Economic (in)security across childhood in the *Growing Up in New Zealand* cohort:
Income poverty, material hardship, and problem debt and its effect on child and parental wellbeing

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Disclaimer

The views and interpretations in this report are those of the researchers and not the Ministry of Social Development.

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Executive summary

Context

Income poverty and material hardship have consequences for child and parent wellbeing

An extensive literature provides causal evidence that the experience of income poverty and material hardship is harmful for child wellbeing across a range of cognitive and socioemotional domains (e.g., Brooks-Gunn & Duncan, 1997; Chaudry & Wimer, 2016; Cooper & Stewart, 2021; Edmunds & Alcaraz, 2021; Gershoff et al., 2007; Lee, 2022; Schmidt et al., 2021). These effects are stronger at the earliest ages, and the strength of these effects is modified by the persistence and depth of economic hardship. (e.g., Chaudry & Wimer, 2016; Hardi et al., 2022; Ramanathan et al., 2021).

Indeed, in Aotearoa New Zealand, the 2018 Child Poverty Reduction Act (Child Poverty Reduction Act, 2018) explicitly acknowledges this evidence base as motivation. The development of this legislation also recognises the long arm of early poverty experiences that extend into later adulthood trajectories of economic and social wellbeing, which have population-level consequences for national wellbeing and productivity (Wilkinson & Pickett, 2017). Childhood, then, is a particularly important period for supporting families and for policy to have an outsized impact (e.g., Heckman, 2006; Magnuson & Duncan, 2016; Nores & Barnett, 2010).

Income poverty and material hardship, while correlated, are distinct experiences

Although experiences of income poverty and material hardship are known to be associated with child development, these two economic hardships are not necessarily overlapping experiences. For example, in Aotearoa New Zealand a large proportion of children who are in poverty live in families who do not report being in material hardship, and vice versa (Perry, 2022; Stephens, 2022a, 2022b). While clearly the two experiences are correlated, a better understanding of how these two forms of economic hardship correlate and persist both simultaneously and independently of each other, and whether that matters for child and family wellbeing, is important for generating a more nuanced understanding of children's experiences of economic hardship. A better understanding of these processes can also identify population-level inequities in more temporal or persistent states of hardship—exposures that may matter differentially for wellbeing.

Problem debt—a growing problem in Aotearoa New Zealand—could compound the poverty problem

Potentially further compounding families' ability to be economically secure is the role of problem debt—debt that lower-income families experiencing material hardship are disproportionately more likely to have. Importantly, this problem debt (often defined in the research literature as households in arrears of bills or credit commitments, not including mortgage debt) has been shown to also impact parent and child wellbeing (Berger & Houle, 2016, 2019; Gordon et al., 2019). Unsustainable debt burden can impact parents in ways that both limits resources in the home that support child wellbeing and also creates stress for parents that trickles into their parenting quality and engagement in ways that impacts children (Heintz-Martin et al., 2022).

Debt burden has been increasing over time in Aotearoa New Zealand (Reserve Bank of New Zealand, 2022), which has prompted more policy attention to supporting families who have growing debt (Department of Prime Minister and Cabinet, 2022; Radio New Zealand,

2020). There is less research evidence (compared to research on income poverty and material hardship in the Aotearoa New Zealand context), however, on how problem debt is associated with income poverty and material hardship and how it may matter cumulatively or interactively for child and family wellbeing.

Research questions and methods

To better understand these interrelated issues in the Aotearoa New Zealand context, this study leverages the cohort retained in the *Growing Up in New Zealand* longitudinal birth cohort (2009/10) study (*n* = 4,163), for whom there are measures of both income (to derive a poverty measure) and material hardship at five time points when the children were aged 9-months, 2-, 4.5-, 8-, and 12-years old. Information on the amount of non-mortgage debt families had, as well as the sources of their non-mortgage debt (e.g., credit cards, payday lenders, student loans) was collected at the 12-year wave (in 2022/23). These two pieces of information were used to construct a proxy measure of the problem debt, capturing the level of non-mortgage debt among those with debt from a 'problem' source (hereafter referred to as 'problem debt'). The study asks four key research questions:

1) *How do experiences of income poverty and material hardship cluster together across early-to-middle childhood?*

2) *Which families are more likely to experience these different economic in(security) trajectories?*

3) *Are these economic (in)security trajectories associated with parents' and children's wellbeing?*

4) *How are these different trajectories associated with 'problem debt' and does this debt have an independent and/or moderating effect on parental and children's wellbeing?*

Multichannel sequence analysis was used to simultaneously identify similar 'trajectories' within the sample of being in income poverty and of being in material hardship across early-to-middle childhood. Bivariate and multivariate regression analyses were used to identify which children were disproportionately more or less likely to experience different economic trajectories and problem debt levels, as well as whether these experiences were related to measures of children's (i.e., general health, depressive symptoms, anxiety symptoms) and parents' (i.e., general health, depressive symptoms, relationship conflict) wellbeing.

Key findings and policy implications

A majority of children retained in the Growing Up in New Zealand study grow up not experiencing income poverty nor material hardship

A majority of the children (65%) have grown up in families that did not experience income poverty nor material hardship at any time period during their first 12 years of life.

Experiences of income poverty and material hardship are diverse across childhood and are associated in different ways with wellbeing

Trajectories of economic insecurity were characterised by different levels of income poverty and material hardship at different ages, and with the persistence or fluctuation in this experience. Five trajectories of economic (in)security were identified. Experiences that were characterised by high rates of material hardship over multiple years (6% of the sample) were most consistently associated with poorer child and parent wellbeing.

High and persistent material hardship was more strongly associated with parent wellbeing than child wellbeing after controlling for characteristics as measured at the initial survey waves as well as longitudinal measures of family structure, parental employment, and parental disability

While the experience of high and persistent material hardship was associated with poorer wellbeing (such as lower self-rated health and more depressive symptoms) for both mothers and their children, this association was stronger for mothers. This potentially suggests, consistent with other research, that parental wellbeing is a mechanism through which children are impacted by income poverty and material hardship.

Problem debt was associated with poorer child and parental outcomes —above and beyond experiences of income poverty and material hardship after controlling for characteristics as measured at the initial survey waves

While those in economic trajectories characterised by more persistent income poverty and material hardship had higher levels of problem debt (i.e., debt from $1,001 to $10,000 and more than $10,000 in total debt), problem debt explained very little of the association between income poverty and material hardship experiences and poorer parent and child wellbeing. Problem debt was an additional challenge for wellbeing, with the association between problem debt and wellbeing being similar for parents and children in more and less advantaged economic circumstances.

There are important inequities in the experience of economic security

Ethnic inequities in the experience of more economic insecurity across childhood were stark, particularly for children of Pacific mothers. These inequities persisted even after adjusting for known socioeconomic associations as measured at the initial survey waves. Inequities for children of Māori mothers were also clear and were driven primarily by overrepresentation of Māori in socioeconomic groups that are strongly tied to economic insecurity. Low maternal education, parental disability, benefit receipt, being born to a sole parent, and living in high-deprivation neighbourhoods at the initial survey waves were also all associated with greater likelihood of experiencing persistent economic insecurity. Longitudinal measures of family separation and change and parents spending more time out of paid employment across the early life course were also associated with a greater likelihood of being in more disadvantaged economic trajectories. Moreover, Pacific and

Māori parents were more likely to have high levels of problem debt, contributing to poorer wellbeing given their higher likelihood of also experiencing trajectories with high levels of material hardship.

Policies that lift incomes and bridge economic shocks could support families into economic security

The findings point to the importance of policies that lift incomes, particularly in ways that have been shown to alleviate material hardship. Policies that can brace families through short-term economic hardship and that offer sustainable solutions to managing more entrenched hardship, like problem debt, are important for supporting families into economic security. Moreover, because economic insecurity may affect children through the impact income poverty and material hardship has on parental wellbeing, family and whānau-centred approaches that support both parents and children may be more effective for supporting children than policies targeted only at children themselves.

Study strengths and limitations

Strengths

- *The study's longitudinal design allows for the examination of the persistence and ebb and flow of economic insecurity across the life course of a contemporary and diverse cohort of Aotearoa New Zealand children*: This study provides a picture of children's combined experiences of income poverty and material hardship at five points across early-to-middle childhood. This analysis is the first in Aotearoa New Zealand to show how these two forms of economic insecurity 'cluster' together at different points and, in the case for some children, persistently over a large portion of their childhood. Moreover, it does so by using *Growing Up in New Zealand*—the most contemporary and diverse longitudinal birth cohort study in Aotearoa New Zealand.

- *Simultaneous measurement of two constructs of economic insecurity to understand the relative importance of income poverty and material hardship for parent and child wellbeing:* This study combined aspects of income poverty and material hardship at multiple points to examine the association of these two types of economic insecurity with parent and child wellbeing. The findings provide some suggestive evidence of the relative importance of these two economic factors for wellbeing.

- *Aotearoa New Zealand-based quantitative evidence of the association between problem debt and poorer parent and child wellbeing:* While the stress of problem debt on families in Aotearoa New Zealand has been documented qualitatively, this study provides quantitative, generalisable evidence of the potential stress that problem debt places on families and, in turn, the extent to which this is associated with their health and wellbeing. Importantly, the study estimates these associations net of other economic factors, including the cumulative (from birth through age 12 years) stressors of income poverty and material hardship, which are often hard to disentangle from the potential effect of problem debt on wellbeing.

Limitations

- *Sample attrition across time means the most vulnerable children were not included:* While *Growing Up in New Zealand* is a large and diverse contemporary sample, the study sample included families who had participated in each of the six main survey waves and had information on income and material hardship at a majority of the waves. Those not included in the sample had, on average, lower incomes at the antenatal wave, meaning it is likely that the most economically vulnerable families were excluded. This attrition means we are likely undercounting income poverty and material hardship and, in turn, the economic-related differences in parental and child wellbeing we identify are likely more conservative estimates of the wellbeing inequities in the Aotearoa New Zealand population.

- *Economic insecurity measures are not exact:* The variables constructed to measure income poverty and (to a lesser extent) material hardship do not align exactly with how these constructs are measured by Stats NZ. Our measure of problem debt, in particular, is a noisy measure which includes all non-mortgage debt among those who have any debt from a problem source (such as credit card debt or payday lenders), in lieu of knowing the exact amount of debt from problem sources only. In this way, the estimates from this study should not be treated as prevalence rates (albeit they do substantively reflect patterns in national estimates), and findings interpreted with these noted measurement limitations.

- *The findings are correlational not causal:* There were a number of statistically significant associations between economic insecurity experiences and parent and child wellbeing. These correlations are not necessarily causal, with a range of unmeasured or measurable factors potentially explaining the pattern of findings.

Introduction

Extensive literature has concluded that income poverty and material hardship is harmful for child wellbeing across a range of domains, such as physical and mental health, and cognitive development (e.g., Brooks-Gunn & Duncan, 1997; Chaudry & Wimer, 2016; Cooper & Stewart, 2021; Edmunds & Alcaraz, 2021; Gershoff et al., 2007; Lee, 2022; Schmidt et al., 2021; Yoo et al., 2009). Importantly, these effects appear stronger at the earliest ages and the persistence and depth of hardship across the early life course matters (e.g., Chaudry & Wimer, 2016; Hardi et al., 2022; Ramanathan et al., 2021; Schenck-Fontaine & Ryan, 2022). In turn, these early childhood experiences persist into adulthood, culminating in poorer social (e.g., educational attainment, labour force participation) and health (e.g., mortality, mental health) outcomes which in turn have economic consequences for individuals and society (e.g., Bramley, 2012; Heckman, 2006; Holzer et al., 2008; Magnuson & Duncan, 2016; Nores & Barnett, 2010).

Having young children often brings with it financial instability for families. Parents may need to take time away from work to care for a new baby, and caregiving may limit the hours that parents can work. These periods often lead to drops in income in the short term. The ability to weather those transitions financially is different for families with assets, such as savings, to maintain their standard of living and avoid material hardship.

Childhood therefore is a particularly salient period for policies aimed at supporting families with children, in order to achieve later productivity and wellbeing and eliminate population-level inequities and their intergenerational transmission. This understanding helped pave the way for Aotearoa New Zealand's nonpartisan 2018 Child Poverty Reduction Act, which both implicitly and explicitly recognises these forces and motivations (Child Poverty Reduction Act, 2018).

Achieving child poverty reduction requires measurement and tracking of *both* income poverty and material hardship, and the persistence of these experiences during childhood. Of course, income poverty and material hardship are linked as having lower incomes results in less money for necessities. However, prior research in the Aotearoa New Zealand context has shown that these two types of economic hardship are not completely overlapping (Perry, 2022; Stephens, 2022a, 2022b). Describing these patterns across the early life course in Aotearoa New Zealand therefore provides important insights including: the transitory and persistent nature of these experiences; who is most likely to have economic (in)security patterns; and whether and how much these patterns matter for family and child wellbeing.

Moreover, lower-income families and those experiencing material hardship are disproportionately more likely to be carrying 'problem debt.' While there is no standard international definition of problem debt, it is typically described as non-mortgage or 'unsecured' (i.e., debt not tied to an asset, such as credit card debt or payday loans) debt. Other definitions expand what constitutes problem debt by considering the sources of this debt, such as those sources that are typically tied to high interest rates and charge high service fees to access, factoring in the amount of debt compared to income (e.g., income-to-debt ratios), and identifying whether the debt causes households to go into arrears, among other considerations.

Internationally, problem debt has been found to be associated with poorer child mental health and wellbeing (Berger & Houle, 2016, 2019; Gordon et al., 2019). This debt influences child outcomes in part through declines in parental wellbeing and relationship quality (Heintz-Martin et al., 2022), highlighting the importance of a whānau-centred approach to understanding the impact of debt and hardship on children's wellbeing.

In Aotearoa New Zealand, problem debt has been of increasing concern, with debt being one of the leading causes of persistent poverty among families (Garden et al., 2014). Despite households' general debt burden increasing over time (Reserve Bank of New Zealand, 2022) and policy attention to supporting families who have problem debt (Department of Prime Minister and Cabinet, 2022; Radio New Zealand, 2020), there has been less research evidence (compared with the literature on income poverty and material hardship) on the impact of this debt on the wellbeing of our families and children, nor how debt coexists with other types of economic insecurity (e.g., income poverty, material hardship).

The current study

Thus, this study aims to shed light on the interconnected and longitudinal experience of income poverty, material hardship, and problem debt during childhood in the Aotearoa New Zealand context. It does so by leveraging longitudinal data from the *Growing Up in New Zealand* longitudinal birth cohort study for cohort members retained in the study to age 12 (*GUiNZ; n* = 4,163) to examine the following four key questions regarding children's experiences of economic (in)security from birth (collected in 2009/10) through 12 years (2022/23):

1) *How do experiences of income poverty and material hardship cluster together across early-to-middle childhood?*
   First, to better understand the extent to which children experience income poverty and material hardship, we explore simultaneously the experience of income poverty (defined as having an equivalised household income below 50% of the median equivalised household income before housing costs) and material hardship (varied measurement at each wave) at five time points from infancy through middle childhood. We apply multichannel sequence analysis to group similar experiences of income poverty and material hardship into trajectories of economic (in)security.

2) *Which families are more likely to experience these different economic in(security) trajectories?*
   Second, we identify the unequal distribution of these experiences across the population by exploring which children experience these different trajectories by certain sociodemographic characteristics of their families (e.g., maternal education, age, ethnicity, region) and which longitudinal measures of family structure, parental employment, and parental disability were the strongest predictors of different economic trajectories. We do this through both bivariate and multinomial regression analyses to identify the actual proportionate rates children with different sociodemographic backgrounds experience specific economic trajectories, as well as understand key drivers net of other factors that might explain or confound inequities in these rates.

3) *Are these economic (in)security trajectories associated with parents' and children's wellbeing?*
   Third, we aim to understand whether and to what extent these patterns of economic (in)security are associated with parents' and children's wellbeing, examining both physical and mental health measures for parents' and children's wellbeing (i.e., depressive symptoms, anxiety symptoms) at the 12-year wave. We also examine relationship conflict among parents who are partnered. OLS regression is used to examine these associations before and after controlling for other characteristics as measured at the initial survey waves and longitudinal measures of family factors (e.g., family structure, parental employment).

4) *How are these different trajectories associated with 'problem debt' and does this debt have an independent and/or moderating effect on parental and children's wellbeing?*
   Fourth, we aim to understand the potential interactive and compounding effect of problem debt. We do so by first examining who is more likely to experience moderate and high levels of problem debt, with a particular focus on debt levels by children's experience of income poverty and material hardship. We then build on the third research question to examine whether problem debt matters for child and parent wellbeing. If so, does problem debt potentially explain initial associations between economic insecurity and poorer outcomes, have an outsized impact among children and parents who have experienced significant economic hardship, or have a unique additive association regardless of past economic (in)security?

   It is important to note that our measure of the amount of problem debt contains some forms of non-mortgage related debt that might not be considered 'problem debt'. Empirically, it was possible to identify the different sources where families held non-mortgage related debt (e.g., from payday lenders, from student loans, credit card debt). However, it was not possible to know the amount of debt that was owed to each particular type of lender. In this way, our measure identifies those families who have debt from sources that are seen as 'problem debt' sources, with the levels of debt they have potentially containing 'good' or investment non-mortgage debt, such as student loans. More information on this issue can be found in the Methods section. We continue to use the term 'problem debt' throughout this report, but with this key caveat.

Taken together, answering these questions helps to disentangle the collective impact of income poverty, material hardship, and problem debt. This understanding is important for shedding light on how regular and adequate income may allow families to avoid problem debt and also buffer the impact of debt stress on wellbeing. It can also uncover how these economic factors are potentially additive and/or cumulative and interact in ways that have a disproportionate impact on children and families (Miller et al., 2021). The findings can pinpoint particular forms of economic insecurity that may have an outsized impact for policies aimed at improving families' economic stability and reducing population-level inequities in child wellbeing. In particular, knowing Māori and Pacific children are over-represented in all indicators of child poverty and that these economic inequities also have inter-generational and population-level consequences for both wellbeing and productivity (Wilkinson & Pickett, 2017), the findings can support efforts towards narrowing the population-level inequities that reproduce across generations.

Methods

Data and sample

Data came from Aotearoa New Zealand's most contemporary and diverse—ethnically and socioeconomically—longitudinal birth cohort study, *Growing Up in New Zealand* (*n* = 6,853) (*GUiNZ*) (Morton et al., 2015). Pregnant women were recruited in the Auckland and Waikato regions, with the baseline antenatal interview occurring in 2009/10. Mothers, fathers, and, later on, children were interviewed at multiple points throughout early to middle childhood. For this study we use waves when the children were 9-months, 2-years, 4.5-years, 8-years, and 12-years old, as well as key sociodemographic data collected at the antenatal wave.

The final analytical sample for this study includes 4,163 children. Children who were included in the sample were those whose families were interviewed at each of the six major waves where income and material hardship were collected (excluding 2,327 children), who had income poverty and/or material hardship information at a majority of the main waves (at least three of the five waves in which this study measures income and material hardship, excluding 305 children), and where the primary respondent was the mother at each wave (excluding 47 children who either were not living with their biological mother at each wave, or unable to ascertain whether they were living with their biological mother at the main wave).

A comparison of sociodemographic characteristics at the antenatal wave between the analytical sample and those excluded found that the analytical sample were more advantaged across a range of factors. For example, at the antenatal wave a lower proportion were living below the poverty threshold (7.16% among the analytical sample vs. 28.80% among those excluded from the study), a greater proportion had a university degree (48.93% vs. 22.09%), they were less ethnically diverse (63.81% vs. 24.43% European/Pākehā), more likely to have been born in Aotearoa New Zealand (70.82% vs. 54.34%), were older (31.27 vs. 28.26 years), and a greater proportion owned the homes they lived in (53.26% vs. 30.23%). Overall, children not in the analytical sample because of (predominately) non-response and attrition were more likely to be born into families with incomes below the poverty threshold and with other characteristics that were also associated with more economic insecurity across childhood. Thus, this study potentially excludes the most economically vulnerable children, undercounting income poverty and material hardship experiences. This may also mean that our estimates of the economic-related disparities in parent and child outcomes are more conversative than if the most economically vulnerable children had continued to participate in *GUiNZ*.

Variables

Poverty status. Poverty status (*1* = below the poverty threshold; *0* = not below the poverty threshold) was determined through several steps. First, a dollar value of annual household income was derived from the categorical household income variable available within *GUiNZ*, where the primary caregiver was asked: "*In the last 12 months, what was your household's total income, before tax or anything else taken out of it?"* Household income was captured in 13 categories: 1) zero income; 2) $1-$5,000; 3) $5,001-$10,000; 4) $10,001-$15,000; 5) $15,001-$20,000; 6) $20,001-$25,000; 7) $25,001-$30,000; 8)

$30,001-$40,000; 9) $40,001-$50,000; 10) $50,001-$70,000; 11) $70,001-$100,000; 12) $100,001-$150,000; and, 13) $150,001 or more. The mid-point from these values were assigned to construct a dollar amount of income. A $0 value was assigned to those with no household income. The top-coded value ("$150,001 or more"), was assigned the value of $175,000, reflecting the top-coded value plus the additional midpoint value of the prior income group (i.e., $100,001-$150,000 is $25,000 below $150,000/above $100,001, so $25,000 is added to the top-coded value).

The OECD equivalisation technique, which is also used by Statistics New Zealand (Statistics New Zealand, 2022) to generate national poverty statistics, was then applied to household income, using the number of adults and children within the home.[i] Poverty thresholds were then generated from Statistics New Zealand estimates of median household equivalised disposable income before housing costs (BHC) (Statistics New Zealand, 2023), taking 50% of the median annual equivalised household income as the poverty threshold. The annual median household income was aligned with the survey wave year.[ii] It is important to note that household income in *GUiNZ* is a respondent-reported *before* tax measure. The official BHC measure is an *after* tax and transfers (such as Working for Families tax credits) measure. In this way, we may be undercounting (because households incomes include tax) and/or overcounting (because tax credits transferred to low- and middle-income families with working parents are not included) the number of families considered "in poverty".

Material hardship. The *GUiNZ* construct for material hardship changed across the waves. In order to standardise across the waves, we employed methods used by Grant et al., (2023) that examine the distribution of material hardship in the 9-month, 2-year, and 4.5-year waves to generally match the distribution of hardship at the 8-year and 12-year waves, where the standard DEP-17 cut-off for material hardship is available.[iii] The DEP-17 is a deprivation measure developed by the Ministry of Social Development, which asks about lacking essentials (e.g., going without meat or another protein longer than two days, not having two pairs of shoes in good condition), economising behaviours (e.g., going without fresh fruit/vegetables to keep costs down, putting off seeing the dentist or doctor), restrictions (e.g., feeling limited in buying clothes or meeting emergency expenses due to money available), and financial stress and vulnerability (e.g., not being able to pay utility bills or having to borrow money from friends in the past 12 months because of a shortage of money)[iv] (Statistics New Zealand, 2019). A scale ranging from 0-17 is calculated from

[i] The data available in *GUiNZ*, including whether adult and child counts are available, and the age at which household members are considered children, sometimes changed and does not precisely align with the OECD definitions of adults/children. More information on how this changed over time can be found in Table A1 in the appendix.

[ii] Poverty thresholds at each wave were: $28,688 for the 9-month wave (2009); $29,084 for the 2-year wave (2010); $30,548 for the 4.5-year wave (2012); $35,592 for the 8-year wave (2017); and, $43,566 for the 12-year wave (2021).

[iii] More detailed information on the construction of material hardship across the waves can be found in Table A1 in the appendix.

[iv] We note that these elements of material hardship may align with definitions of problem debt. While those identified as having problem debt in our study were more likely to report they were not able to pay utility bills or had to borrow money from friends compared to those identified as not having debt from problem sources, the difference in rates was not substantively different than the difference in rates in material hardship between these two groups. Thus, we chose to keep all DEP-17 items in the material hardship construct, which also retains the validity of the DEP-17 measure.

affirmative response to the 17 index items. Families are considered to be in material hardship if they score 6 or higher on the DEP-17 index (scores between 0-5 are considered not in material hardship).

At the 9-month and 4.5-year waves, respondents were asked six questions that tap into material hardship (e.g., been forced to buy cheaper food in the past year, put up with feeling cold to save heating costs). "Yes" responses were summed into a scale ranging from 0 through 6. Values of 3 or higher determined the household was "in material hardship." At the 2-year wave, respondents were asked one question related to material hardship: *"How well does your (and your partner's combined) total income meet your everyday needs?"* Respondents' options included: not enough; just enough; enough; and, more than enough. Respondents who said they had "not enough" income to meet their everyday needs were considered "in material hardship."

Given changes across waves, it is important not to treat the material hardship figures as prevalence measures (although they track closely to official material hardship statistics).

The binary measures of income poverty status (i.e., in income poverty vs. not in income poverty) and material hardship status (i.e., in material hardship vs. not in material hardship) at each of the five waves (i.e., 9-months, 2-years, 4.5-years, 8-years, and 12-years) were used in the multichannel social sequence analysis to determine the number and different types of trajectories of economic insecurity. The results of this analysis and the trajectories identified are presented in full in the findings section. To preview, however, five trajectories fit the data best. A five-category variable identifying trajectory membership for each child was then used in the analyses examining trajectory membership (using the categorical variable as an outcome) and parent and child outcomes (as a categorical independent variable).

Problem debt. Two sets of variables were used to create an approximate measure of problem debt at the 12-year wave: 1) amount of debt; and, 2) sources of debt. First, to identify the amount of non-mortgage debt, respondents were asked: *"Thinking about all your debt that your household may have (excluding your mortgage/home loan), what is the approximate total value of the debt you currently have?"* Categorical answer options included: 1) I don't have any debt; $1-$500; 2) $501-$1,000; 3) $1,001-$2,500; 4) $2,501-$5,000; 5) $5,001-$10,000; 6) $10,001-$50,000; 7) More than $50,000. The mid-point from this seven-category variable was used to construct a dollar amount of problem debt. A $0 value was assigned to those with no problem debt. The top-coded value ("More than $50,000") was assigned the value of $70,000, representing the top-coded value plus the additional midpoint value of the prior debt group (i.e., $10,001-$50,000 is $20,000 below $50,000/above $10,000, so $20,000 was added to the top-coded value).

Second, information on *where* debt was held was used to determine whether any of the debt came from 'problem' sources. Those who had debt from any of these sources—loans from finance companies (*n* = 392), credit card debt (*n* = 1,250),[v] debt being managed by a debt collection agency (*n* = 92), unpaid fines (*n* = 59), and debt from hire purchase, including truck shops (*n* = 212)—were assigned the value of debt recorded in the question asking about total debt. Those who did not have any debt from the 'problem' sources, were assigned zeros for the amount of debt they had. These included having non-mortgage loans from a bank, building society, or credit union, student loans, regular contributions of money to individuals, organisations, or charitable donations (including overseas remittances), and loans from family or friends.

In essence, the problem debt measure is an indicator of the levels of all debt among those who had at least some or all debt coming from 'problem debt' sources. It is again important to note that the total amount of debt held by those who have debt can be a combination of debt from both non-problem and problem sources, given we are not able to know the amount of debt survey respondents had with each of the debt sources they indicated holding debt with. We use the term 'problem debt' throughout the remainder of the report but highlight this key limitation.

Overall, 49.69% of the analytical sample had problem debt (mean of $17,391 in debt). Of those with problem debt, 43.67% had other forms of debt, too: 19.09% had a non-mortgage loan from the bank, 17.49% had a student loan, and 9.09% had loans from family or friends. Among those without problem debt, 23.30% reported having debt from other sources (mean of $25,066 in debt). Of those without problem debt but with debt from other sources, 43.18% had a non-mortgage loan from a bank, 44.81% had a student loan, and 17.72% had a loan from family/friends. Taken together those with problem debt were less likely than those without problem debt to have debt from sources that might be more likely to be sources of investment debt (e.g., business loans, student loans), and less likely to have the types of loans with lower interest payments and be managed sustainably over longer periods of time. In short, these differences give us greater confidence that those classified as having problem debt do have debt profiles that are closer to more precise measures of problem debt than the debt profiles of those who do not end up being classified as having problem debt in our study.

