree.	
<i>Averett and Wang (2013)</i>	US	Quasi-experimental	Variation in EITC.			Reduced smoking for low educated white mothers.	Low income sample.	
<i>Strully, Rehkopf and Xuan (2010)</i>	US	Quasi-experimental	Variation in EITC.			Reduced smoking during pregnancy.	Low income sample.	
<b>Food insufficiency *see also Milligan and Stabile (2011)</b>								
<i>Riccio et al (2010)</i>	US	Randomised controlled trial.	Evaluation of NYC Family Rewards conditional cash transfer <sup>6</sup>			Reduction in food insufficiency and deprivation <sup>7</sup>	Low income sample.	
<i>Loopstra and Tarasuk (2013)</i>	Canada	Observational	Variation in income within families after one year.			Among market-rent households increase in income associated with a decrease in food insecurity <sup>8</sup>	Low income sample.	Results not significant for families in subsidized housing – authors suggest this is because any increase in income is offset by increases in rent which is income-contingent. Small sample of 331.
<i>Heflin, Corcoran</i>	US	observational	Variation in income within households.			Decrease in food insufficiency <sup>9</sup>	Low income sample.	Controls for factors that might be mechanisms e.g.

<sup>6</sup> As children's nutrition was not linked to any of the activities families were incentivised to do we can infer any effect on this outcome is due to the cash element of the programme.

<sup>7</sup> Food insufficiency was measured as sometimes or often not having enough to eat; deprivation was measured as 'not having enough money to make ends meet by the end of the month'.

<sup>8</sup> Food insecurity was measured with 17 items from the Household Food Security Survey Module – a house was counted as food insecure if any questions were answered affirmatively and the raw score was used to measure severity of food insecurity.

<sup>9</sup> Food insufficiency measured as answering 'sometimes enough to eat' or 'sometimes not enough to eat' in past 12 months.

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<i>and Siefert (2007)</i>								maternal mental health.
<b>Expenditure *see also Raschke, 2012</b>								
<i>Blow, Walker and Zhu (2012)</i>	UK	Quasi-experimental	Variation in child benefit.	For families not receiving benefits, with one child, increased spending on women's clothes for mothers and alcohol for couples.			Results not significant for low income parents.	Authors' interpretation of results: not that parents prioritise spending on themselves but the opposite – fully insure children against income variations so that at least unanticipated income changes do not affect spending on children.
<i>Gregg, Waldfogel and Washbrook (2006)</i>	UK	Quasi-experimental	Variation in benefit levels favouring low income families and families with children younger than 11.			Increased spending on fruit and vegetables, children's clothing, toys and books, magazines and newspapers, and durables, e.g. car, telephone. Reduced spending on alcohol and cigarettes.	Low income sample	
<i>Kaushal, Gao and Waldfogel (2007)</i>	US	Quasi-experimental	Variation in benefit levels.	Increased spending on food away from home and to lesser extent adult clothing.	Spending on children's clothing, learning and enrichment.	Increased spending on durables e.g. car, telephone, microwave and transport.	Low income sample	Authors suggest the increased spending on adult clothing, food away from home and transport are all items linked to work outside of the home and therefore may be related to the

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								mandatory employment criteria of US benefit payments. Additionally they suggest difference compared to UK study may be due to a labelling effect of UK benefits called 'child benefit' and 'child tax credits'.
<b>*Studies measuring multiple intermediate outcomes</b>								
<i>Gennetian and Miller (2002)</i>	US	Randomised controlled trial	Evaluation of Minnesota Family Investment Program		Extracurricular activities, overall HOME score and HOME subscales of aggravation, maternal warmth, harsh parenting and supervision.	Decrease in domestic abuse, reduction in maternal depression measured by CES-D4, reduction in high risk of clinical depression.	Low income sample.	The full programme significantly increased parental supervision but there was not a significant difference for this outcome between the increased income (incentives only) group and the control group. The employment activities group had negative effect on maternal warmth.
<i>Cesarini et al (2016)</i>	Sweden	Quasi-experimental	Lottery winnings.		Smoking during pregnancy, parental mental health drugs consumption and parental leave.		Whole sample only.	Use three different lotteries.
<i>Milligan and Stabile (2011)</i>	Canada	Quasi-experimental	Variation in child benefit.		Mother's general health.	Reduction in maternal	Effects on maternal depression were	

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						depression <sup>10</sup> , for boys from low educational background reduction in food insufficiency,	bigger for children from low income backgrounds and biggest for girls.	
<i>Evans and Garthwaite (2010)</i>	US	Quasi-experimental	Variation in EITC.		Number of bad physical health days.	Decrease in of bad mental health days, increase in reporting excellent or very good health, reduction in medically measured risky conditions <sup>11</sup>	Low income sample.	
<i>Raschke (2012)</i>	Germany	Quasi-experimental	Variation in child benefit.		Probability of smoking or number of cigarettes smoked, drinking, amount of rent paid.	Increase in food expenditure, larger apartment, greater number of rooms, reduced probability of renting, increase in parents going to cinema/concerts and on cultural excursions <sup>12</sup>	Whole sample only.	Authors find significantly larger effect child benefit, compared to income from other sources, on food expenditure and suggest this is due to a labelling effect. Results driven by households with younger children.

<sup>10</sup> Maternal depression was measured by twelve questions about feelings and behaviour in the past week.

<sup>11</sup> Risky conditions include metabolic, cardiovascular and inflammation biomarkers. There was a significant reduction in the number of risky conditions and when biomarkers examined individually these results seem to be driven by inflammation biomarkers, where all measures showed significant reduction; individual metabolic biomarkers were not significant and only one of the cardiovascular biomarkers (risky diastolic blood pressure) showed a significant reduction.

<sup>12</sup> Cultural excursions such as visiting the zoo, therefore these trips are likely to include children.