Despite this confidence, sensitivity analyses were conducted to examine whether different conceptualisations of problem debt had an impact on the association between debt and parent and child outcomes (Table A2 in the appendix). Models were estimated using an all non-mortgage debt measure (i.e., not considering where debt comes from) and also a stricter criterion for problem debt (i.e., limiting the measure of problem debt to respondents who *only* had debt from 'problem' sources). The non-mortgage debt measure resulted in

[v] Models where economic trajectories and problem debt predicted wellbeing were re-estimated with an alternative indicator of problem debt whereby those whose only source of problem debt came from credit card debt were recoded as having no problem debt. The results were substantively similar to the main findings, albeit statistical significance typically dropped one 'level' (e.g., from $p < .01$ to $p < .05$). This could be due to a large proportion of those with credit card debt now being considered to have not have any problem debt or a loss of statistical power (in the case where significance dropped but coefficient size remained the same) from a large proportion of the sample moving from being identified as having problem debt to having none (20.3% of the total sample, or 52.0% of those who were identified as having problem debt in the current study problem debt variable).

substantively similar results as the measure used in the current study, albeit the strength of the association was weaker when using all non-mortgage debt measure. This provides more support that the study's current conceptualisation is likely doing a better job at tapping into 'problem' debt. The debt measure that limits to those whose debt only comes from problem debt sources predominately produced null findings, although the coefficients were in the same direction (i.e., more debt was associated with poorer outcomes). One reason for these null findings could be that the reference group (i.e., 'no problem debt') includes people with problem debt (along with debt from other sources) and problem debt does not appear to be associated differentially with outcomes by whether you only have problem debt or whether one has debt from different sources.

In short, while the indicator of problem debt used in this study cannot be considered a strict measure of the amount of problem debt held by families, it is a close approximation and attempts to largely limit the confounding influence of other types of investment debt, like student loans or bank loans for business ventures, or debt from other sources that are less likely to be predatory (e.g., mainstream banks, family and friends). There is, however, still likely a non-trivial amount of investment or non-problem debt that may be captured in the total amount of debt held by families with some forms of problem debt.

As a final step, a functional form assessment was conducted to determine the most appropriate way to include problem debt in the models.[vi] This included estimating all parent and child outcome models regressed on seven different functional forms of problem debt: 1) continuous; 2) original categorical (seven categories); 3) refined step change (original categorical variable recoded into five categories based on examination of multivariate regression outcome model coefficients); 4) collapsed at high debt levels (four categories); 5) collapsing into thousands groups (i.e., $0-$1,000; $1,001-$10,000; $10,001-$50,000; more than $50,000); 6) parsimonious groups combining no and lower levels of debt (three categories); and 7) conditional probability estimates (any debt interacted with level of debt).

The three-category step-change at lower levels of debt with zero and low debt combined was determined the best fit of the data (determined by the Bayesian Information Criterion (BIC)), as well as providing the most straight forward interpretation for the analyses. As such, this measure was used in the regression models predicting parent and child outcomes, as well as examining relative risks of being in these three debt groups within a multinomial logistic regression model. The three category variable was coded as *0* = $1,000 or less in problem debt (including those with no problem debt), *1* = $1,001-$10,000 in problem debt, and *2* = more than $10,000 in problem debt. More information and the model fit statistics from this assessment can be found in Table A3 in the appendix.

Outcomes. Six outcomes were examined at the 12-year wave to understand whether and the extent to which these trajectories of economic insecurity and levels of problem debt were associated with parent and child wellbeing. Three outcomes measured child wellbeing, and were all derived from responses provided directly from the focal children. First, *self-reported health* was a 1-5 scale, where *1* = poor and *5* = excellent, that children answered in response to the question: *"In general, how would you say your health is?"*

[vi] A log-linear transformation of the continuous measure of problem debt was explored, but given the high proportion of zeros which cannot be log-transformed and statistical issues with approaches to artificially log-transforming zeros (and associated interpretation of the coefficients from artificially log-transformed zeros), log-linear transformed was ruled out as an option.

Second, d*epressive symptoms* where captured through the 10-item Centre for Epidemiological Studies Depression Scale (CES-D), with the CES-D survey wording modified in line with the CES-D Scale for Children (Weissman et al., 1980). Respondents were asked how often in the past week they felt that they were "too tired to do things," "lonely, like I don't have any friends," and "felt down and unhappy," among other questions aimed at measuring depressive symptoms. Response options ranged from *0* = rarely/none of the time/not at all through *3* = all the time/a lot of the time. Items are summed to construct a continuous 0-30 scale (Cronbach's alpha = 0.80). Third, *anxiety symptoms* were measured with the *GUiNZ*-generated anxiety scale, summing eight anxiety items from the Parent-Reported Outcomes Measurement Information System (PROMIS) anxiety short form and two items from the National Institutes of Health (NIH) toolbox fear tool to construct a continuous scale ranging from 33.5-83.3.[vii]

Three items measure parent outcomes. First, *maternal self-reported health* was measured in the same way as child-reported health, with a scale ranging from *1* = poor through *5* = excellent. Second, *maternal depressive symptoms* were captured through the nine-item Patient Health Questionnaire-9 (PHQ-9), which asks respondents how often over the past two weeks they have felt "down, depressed, or hopeless," had "trouble falling or staying asleep, or sleeping too much," and were "feeling bad about yourself – or that you were a failure or have let yourself or your family down," among other questions. Response options ranged from *0* = not at all through *3* = nearly every day, with items summed to create a continuous scale ranging from 0 through 28 (Cronbach's alpha = 0.86). Finally, among partnered mothers, a scale measure captured maternal-reported level of *relationship conflict*. This scale measure was developed from six items that asked parents about the frequency of certain events in the past four weeks, including how often their partner "made [them] feel you [they] couldn't do anything right; sulked or got angry when they didn't get what they wanted; blamed you for their problems," "slapped you or threw things at you that could have hurt you," and, "listened to your opinions; was positive and encouraged you; accepted what you wore and how you looked." Response options ranged from *0* = never or almost never through *4* = extremely often or all the time. Positively worded items were reverse coded so higher values represented the absence of positive relationship qualities. The six items were summed to create the scale score ranging from 0 (no conflict) through 24 (high level of conflict) (Cronbach's alpha = 0.76).

Covariates. A range of covariates were used to understand how patterns of economic insecurity differed across key sociodemographic groups, as well as in the estimation of the association between economic insecurity, problem debt, and parent and child outcomes.

Maternal characteristics at the antenatal wave included: educational attainment (three categories: secondary school/NCEA levels 1-4 or less; diploma/trade certificate/NZQA Certificate levels 5-6; university degree or higher); prioritised ethnicity (five categories: European/Pākehā; Māori; Pacific; Asian; some other ethnicity); nativity (three categories: born in New Zealand; migrated to New Zealand between the ages of 0-8 years; migrated to New Zealand after 18 years old); and, age (continuous scale ranging from 16-47 years; *M* = 31.27, *sd* = 5.35).

Family characteristics at the antenatal wave included: whether the family owned or rented their home (*1* = owns home; *0* = rents home); parental employment (*1* = mother and/or

[vii] Internal validity data were not available at the time of writing.

father in paid employment; *0* = neither mother nor father employed); family structure (*1* = two-parent, coresidential family; *0* = single-parent family); presence of other adult household members (*1* = other adults in the home; *0* = no other adult household members); number of siblings the focal child had (continuous scale ranging from 0-6; *M* = 1.04; *sd* = 1.19).

Child characteristics included: the child was identified as having a developmental problem at 9-months old (*1* = yes; *0* = no); the child's self-reported gender at the 12-year wave (three categories: girl; boy; something else); and, the number of months their age at the time they took the survey deviated from the wave age of 12-years/144 months (a continuous scale ranging from -5 through 15 months; *M* = 3.57 months, *sd* = 3.17).

Geographic indicators included: neighbourhood deprivation (measured with NZDep13 (Atkinson et al., 2014)), representing a 1-10 scale where *1* = the family lives in a meshblock that is considered to be in the bottom decile of all meshblocks in terms of deprivation levels (i.e., most affluent) and *10* = lives in the highest decile of all meshblocks in terms of deprivation levels (i.e., highest levels of neighbourhood deprivation)); urbanicity (binary indicator where *1* = lives in a rural area and *0* = lives in an urban/suburban area); and District Health Board region (three categories: Auckland; Counties Manukau; and, Waikato).

Longitudinal family dynamic measures included a four-category variable of parental disability: 1) no parental disability at antenatal/9-months or at 12-years; 2) parental disability at antenatal/9-months but not at 12-years; 3) no parental disability at antenatal/9-months but disability at 12-years; and, 4) parental disability at both antenatal/9-months and at 12-years). Disability status at the antenatal and/or 9-month wave and at the 12-year wave was determine by the response to the survey question, "Do you currently have a disability that is long-term (lasting 6 months or more)?"

Two other longitudinal measures included the number of family structure changes, as determined by differences in family structure (i.e., two- vs. single-parent family) at each wave (0-5 scale) and the number of waves (i.e., at the 9-month and 2-, 4.5-, 8-, and 12-year waves) parent(s) were employed (0-5 scale).

Measures of *household composition at the 12-year wave* were included in the analyses examining outcomes at 12-years. These included number of adults in the home (1-9 scale; *M* = 2.07, *sd* = 0.68) and number of younger siblings in home (0-8 scale; *M* = 0.78, *sd* = 0.91).

Analytical plan

First, multichannel sequence analysis was used to group like-experiences of income poverty and material hardship (varied measurement at each wave) when children were aged 9-months, and 2-, 4.5-, 8-, and 12-years old into 'trajectories' of economic (in)security experiences. Multichannel sequence analysis is a form of optimal matching analysis that can be used to examine how certain experiences, such as experiencing income poverty or material hardship, are experienced more or less at different points in time, or change over time. Pairwise dissimilarities are computed between 'sequences' or trajectories of experiences, with a clustering process applied to these dissimilarities to determine the appropriate number of sequences used to group, in this case, children into 'like' trajectories of income poverty and material hardship experiences (Ritschard & Studer, 2018). In this

study, two channels are modelled simultaneously: income poverty and material hardship. A variety of model fit statistics were used to determine what number of trajectories best 'fit' the data (results can be found in Table A4 in the appendix).

This stage addressed the first research question which aimed to understand the patterned experiences of income poverty and material hardship across the early-to-middle-childhood life course. Second, to understand who is most likely to experience these different economic security trajectories (the second research question), bivariate statistics were used to understand prevalence of experiences among key sociodemographic groups and multinomial regression analysis was leveraged to examine whether the prevalence trends persisted net of other factors that may be associated with both increased likelihood of membership in certain economic security trajectories and other factors. For example, examining whether any ethnic differences in rates of being in more economically insecure trajectories persist after controlling for other factors that are both associated with economic insecurity and overrepresented in some ethnic groups (e.g., lower levels of educational attainment among Māori and Pacific respondents).

Third, multinomial regression was used to examine whether the economic trajectories and other sociodemographic characteristics were associated differentially with the risk of being in each of the three problem debt groups: 1) $1,000 or less in problem debt (including no problem debt); 2) $1,001-$10,000 in problem debt; and, 3) More than $10,000 in problem debt.

Fourth, and finally, multivariate OLS regression models were employed to examine the association with economic security trajectories and parent and child outcomes at 12-years (the third research question), and whether problem debt has an additive or moderated (across economic trajectories) association with parent and child outcomes once included in the models (fourth research question).

The multichannel sequence analysis was conducted in R 2023.12.1 (R Core Team, 2023) using the WeightedCluster package (Studer, 2013). All other analyses were conducted in Stata/SE 15.1 (StataCorp, 2017), with multivariate analyses estimated with robust standard errors. Multiple imputation was used to account for the small amount of item-level missingness in the independent variables, with the suite of *mi estimate* commands used to generate model estimates across the 100 imputed datasets.

Findings

Research Question 1: Income poverty and material hardship across childhood

Five trajectories of income poverty and material hardship emerged from the multichannel sequence analysis. Figures 1a-1f present the percent of children in income poverty (top panel; grey) and material hardship (bottom panel; green) at each wave for the total sample and respective economic trajectories. We note that shifts in the rate of material hardship across waves may partly reflect changes in how material hardship was measured, particularly in early childhood. Bivariate statistics describing the income poverty and material hardship experiences at each wave, and duration of experiences can be found in Tables A5 and A6 in the appendix. These five trajectories are:

1) *Economically secure (n = 3,320; 80% of the sample; Figure 1b)*: Children in this trajectory either were never in income poverty (76% of children in this trajectory) or were in income poverty at only one or two survey waves (19%). Between 5-7% of the children in this trajectory were in material hardship at each wave—approximately half the rate of the total sample. Overall, 81% of children in this trajectory (65% of the total sample) were not in income poverty nor material hardship at any survey wave.

2) *High income poverty in early years with average material hardship (n = 318; 8%; Figure 1c):* This trajectory was characterised by much higher rates of income poverty at the 9-month and 2-year wave, with poverty rates similar or lower than the total sample by the 4.5-year wave. Rates of material hardship in the children of this trajectory remained similar or slightly above the rates of the total sample at most waves.

3) *High middle childhood income poverty with low material hardship (n = 257; 6%; Figure 1d)*: Children in this category experienced mostly similar rates of income poverty and material hardship as the total sample during early childhood but were more likely than the total sample to be in income poverty at the 8-year (52% vs. 11% in the total sample) and 12-year wave (64% vs. 9%). Rates of material hardship were below the total sample rates at each wave.

4) *High and rising material hardship with fluctuating income poverty (n = 103*; 3%; Figure 1e): This trajectory was similar to the third trajectory, however moderate income poverty during early childhood with higher income poverty at the 8- and 12-year wave was also accompanied by high and rising rates of material hardship from birth to 12-years. This trajectory consistently had the highest rates of material hardship of all trajectories, with 57% of children in material hardship at the 9-month wave, increasing to 97% and 89% of children in material hardship by the 8-year and 12-year waves, respectively. Four out of five children in this trajectory spent the majority of all survey waves in material hardship.

5) *High income poverty and material hardship (n = 165; 4%; Figure 1f)*: Most children in this trajectory were in income poverty (74%) and material hardship (68%) in the majority of survey waves. Notably, just 8% of children in this trajectory (0.3% of the total sample) were in income poverty at every wave. On average children in this trajectory were estimated to have spent over 60% of their lives in income poverty (86 out of 144 months), with their longest ‘spell’ in income poverty equating to about half of their lives

(73 out of 144 months).[viii] Children in this trajectory were also much more likely to be in material hardship at each wave compared to the total sample, with rates of material hardship five (40% vs. 8% of the total sample) to eight (56% vs. 7%) times greater than the total sample rate. Thirteen percent of these children were in material hardship at every wave. Children in this trajectory were, on average, more likely to spend more months in material hardship (92 out of 144 months) than in income poverty (73 months).

[viii] 'Estimated number of months' was constructed by determining poverty status at each wave, with number of months between waves assigned as the number of months in poverty. For example, if the child was in poverty at the 2-year wave, they were assigned a value of "15" (24 months – 9 months = 15 months between waves). These values were summed across waves and longest consecutive months in poverty to construct a measure of total months in poverty and longest poverty spell. These numbers should be treated with caution given they could be overestimating (i.e., assuming children in poverty spent all prior months since the last survey wave also in poverty) or underestimating (i.e., assuming children not in poverty at a wave had no poverty experience in the months/years since the last wave) actual time in poverty.

Figure 1a. Total sample

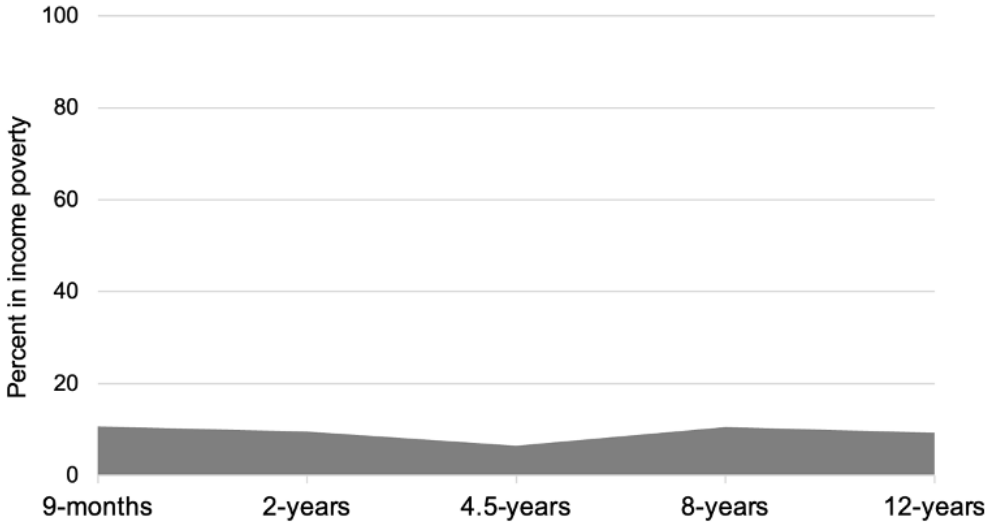
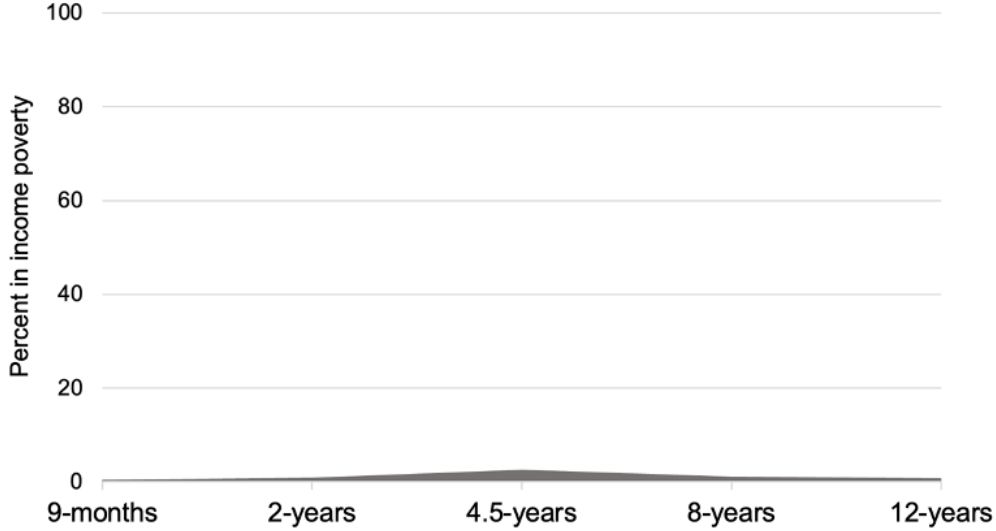
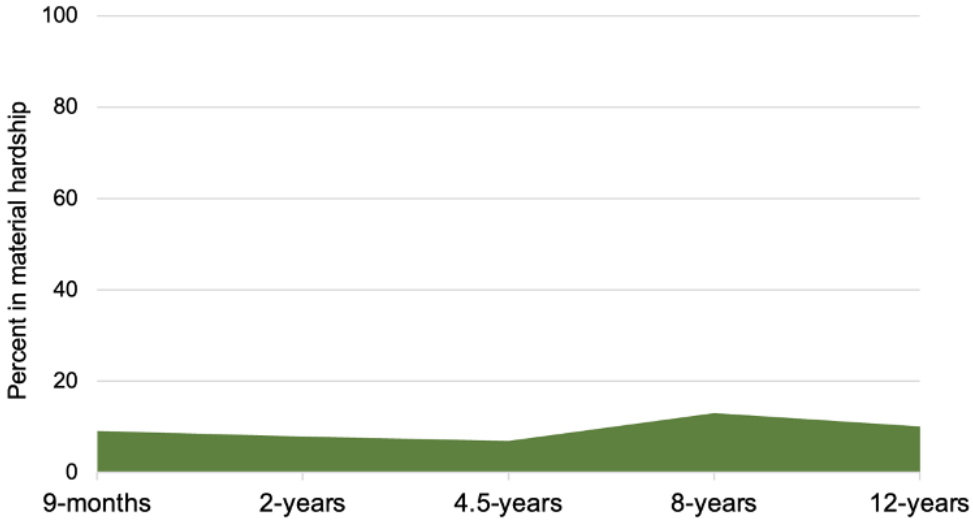


Figure 1b. Economically secure





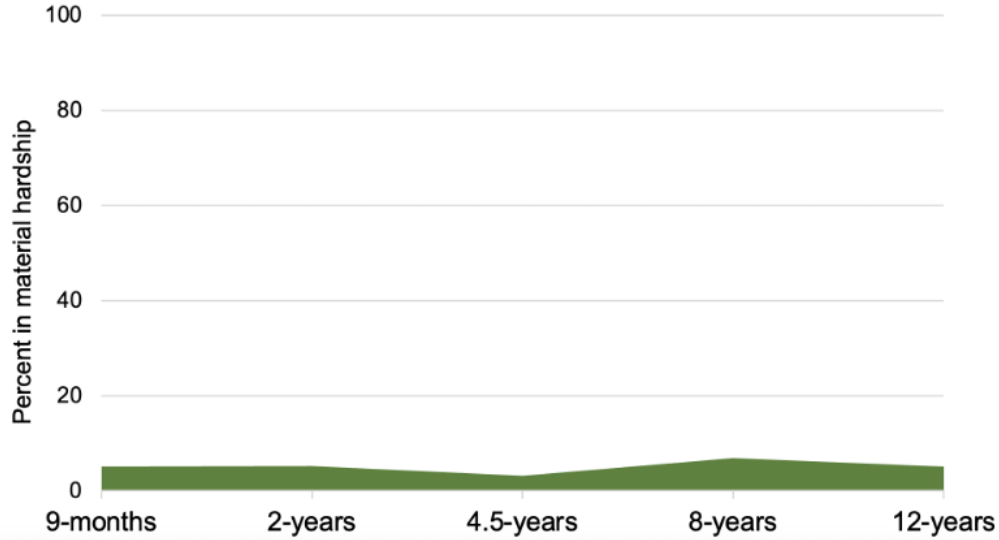


Figure 1c. High income poverty in early years

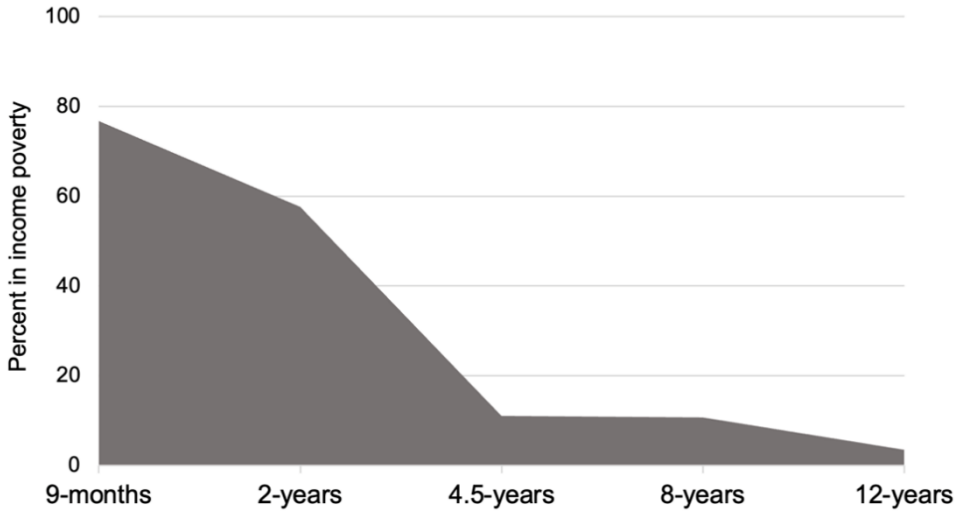
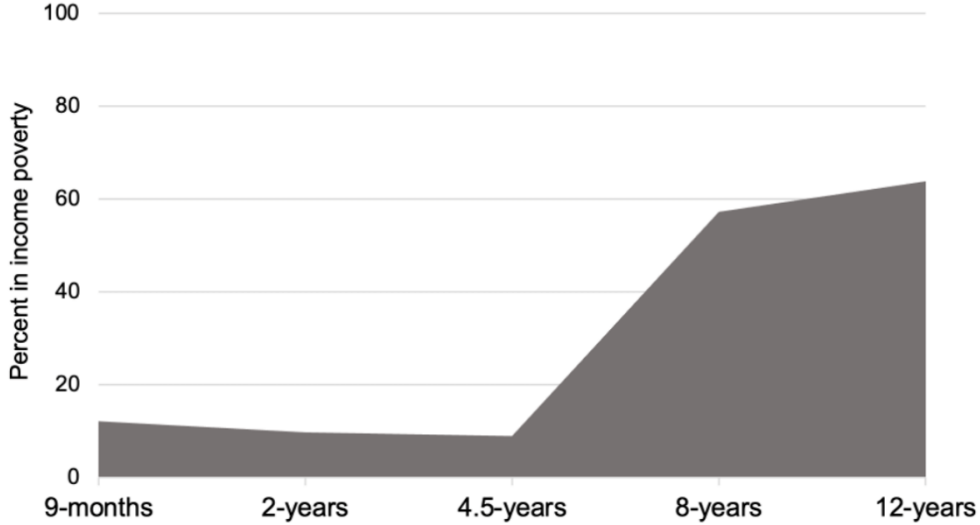
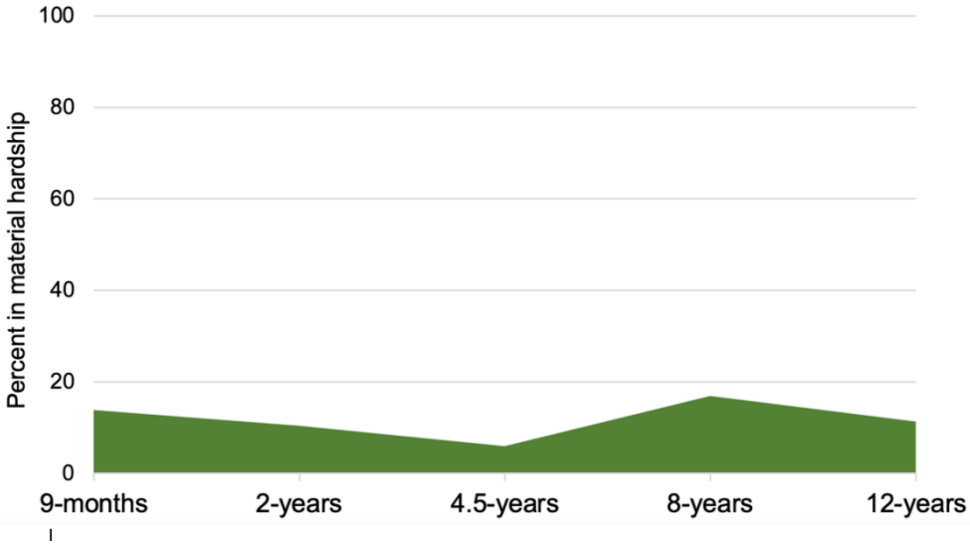


Figure 1d. High middle childhood inc. pov. w/ low material hardship





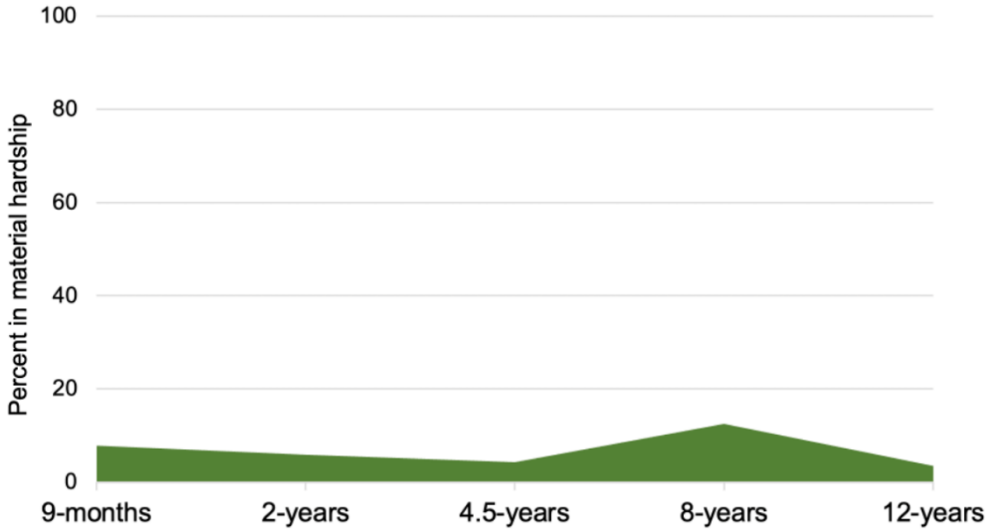


Figure 1e. High and rising material hardship

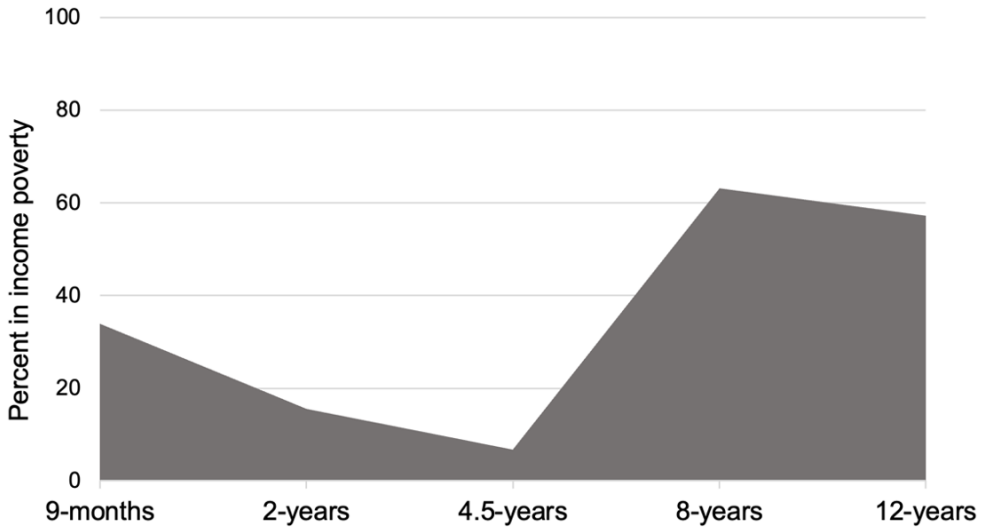
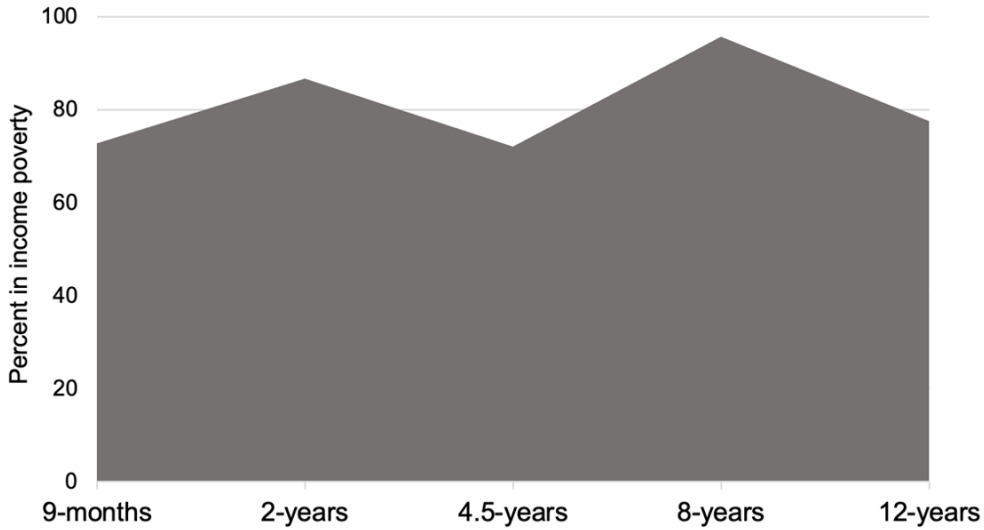
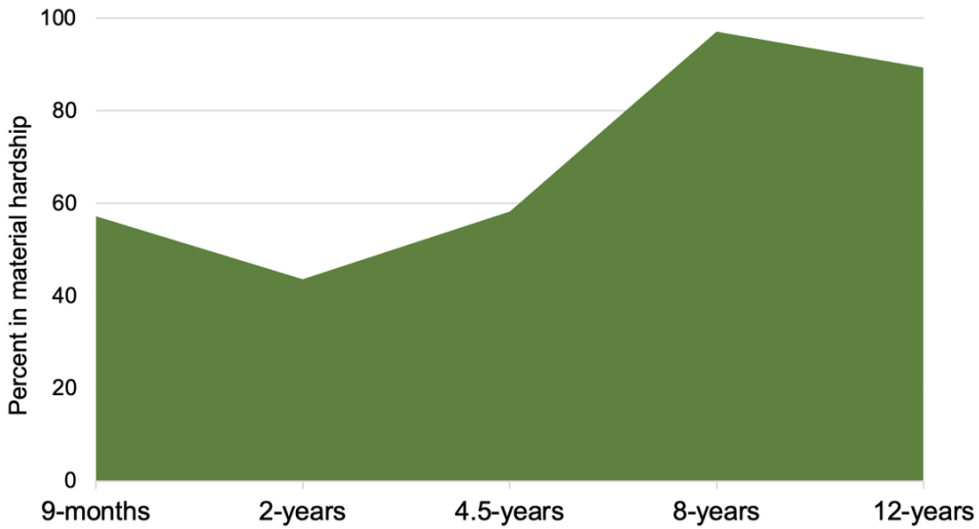
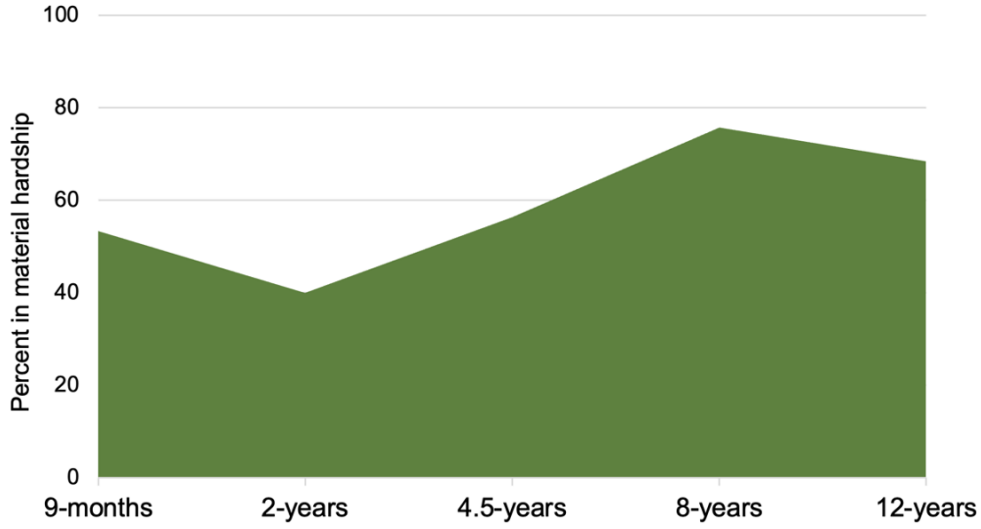


Figure 1f. High income poverty and material hardship







Research Question 2: Inequities in economic (in)security trajectory experiences

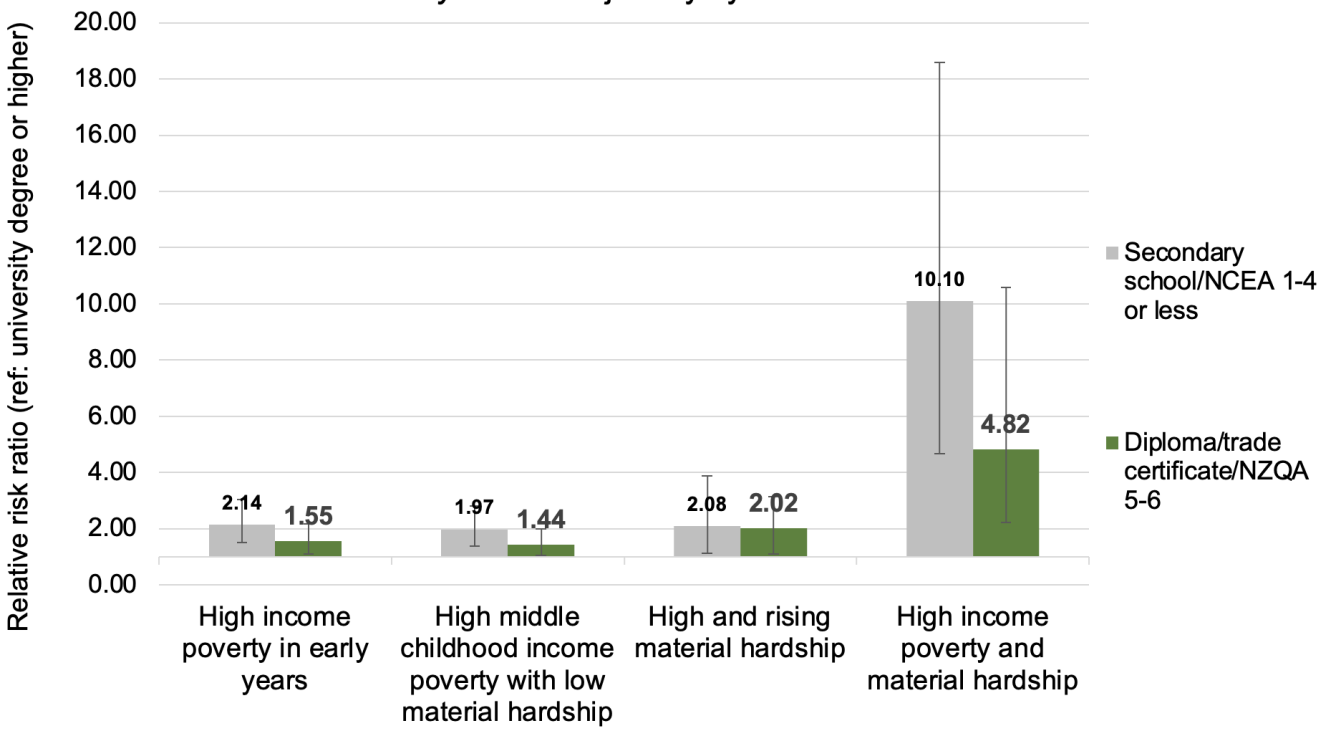
Next, we explored whether there were certain sociodemographic factors associated with different probabilities of experiencing different economic trajectories. Table A7 in the appendix displays the total sample characteristics and characteristics by economic trajectory. Table A8 in the appendix presents the results from the multinomial regression models (e.g., the relative risk ratios/"likelihood" rates) to better understand which factors are the most prominent sources of stratification in terms of children's economic experiences.

In this section we focus on several of the most important factors. Unadjusted bivariate findings presented in the following Figures come from Table A7 in the appendix, whereas the adjusted predicted estimates are derived from the multinomial regression model estimates in Table A8 in the appendix.

Maternal education

Mothers' educational attainment (measured at the antenatal wave) was one of the strongest predictors of economic trajectory experience. Figure 2a presents the relative risk ratios of economic trajectory by education group. Mothers without a university degree (compared to those with a university degree) were twice as likely to be in the *high and rising material hardship* trajectory compared to the most advantaged *economically secure* trajectory. This association was even more pronounced when examining risks of being in the *high income poverty and material hardship* trajectory, whereas mothers with no secondary school education or NCEA levels 1-4 were ten times and mothers with a trade certificate or NZQA Certificate levels 5-6 almost five times more likely of being in the *high income poverty and material hardship* trajectory, compared with mothers with a university degree.

Figure 2a. Relative risk of economic (in)security trajectory membership vs. *economically secure* trajectory by maternal education



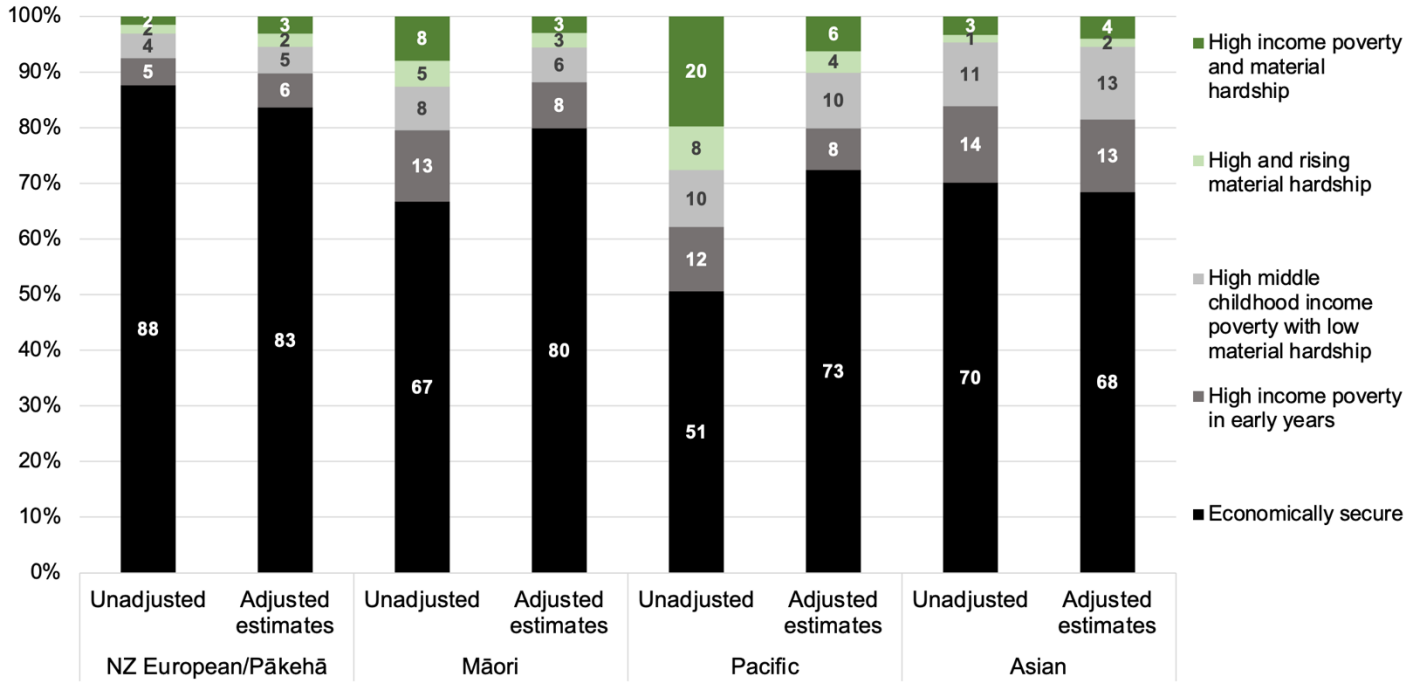
Note. Error bars represent 95% Confidence Intervals.

Maternal ethnicity

Large ethnic inequities were seen in the experience of each economic trajectory. Māori and Pacific mothers were underrepresented in the *economically secure* trajectory, and overrepresented in more economically precarious trajectories. This overrepresentation was greatest in trajectories characterised by deeper and more persistent income poverty and material hardship. For example, 12% of children in the *economically secure* trajectory were children of Māori mothers and 4% were children of Pacific mothers, an underrepresentation of the total sample proportions, and compared to 70% of children in this group who had European mothers. However, in the more disadvantaged trajectories the proportion of children of Māori and Pacific mothers was far higher: 27% and 22% of children with Māori and Pacific mothers, respectively, in the *high and rising material hardship* trajectory, and 28% and 25% of children with Māori and Pacific mothers in the *high income poverty and material hardship* trajectory.

While these bivariate statistics describe the unadjusted ethnic inequities in economic (in)security trajectories, multinomial regression adjusts for other factors known to be overrepresented or underrepresented in some ethnic groups and also associated with economic insecurity. These include educational attainment, nativity, family structure transitions, and persistent parental disability. Figure 2b displays both the unadjusted bivariate statistics, and the predicted probability of trajectory membership adjusted according to these other socioeconomic factors in the multinomial regression estimates. Table A8 in the appendix displays the complete results of the multinomial logistic regressions. These analyses are important to determine whether ethnic inequities persist even after controlling for other factors that are over/underrepresented within different ethnic groups.

Figure 2b. Unadjusted and adjusted predicted estimates of economic (in)security trajectory membership by maternal ethnicity



In the adjusted regression models, children of Māori mothers (compared to children of European mothers) were seen to only have an increased likelihood of being in the *high income poverty in early years* trajectory compared to the *economically secure* trajectory. There were

no statistically significant differences in the likelihood of being in any other economic trajectories for children of Māori mothers after controlling for the other factors measured at the initial waves as well as longitudinal measures of family structure, parental employment, and parental disability.

The proportions of children of Pacific mothers in each of the more disadvantaged trajectories was also attenuated in the adjusted model. However, large and statistically significant differences remain for these children (compared to children born to European mothers). Compared to children with European mothers, children of Pacific mothers were 1.7 times more likely to be in the *high income poverty in early years* trajectory, 2.6 times more likely to be in the *high and rising material hardship* trajectory, 2.3 times more likely to be in the *high middle childhood income poverty with low material hardship* trajectory, and 3.4 times more likely to be in the *high income poverty and material hardship* trajectory than in the *economically secure* trajectory after controlling for the other factors.

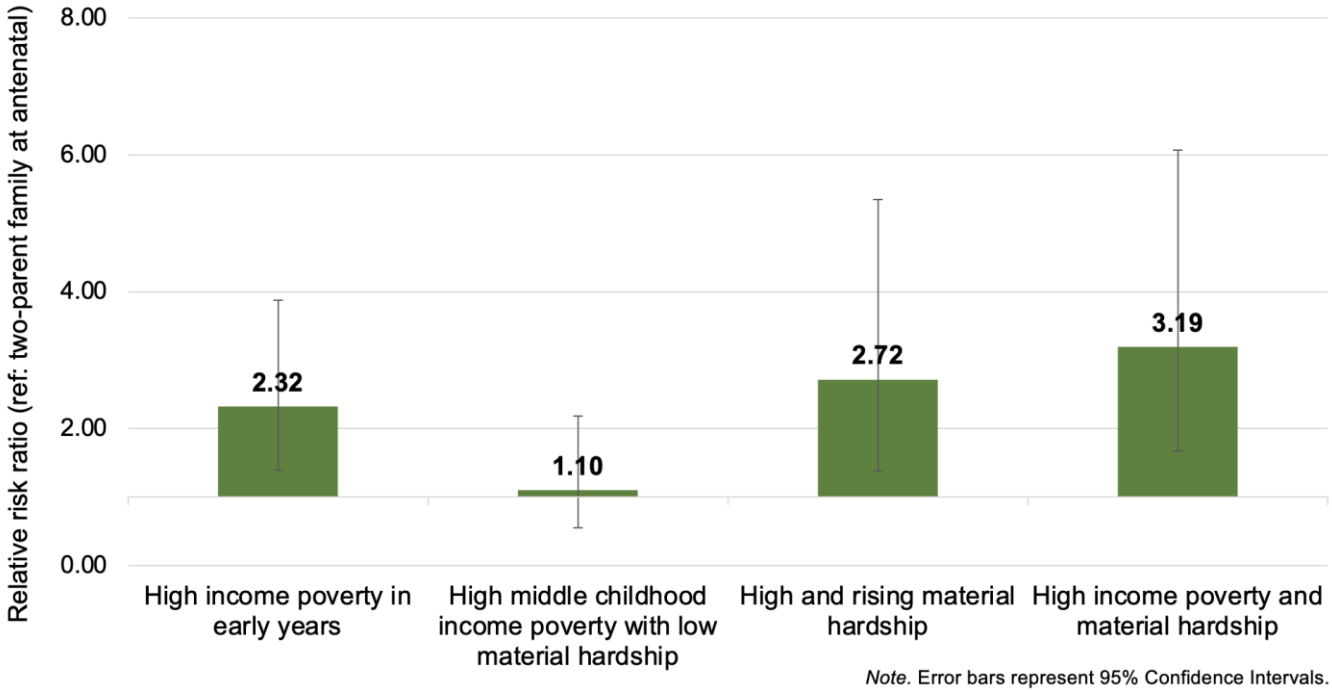
Compared to children of European mothers, children born to Asian mothers also continued to be more likely to be in the *high income poverty in early years (*three times more likely), *high middle childhood income poverty with low material hardship* (3.9 times), and *high income poverty and material hardship* (2.5 times) trajectories than the economically secure trajectory, when this likelihood was adjusted according to these other factors.

Family structure

Children born to a sole mother or who experienced family separation during childhood were at heightened risk of experiencing more disadvantaged economic trajectories in comparison to children born into a two-parent family. For example examining estimates adjusted for the full suite of covariates, children born to a sole mother were over three times more likely to be in the *high income poverty and material hardship* trajectory, 2.7 times more likely to be in the *high and rising material hardship* trajectory, and 2.3 times more likely to be in the *high income poverty in early years* trajectory compared to children born into a two-parent family (Figure 2c). There was no difference in the likelihood of being in the *high middle childhood income poverty with low material hardship* trajectory according to any family structure type.

Stability in family structure was important for the experience of (in)security. Each family structure change (e.g., a change from being in a two- or sole-parent family at a wave and to being in a sole- or two-parent family, respectively, at a subsequent wave), after controlling for all other covariates, was associated with a 23% greater risk of being in the *high income poverty in early years* trajectory, 30% greater risk of being in the *high middle childhood income poverty with low material hardship* trajectory, and 40% greater risk of being in the *high and rising material hardship* trajectory, compared with being in the *economically secure* trajectory. Family structure changes were not statistically associated with greater risk of being in the *high income poverty and material hardship* trajectory. This could be due in part to differences in the family context of those children who experienced *no* family structure changes. That is, having no family structure change could mean either living with two parents at every wave or living with a sole parent at every wave. Both the *economically secure* and *high income poverty and material hardship* trajectories represent stable economic experiences (i.e., consistently advantaged or disadvantaged at every wave), mirroring stability in family structure.

Figure 2c. Sole parents (at antenatal) relative risk of economic (in)security trajectory membership vs. *economically secure* trajectory (ref: two-parent families)



Note. Error bars represent 95% Confidence Intervals.

Other characteristics associated with trajectories of economic (in)security

As described in the tables in the appendix, the following characteristics were statistically associated with an increased likelihood of being in more disadvantaged economic trajectories: persistent parental disability (having a parent with a disability both at the antenatal/9-month and 12-year waves); parents being unemployed or not working across childhood; subsequent children being born; renting the family home (vs. owning) in the antenatal period; and higher neighbourhood deprivation.

Research Question 3: Economic experiences and parental and child wellbeing

Research question 3 aimed to determine whether these different trajectories of economic in(security) were associated with specific child and parent outcomes. The three child outcomes examined—self-rated health; depressive symptoms; and anxiety symptoms—were measured directly from the children at the 12-year wave. The three parent outcomes—self-rated health; depressive symptoms; and relationship conflict—were reported by the mother, also at the 12-year wave.

Child outcomes

Table 1 presents the coefficients from the OLS regression models predicting child outcomes. Model 1 includes just the economic trajectories and Model 2 includes the full suite of covariates to understand the extent to which any associations between economic trajectories and outcomes persist once other factors that may also be associated with both wellbeing, such as maternal education and family structure, and likelihood of experiencing different economic trajectories are accounted for. Full model results are presented in Tables A9 (child outcomes) and A10 (parent outcomes) in the appendix.[ix]

Table 1. OLS regression models predicting child outcomes at age 12 years

	Global health scale		Depressive symptoms		Anxiety symptoms	
	Model 1 Coeff.	Model 2 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 1 Coeff.	Model 2 Coeff.
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.12**	-0.02	0.03	-0.29	-0.23	-0.32
	(0.04)	(0.05)	(0.31)	(0.32)	(0.67)	(0.70)
High middle childhood income poverty with low material hardship	-0.16***	-0.10*	0.37	0.28	-0.25	-0.34
	(0.05)	(0.05)	(0.37)	(0.37)	(0.74)	(0.75)
High and rising material hardship	-0.43***	-0.29**	2.32**	1.66*	2.63*	2.20
	(0.09)	(0.10)	(0.72)	(0.71)	(1.31)	(1.34)
High income poverty and material hardship	-0.40***	-0.20*	1.07*	0.36	0.31	0.14
	(0.08)	(0.08)	(0.47)	(0.50)	(0.98)	(1.07)
Constant	4.55***	4.37***	8.37***	9.11***	46.03***	45.33***
	(0.01)	(0.14)	(0.09)	(1.06)	(0.19)	(2.13)
R^2	0.02	0.06	0.01	0.07	0.00	0.05
n	3,817	3,817	3,824	3,824	3,824	3,824
Covariates included:	No	Yes	No	Yes	No	Yes

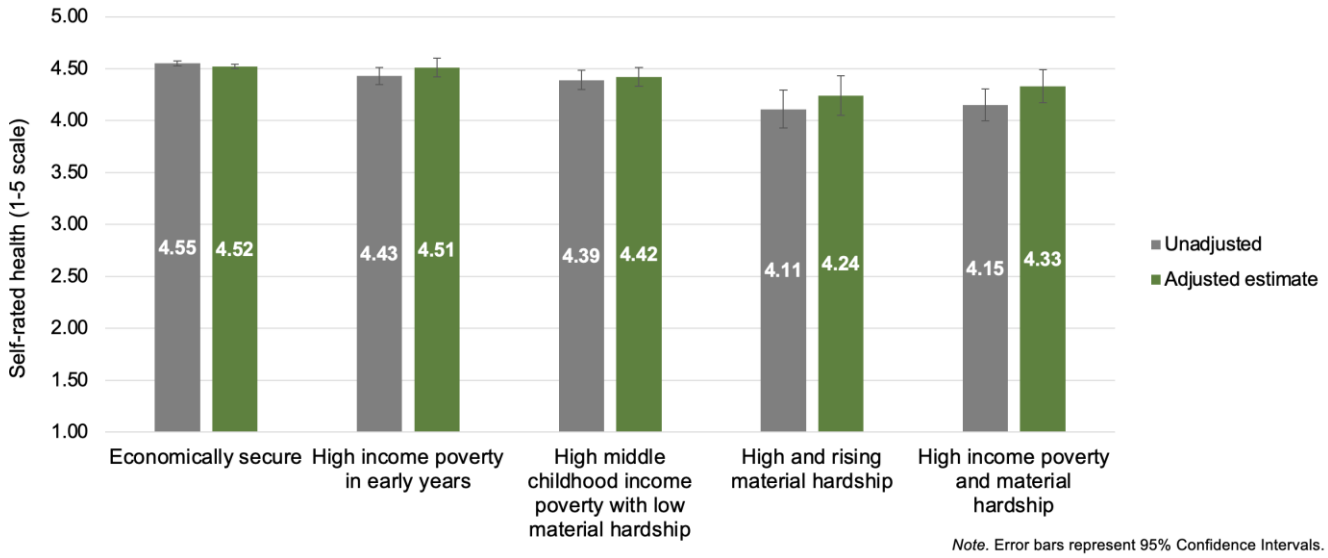
Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$. Full model results presented in Tables A9 in the appendix. Dark grey shared identifies large effect sizes; medium grey shading identifies moderate effect sizes; light grey shading identifies small effect sizes. There were no effect sizes considered large.

[ix] Stepwise regression results where groups of covariates (e.g., maternal characteristics, geographic factors, longitudinal variables) were added cumulatively in separate models can be found in Tables A11 through A16 in the appendix, with each table corresponding to one outcome.

Figure 3a displays both the unadjusted (i.e., bivariate statistics) and predicted adjusted average self-reported child health at the 12-year wave by economic trajectory. The adjusted predicted estimates come from OLS models (Model 2 in Table 1 above, and full results in Table A9 in the appendix), adjusted for the full set of controls, such as maternal education, ethnicity, and longitudinal measures of family structure, parental employment, and parental disability.

Overall, children in more advantaged economic trajectories had similar levels of self-reported health after controlling for other factors, with no statistical differences between the *economically secure* (4.52 on a 1-5 scale) and *high income poverty in early years* (4.51) trajectories. Children in the *high middle childhood income poverty, low material hardship* (4.42), *high and rising material hardship* (4.24), and *high income poverty and high material hardship* (4.33) trajectories reported statistically lower self-reported health compared with children in the two other trajectories. While statistically different, the effect size difference between the *economically secure* and the *high middle childhood income poverty* trajectories could be considered small, whereas the difference between the *economically secure* trajectory and the *high and rising material hardship* and *high income poverty and high material hardship* trajectories could be considered moderate.[x]

Figure 3a. Self-reported child health by economic trajectory



Note. Error bars represent 95% Confidence Intervals.

Figures 3b and 3c present the unadjusted and adjusted predicted depressive and anxiety symptoms,[xi] respectively, among children at 12 years across the economic trajectories. Adjusted for the full set of controls, there was only one statistically significant difference across the trajectories: children in the *high and rising material hardship* trajectories reported more depressive symptoms (1.66 higher on the depressive scale; $p < .05$) than those in the *economically secure* trajectory. These effect sizes would be considered small. Scores of 10 on this scale have been used as a standard cut-off score for identification of possible depressive

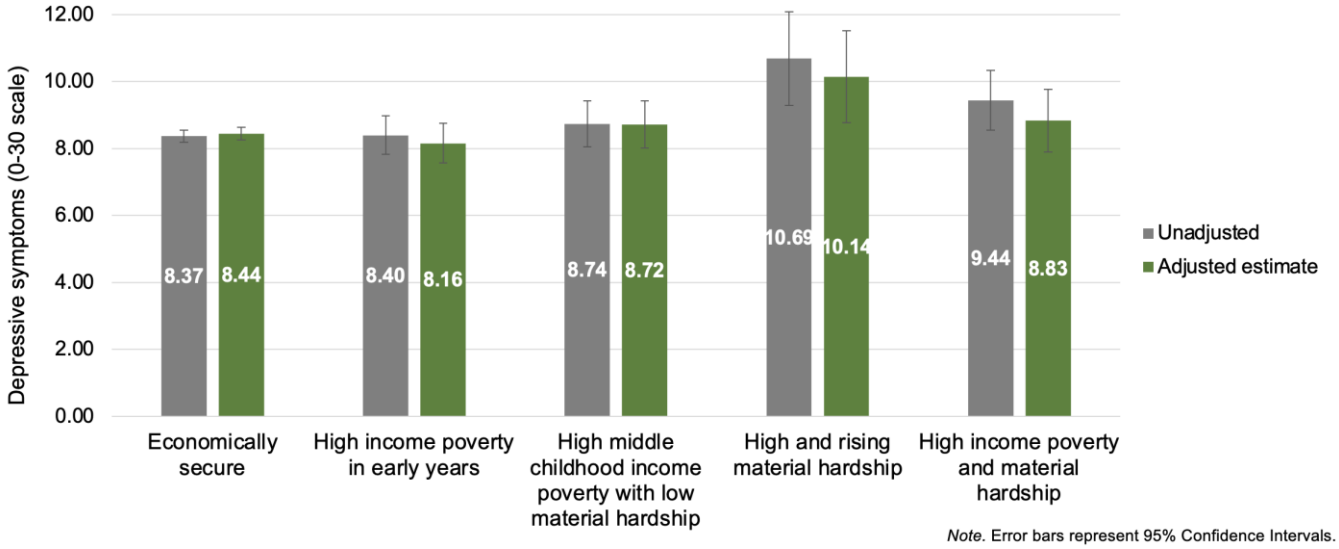
[x] Effect sizes are estimated using the Cohen's *d* (1988). The use of the Cohen's *d* effect size thresholds of .20, .50., and .80 of a standard deviation difference between adjusted means is a useful tool for consistently reporting across the different outcomes being examined, a strict interpretation of these being 'small', 'moderate', and 'large' effect sizes should be treated with caution given the variability and differences in outcomes being examined.

[xi] The American Psychiatric Association posits that anxiety T-scores 70 and over indicate severe anxiety, whereas scores between 60-69 and 55-59 indicate moderate and mild symptoms, respectively.

symptoms in the adult population.[xii] Bivariate statistics of this measure indicated that approximately 52.2% of the children in the *high and rising material hardship* trajectory had a score of 10 or above, compared to 36.2% of the total sample.

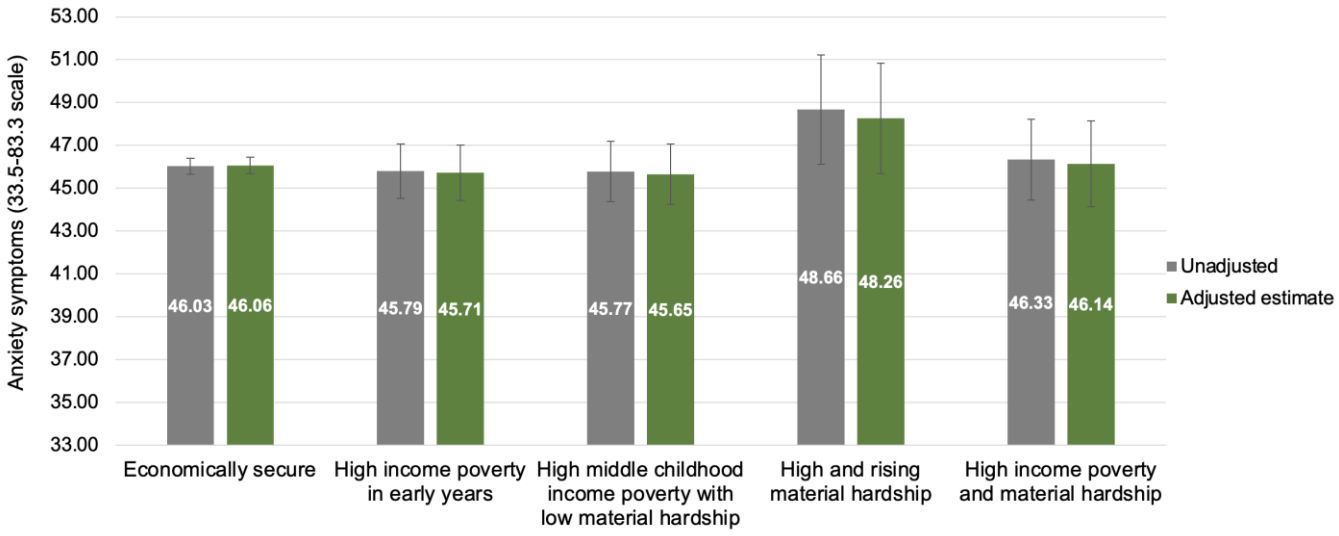
There were no statistically significant differences in the adjusted predicted anxiety symptoms. In this scale, scores of 70 and over indicate severe anxiety, whereas scores between 60-69 and 55-59 indicate moderate and mild symptoms, respectively.

Figure 3b. Child depressive symptoms by economic trajectory



Note. Error bars represent 95% Confidence Intervals.

Figure 3c. Child anxiety symptoms by economic trajectory



Note. Errors bars represent 95% Confidence Intervals.

Overall, trajectories with high and more persistent material hardship, regardless of income poverty status, were more strongly correlated with poorer child outcomes after controlling for other factors and compared to the *economically secure* trajectory.

[xii] It is important to note that this cut-off has only been validated in adults in the international literature and not within the Aotearoa New Zealand population, nor has this cut-off been validated among a child/adolescent sample. Thus, tthese proportions should not be used to make inferences around the rate of depressive symptoms among the adolescent population in Aotearoa New Zealand.

Parent wellbeing

Table 2 presents the coefficients from the OLS regression models predicting outcomes. Model 1 included just the economic trajectories, whereas Model 2 included the full suite of covariates (full model results can be found in Table A10 in the appendix).

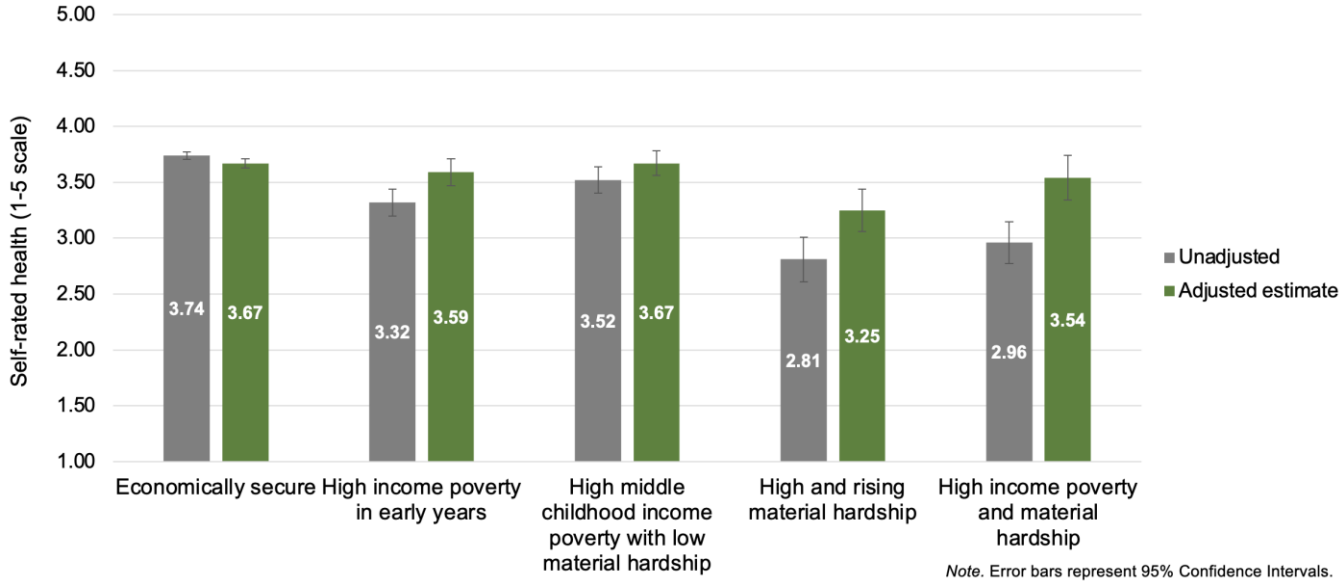
Table 2. OLS regression models predicting maternal outcomes at the 12-year wave

	Global health scale		Depressive symptoms		Relationship conflict	
	Model 1 Coeff.	Model 2 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 1 Coeff.	Model 2 Coeff.
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.42***	-0.08	0.89**	0.01	0.17	-0.04
	(0.06)	(0.06)	(0.27)	(0.28)	(0.12)	(0.12)
High middle childhood income poverty with low material hardship	-0.22***	0.02	0.39	-0.15	0.05	-0.09
	(0.06)	(0.06)	(0.27)	(0.27)	(0.13)	(0.13)
High and rising material hardship	-0.93***	-0.40***	4.95***	3.44***	0.76*	0.52
	(0.10)	(0.10)	(0.60)	(0.59)	(0.36)	(0.35)
High income poverty and material hardship	-0.78***	-0.13	2.89***	1.20*	1.71***	1.47***
	(0.10)	(0.10)	(0.44)	(0.47)	(0.36)	(0.35)
Constant	3.74***	3.67***	3.76***	6.21***	4.41***	4.27***
	(0.02)	(0.18)	(0.07)	(0.82)	(0.03)	(0.45)
R^2	0.05	0.15	0.05	0.10	0.03	0.05
n	3,873	3,873	3,879	3,879	3,160	3,160
Covariates included:	No	Yes	No	Yes	No	Yes

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$. Full model results presented in Tables A10 in the appendix. Dark grey shading identifies large effect sizes; medium grey shading identifies moderate effect sizes; light grey shading identifies small effect sizes.

Figure 3d presents the unadjusted and adjusted predicted average self-reported health of mothers at the 12-year wave by economic trajectory. Predicted outcomes are estimated from the OLS models, adjusted for the full set of covariates. A similar pattern of results emerged to those found for self-reported child health. There was a statistically significant difference found in maternal health between those in the *economically secure* trajectory (3.67 on the 1-5 health scale) compared with those in the *high and rising material hardship* (3.25). This effect size is considered moderate.

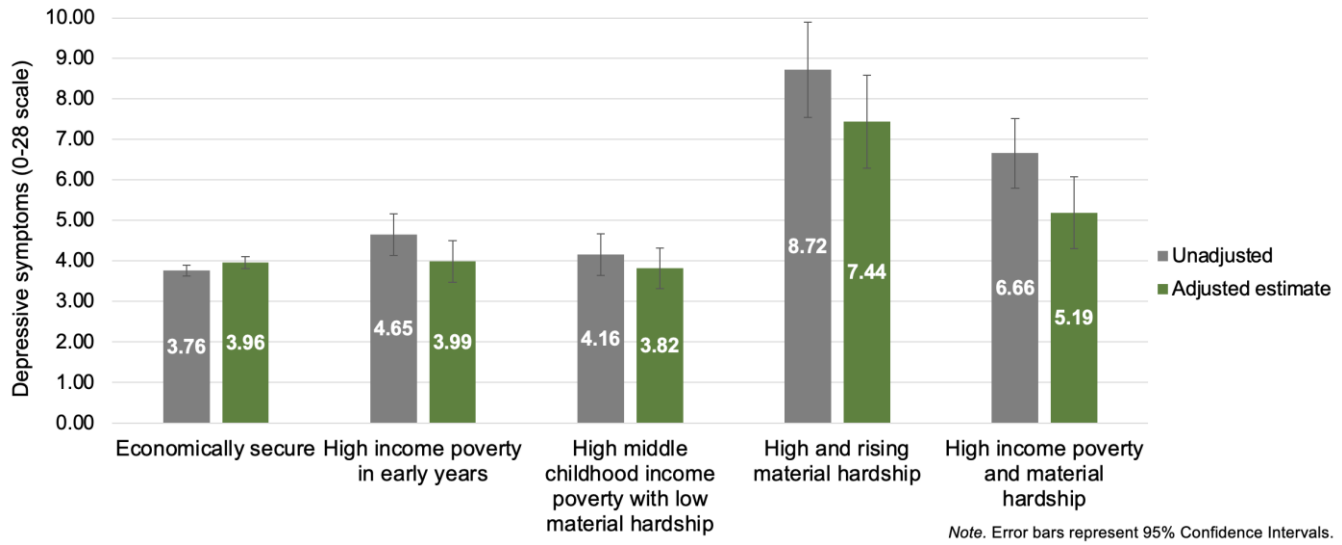
Figure 3d. Self-reported maternal health by economic trajectory



Note. Error bars represent 95% Confidence Intervals.

Figure 3e presents the unadjusted and adjusted predicted maternal depressive symptoms by economic trajectory. In contrast to the predominately null association found with depressive symptoms among children, there were statistical differences in maternal symptoms of depression found between the more advantaged economic trajectories and the two most disadvantaged trajectories: *high and rising material hardship* and *high income poverty and material hardship*. Mothers in the *high and rising material hardship* trajectory had an adjusted scale score of 7.44 and those in the *high income poverty and material hardship* trajectory a score of 5.19 compared to 3.96 among those in the *economically secure trajectory*—large and small effect sizes, respectively. A cut-off score of 10 on the scale score is considered an indicator of possible clinical-level depressive symptoms. Bivariate statistics of this measure indicated that approximately 37.9% of mothers in the *high and rising material hardship* trajectory had a score of 10 or above, compared to just 8.7% of the total sample.

Figure 3e. Maternal depressive symptoms by economic trajectory

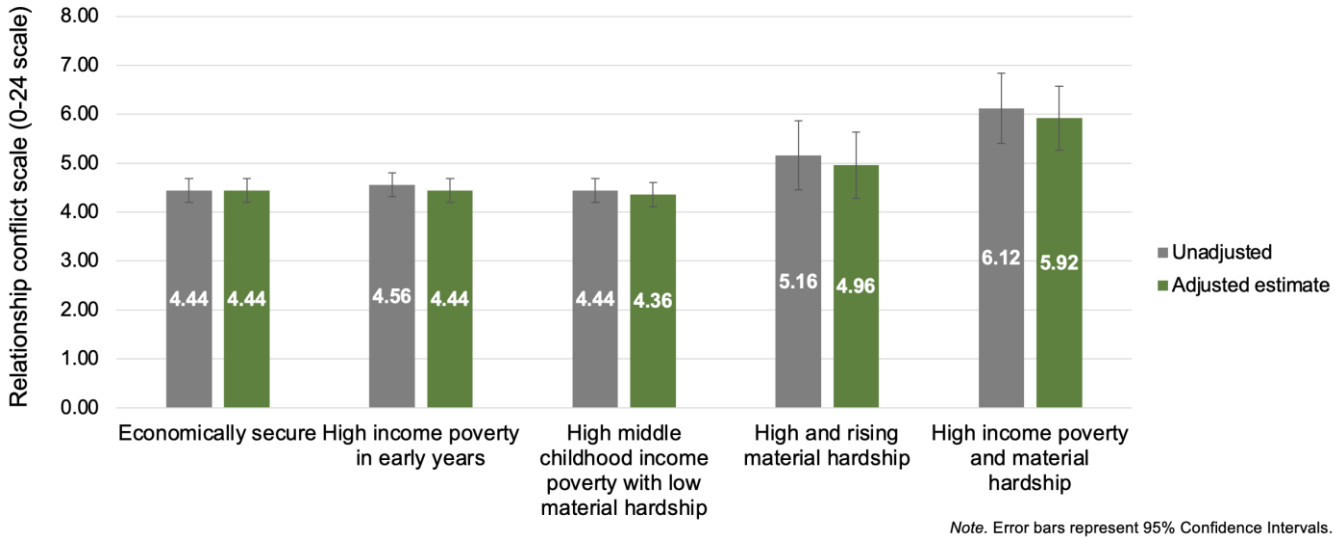


Note. Error bars represent 95% Confidence Intervals.

Finally, Figure 3f examines reports of relationship conflict for mothers in relationships (either with the child's biological father or a new partner). Mothers in the *high income poverty and material hardship* trajectory reported more conflict compared to those in all other trajectories, reporting an adjusted average conflict score of 5.92 on a scale of 0-24, compared to around

4.40 within the other trajectories, and 4.96 among those mothers in *high and rising material hardship* (although this average was only statistically different from the trajectories with lower conflict scores at the $p < .10$ level). The difference in conflict between the *high income poverty and material hardship* trajectory and most economically advantaged trajectories is considered large.

Figure 3f. Relationship conflict by economic trajectory



Note. Error bars represent 95% Confidence Intervals.

Overall, economic experiences appeared to be more strongly associated with parents' wellbeing than children's, and potentially represents a partial mechanism through which children are impacted by economic circumstances. That is, the stressors of economic hardship impact parents' wellbeing in ways that makes it harder for them to parent and engage with their children, in addition to the other mechanisms through which we know economic hardship matters for child wellbeing, such as through greater food insecurity.

Research Question 4: Economic in(security) and problem debt

Finally, we examine whether these trajectories of economic security and other sociodemographic characteristics were associated with different levels of problem debt at the 12-year wave, and whether, net of these confounders, problem debt matters for children's and parents' wellbeing in a cumulative or potentially mediating and/or moderating effect.

Who has higher levels of problem debt?

Overall, there were no statistical differences in the levels of debt for those with at least one source of problem debt reported across the *economically secure* ($7,909), *high income poverty in early years* ($8,763), and *high middle childhood income poverty, low material hardship* ($8,470) trajectories (Table A7). Families in the *high and rising material hardship* ($13,483) and *high income poverty and material hardship* ($12,483) trajectories had statistically higher levels of problem debt than the three more advantaged economic trajectories.

In terms of the problem debt groups used in the outcome analyses, over half of the sample (57.64%) had $1,000 in debt or less, 25.59% had between $1,001 and $10,000 in debt, and 16.77% had more than $10,000 in debt. Again, a greater proportion of those in the *high and rising material hardship* and *high income poverty and material hardship* trajectories were in the highest debt group (33.33% and 26.45%, respectively).

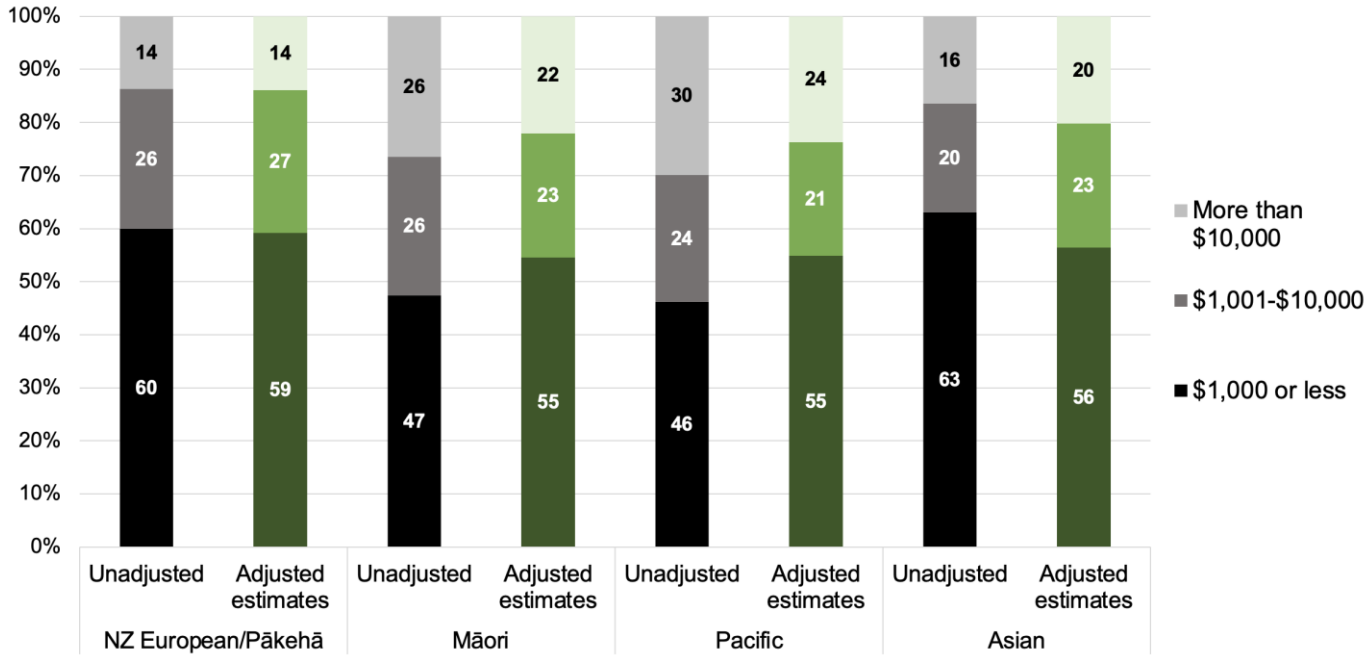
Using multinomial regression (full model results in Table A17 in the appendix)[xiii] we then controlled for sociodemographic differences and longitudinal measures of family structure, parental employment, and parental disability across the economic trajectories. In these adjusted analyses, only families in the *high and rising material hardship* trajectory continued to have a statistically significant higher risk of being in the highest problem debt category. Those in this trajectory were 2.31 times more likely to be in the "more than $10,000 in debt" group than in the lowest debt group ($1,000 or less) compared with the other economic trajectories. Part of the attenuation in the risk of being in a high- versus low-debt group between the *economically secure* and *high income poverty and material hardship* trajectories was due to overrepresentation of Māori and Pacific parents in this latter trajectory who, after controlling for economic trajectory experience, continued to have statistically higher risk of being in the high problem-debt group.

Figure 4a presents the unadjusted (bivariate) and adjusted (estimated proportion holding other covariates constant) proportion of families within each problem debt group by ethnicity. Although there were not statistical differences by ethnicity in the relative risk of being in the $1,001-$10,000 problem debt group versus the $1,000 or less/no problem debt group, a greater proportion of mothers who were Māori, Pacific, and Asian were in the highest problem debt group—more than $10,000—than the lower problem debt groups compared to Pākehā/European mothers. For example, adjusted estimates, which control for other differences among these ethnicity groups that might explain their high debt levels, such as being more likely to be in disadvantaged economic trajectories, show that 14% of Pākehā/European mothers were in the highest debt level group, compared to close to one quarter of Pacific mothers (24%) and around one-fifth of Māori (22%) and Asian mothers (20%).

[xiii] Table A18 in the appendix presents results from OLS regression estimating problem debt in thousands of dollars, using the same suite of predictor covariates, as a robustness check of the significant findings. The ethnicity and eduation findings remain substantively consistent.

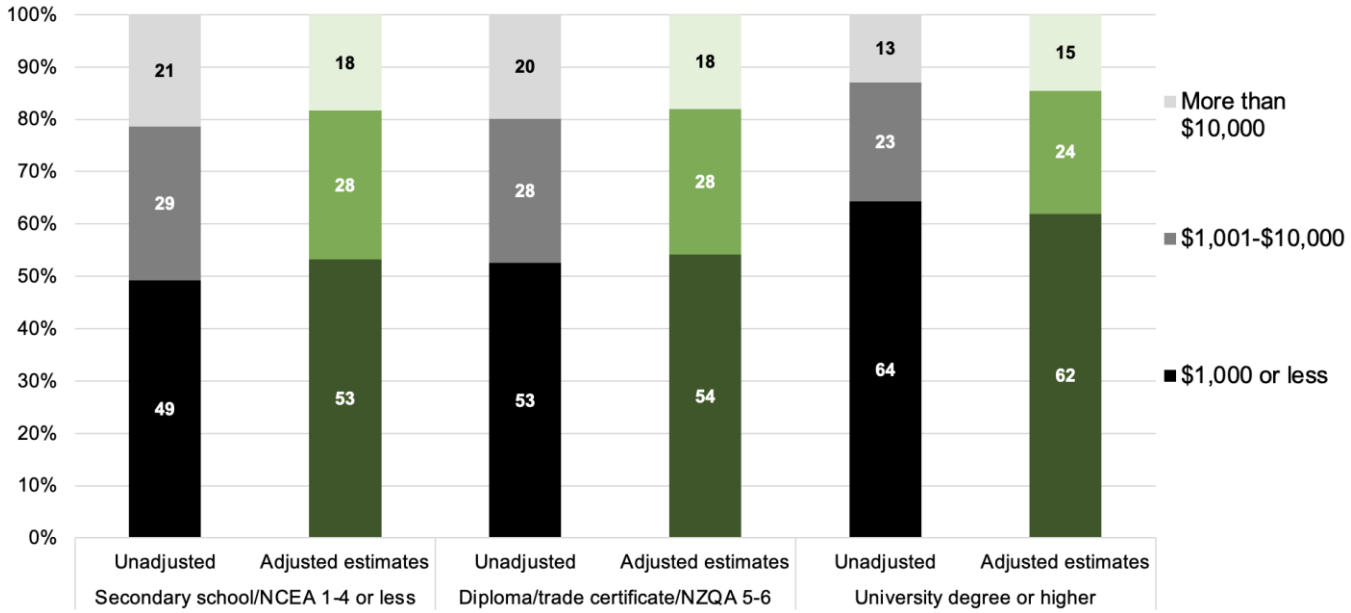
Moreover, comparing the adjusted estimates to the unadjusted rates which do not account for potential confounders (e.g., economic security, home ownership, educational) shows only modest narrowing of the debt gap for Māori and Pacific mothers. For Asian mothers, there was even a suppressor effect, whereby Asian mothers were overrepresented on some characteristics that were more strongly predictive of *low* levels of debt among the total sample.

Figure 4a. Unadjusted and adjusted predicted estimates of problem debt group by maternal ethnicity



Maternal education also continued to be strongly correlated with economic resources. Having more education was associated with lower levels of problem debt. Figure 4b presents the unadjusted and adjusted predicted estimates of problem debt group membership by maternal education. There were similar proportions of those mothers with a secondary school education and those with a diploma or trade certificate who were in the “more than $10,000 in debt” group (21.38% and 19.86%, respectively). Mothers with a university degree were less likely to be in this same high-debt group (12.99%) and more likely to be in the low problem-debt group of $1,000 or less; 64.25% vs. 49.17% and 52.54% among those with a secondary school education and those with a diploma/trade certificate, respectively. Controlling for other factors that are both overrepresented among the different education groups and the levels of problem debt, such as ethnicity and economic trajectory, did little to attenuate these education-related gaps in economic resources.

Figure 4b. Unadjusted and adjusted predicted estimates of problem debt group by maternal education



Among the sociodemographic characteristics examined, statistically significant correlated factors, after controlling for all other study variables, included:

- *Maternal nativity:* Mothers who migrated to Aotearoa New Zealand as an adult (19 years or older) were 30% less likely to be in either the moderate or high problem-debt groups versus the low-debt level group, compared with those mothers who were born in Aotearoa New Zealand or migrated here as children.

- *Maternal disability:* Mothers with no disability at the antenatal or 9-month survey wave, but who identified as having a disability at the 12-year wave, were at greater risk of being in the moderate-debt group than low-debt group (RRR = 1.37; $p < .05$) compared with all other groups: mothers who identified no disability at those two time points; mothers who identified as having a disability at the antenatal/9-month waves but not at the 12-year wave; and mothers who reported having a disability at both time points.

- *Home ownership:* Homeownership was protective of problem debt, with children born into families who owned their home were 30% less likely to be in the high-debt group versus low- and moderate debt level groups (compared to children whose families rent their home).

- *Household income from a main benefit:* Families who received any of their household income from a main benefit at the antenatal wave were 40% and 47% more likely to be in the moderate- and high-debt level groups, respectively, compared to families who were not receiving income from a main benefit at the antenatal wave. This association, however, was only significant at the $p < .10$ level.

- *Other adult household members:* Families who had other adults living in their home (outside of the children's parents) had a 36% greater likelihood of being in the high-debt group versus the low-debt group (compared to families where there were no other adult household members). Having more adults in the home, generally, at the 12-year wave

was associated with greater likelihood of being the high-debt group versus low-debt (RRR = 1.17; $p < .05$) and moderate-debt (RRR = 1.18; $p < .15$) groups.

- *Neighbourhood deprivation:* Neighbourhood deprivation decile was associated with increased risk of being in the moderate-debt group (RRR = 1.05, $p < .05$) compared to the low-debt group, but not associated with increased risk of being in the high-debt group (vs. low-debt group).

- *Region:* Children born in the Counties Manukau District Health Board (DHB) areas were around a third more likely to be in the moderate- and high-debt groups versus being in the low-debt group (compared to children born in the Auckland and Waikato DHB regions).

Maternal age, family structure at antenatal, parents' work status at antenatal, children's early developmental problem, and parental labour force engagement across childhood, among several other factors, were not associated with debt-group risk once controlling for all other study variables.

Problem debt and wellbeing

Next, we examined whether problem debt, examined at 12-years only,[xiv] created additional stressors for parents and children, as well as explored whether problem debt may have a particular impact on the health and wellbeing of parents and children from different economic trajectories, such as those living consistently in income poverty (model results not presented). Table 3 presents the model results predicting child and parent outcomes with problem debt included in the prior outcome models, net of covariates (full models, including coefficients for all covariates are in Table A9 and A10, Model 3).

Table 3. OLS regression models including problem debt predicting child and maternal outcomes

	Child outcomes			Maternal outcomes		
	Global health scale Coeff.	Depressive symptoms Coeff.	Anxiety symptoms Coeff.	Global health scale Coeff.	Depressive symptoms Coeff.	Relation-ship conflict Coeff.
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.02	-0.26	-0.23	-0.08	0.05	-0.02
	(0.05)	(0.32)	(0.70)	(0.06)	(0.28)	(0.12)
High middle childhood income poverty with low material hardship	-0.10*	0.28	-0.35	0.01	-0.14	-0.08
	(0.05)	(0.37)	(0.75)	(0.06)	(0.27)	(0.13)
High and rising material hardship	-0.28**	1.60*	2.03	-0.38***	3.34***	0.48
	(0.10)	(0.71)	(1.34)	(0.10)	(0.60)	(0.35)
High income poverty and material hardship	-0.20*	0.37	0.21	-0.13	1.20*	1.45***
	(0.08)	(0.50)	(1.07)	(0.10)	(0.47)	(0.35)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000	-0.01	0.19	0.29	-0.05	0.49**	0.19**
	(0.03)	(0.20)	(0.42)	(0.04)	(0.16)	(0.07)
More than $10,000	-0.00	0.59*	1.86***	-0.12**	0.86***	0.34***
	(0.00)	(0.25)	(0.52)	(0.04)	(0.19)	(0.09)
Constant	4.37***	9.00***	45.10***	3.69***	6.02***	4.19***
	(0.14)	(1.06)	(2.13)	(0.18)	(0.81)	(0.45)
R^2	0.06	0.07	0.05	0.19	0.12	0.06
n	3,817	3,824	3,824	3,873	3,879	3,160

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$. Models control for all study covariates. Full model results presented in Tables A9 and A10 in the appendix. Dark grey shading identifies large effect sizes; medium grey shading identifies moderate effect sizes; light grey shading identifies small effect sizes.

[xiv] Problem debt was only measured at the 8-year and 12-year survey waves in *GUiNZ.*

Overall, problem debt appeared to have an additive association with wellbeing. That is, while problem debt did, in some circumstances minimally attenuate the association between the economic trajectories and wellbeing (i.e., suggestive of the potential that some of the association between more economically vulnerable trajectories and poorer outcomes was due to higher levels of problem debt among these groups), problem debt was independently associated with poorer outcomes for both children and parents. This was consistent across all but one (children's global health scale) of the outcomes examined.

Beginning with child outcomes, problem debt was associated with both children's greater reports of depressive and anxiety symptoms, but not their self-rated global health, net of all other factors included in the models (e.g., economic trajectory experience, maternal and family characteristics). These associations were only significant for children in the high-debt group—those with families with more than $10,000 in problem debt—with no statistical differences between the moderate-debt ($1,001-$10,000 in debt) and low-debt ($1,000 or less) groups. Being in a high-debt group was associated with a 0.59 higher ($p < .05$) depressive symptoms scale score, on average, compared to being in a low-debt group. This difference, while statistically significant, would be considered not meaningful in terms of effect size. However, taken together with, for example, being in the *high and rising material hardship* group, the effect size between this group and the group of children in low-debt households and growing up *economically secure* would be considered a moderate-to-large effect size. Examining anxiety symptoms, children in the high-debt group reported anxiety symptoms scale scores 1.86 higher ($p < .001$), on average, than children in the low-debt group. This effect size would also be considered non-meaningful-to-small.

When we examined parental wellbeing, being in both the high-debt group and (to a lesser extent) the moderate-debt group, was associated with poorer maternal wellbeing (in most cases) compared with mothers in the low-debt group. Mothers who were in the high-debt group reported, on average, 0.12 lower ($p < .01$) self-reported global health compared with mothers in the low-debt group. The effect size, however, would not be considered meaningful.

Mothers in the high-debt group and moderate-debt group reported 0.86 ($p < .001$) and 0.49 ($p < .01$) higher depressive symptoms scale score compared to mothers in the low-debt group. These effect sizes are considered small and non-meaningful, respectively. However, if we again combine the experiences of economic insecurity and problem debt, the cumulative effect further widens the wellbeing differences between more economically secure trajectories and more insecure trajectories. In particular for the *high and rising material hardship group* who were also more likely to experience high levels of problem debt than those in the other economic trajectories, widening the wellbeing gap across the economic trajectories.

Examining relationship conflict, partnered mothers with high-debt levels report a relationship conflict score 0.34 ($p < .001$) higher than mothers with low or no debt, and partnered mothers with moderate-debt levels also report a relationship conflict scale score 0.19 ($p < .01$) higher than those with low or no debt. These effect sizes are considered small and non-meaningful, respectively.

There was no evidence that problem debt moderated the effect of the economic trajectories on outcomes.[xv] That is, the effect of problem debt on wellbeing was not worse or less consequential for families in different economic trajectories, as indicated by no statistically significant interaction terms between problem debt and the economic trajectories.

[xv] Results not reported but available upon request from the authors.

Discussion

This research set out to document the experiences of economic (in)security across the early-to-middle childhood life course among a contemporary cohort of Aotearoa New Zealand children. We did so by leveraging longitudinal data from over 4,000 children in the *Growing Up in New Zealand* study from when they were born through age 12 years, examining the frequency and pattern of experiences in income poverty and material hardship. We explored how those experiences of economic (in)security were associated with their mothers' and their own wellbeing and whether problem debt—a form of economic insecurity that often goes hand-in-hand with other forms of economic hardship—exacerbates these income poverty and material hardship experiences.

While this research has many implications for policy and points to areas for future research, we focus on five key findings and their implications.

Key findings

A majority of the children retained in the Growing Up in New Zealand cohort did not experience income poverty or material hardship in infancy, early and middle childhood. For those who did, there was diversity in income and material hardship experiences across the early life course

Sixty-five percent of the sample were not in income poverty nor material hardship at any of the major survey waves. Furthermore, another 15% had just one or two experiences of income poverty/material hardship. For those who did experience income poverty and material hardship, there were different patterns determined in terms of the age when income poverty/material hardship was experienced, as well as the persistence of those experiences. Notably, there were very few children who were in income poverty or material hardship at each of the five survey waves from birth through age 12 years.

Many children who did experience these most disadvantaged trajectories spent three or four years in material hardship, and this experience was associated with poorer outcomes. In this way, the study points to particular groups of the population who are most vulnerable to child poverty and are, therefore, the most appropriate to target for policy support.

While we examined some potential longitudinal 'triggers' into material hardship and income poverty, such as family instability and parental employment, these were not a specific focus of this study. Future research that examines the pushes into, and pulls out of, income poverty and material hardship is important to better understand how policy and programmes can support families into economic stability. Longitudinal data collection that samples across an ethnically and socioeconomically diverse population in Aotearoa New Zealand, such as the *Growing Up in New Zealand* study, is essential for such research, for informing our understanding of the processes that underpin economic insecurity and, in turn, creating evidence-based policy.

Income poverty and material hardship are distinct constructs, and material hardship appears to have a greater impact on parent and child wellbeing

Families in the two most disadvantaged groups, which were characterised by moderately more and much higher rates of material hardship, consistently had much poorer wellbeing outcomes than those in all other trajectories. This finding provides further support for the importance of consumption poverty measures—such as material hardship—over relative income poverty

measures as drivers of adverse parent and child outcomes. Ancillary analyses modelling simple counts of number of months in material hardship and number of months in income poverty confirmed this finding of the importance of material hardship. Material hardship duration was consistently associated with poorer parent and child outcomes, whereas the income poverty association attenuated to non-significance.

However, this is not to say income poverty is not important. On the contrary, material hardship is, in part, a consequence of income poverty and may be one of the primary mechanisms through which income poverty has been found to matter for child development. Moreover, policies and programmes that increase household income, such as tax credits to low-income families and raising benefit rates, are some of the most effective levers for alleviating material hardship (Grant & Prickett, *Forthcoming*). Policies that target both income poverty and material hardship, particularly those that raise family income, are important for ensuring children are protected from economic insecurity and the associated poor wellbeing.

It also important to acknowledge that income poverty can be considered a noisy measure. That is, other empirical studies have found that some households at the bottom of the income distribution do still report high standards (Perry, 2022). As another example, the income equivalisation measurement process, which takes into consideration the number of adults and children who depend on the household income, does not factor in other family needs, such as the potential extra resources that family members with disabilities may need to reach the same standard of living as other families without disabilities. Further empirical research to determine how much of the relatively stronger association between material hardship and wellbeing (compared to the weaker association between income poverty and wellbeing) is due to material hardship being a better determinant of wellbeing or whether its more so due to a measurement advantage is important.

High and persistent material hardship was more strongly associated with parent wellbeing than child wellbeing

While the experience of high and persistent material hardship was associated with poorer wellbeing (such as lower self-rated health and depressive symptoms) for both mothers and their children, this association was stronger for mothers. That is, the associations between persistent material hardship and poorer maternal health, more maternal depressive symptoms, and reports of relationship conflict were always statistically significant, and the effect sizes larger when compared to the child outcome results.

This finding potentially suggests, consistent with other research, that parental wellbeing is an important mechanism through which children are impacted by income poverty and material hardship. In this way, policies that are family- and whānau-centred may be most effective in buffering children from the impact of economic stress. As an example, policies such as childcare subsidies, free early childhood education (ECE), and support for ensuring that high quality childcare is affordable have multiple mechanisms for supporting all family members. These policies help ensure that children receive access to the benefits of quality ECE for their development, while parents receive more time for work (increasing household income) and respite from childcare responsibilities while relieving the cost of living. Affordable access to high quality childcare has also been found to support pro-equity outcome improvements for families living in socioeconomic advantage and overall societal economic benefit (Sylva et al., 2004).

Above and beyond experiences of income poverty and material hardship, problem debt was additionally associated with poorer child and parental outcomes

Problem debt, including the consequences of debt for wellbeing and families' ability to reach financial stability, has been of increasing concern in Aotearoa New Zealand. In this study, we found that families in more persistent income poverty and material hardship were also more likely to have debt from problem sources, and larger levels of debt when they did have debt from problem sources. Because we were only able to examine problem debt at one survey wave, we were unable to determine whether problem debt led to material hardship or whether consistently not being able to meet everyday needs resulted in taking on more problem debt (or some combination of the two). However, it is clear that debt coupled with persistent hardship could compound the ability of families to experience financial security, and its associated wellbeing outcomes.

Policies that ensure families have enough income to meet their everyday needs and therefore protect families from taking on problem debt are important. Increasing the ease and accessibility to non-recoverable emergency hardship grants to assist families experiencing short-term financial shocks are also important to stop families from experiencing short term debt (including to government agencies). Moreover, initiatives that lessen the risk of benefit and tax debt occurring (e.g., through Working for Families overpayments, recoverable grants) and that work with families to sustainably repay debt in a way that does not drop them into further hardship or push them towards predatory lenders are important for helping relieve problem debt burden.

We also found that problem debt was associated with wellbeing, regardless of how financially secure families were. Making sure legislation, such as the Credit Contracts Legislation Amendment Act, continues to be fit-for-purpose and enforced to ensure people have access to nonpredatory financial services and loans, and are free from predatory lenders, is important for protecting families from problem debt. This issue is particularly salient for families in high deprivation neighbourhoods, where predatory lenders, payday lenders, and truck shops are more ubiquitous (Ministry of Business, Innovations, and Employment, 2016). Importantly, this type of debt can further exacerbate issues of housing deprivation in these same areas, with other New Zealand-based research finding problem debt the tipping point to the experience of homelessness (Atatoa Carr et al., 2021).

It is important again to note that the study's measure of problem debt is noisy. That is, we were unable to know what proportion of a families' non-mortgage debt was from problem sources (e.g., unsecured to assets, high interest rates)—just that some or all of their non-mortgage debt came from a problem source. Including better measures that tap into elements of problem debt, such as the amount of debt from problem sources, liquidity and solvency issues stemming from debt, and persistent problem debt, in future data collection efforts, particularly in our national economic surveys, will be able to provide us with a clearer picture of the extent to which problem debt creates challenges for Aotearoa New Zealand families.

Experiences of economic security were not shared equally

The findings in this report highlighted the persistent inequities in who did and did not experience income poverty and material hardship, as well as problem debt. Most stark were the ethnic inequities exposed. Children of Māori, Pacific, and Asian mothers were more likely to experience more disadvantageous economic trajectories. Inequities in the experience of economic (in)security for children of Māori mothers were primarily driven by overrepresentation of Māori in other socioeconomic characteristics and measures of longitudinal family dynamics such as lower levels of maternal education, family instability (i.e., number of transitions in and out of two-parent/single-parent family structures), parental employment, and parental disability. The stark inequities in the experience of economic (in)security for children of Pacific and Asian mothers compared to children of European mothers remained.

Additional factors not accounted for in the multivariate analysis for these population groups (e.g., whether qualifications are recognised in Aotearoa New Zealand; remittance and extended family obligations) could partly explain the remaining differences. Structural factors—ones that often are correlated with access (and lack thereof) to middle or higher-paying employment, such as educational attainment and disability—were important predictors of economic experiences. Comparisons of data from the 2018 Census in Aotearoa New Zealand also demonstrate the relatively low median annual income for Māori and Pacific populations ($24,300), and also for Asian ($28,400) populations compared to European New Zealanders ($34,500), with important ethnic differences found in occupation type and income security (Ministry for Pacific Peoples, 2020).

Income poverty and material hardship are critical structural determinants of population wellbeing as recognised in the social determinants of health framework (Commission on Social Determinants of Health, 2008; Marmot, 2010). Stark and enduring ethnic inequities in economic insecurity experienced by Māori and other non-European populations in Aotearoa New Zealand occur as a consequence of historical colonisation, ongoing colonialism and structural disadvantage (King et al., 2009; Reid & Robson, 2007).

Combating income poverty and material hardship with an aim of ameliorating population-level inequities and making progress towards the government's responsibilities to child rights, Te Tiriti o Waitangi, and child poverty reduction will take a multipronged policy response. Targeting the early years for improvements in material wellbeing is most likely to shift trajectories and enable economic return. Policies that might not directly target income poverty and material hardship at the family or whānau level, but that treat the structural causes of income poverty and material hardship, such as investments in our education and health systems and ongoing efforts to stem racism and the legacy of colonialism, are an important part of the anti-poverty policy toolkit.

Limitations

There are several caveats of and limitations to this research that are important to consider when interpreting the findings:

- *Sample attrition across time means the most vulnerable children are not included:* Children included in the study sample were those whose families participated in each of the six main survey waves, those who had information on household income and material hardship at a majority of the waves, and those where the primary caregiver at each wave was the biological mother. Those who dropped out of the study or didn't meet these criteria (necessary in order to conduct the analyses) were more likely to have lower incomes at the antenatal wave. It is likely, then, that these analyses exclude the most economically vulnerable families. In this way, income poverty and material hardship are likely undercounted. It also means that differences in parental and child wellbeing by economic trajectories are likely more conservative.

- *Economic insecurity measures are not exact:* We attempted to measure income poverty, material hardship, and problem debt. While we consider the measures to be tapping into the underlying constructs they are representing (e.g., a form of income poverty, a form of material hardship, problem debt), they do not align exactly with how these constructs are measured by Stats NZ. As such, the estimates presented in the study should not be considered prevalence measures (although the estimates do, for the most part, align with national-level statistics).

- *Missing economic measures between survey waves:* We also acknowledge that we are taking snapshots of children's lives across time—snapshots which could miss periods where children are experiencing material hardship or years (during longer windows between survey waves) where their low household income might dip them into poverty. In this way, our measures of income poverty and material hardship experiences could be considered conversative by being more likely to miss an income poverty/material hardship experience than capture every experience.

- *The findings do not prove causality:* We presented a range of correlations between economic experiences across childhood, sociodemographic factors, and child and parent wellbeing. These correlations, however, are not necessarily causal, and there may be a variety of factors that were either not measured or unmeasurable that may explain some of the significant associations. We examined the effect of a range of factors in explaining experiences of different trajectories for different ethnic groups, and the association between trajectories and child and maternal wellbeing. These were factors measured at the antenatal wave and 12-year wave, as well as longitudinal measures that captured the experiences of family instability, parental employment, and parental disability. There are, however, a range of other factors that emerged after birth that can shape economic trajectories. This means the association with economic trajectory partly captures a range of other underlying drivers, such as residential mobility, local area characteristics such as the health of the labour market, and the bidirectional effects of children's health (e.g., poor children's health impacting parents' ability to work or meet their material needs). Further research to explore these drivers is important. We reiterate, however, that there is a large body of research—with many studies using strong causal designs—that do provide evidence that income poverty and material hardship impact wellbeing.

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Appendix

Table A1. Variable construction details

Construct	Survey wave	Coding	Details
Economic resources			
Income poverty (equivalised household income below 50% of median equivalised household income before housing costs)	9 months	0 = not below the poverty threshold; 1 = below the poverty threshold.	Information on household income and number of adults and children in the home were used to generate equivalised income, based on the OECD equivalised income approach (the same approach used by StatsNZ to develop child poverty estimates). Information on the median equivalised household income before housing costs to generate poverty thresholds comes from StatsNZ. Combined, these pieces of information determined whether households were "in poverty" or "not in poverty." Below are details on how household income and number of adults and children in the home at each wave was captured, as well as the poverty threshold values. <u>Household income</u> Household income in *GUiNZ* was collected from respondents by asking: *"In the last 12 months, what was your household's total income, before tax or anything else taken out of it?"* • Zero income • $1-$5,000 • $5,001-$10,000 • $10,001-$15,000 • $15,001-$20,000 • $20,001-$25,000 • $25,001-$30,000 • $30,001-$40,000 • $40,001-$50,000 • $50,001-$70,000 • $70,001-$100,000 • $100,001-$150,000 • $150,001 or more • Refused to say • Don't know Finer grain household income information for higher income categories can be found in the 8-year and 12-year waves, however we opted to use consistent categories across the waves, and note that this choice likely only effects income for higher-income families—those who are least likely to be in or near poverty—our key measure. The mid-point from the *GUiNZ* categorical variable values were assigned to construct a dollar amount

			of income. A $0 value is assigned to those with no household income. The top-coded value ("$150,001 or more), was assigned the value of $175,000, representing the top-coded value plus the additional midpoint value of the prior income group (i.e., $100,001-$150,000 is $25,000 below $150,000/above $100,001, so $25,000 is added to the top-coded value). It is important to note that household income in *GUiNZ* includes income *before tax,* whereas official BHC50 moving line poverty measure uses after-tax income. At the time of analyses, we were unable to find publicly-published median before tax and BHC equivalised household income across years. <u>Number of adults and children in the household</u> The number of adults and children are used to adjust household income based on the ages of the household members. In the OECD equivalisation technique, adults are considered those 14 years old or older. The data available in *GUiNZ*, including whether adult and child counts are available, and the age at which household members are considered children, sometimes changed across waves and will not directly align with the OECD definitions of adults/children. Details of data that were used at each wave are below. <u>Household equivalised income</u> Household equivalised income was generated with the mid-point income variable and the count of adults and children in the home, with the OECD and Statistics NZ approach applied to generate equivalised income (Statistics New Zealand, 2022). <u>New Zealand median annual household income</u> To construct poverty thresholds, thresholds were generated from StatsNZ estimates of median household equivalised disposable income (before housing costs) (Statistics New Zealand, 2023), then taking 50% of that median as the threshold. Annual data for median household income was chosen to match the survey wave. Median household income values for each survey wave were: • 9-months (2009): $28,688 • 2-years (2010): $29,084 • 4.5 years (2012): $30,548 • 8-years (2017): $35,592 • 12-years (2021): $43,566

			9-month adult and child definitions: • Adults: number of people aged 18 years and older in the home • Children: number of people aged under 18 years in the home
	2 years		*The number of adults and children was not available in the external data. The number of adults and children in the home was imputed from the number of adults and children in the home at the 9-month wave.* Adult and child definitions: • Adults: number of people aged 18 years and older in the home • Children: number of people aged under 18 years in the home
	4.5 years		Adult and child definitions: • Adults: number of people aged 18 years and older in the home • Children: number of people aged under 18 years in the home
	8 years		Adult and child definitions: • Adults: number of people aged 21 years and older in the home • Children: number of people aged under 21 years in the home
	12 years		Adult and child definitions: • Adults: number of people aged 21 years and older in the home • Children: number of people aged under 21 years in the home
Material hardship	9 months	0 = not in material hardship; 1 = in material hardship	The *GUiNZ* variable for material hardship changes across time. We employ methods used by Grant, et al. (Grant, et al., 2023) that examine the distribution of material hardship in the 9-month, 2-year, and 4.5-year waves to generally match the distribution of hardship at the 8-year and 12-year waves, where the DEP-17 standard cut-off for material hardship was available. At 9-months, respondents were asked six questions (dp1_m9m-dp6_m9m) that tap into material hardship (e.g., been forced to buy cheaper food in the past year, put up with feeling cold to save heating costs). “Yes” responses were summed into a scale ranging from 0-6. Values of 3 or higher determined the household was “in hardship.”
	2 years		Respondents were asked (ls3_y2m): *“How well does your (and your partner’s combined) total income meet your everyday needs?”* • Not enough • Just enough • Enough • More than enough

			Respondents who said “not enough” were determined to be “in hardship.”
	4.5 years		At 4.5 years, respondents were asked six questions (dp1_m54m-dp6_m54m) that tap into material hardship (e.g., been forced to buy cheaper food in the past year, put up with feeling cold to save heating costs). “Yes” responses were summed into a scale ranging from 0-6. Values of 3 or higher determined the household was “in hardship.”
	8 years		Not in hardship if DEP-17 = 5 or lower In hardship if DEP-17 = 6 or higher
	12 years		Not in hardship if DEP-17 = 5 or lower In hardship if DEP-17 = 6 or higher
Problem debt	12 years	Continuous variable with values of: • $0 • $250 • $750 • $1,750 • $3,750 • $7,500 • $30,000 • $70,000	Respondents are asked: *“Thinking about all the debt that your household may have (excluding your mortgage/home loan), what is the approximate combined total value of the debt you currently have?”* • I don’t have any debt • $1-$500 • $501-$1,000 • $1,001-$2,500 • $2,501-$5,000 • $5,001-$10,000 • $10,001-$50,000 • More than $50,000 • Prefer not to say • Don’t know One key limitation of this variable is that respondents may include their student loan debt when they are estimating this figure. Student loan debt is not considered problem debt, however it does represent debt likely being paid and constraining available resources that may limit the ability to meet every day needs (unlike mortgage/home loans, which pays for housing). The mid-point from the *GUiNZ* 7-categorical variable values (dp48_1_y12m) were assigned to construct a dollar amount of problem debt. A $0 value was assigned to those with no problem debt. The top-coded value (“More than $50,000) was assigned the value of $70,000, representing the top-coded value plus the additional midpoint value of the prior debt group (i.e., $10,001-$50,000 is $20,000 below $50,000/above $10,000, so $20,000 was added to the top-coded value). Survey respondents were also asked about the sources of their debt, however they were not asked the amount of debt from each source.

			Sources of debt and the amount of debt were used to create the study variable of problem debt, Where was a three-category variable (based on functional form analyses) indicating levels of non-mortgage debt among those with debt from problem sources: 1) $0 through $1,000; 2) $1,001-$10,000; and, 3) more than $10,000. Those who did not have debt from problem sources were assigned to the first group ($0-$1,000). Problem debt sources included: • Loan from finance company • Loan on a credit card (e.g., credit card debt) • Debt being managed by a debt collection agency • Unpaid fines • Debt from hire purchase (including mobile trading businesses or 'truck shops') Problem debt sources did not include: • Mortgage • Student loan • Loan from bank, building society, or credit union (not mortgage) • Loan from family or friends
Child outcomes			
Self-reported health	12 years	Scale ranging from *1* = poor through *5* = excellent.	Respondents were asked: *"In general, how would say your health is?"* • Excellent • Very good • Good • Fair • Poor • Refused to say • Don't know
Depressive symptoms	12 years	0-30 scale	The 10-item Centre for Epidemiological Studies Depression Scale (CES-D). Respondents are asked how often in the past week they felt that they were "too tired to do thing," lonely, like I don't have any friends," and "felt down and unhappy," among other questions aimed at measuring depressive symptoms. Response options ranged from *0* = rarely/none of the time/not at all through *3* = all the time/a lot of the time. Items are summed to construct a continuous scale. Cronbach's alpha = 0.80.
Anxiety symptoms	12 years	33.5-83.3 scale	The GUiNZ-generated anxiety scale summed eight anxiety items from the PROMIS anxiety short form

			and two items from the NIH fear tool to construct a continuous scale. *No internal validity data were available at the time of writing.*
Parental outcomes			
Maternal self-reported health	12 years	Scale ranging from *1* = poor through *5* = excellent.	Respondents were asked: *"Thinking about your current health, in general how would say your health is?"* • Excellent • Very good • Good • Fair • Poor • Refused to say • Don't know
Maternal depressive symptoms	12 years	0-28 scale	The Patient Health Questionnaire-9 (PHQ-9) 9-item measure asks respondents how often over the past two weeks they have felt "down, depressed, or hopeless," had "trouble falling or staying asleep, or sleeping too much," and "feeling bad about yourself – or that you were a failure or have let yourself or your family down," among other questions. Response options ranged from *0* = not at all through *3* = nearly every day. Items were summed to create a continuous scale. Cronbach's alpha = 0.86.
Maternal-reported relationship conflict	12 years	0-24 scale	Relationship conflict was constructed from 6-items asked of the mother about her relationship. She was asked about the frequency in the last four weeks "*your partner:* • *Made you feel like you couldn't do anything right; sulked or got angry when they didn't get what they wanted; blamed you for their problems;* • *Raised their voice at you when you were arguing; swore or yelled at you when they were angry;* • *Slapped you or threw things at you that could have hurt you;* • *Listened to your opinions; was positive and encouraged you; accepted what you wore and how you looked.* • *Insisted on knowing where you were at all times; made it hard for you to see your friends and family and got jealous when you did;* • *Insulted you or made you feel bad about yourself; belittled you or humiliated you in front of other people; did things to scare or intimidate you on purpose."*

			Positive questions were reverse-coded so higher values represented the absence of positive relationship qualities. Response options ranged from *0* = never or almost never through *4* = extremely often or all the time. Items were summed to create a continuous scale. Cronbach's alpha = 0.76.

Table A2. Debt group measure comparisons: OLS regression models predicting child and maternal outcomes at age 12

Panel A: Child outcomes	Global health scale			Depressive symptoms			Anxiety symptoms		
Debt measure in the model	Current study	All non-mortgage debt	Those with only problem debt	Current study	All non-mortgage debt	Those with only problem debt	Current study	All non-mortgage debt	Those with only problem debt
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Economic trajectory (ref: economically secure)									
High poverty in early years	-0.02	-0.02	-0.02	-0.26	-0.27	-0.29	-0.23	-0.28	-0.29
	(0.05)	(0.05)	(0.05)	(0.32)	(0.33)	(0.33)	(0.70)	(0.70)	(0.70)
High middle childhood poverty with low hardship	-0.10*	-0.10*	-0.10*	0.28	0.28	0.28	-0.35	-0.37	-0.35
	(0.05)	(0.05)	(0.05)	(0.37)	(0.37)	(0.37)	(0.75)	(0.75)	(0.75)
High and rising hardship	-0.28***	-0.29***	-0.29***	1.60*	1.62*	1.65*	2.03	2.11	2.24^{+}
	(0.10)	(0.10)	(0.10)	(0.71)	(0.71)	(0.71)	(1.34)	(1.34)	(1.35)
High poverty and hardship	-0.20*	-0.20*	-0.20*	0.37	0.36	0.35	0.21	0.14	0.14
	(0.08)	(0.08)	(0.08)	(0.50)	(0.50)	(0.50)	(1.07)	(1.07)	(1.08)
Problem debt (ref: $1,000 or less)									
$1,001 - $10,000	-0.01	-0.01	0.02	0.19	0.24	0.07	0.29	0.07	0.44
	(0.03)	(0.03)	(0.03)	(0.20)	(0.20)	(0.24)	(0.42)	(0.42)	(0.50)
More than $10,000	-0.00	-0.05^{+}	-0.01	0.59*	0.45*	0.13	1.86***	1.20*	1.19^{+}
	(0.00)	(0.03)	(0.05)	(0.25)	(0.22)	(0.32)	(0.52)	(0.47)	(0.70)
n	3,817	3,817	3,817	3,824	3,824	3,824	3,824	3,824	3,824

Panel B: Maternal outcomes	Global health scale			Depressive symptoms			Relationship conflict		
Debt measure in the model	Current study Coeff.	All non-mortgage debt Coeff.	Those with only problem debt Coeff.	Current study Coeff.	All non-mortgage debt Coeff.	Those with only problem debt Coeff.	Current study Coeff.	All non-mortgage debt Coeff.	Those with only problem debt Coeff.
Economic trajectory (ref: economically secure)									
High poverty in early years	-0.08	-0.08	-0.08	0.05	0.02	0.02	-0.02	-0.00	-0.01
	(0.06)	(0.06)	(0.06)	(0.28)	(0.28)	(0.28)	(0.12)	(0.02)	(0.02)
High middle childhood poverty with low hardship	0.01	0.02	0.02	-0.14	-0.15	-0.15	-0.08	-0.02	-0.01
	(0.06)	(0.06)	(0.06)	(0.27)	(0.27)	(0.27)	(0.13)	(0.02)	(0.02)
High and rising hardship	-0.38***	-0.39***	-0.39***	3.34***	3.33***	3.42***	0.48	0.09	0.09
	(0.10)	(0.10)	(0.10)	(0.60)	(0.60)	(0.59)	(0.35)	(0.06)	(0.06)
High poverty and hardship	-0.13	-0.12	-0.12	1.20*	1.17*	1.19*	1.45***	0.24***	0.24***
	(0.10)	(0.10)	(0.10)	(0.47)	(0.47)	(0.47)	(0.35)	(0.06)	(0.06)
Problem debt (ref: $1,000 or less)									
$1,001 - $10,000	-0.05	-0.06	0.02	0.49**	0.58***	0.13	0.19**	0.03**	0.01
	(0.04)	(0.04)	(0.04)	(0.16)	(0.16)	(0.18)	(0.07)	(0.01)	(0.01)
More than $10,000	-0.12**	-0.12**	-0.06	0.86***	0.89***	0.18	0.34***	0.05***	0.04^{+}
	(0.04)	(0.04)	(0.06)	(0.19)	(0.18)	(0.25)	(0.09)	(0.01)	(0.02)
n	3,873	3,873	3,873	3,879	3,879	3,879	3,160	3,160	3,160

Note. Standard errors in parentheses. *** p < 0.001, ** p < 0.01, * p < 0.05, $^{+}$ p < 0.10. Models control for full range of covariates included Models 2 in Tables A9 and A10.

Table A3. OLS regression model tests of different functional forms of problem debt on child and parent outcomes

Panel A: Child outcomes	Self-reported global health scale	Depressive symptoms	Anxiety symptoms
Functional form	BIC	BIC	BIC
Continuous	7,322	21,466	26,458
($0-$70,000 scale)			
Original categorical	7,349	21,503	26,496
(0 = $0; 1 = $1-$500; 2 = $501-$1,000; 3 = $1,001-$2,500; 4 = $2,501-$5,000; 5 = $5,001-$10,000; 6 = $10,001-$50,000; 7 = more than $50,000)			
Refined step change	7,325	21,479	26,473
(0 = $0; 1 = $1-$1,000; 2 = $1,001-$10,000; 3 = $10,001-$50,000; 4 = more than $50,000)			
Collapsed at high debt levels	7,329	21,474	26,465
(0 = $0; 1 = $1-$1,000; 2 = $1,001-$10,000; 3 = more than $10,000)			
Collapsing into thousands groups	7,320	21,473	26,466
(0 = $0-$1,000; 1 = $1,001-$10,000; 2 = $10,001-$50,000. 3 = more than $50,000)			
Parsimonious groups, combining no and low debt levels	7,324	21,468	26,458
(0 = $0-$1,000; 1 = $1,001-$10,000; 2 = more than $10,000)			
Conditional probability	7,320	21,469	26,464
(Continuous form interacted with a binary indicator of any debt)			

Panel B: Maternal outcomes	Self-reported global health scale	Depressive symptoms	Relation-ship conflict
Functional form	BIC	BIC	BIC
Continuous	9,892	20,085	489
($0-$70,000 scale)			
Original categorical	9,866	20,078	520
(0 = $0; 1 = $1-$500; 2 = $501-$1,000; 3 = $1,001-$2,500; 4 = $2,501-$5,000; 5 = $5,001-$10,000; 6 = $10,001-$50,000; 7 = more than $50,000)			
Refined step change	9,851	20,059	498
(0 = $0; 1 = $1-$1,000; 2 = $1,001-$10,000; 3 = $10,001-$50,000; 4 = more than $50,000)			
Collapsed at high debt levels	9,860	20,063	492
(0 = $0; 1 = $1-$1,000; 2 = $1,001-$10,000; 3 = more than $10,000)			
Collapsing into thousands groups	9,861	20,055	492
(0 = $0-$1,000; 1 = $1,001-$10,000; 2 = $10,001 to more than $50,000)			
Parsimonious groups, combining no and low debt levels	9,869	20,058	483
(0 = $0-$1,000; 1 = $1,001-$10,000; 2 = more than $10,000)			
Conditional probability	9,864	20,053	481
(Continuous form interacted with a binary indicator of any debt)			

Note. Lowest BIC (Bayesian Information Criterion) best describes the association between problem debt and outcomes. Models control for child age deviation from survey wave and gender.

Grey shading denotes best-ranked model within outcome tested.

Table A4. Multichannel sequence analysis fit statistics

Trajectories fit	Absolute value				% change in improvement of the fit from trajectory-1			
	PBC	HGSD	ASW	CH	PBC	HGSD	ASW	CH
2	0.7667	0.9790	0.7776	1466.5550	-	-	-	-
3	0.6829	0.8469	0.6198	1069.3277	10.93	13.50	20.30	27.09
4	0.6871	0.8502	0.6133	787.9597	-0.62	-0.38	1.04	26.31
5	0.6658	0.8486	0.6023	748.8474	3.10	0.18	1.80	4.96
6	0.6525	0.8782	0.6015	750.1571	1.99	-3.48	0.13	-0.17
7	0.6552	0.9246	0.6178	754.8126	-0.42	-5.28	-2.72	-0.62
8	0.6567	0.9264	0.6164	679.7069	-0.23	-0.20	0.23	9.95
9	0.6594	0.9317	0.6288	646.4065	-0.41	-0.57	-2.01	4.90
10	0.6590	0.9570	0.6402	652.4311	0.07	-2.72	-1.82	-0.93

Note. PBC = Point Biserial Correlation; HGSD = Hubert's Somers' D; ASW = Average Silhouette Width; CH = Calinski-Harabasz Index.

Dark grey shading indicates fit-statistic deeming best fit, based on both absolute value and by % change improvement from trajectory-1. Light grey represents next best fit.

Table A5. Income poverty experience by economic trajectory (*n* = 4,163)

	n	Total % / *M* (std. dev.)	Economically secure % / *M* (std. dev.)	High income poverty in early years % / *M* (std. dev.)	High middle childhood income poverty with low material hardship % / *M* (std. dev.)	High and rising material hardship % / *M* (std. dev.)	High income poverty and material hardship % / *M* (std. dev.)
Poverty status at each survey wave							
9-months							
Not in poverty (above 100% of poverty threshold)	3,719	89.33	99.58	23.27	87.94	66.02	27.27
In poverty (100% or less the poverty threshold)	444	10.67	0.42	76.73	12.06	33.98	72.73
2-years							
Not in poverty (above 100% of poverty threshold)	3,765	90.44	99.07	42.45	90.27	84.47	13.33
In poverty (100% or less the poverty threshold)	398	9.56	0.93	57.55	9.73	15.53	86.67
4.5-years							
Not in poverty (above 100% of poverty threshold)	3,892	93.49	97.38	88.99	91.05	93.20	27.88
In poverty (100% or less the poverty threshold)	271	6.51	2.62	11.01	8.95	6.80	72.12
8-years							
Not in poverty (above 100% of poverty threshold)	3,721	89.38	98.86	89.31	42.80	36.89	4.24
In poverty (100% or less the poverty threshold)	442	10.62	1.14	10.69	57.20	63.11	95.76
12-years							
Not in poverty (above 100% of poverty threshold)	3,776	90.70	99.25	96.54	36.19	42.72	22.42
In poverty (100% or less the poverty threshold)	387	9.30	0.75	3.46	63.81	57.28	77.58
Poverty status experience from 0-12 years							
Survey waves in poverty							
None	3,177	76.32	95.18	0.63	0.00	14.56	0.00
One	529	12.71	3.86	60.06	64.59	36.89	3.64
Two	260	6.25	0.93	29.25	26.46	30.10	22.42
Three	132	3.17	0.03	8.18	8.95	16.50	39.39
Four	51	1.23	0.00	1.89	0.00	1.94	26.06
Five	14	0.34	0.00	0.00	0.00	0.00	8.48
Number of months in poverty (0-144 months)	4,163	11.45	1.78	23.58	57.00	52.05	86.15
		(25.86)	(8.89)	(20.90)	(20.68)	(34.26)	(32.55)

Longest poverty experience spell between 0-12 years							
Consecutive survey waves in poverty							
None	3,177	76.32	95.18	0.63	0.00	14.56	0.00
One	647	15.54	4.31	68.55	80.16	49.51	17.58
Two	236	5.67	0.48	23.90	17.12	33.98	39.39
Three	70	1.68	0.03	6.60	2.72	1.94	23.64
Four	19	0.46	0.00	0.31	0.00	0.00	10.91
Five	14	0.34	0.00	0.00	0.00	0.00	8.48
Longest spell in poverty in months (0-144 months)	4,163	10.30	1.74	20.72	53.22	47.16	72.64
		(23.46)	(8.66)	(15.67)	(19.42)	(32.23)	(37.35)
Poverty status transitions							
Number of changes to/from 'in poverty' to 'not in poverty'							
No changes	3,191	76.65	95.18	0.63	0.00	14.56	8.48
One change	412	9.90	0.72	63.84	45.53	31.07	21.82
Two changes	409	9.82	3.67	25.47	38.52	43.69	37.58
Three changes	119	2.86	0.39	5.66	14.79	8.74	24.85
Four changes	32	0.77	0.03	4.40	1.17	1.94	7.27
Mean number of changes to/from 'in poverty' to 'not in poverty'	4,163	0.41	0.09	1.49	1.72	1.52	2.01
		(0.84)	(0.43)	(0.80)	(0.76)	(0.92)	(1.05)
n		4,163	3,320	318	257	103	165
Proportion of sample		100.00	79.75	7.64	6.17	2.47	3.96

Table A6. Material hardship experience by economic trajectory (*n* = 4,163)

	n	Total % / *M* (std. dev.)	Economically secure % / *M* (std. dev.)	High income poverty in early years % / *M* (std. dev.)	High middle childhood income poverty with low material hardship % / *M* (std. dev.)	High and rising material hardship % / *M* (std. dev.)	High income poverty and material hardship % / *M* (std. dev.)
Material hardship at each survey wave							
9-months							
Not in material hardship	3,784	90.90	94.94	86.16	92.22	42.72	46.67
In material hardship	379	9.10	5.06	13.84	7.78	57.28	53.33
2-years							
Not in material hardship	3,833	92.07	94.85	89.62	94.16	56.31	60.00
In material hardship	330	7.93	5.15	10.38	5.84	43.69	40.00
4.5-years							
Not in material hardship	3,875	93.08	96.84	94.03	95.72	41.75	43.64
In material hardship	288	6.92	3.16	5.97	4.28	58.25	56.36
8-years							
Not in material hardship	3,622	87.00	93.07	83.02	87.55	2.91	24.24
In material hardship	541	13.00	6.93	16.98	12.45	97.09	75.76
12-years							
Not in material hardship	3,743	89.91	94.88	88.68	96.50	10.68	31.52
In material hardship	420	10.09	5.12	11.32	3.50	89.32	68.48
Material hardship experience from 0-12 years							
Survey waves in material hardship							
None	3,126	75.09	82.50	59.43	71.98	0.00	7.88
One	542	13.02	11.84	25.16	22.57	0.97	6.06
Two	223	5.36	3.64	12.89	5.06	17.48	18.18
Three	151	3.63	1.78	2.52	0.39	27.18	33.33
Four	88	2.11	0.24	0.00	0.00	43.69	21.21
Five	33	0.79	0.00	0.00	0.00	10.68	13.33
Number of months in material hardship (0-144 months)	4,163	14.38	7.54	17.16	9.77	112.84	92.40

		(31.86)	(20.39)	(27.13)	(19.26)	(22.16)	(42.90)
Longest material hardship spell experience between 0-12 years							
Consecutive survey waves in material hardship							
None	3,126	75.09	82.50	59.43	71.98	0.00	7.88
One	641	15.40	13.46	31.45	25.29	2.91	15.76
Two	250	6.01	3.55	9.12	2.33	45.63	30.30
Three	84	2.02	0.42	0.00	0.39	28.16	24.24
Four	29	0.70	0.06	0.00	0.00	12.62	8.48
Five	33	0.79	0.00	0.00	0.00	10.68	13.33
Longest spell in material hardship in months (0-144 months)	4,163	13.41	7.03	15.75	9.48	105.15	86.22
		(29.95)	(18.84)	(25.00)	(18.61)	(25.58)	(44.08)
Material hardship transitions							
Number of changes to/from 'in material hardship' to 'not in material hardship'							
No changes	3,159	75.88	82.50	59.43	71.98	10.68	21.21
One change	380	9.13	6.54	16.67	7.39	33.01	34.55
Two changes	477	11.46	8.64	16.04	19.84	38.83	29.09
Three changes	117	2.81	1.84	6.60	0.00	16.50	10.91
Four changes	30	0.72	0.48	1.26	0.78	0.97	4.24
Mean number of changes to/from 'in material hardship' to 'not in material hardship'	4,163	0.43	0.31	0.74	0.50	1.64	1.42
		(0.85)	(0.76)	(1.03)	(0.86)	(0.92)	(1.07)
n		4,163	3,320	318	257	103	165
Proportion of sample		100.00	79.75	7.64	6.17	2.47	3.96

Table A7. Sample description by economic trajectory (*n* = 4,163)

	n	Total % / *M* (std. dev.)	Economically secure % / *M* (std. dev.)	High income poverty in early years % / *M* (std. dev.)	High middle childhood income poverty with low material hardship % / *M* (std. dev.)	High and rising material hardship % / *M* (std. dev.)	High income poverty and material hardship % / *M* (std. dev.)
Maternal characteristics (measured at antenatal)							
Maternal education attainment							
Secondary school/NCEA 1-4 or less	918	22.07	18.03[bcde]	35.85[ae]	30.08[ae]	33.98[ae]	56.97[abcd]
Diploma/trade certificate/NZQA 5-6	1,206	29.00	26.98[bcde]	35.85[a]	33.98[ad]	46.60[ac]	37.58[a]
University degree or higher	2,035	48.93	54.99[bcde]	28.30[ae]	35.94[ade]	19.42[ace]	5.45[abcd]
Maternal ethnicity (prioritised)							
European/Pākehā	2,657	63.82	70.12[bcde]	40.25[ae]	45.91[ae]	41.75[ae]	24.24[abcd]
Māori	591	14.20	11.87[bcde]	23.90[a]	17.90[ade]	27.18[ac]	28.48[ac]
Pacific	293	7.04	4.46[bcde]	10.69[ade]	11.67[ade]	22.33[bce]	35.15[abcd]
Asian	508	12.20	10.72[bc]	22.01[ade]	22.57[ade]	6.80[bc]	10.30[bc]
Other ethnicity	114	2.74	2.83	3.14	1.95	1.94	1.82
Maternal nativity							
Born in NZ	2,949	70.84	72.44[bce]	63.84[a]	62.65[a]	71.84	64.24[a]
Migrated to NZ between ages 0-18 years	383	9.20	8.58[b]	11.95[a]	10.12	12.62	12.73
Migrated to NZ older than 18 years	831	19.96	18.98b[c]	24.21[a]	27.24[ad]	15.53[c]	23.03
Maternal age (years)	4,163	31.27	31.82[bcde]	28.00[acd]	30.61[abe]	29.86[ab]	28.50[ac]
		(5.35)	(5.00)	(6.32)	(5.22)	(6.25)	(6.42)
Family characteristics at antenatal							
Home ownership							
Rents home	1,779	46.74	41.92[bcde]	63.64[ae]	56.96[ade]	69.66[ace]	82.89[abcd]
Owns home	2,027	53.26	58.08[bcde]	36.36[ae]	43.04[ade]	30.34[ace]	17.11[abcd]
Parental employment							
Neither mother nor father employed	435	11.38	7.61[bcde]	23.88[ace]	13.36[abde]	30.00[ace]	49.34[abcd]
Mother and/or father in paid employment	3,388	88.62	92.39[bcde]	76.12[ace]	86.64[abde]	70.00[ace]	50.66[abcd]

Family structure							
Single-parent family	218	5.33	2.53[bcde]	17.11[ace]	5.16[abde]	22.00[ac]	30.57[abc]
Two-parent family	3,873	94.67	97.47[bcde]	82.89[ace]	94.84[abde]	78.00[ac]	69.43[abc]
Other adult household members							
No other adult household members	3,250	78.07	82.26[bcde]	54.72[acd]	76.26[abe]	67.96[abe]	47.88[acd]
Other adult household members	913	21.93	17.74[bcde]	45.28[acd]	23.74[abe]	32.04[abe]	52.12[acd]
Number of siblings	3,818	1.04	0.95[cde]	0.97[cde]	1.33[abde]	1.89[abc]	2.08[abc]
		(1.19)	(1.06)	(1.35)	(1.31)	(1.74)	(1.92)
Child developmental problem at 9-months							
No developmental problem	3,716	89.26	88.86[b]	93.08[ac]	87.16[b]	91.26	92.12
Developmental problem	447	10.74	11.14[b]	6.92[ac]	12.84[b]	8.74	7.88
Geographic characteristics							
Neighbourhood Deprivation (NZDep; 1-10 scale)	4,163	5.37	5.04[bcde]	6.28[ade]	6.14[ade]	7.17[abce]	8.01[abcd]
		(2.80)	(2.71)	(2.70)	(2.89)	(2.68)	(2.36)
Urbanicity							
Lives in an urban/suburban area	3,804	91.38	91.39	92.45	88.72[e]	89.32	94.55[c]
Lives in a rural area	359	8.62	8.61	7.55	11.28[e]	10.68	5.45[c]
District Health Board							
Auckland	1,601	38.46	41.11[bcde]	30.19[a]	30.74[a]	23.30[a]	22.42[a]
Counties Manukau	1,228	29.50	27.65[bde]	35.22[ae]	29.57[de]	44.66[ac]	46.06[abc]
Waikato	1,334	32.04	31.23[c]	34.59	39.69[a]	32.04	31.52
Longitudinal family dynamic measures							
Parental disability							
No parental disability at antenatal/9-months or 12-years	2,678	73.73	75.45[cde]	70.80[d]	68.66[ad]	51.72[abce]	64.93[ad]
Parental disability at antenatal/9-months but not at 12-years	390	10.74	10.21	12.77	13.82	12.64	11.94
No parental disability at antenatal/9-months but disability at 12-years	359	9.88	9.59[d]	9.49[d]	10.14[d]	18.39[abc]	11.19
Parental disability at antenatal/9-months and 12-years	205	5.64	4.76[de]	6.93[d]	7.37[d]	17.24[abc]	11.94[a]
Number of family structure changes (0-5 scale)	4,157	0.41	0.32[bcde]	0.78[ac]	0.61[abde]	0.97[ac]	0.90[ac]
		(0.79)	(0.70)	(1.08)	(0.86)	(1.02)	(1.03)

Number of waves parent(s) employed (0-5 scale)	3,734	4.55	4.71[bcde]	4.14[ade]	4.31[ade]	3.54[abce]	3.06[abcd]
		(0.87)	(0.66)	(1.03)	(1.00)	(1.39)	(1.48)
Household composition at 12-year wave							
Number of adults in the home	4,117	2.07	2.04[be]	2.14[ae]	2.09[e]	2.14	2.34[abc]
		(0.68)	(0.58)	(0.79)	(0.93)	(1.14)	(1.22)
Number of younger siblings in the home	4,163	0.78	0.72[bcde]	0.89ae	1.00[a]	1.03[a]	1.19[ab]
		(0.91)	(0.84)	(1.04)	(1.06)	(1.06)	(1.42)
Levels of problem debt at 12-year wave							
Problem debt (average $ in thousands)	3,631	8.30	7.91[de]	8.76[de]	8.50 [de]	13.48[abc]	12.48[abc]
		(17.29)	(17.11)	(17.80)	(16.99)	(17.59)	(19.80)
Problem debt group							
$1,000 or less	2,093	57.64	59.02[de]	56.98[de]	58.93[de]	34.44[abc]	40.50[abc]
$1,001-$10,000	929	25.59	25.42	25.28	21.43[de]	32.22[c]	33.06[c]
More than $10,000	609	16.77	15.56[de]	17.74[de]	19.64[d]	33.33[abc]	26.45[ab]
Child outcomes at 12-year wave							
Global self-reported health (1-5 scale)	3,817	4.50	4.55[bcde]	4.43[ade]	4.39[ade]	4.11[abc]	4.15[abc]
		(0.69)	(0.67)	(0.70)	(0.71)	(0.88)	(0.91)
Depressive symptoms (0-30 scale)	3,842	8.49	8.37[de]	8.40[d]	8.74[d]	10.69[abc]	9.44[a]
		(5.21)	(5.14)	(4.98)	(5.34)	(6.77)	(5.27)
Anxiety symptoms (33.5-83.3 scale)	3,824	46.07	46.03[d]	45.79[d]	45.77[d]	48.66[abc]	46.33
		(10.66)	(10.53)	(10.96)	(10.93)	(12.39)	(11.13)
Maternal outcomes at 12-year wave							
Global self-reported health (1-5 scale)	3,873	3.65	3.74[bcde]	3.32[ade]	3.52[ade]	2.81[abc]	2.96[abc]
		(0.98)	(0.94)	(1.05)	(0.93)	(0.99)	(1.13)
Depressive symptoms (0-28 scale)	3,879	4.08	3.76[bde]	4.65[ade]	4.16[de]	8.72[abce]	6.66[abcd]
		(4.15)	(3.86)	(4.49)	(3.99)	(5.82)	(5.29)
Relationship conflict (0-24 scale)	3,160	4.20	4.44[de]	4.56[de]	4.44[de]	5.16[abc]	6.12[abc]
		(1.56)	(1.50)	(1.62)	(1.50)	(2.46)	(3.12)
n		4,163	3,320	318	257	103	165
Proportion of sample		100.00	79.75	7.64	6.17	2.47	3.96

Note. Chi[2] and t-tests indicating statistically different at at least $p < .05$ from: [a] *economically secure;* b *high poverty in early years*; [c] *high middle childhood poverty with low hardship*; [d] *high and rising hardship*; [e] *high poverty and hardship*.

Table A8. Multinomial logistic regression predicting economic trajectory (ref: Economically secure) (*n* = 4,163)

	High income poverty in early years	High middle childhood income poverty with low material hardship	High and rising material hardship	High income poverty and material hardship
	RRR	RRR	RRR	RRR
Maternal characteristics measured at antenatal				
Maternal education attainment (ref: university degree or higher)				
Secondary school/NCEA 1-4 or less	2.14***	1.97***	2.08*	10.10***
	(0.38)	(0.36)	(0.67)	(3.98)
Diploma/trade certificate/NZQA 5-6	1.55**	1.44*	2.02*	4.82***
	(0.26)	(0.24)	(0.61)	(1.92)
Maternal ethnicity (ref: European/Pākehā)				
Māori	1.47*	1.32	1.13	1.19
	(0.27)	(0.28)	(0.36)	(0.36)
Pacific	1.72*	2.60***	2.31*	3.42***
	(0.46)	(0.68)	(0.81)	(1.10)
Asian	3.09***	3.90***	1.07	2.46*
	(0.68)	(0.88)	(0.50)	(0.92)
Other ethnicity	2.04*	0.95	0.82	1.06
	(0.74)	(0.47)	(0.63)	(0.55)
Maternal nativity (ref: born in NZ)				
Migrated to NZ between ages 0-18 years	1.38	1.17	1.79+	1.45
	(0.32)	(0.29)	(0.59)	(0.49)
Migrated to NZ older than 18 years	1.43+	1.38	1.61	2.56**
	(0.29)	(0.28)	(0.55)	(0.78)
Maternal age (years)	0.95***	1.02	1.01	1.02
	(0.02)	(0.02)	(0.03)	(0.02)
Family characteristics measured at antenatal				
Owns home (ref: rents home)	0.72*	0.84	0.69	0.41***
	(0.10)	(0.13)	(0.18)	(0.10)
Mother and/or father in paid employment (ref: neither employed)	1.18	1.68+	1.40	1.14
	(0.28)	(0.47)	(0.47)	(0.34)
Household income source comes from a main benefit	2.43***	1.38	1.50	2.40**
	(0.51)	(0.36)	(0.49)	(0.72)
Two-parent family (ref: single-parent family)	0.43**	0.91	0.37**	0.31***
	(0.11)	(0.32)	(0.13)	(0.10)
Other adult household members (ref: no other adult household members)	1.76***	0.92	1.08	2.20***

	(0.26)	(0.16)	(0.29)	(0.50)
Number of siblings	1.08	1.23***	1.40***	1.39***
	(0.07)	(0.07)	(0.11)	(0.11)
Child has developmental problem at 9-months (ref: no developmental	0.60*	1.35	0.72	0.67
	(0.15)	(0.28)	(0.28)	(0.26)
Geographic characteristics measured at antenatal				
Neighbourhood Deprivation (NZDep; 1-10 scale)	1.05^{+}	1.08**	1.19***	1.27***
	(0.03)	(0.03)	(0.06)	(0.06)
Lives in a rural area (ref: lives in an urban/suburban area)	1.09	1.65*	2.41*	2.05^{+}
	(0.27)	(0.38)	(0.95)	(0.86)
District Health Board (ref: Auckland)				
Counties Manukau	1.10	1.05	1.47	1.49
	(0.18)	(0.19)	(0.45)	(0.39)
Waikato	1.37^{+}	1.59*	1.07	1.61
	(0.24)	(0.29)	(0.36)	(0.47)
Longitudinal family dynamic measures				
Parental disability (ref: no parental disability at antenatal/9-months or 12-years)				
Parental disability at antenatal/9-months but not at 12-years	1.40	1.45^{+}	1.78	1.43
	(0.29)	(0.32)	(0.66)	(0.51)
No parental disability at antenatal/9-months but disability at 12-years	1.10	1.21	2.45**	1.41
	(0.26)	(0.31)	(0.80)	(0.48)
Parental disability at antenatal/9-months and 12-years	1.65^{+}	1.65^{+}	4.77***	2.54*
	(0.49)	(0.50)	(1.85)	(1.05)
Number of family structure changes (0-5 scale)	1.23**	1.30***	1.40**	1.16
	(0.10)	(0.10)	(0.16)	(0.13)
Number of waves parent(s) employed (0-5 scale)	0.72***	0.64***	0.46***	0.41***
	(0.06)	(0.07)	(0.06)	(0.05)
Number of adults in the home at 12-years	1.02	0.98	1.09	1.20
	(0.08)	(0.12)	(0.16)	(0.13)
Number of younger siblings in the home at 12-years	1.00	1.45***	1.33*	1.35**
	(0.08)	(0.11)	(0.15)	(0.15)
Constant	0.77	0.03***	0.04**	0.01***
	(0.54)	(0.02)	(0.05)	(0.01)
Pseudo R^2	0.19	0.19	0.19	0.19

Note. RRR = relative risk ratios. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A9. OLS regression models predicting child outcomes at age 12 years

	Global health scale			Depressive symptoms			Anxiety symptoms		
	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.
Economic trajectory (ref: economically secure)									
High income poverty in early years	-0.12**	-0.02	-0.02	0.03	-0.29	-0.26	-0.23	-0.31	-0.23
	(0.04)	(0.05)	(0.05)	(0.31)	(0.32)	(0.32)	(0.67)	(0.70)	(0.70)
High middle childhood income poverty with low material hardship	-0.16***	-0.10*	-0.10*	0.37	0.28	0.28	-0.25	-0.34	-0.35
	(0.05)	(0.05)	(0.05)	(0.37)	(0.37)	(0.37)	(0.74)	(0.75)	(0.75)
High and rising material hardship	-0.43***	-0.29**	-0.28**	2.32**	1.66*	1.60*	2.63*	2.21	2.03
	(0.09)	(0.10)	(0.10)	(0.72)	(0.71)	(0.71)	(1.31)	(1.34)	(1.34)
High income poverty and material hardship	-0.40***	-0.20*	-0.20*	1.07*	0.36	0.37	0.31	0.15	0.21
	(0.08)	(0.08)	(0.08)	(0.47)	(0.50)	(0.50)	(0.98)	(1.07)	(1.07)
Problem debt (ref: $1,000 or less)									
$1,001 - $10,000			-0.01			0.19			0.29
			(0.03)			(0.20)			(0.42)
More than $10,000			-0.00			0.59*			1.86***
			(0.00)			(0.25)			(0.52)
Maternal characteristics measured at antenatal									
Maternal education attainment (ref: university degree or higher)									
Secondary school/NCEA 1-4 or less		0.05	0.05+		0.02	-0.01		-0.18	-0.25
		(0.03)	(0.03)		(0.23)	(0.23)		(0.49)	(0.49)
Diploma/trade certificate/NZQA 5-6		-0.02	-0.02		0.11	0.09		-0.32	-0.38
		(0.03)	(0.03)		(0.21)	(0.21)		(0.42)	(0.42)
Maternal ethnicity (ref: European/Pākehā)									
Māori		-0.15***	-0.15***		0.25	0.21		-0.09	-0.23
		(0.04)	(0.04)		(0.27)	(0.27)		(0.56)	(0.56)
Pacific		-0.18**	-0.18**		-0.33	-0.38		0.39	0.23
		(0.06)	(0.06)		(0.37)	(0.37)		(0.80)	(0.81)
Asian		-0.09*	-0.09*		-0.25	-0.26		-0.10	-0.16
		(0.04)	(0.04)		(0.32)	(0.32)		(0.68)	(0.68)
Other ethnicity		-0.03	-0.03		-0.49	-0.47		-1.03	-0.96
		(0.07)	(0.07)		(0.47)	(0.47)		(0.86)	(0.85)

Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years	0.06^{+}	0.07^{+}	0.46	0.46	1.49*	1.48*
	(0.04)	(0.04)	(0.30)	(0.30)	(0.64)	(0.64)
Migrated to NZ older than 18 years	-0.01	-0.01	0.07	0.11	0.22	0.30
	(0.03)	(0.03)	(0.26)	(0.26)	(0.54)	(0.54)
Maternal age (years)	0.01*	0.01*	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.02)	(0.02)	(0.04)	(0.04)
Family characteristics measured at antenatal						
Owns home (ref: rents home)	0.02	0.02	-0.28	-0.24	0.00	0.09
	(0.02)	(0.02)	(0.18)	(0.18)	(0.38)	(0.38)
Mother and/or father in paid employment						
(ref: neither employed)	-0.00	-0.00	0.05	0.05	0.51	0.54
	(0.05)	(0.05)	(0.36)	(0.36)	(0.72)	(0.71)
Household income source comes from a main benefit						
(ref: no income from a main benefit)	-0.00	0.00	-0.27	-0.28	-0.93	-1.00
	(0.05)	(0.05)	(0.38)	(0.38)	(0.80)	(0.79)
Two-parent family (ref: single-parent family)	0.06	0.06	-0.09	-0.07	1.39	1.44
	(0.06)	(0.06)	(0.45)	(0.45)	(0.95)	(0.94)
Other adult household members						
(ref: no other adult household members)	-0.05^{+}	-0.05	0.21	0.19	-0.46	-0.52
	(0.03)	(0.03)	(0.22)	(0.22)	(0.46)	(0.46)
Number of siblings	0.01	0.01	0.17*	0.18*	0.18	0.18
	(0.01)	(0.01)	(0.09)	(0.09)	(0.18)	(0.18)
Geographic characteristics measured at antenatal						
Neighbourhood Deprivation (NZDep; 1-10 scale)	-0.01*	-0.01*	-0.00	-0.01	0.05	0.04
	(0.00)	(0.00)	(0.03)	(0.03)	(0.07)	(0.07)
Lives in a rural area						
(ref: lives in an urban/suburban area)	0.07^{+}	0.07^{+}	-0.11	-0.14	-0.42	-0.47
	(0.04)	(0.04)	(0.31)	(0.31)	(0.63)	(0.63)
District Health Board (ref: Auckland)						
Counties Manukau	0.00	0.00	-0.22	-0.25	-0.52	-0.59
	(0.03)	(0.03)	(0.21)	(0.22)	(0.45)	(0.45)
Waikato	-0.01	-0.01	-0.26	-0.28	-0.29	-0.32
	(0.03)	(0.03)	(0.22)	(0.22)	(0.45)	(0.45)
Longitudinal family dynamic measures						
Parental disability						

(ref: no disability at antenatal/9-months or 12-years)									
Disability at antenatal/9-months but not at 12-years		-0.00	-0.00		-0.00	0.02		-0.34	-0.35
		(0.04)	(0.04)		(0.29)	(0.29)		(0.59)	(0.59)
No disability at antenatal/9-months but disability at 12-years		-0.10*	-0.09*		0.09	0.07		0.21	0.16
		(0.04)	(0.04)		(0.29)	(0.29)		(0.59)	(0.60)
Disability at antenatal/9-months and 12-years		-0.20**	-0.20**		0.63	0.66		0.98	1.02
		(0.06)	(0.06)		(0.42)	(0.42)		(0.84)	(0.84)
Number of family structure changes (0-5 scale)		-0.00	-0.00		0.14	0.13		0.72**	0.70**
		(0.02)	(0.02)		(0.12)	(0.12)		(0.25)	(0.25)
Number of waves parent(s) employed (0-5 scale)		0.02	0.02		-0.06	-0.05		-0.09	-0.11
		(0.02)	(0.02)		(0.14)	(0.14)		(0.29)	(0.29)
Number of adults in the home at 12-years		-0.03	-0.03		0.01	-0.01		0.30	0.25
		(0.02)	(0.02)		(0.13)	(0.13)		(0.29)	(0.29)
Number of younger siblings in the home at 12-years		0.03*	0.03*		-0.06	-0.05		-0.25	-0.23
		(0.01)	(0.01)		(0.11)	(0.11)		(0.22)	(0.22)
Child characteristics									
Child-reported child gender at 12-years (ref: girl/mostly girl)									
Boy/mostly boy		-0.06**	-0.06**		-1.18***	-1.18***		-2.79***	-2.79***
		(0.02)	(0.02)		(0.17)	(0.17)		(0.35)	(0.35)
Non-binary/I don't know		-0.18**	-0.18**		4.47***	4.43***		5.92***	5.79***
		(0.06)	(0.06)		(0.47)	(0.47)		(0.93)	(0.93)
Child has developmental problem at 9-months (ref: no developmental problem)		-0.17***	-0.17***		-0.16	-0.17		-0.45	-0.49
		(0.04)	(0.04)		(0.27)	(0.27)		(0.54)	(0.54)
Age deviation from 12-year survey wave (months)		0.00	0.00		0.04	0.03		-0.02	-0.02
		(0.00)	(0.00)		(0.03)	(0.03)		(0.06)	(0.06)
Constant	4.55***	4.37***	4.37***	8.37***	9.09***	9.00***	46.03***	45.29***	45.10***
	(0.01)	(0.14)	(0.14)	(0.09)	(1.06)	(1.06)	(0.19)	(2.13)	(2.13)
R^2	0.02	0.06	0.06	0.01	0.07	0.07	0.00	0.05	0.05
n	3,817	3,817	3,817	3,824	3,824	3,824	3,824	3,824	3,824

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A10. OLS regression models predicting maternal outcomes at the 12-year wave

	Global health scale			Depressive symptoms			Relationship conflict		
	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.
Economic trajectory (ref: economically secure)									
High income poverty in early years	-0.42***	-0.08	-0.08	0.89**	0.02	0.05	0.17	-0.04	-0.02
	(0.06)	(0.06)	(0.06)	(0.27)	(0.28)	(0.28)	(0.12)	(0.12)	(0.12)
High middle childhood income poverty with low material hardship	-0.22***	0.02	0.01	0.39	-0.15	-0.14	0.05	-0.09	-0.08
	(0.06)	(0.06)	(0.06)	(0.27)	(0.27)	(0.27)	(0.13)	(0.13)	(0.13)
High and rising material hardship	-0.93***	-0.40***	-0.38***	4.95***	3.45***	3.34***	0.76*	0.52	0.48
	(0.10)	(0.10)	(0.10)	(0.60)	(0.59)	(0.60)	(0.36)	(0.35)	(0.35)
High income poverty and material hardship	-0.78***	-0.13	-0.13	2.89***	1.22*	1.20*	1.71***	1.47***	1.45***
	(0.10)	(0.10)	(0.10)	(0.44)	(0.47)	(0.47)	(0.36)	(0.35)	(0.35)
Problem debt (ref: $1,000 or less)									
$1,001 - $10,000			-0.05			0.49**			0.19**
			(0.04)			(0.16)			(0.07)
More than $10,000			-0.12**			0.86***			0.34***
			(0.04)			(0.19)			(0.09)
Maternal characteristics measured at antenatal									
Maternal education attainment (ref: university degree or higher)									
Secondary school/NCEA 1-4 or less		-0.12**	-0.11**		0.48**	0.42*		0.01	-0.01
		(0.04)	(0.04)		(0.18)	(0.18)		(0.08)	(0.08)
Diploma/trade certificate/NZQA 5-6		-0.11**	-0.10**		0.22	0.18		0.02	-0.00
		(0.04)	(0.04)		(0.15)	(0.15)		(0.07)	(0.07)
Maternal ethnicity (ref: European/Pākehā)									
Māori		-0.29***	-0.28***		0.78***	0.73**		0.44***	0.43***
		(0.05)	(0.05)		(0.23)	(0.23)		(0.11)	(0.11)
Pacific		-0.33***	-0.32***		0.27	0.23		0.13	0.11
		(0.07)	(0.07)		(0.34)	(0.34)		(0.16)	(0.16)
Asian		-0.32***	-0.32***		0.02	0.00		0.24*	0.23*
		(0.06)	(0.06)		(0.23)	(0.23)		(0.11)	(0.11)
Other ethnicity		-0.10	-0.10		-0.00	0.01		-0.15	-0.15
		(0.09)	(0.09)		(0.39)	(0.39)		(0.12)	(0.12)

Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years	0.08	0.09^{+}	-0.28	-0.29	-0.05	-0.05
	(0.05)	(0.05)	(0.22)	(0.22)	(0.10)	(0.10)
Migrated to NZ older than 18 years	-0.02	-0.03	-0.35^{+}	-0.30	0.02	0.04
	(0.04)	(0.04)	(0.19)	(0.19)	(0.09)	(0.09)
Maternal age (years)	0.01**	0.01**	-0.05**	-0.05**	-0.02*	-0.02^{+}
	(0.00)	(0.00)	(0.02)	(0.02)	(0.01)	(0.01)
Family characteristics measured at antenatal						
Owns home (ref: rents home)	0.09**	0.09**	-0.27^{+}	-0.23	0.03	0.04
	(0.03)	(0.03)	(0.14)	(0.14)	(0.06)	(0.06)
Mother and/or father in paid employment (ref: neither employed)	-0.00	-0.01	-0.12	-0.12	0.07	0.08
	(0.06)	(0.06)	(0.30)	(0.30)	(0.15)	(0.15)
Household income source comes from a main benefit (ref: no income from a main benefit)	-0.06	-0.06	-0.12	-0.17	0.08	0.07
	(0.07)	(0.07)	(0.32)	(0.32)	(0.17)	(0.17)
Two-parent family (ref: single-parent family)	0.16^{+}	0.15^{+}	-0.04	-0.01	0.28	0.30
	(0.08)	(0.08)	(0.36)	(0.36)	(0.24)	(0.24)
Other adult household members (ref: no other adult household members)	-0.07^{+}	-0.06	0.26	0.22	0.02	-0.00
	(0.04)	(0.04)	(0.19)	(0.19)	(0.08)	(0.08)
Number of siblings	-0.01	-0.01	0.09	0.09	-0.01	-0.01
	(0.02)	(0.02)	(0.07)	(0.07)	(0.03)	(0.03)
Geographic characteristics measured at antenatal						
Neighbourhood Deprivation (NZDep; 1-10 scale)	-0.03***	-0.03***	0.06*	0.06*	0.01	0.00
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.01)
Lives in a rural area (ref: lives in an urban/suburban area)	0.04	0.04	-0.28	-0.32	-0.03	-0.05
	(0.05)	(0.05)	(0.23)	(0.23)	(0.09)	(0.09)
District Health Board (ref: Auckland)						
Counties Manukau	-0.17***	-0.16***	0.17	0.12	0.03	0.01
	(0.04)	(0.04)	(0.16)	(0.16)	(0.08)	(0.08)
Waikato	-0.16***	-0.15***	0.27	0.24	0.02	0.01
	(0.04)	(0.04)	(0.16)	(0.16)	(0.07)	(0.07)
Longitudinal family dynamic measures						

Parental disability									
(ref: no disability at antenatal/9-months or 12-years)									
Disability at antenatal/9-months but not at 12-years		-0.09^{+}	-0.09^{+}		0.77**	0.75**		0.10	0.09
		(0.05)	(0.05)		(0.25)	(0.25)		(0.10)	(0.10)
No disability at antenatal/9-months but disability at 12-years		-0.50***	-0.49***		1.33***	1.29***		0.14	0.13
		(0.06)	(0.06)		(0.24)	(0.24)		(0.11)	(0.11)
Disability at antenatal/9-months and 12-years		-0.65***	-0.65***		1.89***	1.92***		0.37*	0.38*
		(0.08)	(0.08)		(0.33)	(0.33)		(0.16)	(0.16)
Number of family structure changes (0-5 scale)		-0.05*	-0.05*		0.16	0.16		0.15*	0.15*
		(0.02)	(0.02)		(0.10)	(0.10)		(0.06)	(0.06)
Number of waves parent(s) employed (0-5 scale)		0.02	0.03		-0.28*	-0.29*		-0.02	-0.02
		(0.02)	(0.02)		(0.12)	(0.12)		(0.06)	(0.06)
Number of adults in the home at 12-years		0.02	0.02		-0.16	-0.18		0.07	0.07
		(0.02)	(0.02)		(0.11)	(0.11)		(0.06)	(0.06)
Number of younger siblings in the home at 12-years		0.00	0.00		-0.07	-0.05		-0.02	-0.02
		(0.02)	(0.02)		(0.09)	(0.09)		(0.04)	(0.04)
Child characteristics									
Child-reported child gender at 12-years									
(ref: girl/mostly girl)									
Boy/mostly boy		-0.07*	-0.07*		0.35**	0.35**		0.05	0.05
		(0.03)	(0.03)		(0.13)	(0.13)		(0.06)	(0.06)
Non-binary/I don't know		-0.30***	-0.30***		0.69*	0.63^{+}		0.07	0.05
		(0.07)	(0.07)		(0.34)	(0.34)		(0.16)	(0.16)
Child has developmental problem at 9-months									
(ref: no developmental problem)		-0.15***	-0.15**		0.16	0.14		0.16^{+}	0.16
		(0.04)	(0.04)		(0.20)	(0.20)		(0.09)	(0.10)
Age deviation from 12-year survey wave (months)		0.00	0.00		-0.05*	-0.05*		0.00	-0.00
		(0.00)	(0.00)		(0.02)	(0.02)		(0.01)	(0.01)
Constant	3.74***	3.67***	3.69***	3.76***	6.16***	6.02***	4.41***	4.27***	4.19***
	(0.02)	(0.18)	(0.18)	(0.07)	(0.82)	(0.81)	(0.03)	(0.45)	(0.45)
R^2	0.05	0.18	0.19	0.05	0.11	0.12	0.03	0.05	0.06
n	3,873	3,873	3,873	3,879	3,879	3,879	3,160	3,160	3,160

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A11. Stepwise OLS regression models predicting child global health scale at age 12 years

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.12**	-0.03	-0.02	-0.02		-0.02
	(0.04)	(0.05)	(0.05)	(0.05)		(0.05)
High middle childhood income poverty with low material hardship	-0.16***	-0.12*	-0.11*	-0.10*		-0.10*
	(0.05)	(0.05)	(0.05)	(0.05)		(0.05)
High and rising material hardship	-0.43***	-0.32***	-0.32**	-0.29**		-0.28**
	(0.09)	(0.10)	(0.10)	(0.10)		(0.10)
High income poverty and material hardship	-0.40***	-0.23**	-0.22*	-0.20*		-0.20*
	(0.08)	(0.08)	(0.09)	(0.08)		(0.08)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					-0.01	-0.01
					(0.03)	(0.03)
More than $10,000					-0.04	-0.00
					(0.03)	(0.00)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		0.05	0.05+	0.05	0.04	0.05+
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Diploma/trade certificate/NZQA 5-6		-0.02	-0.02	-0.02	-0.02	-0.02
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Maternal ethnicity (ref: European/Pākehā)						
Māori		-0.16***	-0.15***	-0.15***	-0.15***	-0.15***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Pacific		-0.20***	-0.17**	-0.18**	-0.21***	-0.18**
		(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Asian		-0.10**	-0.09*	-0.09*	-0.10*	-0.09*
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Other ethnicity		-0.04	-0.04	-0.03	-0.02	-0.03
		(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		0.08*	0.08+	0.06+	0.06	0.07+
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Migrated to NZ older than 18 years		-0.00	-0.00	-0.01	-0.02	-0.01
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Maternal age (years)		0.00+	0.00	0.01*	0.01*	0.01*
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Family characteristics measured at antenatal					
Owns home (ref: rents home)	0.02	0.02	0.02	0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Mother and/or father in paid employment (ref: neither employed)	0.02	-0.00	-0.00	-0.01	-0.00
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Household income source comes from a main benefit (ref: no income from a main benefit)	-0.02	-0.01	-0.00	-0.01	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Two-parent family (ref: single-parent family)	0.09	0.08	0.06	0.08	0.06
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Other adult household members (ref: no other adult household members)	-0.05+	-0.06+	-0.05+	-0.05	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Number of siblings	0.00	0.00	0.01	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation (NZDep; 1-10 scale)		-0.01*	-0.01*	-0.01**	-0.01*
		(0.00)	(0.00)	(0.00)	(0.00)
Lives in a rural area (ref: lives in an urban/suburban area)		0.07*	0.07+	0.06+	0.07+
		(0.04)	(0.04)	(0.04)	(0.04)
District Health Board (ref: Auckland)					
Counties Manukau		-0.01	0.00	-0.00	0.00
		(0.03)	(0.03)	(0.03)	(0.03)
Waikato		-0.02	-0.01	-0.02	-0.01
		(0.03)	(0.03)	(0.03)	(0.03)
Longitudinal family dynamic measures					
Parental disability (ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			-0.00	-0.01	-0.00
			(0.04)	(0.04)	(0.04)
No disability at antenatal/9-months but disability at 12-years			-0.10*	-0.10*	-0.09*
			(0.04)	(0.04)	(0.04)
Disability at antenatal/9-months and 12-years			-0.20**	-0.22***	-0.20**
			(0.06)	(0.06)	(0.06)
Number of family structure changes (0-5 scale)			-0.00	-0.01	-0.00
			(0.02)	(0.02)	(0.02)
Number of waves parent(s) employed (0-5 scale)			0.02	0.03+	0.02
			(0.02)	(0.01)	(0.02)

Number of adults in the home at 12-years				-0.03	-0.03	-0.03
				(0.02)	(0.02)	(0.02)
Number of younger siblings in the home at 12-years				0.03*	0.03^{+}	0.03*
				(0.01)	(0.01)	(0.01)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		-0.07**	-0.07**	-0.06**	-0.07**	-0.06**
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Non-binary/I don't know		-0.18**	-0.18**	-0.18**	-0.18**	-0.18**
		(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Child has developmental problem at 9-months (ref: no developmental problem)		-0.17***	-0.17***	-0.17***	-0.17***	-0.17***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age deviation from 12-year survey wave (months)		0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	4.55***	4.35***	4.43***	4.37***	4.31***	4.37***
	(0.01)	(0.11)	(0.12)	(0.14)	(0.14)	(0.14)
R^2	0.02	0.05	0.05	0.06	0.06	0.06
n	3,817	3,817	3,817	3,817	3,817	3,817

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A12. Stepwise OLS regression models predicting child depressive symptoms at age 12 years

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	0.03	-0.25	-0.24	-0.29		-0.26
	(0.31)	(0.32)	(0.32)	(0.32)		(0.32)
High middle childhood income poverty with low material hardship	0.37	0.30	0.32	0.28		0.28
	(0.37)	(0.37)	(0.37)	(0.37)		(0.37)
High and rising material hardship	2.32**	1.77*	1.79*	1.66*		1.60*
	(0.72)	(0.70)	(0.71)	(0.71)		(0.71)
High income poverty and material hardship	1.07*	0.42	0.43	0.36		0.37
	(0.47)	(0.49)	(0.49)	(0.50)		(0.50)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					0.22	0.19
					(0.20)	(0.20)
More than $10,000					0.63*	0.59*
					(0.25)	(0.25)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		0.01	0.03	0.02	0.00	-0.01
		(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Diploma/trade certificate/NZQA 5-6		0.10	0.13	0.11	0.10	0.09
		(0.20)	(0.20)	(0.21)	(0.20)	(0.21)
Maternal ethnicity (ref: European/Pākehā)						
Māori		0.24	0.25	0.25	0.21	0.21
		(0.26)	(0.27)	(0.27)	(0.27)	(0.27)
Pacific		-0.36	-0.38	-0.33	-0.30	-0.38
		(0.35)	(0.37)	(0.37)	(0.37)	(0.37)
Asian		-0.20	-0.24	-0.25	-0.25	-0.26
		(0.31)	(0.31)	(0.32)	(0.31)	(0.32)
Other ethnicity		-0.47	-0.47	-0.49	-0.50	-0.47
		(0.47)	(0.47)	(0.47)	(0.48)	(0.47)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		0.46	0.44	0.46	0.47	0.46
		(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
Migrated to NZ older than 18 years		0.07	0.05	0.07	0.11	0.11
		(0.25)	(0.25)	(0.26)	(0.26)	(0.26)
Maternal age (years)		0.01	-0.00	-0.00	-0.00	-0.00
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)

Family characteristics measured at antenatal					
Owns home (ref: rents home)	-0.33^{+}	-0.31^{+}	-0.28	-0.27	-0.24
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Mother and/or father in paid employment (ref: neither employed)	0.01	0.02	0.05	0.10	0.05
	(0.30)	(0.36)	(0.36)	(0.35)	(0.36)
Household income source comes from a main benefit (ref: no income from a main benefit)	-0.18	-0.18	-0.27	-0.28	-0.28
	(0.37)	(0.37)	(0.38)	(0.38)	(0.38)
Two-parent family (ref: single-parent family)	-0.23	-0.22	-0.09	-0.11	-0.07
	(0.44)	(0.44)	(0.45)	(0.45)	(0.45)
Other adult household members (ref: no other adult household members)	0.25	0.24	0.21	0.16	0.19
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Number of siblings	0.16*	0.19*	0.17*	0.20*	0.18*
	(0.08)	(0.08)	(0.09)	(0.09)	(0.09)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation (NZDep; 1-10 scale)		-0.00	-0.00	0.00	-0.01
		(0.03)	(0.03)	(0.03)	(0.03)
Lives in a rural area (ref: lives in an urban/suburban area)		-0.12	-0.11	-0.11	-0.14
		(0.31)	(0.31)	(0.31)	(0.31)
District Health Board (ref: Auckland)					
Counties Manukau		-0.22	-0.22	-0.23	-0.25
		(0.21)	(0.21)	(0.22)	(0.22)
Waikato		-0.26	-0.26	-0.27	-0.28
		(0.22)	(0.22)	(0.22)	(0.22)
Longitudinal family dynamic measures					
Parental disability (ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			-0.00	0.01	0.02
			(0.29)	(0.29)	(0.29)
No disability at antenatal/9-months but disability at 12-years			0.09	0.09	0.07
			(0.29)	(0.29)	(0.29)
Disability at antenatal/9-months and 12-years			0.63	0.73^{+}	0.66
			(0.42)	(0.43)	(0.42)
Number of family structure changes (0-5 scale)			0.14	0.14	0.13
			(0.12)	(0.12)	(0.12)
Number of waves parent(s) employed (0-5 scale)			-0.06	-0.12	-0.05
			(0.14)	(0.14)	(0.14)

Number of adults in the home at 12-years				0.01	-0.00	-0.01
				(0.13)	(0.13)	(0.13)
Number of younger siblings in the home at 12-years				-0.06	-0.02	-0.05
				(0.11)	(0.11)	(0.11)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		-1.18***	-1.19***	-1.18***	-1.17***	-1.18***
		(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Non-binary/I don't know		4.48***	4.48***	4.47***	4.46***	4.43***
		(0.47)	(0.47)	(0.47)	(0.47)	(0.47)
Child has developmental problem at 9-months (ref: no developmental problem)		-0.16	-0.16	-0.16	-0.16	-0.17
		(0.27)	(0.27)	(0.27)	(0.28)	(0.27)
Age deviation from 12-year survey wave (months)		0.03	0.04	0.04	0.03	0.03
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Constant	8.37***	8.62***	8.94***	9.11***	9.11***	9.02***
	(0.09)	(0.77)	(0.85)	(1.06)	(1.05)	(1.06)
R^2	0.01	0.07	0.07	0.07	0.07	0.07
n	3,824	3,824	3,824	3,824	3,824	3,824

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A13. Stepwise OLS regression models predicting child anxiety symptoms at age 12 years

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.23	-0.14	-0.14	-0.31		-0.23
	(0.67)	(0.70)	(0.70)	(0.70)		(0.70)
High middle childhood income poverty with low material hardship	-0.25	-0.23	-0.23	-0.34		-0.35
	(0.74)	(0.74)	(0.74)	(0.75)		(0.75)
High and rising material hardship	2.63*	2.50+	2.50+	2.21		2.03
	(1.31)	(1.33)	(1.33)	(1.34)		(1.34)
High income poverty and material hardship	0.31	0.35	0.29	0.15		0.21
	(0.98)	(1.04)	(1.04)	(1.07)		(1.07)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					0.33	0.29
					(0.43)	(0.42)
More than $10,000					1.93***	1.86***
					(0.53)	(0.52)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		-0.16	-0.13	-0.18	-0.27	-0.25
		(0.48)	(0.49)	(0.49)	(0.48)	(0.49)
Diploma/trade certificate/NZQA 5-6		-0.28	-0.23	-0.32	-0.38	-0.38
		(0.41)	(0.42)	(0.42)	(0.42)	(0.42)
Maternal ethnicity (ref: European/Pākehā)						
Māori		-0.02	-0.06	-0.09	-0.24	-0.23
		(0.54)	(0.55)	(0.56)	(0.56)	(0.56)
Pacific		0.49	0.36	0.39	0.27	0.23
		(0.77)	(0.79)	(0.80)	(0.80)	(0.81)
Asian		0.09	-0.02	-0.10	-0.20	-0.16
		(0.67)	(0.68)	(0.68)	(0.68)	(0.68)
Other ethnicity		-0.96	-0.98	-1.03	-1.00	-0.96
		(0.85)	(0.85)	(0.86)	(0.86)	(0.85)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		1.47*	1.46*	1.49*	1.49*	1.48*
		(0.64)	(0.64)	(0.64)	(0.64)	(0.64)

Migrated to NZ older than 18 years	0.24	0.21	0.22	0.31	0.30
	(0.53)	(0.53)	(0.54)	(0.54)	(0.54)
Maternal age (years)	0.01	0.00	-0.00	-0.00	-0.00
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Family characteristics measured at antenatal					
Owns home (ref: rents home)	-0.10	-0.06	0.00	0.06	0.09
	(0.37)	(0.38)	(0.38)	(0.38)	(0.38)
Mother and/or father in paid employment (ref: neither employed)	0.40	0.39	0.51	0.57	0.54
	(0.60)	(0.60)	(0.72)	(0.72)	(0.71)
Household income source comes from a main benefit (ref: no income from a main benefit)	-0.69	-0.72	-0.93	-1.03	-1.00
	(0.77)	(0.77)	(0.80)	(0.78)	(0.79)
Two-parent family (ref: single-parent family)	0.82	0.88	1.39	1.40	1.44
	(0.91)	(0.91)	(0.95)	(0.92)	(0.94)
Other adult household members (ref: no other adult household members)	-0.28	-0.29	-0.46	-0.54	-0.52
	(0.46)	(0.46)	(0.46)	(0.46)	(0.46)
Number of siblings	0.21	0.24	0.18	0.21	0.18
	(0.17)	(0.17)	(0.18)	(0.17)	(0.18)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation (NZDep; 1-10 scale)		0.05	0.05	0.05	0.04
		(0.07)	(0.07)	(0.07)	(0.07)
Lives in a rural area (ref: lives in an urban/suburban area)		-0.41	-0.42	-0.46	-0.47
		(0.64)	(0.63)	(0.63)	(0.63)
District Health Board (ref: Auckland)					
Counties Manukau		-0.49	-0.52	-0.57	-0.59
		(0.45)	(0.45)	(0.45)	(0.45)
Waikato		-0.31	-0.29	-0.34	-0.32
		(0.45)	(0.45)	(0.45)	(0.45)
Longitudinal family dynamic measures					
Parental disability (ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			-0.34	-0.34	-0.35
			(0.59)	(0.58)	(0.59)
No disability at antenatal/9-months but disability at 12-years			0.21	0.17	0.16
			(0.59)	(0.60)	(0.60)
Disability at antenatal/9-months and 12-years			0.98	1.14	1.02
			(0.84)	(0.85)	(0.84)

Number of family structure changes (0-5 scale)				0.72**	0.71**	0.70**
				(0.25)	(0.25)	(0.25)
Number of waves parent(s) employed (0-5 scale)				-0.09	-0.18	-0.11
				(0.29)	(0.28)	(0.29)
Number of adults in the home at 12-years				0.30	0.25	0.25
				(0.29)	(0.29)	(0.29)
Number of younger siblings in the home at 12-years				-0.25	-0.22	-0.23
				(0.22)	(0.22)	(0.22)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		-2.82***	-2.83***	-2.79***	-2.78***	-2.79***
		(0.35)	(0.35)	(0.35)	(0.35)	(0.35)
Non-binary/I don't know		5.93***	5.93***	5.92***	5.83***	5.79***
		(0.93)	(0.93)	(0.93)	(0.93)	(0.93)
Child has developmental problem at 9-months (ref: no developmental problem)		-0.45	-0.45	-0.45	-0.50	-0.49
		(0.54)	(0.54)	(0.54)	(0.54)	(0.54)
Age deviation from 12-year survey wave (months)		-0.01	-0.01	-0.02	-0.02	-0.02
		(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
Constant	46.03***	45.59***	45.68***	45.34***	45.28***	45.10***
	(0.19)	(1.59)	(1.72)	(2.14)	(2.10)	(2.13)
R^2	0.00	0.05	0.05	0.05	0.05	0.05
n	3,824	3,824	3,824	3,824	3,824	3,824

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A14. Stepwise OLS regression models predicting maternal global health scale at the 12-year wave

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	-0.42***	-0.12^{+}	-0.10	-0.08		-0.08
	(0.06)	(0.07)	(0.07)	(0.06)		(0.06)
High middle childhood income poverty with low material hardship	-0.22***	0.05	-0.03	0.02		0.01
	(0.06)	(0.06)	(0.06)	(0.06)		(0.06)
High and rising material hardship	-0.93***	-0.59***	-0.54***	-0.40***		-0.38***
	(0.10)	(0.11)	(0.11)	(0.10)		(0.10)
High income poverty and material hardship	-0.78***	-0.24*	-0.19^{+}	-0.13		-0.13
	(0.10)	(0.10)	(0.10)	(0.10)		(0.10)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					-0.12	-0.05
					(0.04)	(0.04)
More than $10,000					-0.13**	-0.12**
					(0.04)	(0.04)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		-0.16***	-0.12**	-0.12**	-0.12**	-0.11**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Diploma/trade certificate/NZQA 5-6		-0.15***	-0.12**	-0.11**	-0.11**	-0.10**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Maternal ethnicity (ref: European/Pākehā)						
Māori		-0.33***	-0.27***	-0.28***	-0.28***	-0.28***
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Pacific		-0.36***	-0.29***	-0.33***	-0.34***	-0.32***
		(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Asian		-0.30***	-0.28***	-0.32***	-0.32***	-0.32***
		(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Other ethnicity		-0.13	-0.11	-0.10	-0.10	-0.10
		(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		0.13*	0.12*	0.09^{+}	0.08	0.09^{+}
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Migrated to NZ older than 18 years		0.02	0.01	-0.02	-0.03	-0.03
		(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Maternal age (years)		0.01***	0.01^{+}	0.01**	0.01**	0.01**

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Family characteristics measured at antenatal					
Owns home (ref: rents home)	0.10**	0.12***	0.09**	0.09**	0.09**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Mother and/or father in paid employment (ref: neither employed)	0.02	0.02	-0.00	-0.01	-0.01
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Household income source comes from a main benefit (ref: no income from a main benefit)	-0.13+	-0.12+	-0.06	-0.07	-0.06
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Two-parent family (ref: single-parent family)	0.26**	0.24**	0.16+	0.18*	0.15+
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Other adult household members (ref: no other adult household members)	-0.06	-0.08+	-0.07+	-0.07+	-0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Number of siblings	-0.03+	-0.01	-0.01	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation (NZDep; 1-10 scale)		-0.03***	-0.03***	-0.04***	-0.03***
		(0.01)	(0.01)	(0.01)	(0.01)
Lives in a rural area (ref: lives in an urban/suburban area)		0.05	0.04	0.04	0.04
		(0.05)	(0.05)	(0.05)	(0.05)
District Health Board (ref: Auckland)					
Counties Manukau		-0.18***	-0.17***	-0.17***	-0.16***
		(0.04)	(0.04)	(0.04)	(0.04)
Waikato		-0.18***	-0.16***	-0.15***	-0.15***
		(0.04)	(0.04)	(0.04)	(0.04)
Longitudinal family dynamic measures					
Parental disability (ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			-0.09+	-0.09+	-0.09+
			(0.05)	(0.05)	(0.05)
No disability at antenatal/9-months but disability at 12-years			-0.50***	-0.50***	-0.49***
			(0.06)	(0.06)	(0.06)
Disability at antenatal/9-months and 12-years			-0.65***	-0.66***	-0.65***
			(0.08)	(0.08)	(0.08)
Number of family structure changes (0-5 scale)			-0.05*	-0.05*	-0.05*
			(0.02)	(0.02)	(0.02)
Number of waves parent(s) employed (0-5 scale)			0.02	0.04+	0.03

				(0.02)	(0.02)	(0.02)
Number of adults in the home at 12-years				0.02	0.02	0.02
				(0.02)	(0.02)	(0.02)
Number of younger siblings in the home at 12-years				0.00	-0.00	0.00
				(0.02)	(0.02)	(0.02)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		-0.07*	-0.07*	-0.07*	-0.07*	-0.07*
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Non-binary/I don't know		-0.33***	-0.31***	-0.30***	-0.31***	-0.30***
		(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
Child has developmental problem at 9-months (ref: no developmental problem)		-0.15***	-0.15***	-0.15***	-0.14**	-0.15**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age deviation from 12-year survey wave (months)		-0.00	-0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	3.74***	3.67***	3.67***	3.67***	3.61***	3.68***
	(0.02)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
R^2	0.05	0.12	0.14	0.18	0.18	0.19
n	3,873	3,873	3,873	3,873	3,873	3,873

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A15. Stepwise OLS regression models predicting maternal depressive symptoms at the 12-year wave

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	0.89**	0.17	0.14	0.02		0.05
	(0.27)	(0.28)	(0.28)	(0.28)		(0.28)
High middle childhood income poverty with low material hardship	0.39	0.07	0.04	-0.15		-0.14
	(0.27)	(0.27)	(0.27)	(0.27)		(0.27)
High and rising material hardship	4.95***	4.07***	4.01***	3.45***		3.34***
	(0.60)	(0.59)	(0.60)	(0.59)		(0.60)
High income poverty and material hardship	2.89***	1.61***	1.53**	1.22*		1.20*
	(0.44)	(0.47)	(0.47)	(0.47)		(0.47)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					0.54***	0.49**
					(0.16)	(0.16)
More than $10,000					0.92***	0.86***
					(0.20)	(0.19)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		0.55**	0.50**	0.48**	0.46*	0.42*
		(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Diploma/trade certificate/NZQA 5-6		0.34*	0.30+	0.22	0.20	0.18
		(0.16)	(0.15)	(0.15)	(0.15)	(0.15)
Maternal ethnicity (ref: European/Pākehā)						
Māori		0.82***	0.73**	0.78***	0.73**	0.73**
		(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Pacific		0.15	0.03	0.27	0.43	0.23
		(0.33)	(0.33)	(0.34)	(0.34)	(0.34)
Asian		-0.06	-0.10	0.02	-0.00	0.00
		(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Other ethnicity		0.12	0.09	-0.00	-0.01	0.01
		(0.39)	(0.39)	(0.39)	(0.39)	(0.39)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		-0.43+	-0.40+	-0.28	-0.26	-0.29
		(0.23)	(0.23)	(0.22)	(0.22)	(0.22)
Migrated to NZ older than 18 years		-0.46*	-0.45*	-0.35+	-0.25	-0.30
		(0.18)	(0.19)	(0.19)	(0.19)	(0.19)
Maternal age (years)		-0.05**	-0.04*	-0.05**	-0.04**	-0.05**

	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Family characteristics measured at antenatal					
Owns home (ref: rents home)	-0.34*	-0.37**	-0.27^{+}	-0.26^{+}	-0.23
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Mother and/or father in paid employment (ref: neither employed)	-0.42	-0.43^{+}	-0.12	-0.10	-0.12
	(0.26)	(0.30)	(0.30)	(0.31)	(0.30)
Household income source comes from a main benefit (ref: no income from a main benefit)	0.17	0.14	-0.12	-0.08	-0.17
	(0.33)	(0.33)	(0.32)	(0.33)	(0.32)
Two-parent family (ref: single-parent family)	-0.45	-0.41	-0.04	-0.19	-0.01
	(0.35)	(0.35)	(0.36)	(0.36)	(0.36)
Other adult household members (ref: no other adult household members)	0.25	0.28	0.26	0.22	0.22
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
Number of siblings	0.12^{+}	0.09	0.09	0.15*	0.09
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation (NZDep; 1-10 scale)		0.05*	0.06*	0.07**	0.06*
		(0.03)	(0.03)	(0.02)	(0.03)
Lives in a rural area (ref: lives in an urban/suburban area)		-0.31	-0.28	-0.29	-0.32
		(0.23)	(0.23)	(0.23)	(0.23)
District Health Board (ref: Auckland)					
Counties Manukau		0.19	0.17	0.16	0.12
		(0.17)	(0.16)	(0.16)	(0.16)
Waikato		0.33*	0.27	0.23	0.24
		(0.17)	(0.16)	(0.17)	(0.16)
Longitudinal family dynamic measures					
Parental disability (ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			0.77**	0.77**	0.75**
			(0.25)	(0.25)	(0.25)
No disability at antenatal/9-months but disability at 12-years			1.33***	1.35***	1.29***
			(0.24)	(0.24)	(0.24)
Disability at antenatal/9-months and 12-years			1.89***	2.09***	1.92***
			(0.33)	(0.34)	(0.33)
Number of family structure changes (0-5 scale)			0.16	0.18^{+}	0.16
			(0.10)	(0.10)	(0.10)
Number of waves parent(s) employed (0-5 scale)			-0.28*	-0.42***	-0.29*

				(0.12)	(0.12)	(0.12)
Number of adults in the home at 12-years				-0.16	-0.17	-0.18
				(0.11)	(0.11)	(0.11)
Number of younger siblings in the home at 12-years				-0.07	-0.02	-0.05
				(0.09)	(0.09)	(0.09)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		0.37**	0.37**	0.35**	0.37**	0.35**
		(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Non-binary/I don't know		0.76*	0.75*	0.69*	0.71*	0.63^{+}
		(0.35)	(0.34)	(0.34)	(0.35)	(0.34)
Child has developmental problem at 9-months (ref: no developmental problem)		0.16	0.16	0.16	0.12	0.14
		(0.20)	(0.20)	(0.20)	(0.20)	(0.20)
Age deviation from 12-year survey wave (months)		-0.04*	-0.04*	-0.05*	-0.05*	-0.05*
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	3.76***	5.85***	5.18***	6.17***	6.51***	6.02***
	(0.07)	(0.62)	(0.67)	(0.82)	(0.82)	(0.81)
R^2	0.05	0.09	0.04	0.11	0.04	0.12
n	3,879	3,879	3,879	3,879	3,879	3,879

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A16. Stepwise OLS regression models predicting parental relationship conflict at the 12-year wave

Variables included:	Model 1 Coeff.	Model 2 Coeff.	Model 3 Coeff.	Model 4 Coeff.	Model 5 Coeff.	Model 6 Coeff.
Economic trajectories	Y	Y	Y	Y		Y
Problem debt					Y	Y
Maternal, family, and child covariates		Y	Y	Y	Y	Y
Geographic covariates			Y	Y	Y	Y
Longitudinal covariates				Y	Y	Y
Economic trajectory (ref: economically secure)						
High income poverty in early years	0.17	0.00	-0.00	-0.04		-0.02
	(0.12)	(0.12)	(0.12)	(0.12)		(0.12)
High middle childhood income poverty with low material hardship	0.05	-0.06	-0.06	-0.09		-0.08
	(0.13)	(0.13)	(0.13)	(0.13)		(0.13)
High and rising material hardship	0.76*	0.62^{+}	0.60^{+}	0.52		0.48
	(0.36)	(0.35)	(0.36)	(0.35)		(0.35)
High income poverty and material hardship	1.71***	1.52***	1.51***	1.47***		1.45***
	(0.36)	(0.34)	(0.34)	(0.35)		(0.35)
Problem debt (ref: $1,000 or less)						
$1,001 - $10,000					0.20**	0.19**
					(0.07)	(0.07)
More than $10,000					0.35***	0.34***
					(0.09)	(0.09)
Maternal characteristics measured at antenatal						
Maternal education attainment (ref: university degree or higher)						
Secondary school/NCEA 1-4 or less		0.01	0.00	0.01	0.03	-0.01
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Diploma/trade certificate/NZQA 5-6		0.03	0.03	0.02	0.00	-0.00
		(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Maternal ethnicity (ref: European/Pākehā)						
Māori		0.45***	0.44***	0.44***	0.42***	0.43***
		(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Pacific		0.14	0.12	0.13	0.23	0.11
		(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
Asian		0.25*	0.24*	0.24*	0.20^{+}	0.23*
		(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Other ethnicity		-0.14	-0.15	-0.15	-0.18	-0.15
		(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Maternal nativity (ref: born in NZ)						
Migrated to NZ between ages 0-18 years		-0.07	-0.06	-0.05	-0.04	-0.05
		(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Migrated to NZ older than 18 years		0.01	0.00	0.02	0.08	0.04
		(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
Maternal age (years)		-0.02*	-0.01^{+}	-0.02*	-0.01^{+}	-0.02^{+}

	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Family characteristics measured at antenatal					
Owns home (ref: rents home)	0.01	0.01	0.03	0.02	0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Mother and/or father in paid employment					
(ref: neither employed)	0.04	0.04	0.07	0.07	0.08
	(0.12)	(0.12)	(0.15)	(0.15)	(0.15)
Household income source comes from a main benefit					
(ref: no income from a main benefit)	0.12	0.12	0.08	0.20	0.07
	(0.16)	(0.16)	(0.17)	(0.17)	(0.17)
Two-parent family					
(ref: single-parent family)	0.10	0.11	0.28	0.19	0.30
	(0.22)	(0.22)	(0.24)	(0.26)	(0.24)
Other adult household members					
(ref: no other adult household members)	0.04	0.04	0.02	0.01	-0.00
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Number of siblings	0.00	0.00	-0.01	0.01	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Geographic characteristics measured at antenatal					
Neighbourhood Deprivation					
(NZDep; 1-10 scale)		0.01	0.01	0.01	0.00
		(0.01)	(0.01)	(0.01)	(0.01)
Lives in a rural area					
(ref: lives in an urban/suburban area)		-0.04	-0.03	-0.04	-0.05
		(0.09)	(0.09)	(0.09)	(0.09)
District Health Board (ref: Auckland)					
Counties Manukau		0.04	0.03	0.03	0.01
		(0.08)	(0.08)	(0.08)	(0.08)
Waikato		0.03	0.02	0.01	0.01
		(0.07)	(0.07)	(0.07)	(0.07)
Longitudinal family dynamic measures					
Parental disability					
(ref: no disability at antenatal/9-months or 12-years)					
Disability at antenatal/9-months but not at 12-years			0.10	0.09	0.09
			(0.10)	(0.10)	(0.10)
No disability at antenatal/9-months but disability at 12-years			0.14	0.14	0.13
			(0.11)	(0.11)	(0.11)
Disability at antenatal/9-months and 12-years			0.37*	0.41*	0.38*
			(0.16)	(0.16)	(0.16)
Number of family structure changes					
(0-5 scale)			0.15*	0.14*	0.15*
			(0.06)	(0.06)	(0.06)
Number of waves parent(s) employed					
(0-5 scale)			-0.02	-0.06	-0.02

				(0.06)	(0.06)	(0.06)
Number of adults in the home at 12-years				0.07	0.10	0.07
				(0.06)	(0.06)	(0.06)
Number of younger siblings in the home at 12-years				-0.02	-0.01	-0.02
				(0.04)	(0.04)	(0.04)
Child characteristics						
Child-reported child gender at 12-years (ref: girl/mostly girl)						
Boy/mostly boy		0.05	0.05	0.05	0.06	0.05
		(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Non-binary/I don't know		0.08	0.07	0.07	0.06	0.05
		(0.16)	(0.16)	(0.16)	(0.17)	(0.16)
Child has developmental problem at 9-months (ref: no developmental problem)		0.16^{+}	0.16^{+}	0.16^{+}	0.15	0.16
		(0.09)	(0.09)	(0.09)	(0.10)	(0.10)
Age deviation from survey wave (months)		0.00	0.00	0.00	-0.00	-0.00
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	4.41***	4.63***	4.55***	4.27***	4.31***	4.19***
	(0.03)	(0.29)	(0.31)	(0.45)	(0.46)	(0.45)
R^2	0.03	0.04	0.04	0.05	0.05	0.06
n	3,160	3,160	3,160	3,160	3,160	3,160

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.

Table A17. Multinomial logistic regression predicting problem debt group at the 12-year wave

	Reference: $1,000 or less debt		Reference: $1,001-$10,000 debt
	$1,001-$10,000 debt RRR	More than $10,000 debt RRR	More than $10,000 debt RRR
Economic trajectory (ref: economically secure)			
High poverty in early years	0.87	0.76	0.87
	(0.16)	(0.16)	(0.21)
High middle childhood poverty with low hardship	0.77	0.85	1.11
	(0.16)	(0.19)	(0.29)
High and rising hardship	1.65	2.31*	1.40
	(0.52)	(0.75)	(0.47)
High poverty and hardship	1.48	1.20	0.81
	(0.41)	(0.38)	(0.26)
Maternal characteristics measured at antenatal			
Maternal education attainment (ref: university degree or higher)			
Secondary school/NCEA 1-4 or less	1.42**	1.52**	1.07
	(0.17)	(0.23)	(0.17)
Diploma/trade certificate/NCEA 5-6	1.37**	1.46**	1.07
	(0.15)	(0.18)	(0.15)
Maternal ethnicity (ref: NZ European/Pākehā)			
Māori	0.95	1.74***	1.84***
	(0.14)	(0.26)	(0.31)
Pacific	0.86	1.87**	2.16**
	(0.19)	(0.41)	(0.55)
Asian	0.91	1.54*	1.70*
	(0.17)	(0.33)	(0.42)
Other ethnicity	1.16	0.75	0.65
	(0.30)	(0.29)	(0.27)
Maternal nativity (ref: born in NZ)			
Migrated to NZ between ages 0-18 years	0.99	0.86	0.87
	(0.16)	(0.17)	(0.19)
Migrated to NZ older than 18 years	0.70**	0.71*	1.01
	(0.10)	(0.12)	(0.20)
Maternal age (years)	0.98	0.99	1.01
	(0.01)	(0.01)	(0.01)
Family characteristics measured at antenatal			
Owns home (ref: rents home)	0.96	0.71**	0.73*
	(0.09)	(0.08)	(0.09)
Mother and/or father in paid employment (ref: neither employed)	1.04	0.98	0.94
	(0.18)	(0.20)	(0.21)
Household income source comes from a main benefit (ref: no income from a main benefit)	1.40+	1.47+	1.05
	(0.27)	(0.32)	(0.23)

Two-parent family (ref: single-parent family)	0.82	1.09	1.33
	(0.20)	(0.29)	(0.37)
Other adult household members (ref: no other adult household members)	1.10	1.36*	1.23
	(0.14)	(0.19)	(0.19)
Number of siblings	0.99	0.99	1.00
	(0.04)	(0.05)	(0.05)
Child has developmental problem at 9-months (ref: no developmental problem)	1.01	1.05	1.04
	(0.14)	(0.17)	(0.19)
Geographic characteristics measured at antenatal			
Neighbourhood Deprivation (NZDep; 1-10 scale)	1.05**	1.01	0.96^{+}
	(0.02)	(0.02)	(0.02)
Lives in a rural area (ref: lives in an urban/suburban area)	1.21	1.36^{+}	1.12
	(0.19)	(0.25)	(0.22)
District Health Board (ref: Auckland)			
Counties Manukau	1.30*	1.37*	1.06
	(0.15)	(0.19)	(0.16)
Waikato	1.17	1.23	1.05
	(0.14)	(0.17)	(0.17)
Longitudinal family dynamic measures			
Parental disability (ref: no disability at antenatal/9-months or 12-years)			
Disability at antenatal/9-months but not at 12-years	1.10	1.15	1.04
	(0.16)	(0.20)	(0.20)
No disability at antenatal/9-months but disability at 12-years	1.37*	1.24	0.90
	(0.20)	(0.73)	(0.17)
Disability at antenatal/9-months and 12-years	0.70^{+}	0.73	1.04
	(0.14)	(0.18)	(0.29)
Number of family structure changes (0-5 scale)	0.87*	1.01	1.16^{+}
	(0.06)	(0.07)	(0.10)
Number of waves parent(s) employed (0-5 scale)	1.06	1.09	1.03
	(0.07)	(0.09)	(0.10)
Number of adults in the home at 12-years	0.99	1.17*	1.18^{+}
	(0.08)	(0.09)	(0.11)
Number of younger siblings in the home at 12-years	0.90^{+}	0.91	1.01
	(0.05)	(0.06)	(0.07)
Constant	0.44	0.10***	0.23*
	(0.24)	(0.06)	(0.16)
Pseudo R^2	0.04	0.04	0.04
n	3,103	3,103	3,103

Note. RRR = relative risk ratios. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$. Outcome variable: \$1,000 or less debt; \$1,001-\$10,000 debt; more than \$10,000 debt.

Table A18. OLS regression predicting problem debt (continuous $NZ2021 in thousands) at the 12-year wave

	Coeff.
Economic trajectory (ref: economically secure)	
High income poverty in early years	-0.53
	(1.39)
High middle childhood income poverty with low material hardship	-1.01
	(1.37)
High and rising material hardship	3.73+
	(2.20)
High income poverty and material hardship	1.30
	(2.38)
Maternal characteristics measured at antenatal	
Maternal education attainment (ref: university degree or higher)	
Secondary school/NCEA 1-4 or less	0.66+
	(0.23)
Diploma/trade certificate/NZQA 5-6	1.41+
	(0.76)
Maternal ethnicity (ref: European/Pākehā)	
Māori	3.01**
	(1.05)
Pacific	5.26**
	(1.75)
Asian	2.82*
	(1.34)
Other ethnicity	-1.04
	(1.73)
Maternal nativity (ref: born in NZ)	
Migrated to NZ between ages 0-18 years	-0.50
	(1.19)
Migrated to NZ older than 18 years	-1.11
	(0.95)
Maternal age (years)	-0.01
	(0.08)
Family characteristics measured at antenatal	
Owns home (ref: rents home)	-1.73**
	(0.65)
Mother and/or father in paid employment (ref: neither employed)	-0.21
	(1.37)
Household income source comes from a main benefit (ref: no income from a main benefit)	1.44
	(1.49)
Two-parent family (ref: single-parent family)	2.12
	(1.65)
Other adult household members (ref: no other adult household members)	1.69+
	(0.94)

Number of siblings	-0.19
	(0.30)
Child has developmental problem at 9-months (ref: no developmental problem)	0.54
	(1.01)
Geographic characteristics measured at antenatal	
Neighbourhood Deprivation (NZDep; 1-10 scale)	-0.07
	(0.12)
Lives in a rural area (ref: lives in an urban/suburban area)	1.65
	(0.86)
District Health Board (ref: Auckland)	
Counties Manukau	1.62^{+}
	(0.86)
Waikato	1.07
	(0.80)
Longitudinal family dynamic measures	
Parental disability (ref: no disability at antenatal/9-months or 12-years)	
Disability at antenatal/9-months but not at 12-years	0.23
	(1.02)
No disability at antenatal/9-months but disability at 12-years	0.24
	(1.05)
Disability at antenatal/9-months and 12-years	-1.55
	(1.32)
Number of family structure changes (0-5 scale)	0.19
	(0.50)
Number of waves parent(s) employed (0-5 scale)	0.40
	(0.55)
Number of adults in the home at 12-years	1.12^{+}
	(0.59)
Number of younger siblings in the home at 12-years	-0.54
	(0.40)
Constant	1.66
	(3.95)
R^2	0.03
n	3,103

Note. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.10$.