

Gendered parenting and the intergenerational transmission of gender stereotypes: Evidence from the Growing Up in New Zealand survey

March 2022



**MINISTRY OF SOCIAL
DEVELOPMENT**
TE MANATŪ WHAKAHIATO ORA

Motu
economic & public policy research

This report has been produced for the Ministry of Social Development with funding from the Children and Families Research Fund

www.msd.govt.nz

Authors

Livvy Mitchell, Isabelle Sin, Maanaima Soa-Lafoai, and Colleen Ward

Acknowledgements

We thank James Hudson for cultural advice and our peer reviewers, Kate Prickett and Steven Stillman, for valuable contributions throughout the project. We also thank seminar participants at Motu who gave useful feedback.

This report is made possible with funding from the Ministry of Social Development using *Growing Up in New Zealand* (GUINZ) data collected by the University of Auckland. The data has been accessed and used in accordance with the GUINZ Data Access Protocol.

Disclaimer

This work is licensed under the Creative Commons Attribution 3.0 New Zealand licence. In essence, you are free to copy, distribute and adapt the work, as long as you attribute the work to the Crown and abide by the other licence terms.

To view a copy of this licence, visit <http://creativecommons.org/licenses/by/3.0/nz/>. Please note that no departmental or governmental emblem, logo or Coat of Arms may be used in any way which infringes any provision of the Flags, Emblems, and Names Protection Act 1981. Attribution to the Crown should be in written form and not by reproduction of any such emblem, logo or Coat of Arms.

Published

15 September 2022

Ministry of Social Development

PO Box 1556

Wellington 6140

New Zealand

Web: www.msd.govt.nz

ISBN

978-1-99-002370-5

Contents

Contents	4
Executive summary	6
Introduction	10
Background	16
Gender stereotypes.....	16
Mechanisms of gendered parenting.....	18
Data	22
Population of interest	22
Antenatal sample	22
Subsequent survey samples	23
Variables.....	24
Parental behaviour variables.....	24
The child’s birth sex	27
Parental inequality	27
The child’s personality	29
Empirical strategy	29
Random assignment of children’s birth sex	29
Basic specification: The effect of the child’s sex on parenting behaviours	30
Interacted specification: Heterogeneity in the effect of the child’s sex on parenting behaviours	33
Heterogeneity by parental inequality.....	33
Heterogeneity by parental migrant status	36
Drivers of gendered parenting behaviour.....	36
Results	38
Descriptive statistics	38
Random assignment of children’s birth sex	39
Gendered parenting in Aotearoa New Zealand	39
9 month	40
2 year.....	50
8 year.....	56
Interaction with migrant status	63
Interaction with parental socioeconomic status relative to peers	64
Conclusions	66

Limitations and next steps	70
References	72
Appendix.....	79
Appendix 1. Parental behaviour variables and factor loadings.....	79
Appendix 2. Other empirical specifications using Equation 2	94
Appendix 3. Characterising attrition across surveys	110
Appendix 4. Testing random assignment of child birth sex.....	111
Appendix 5. Regression analysis controlling for child's personality	116
Appendix 6. Sharpened q-values for multiple hypothesis testing.....	119
Appendix 7. Decomposing factors in regression analysis	121
Appendix 8. Regression analysis – Interaction with parental migrant status	126

List of figures

Figure 1. The intergenerational transmission of parental traits and attitudes ...	21
Figure 2. 9-month parental behaviour factors: Mothers and fathers	40
Figure 3. 9-month parental behaviour values questions: Mothers and fathers..	44
Figure 4. 2-year parental behaviour factors: Mothers and fathers.....	51
Figure 5. 8-year parental behaviour factors: Mothers	57

List of tables

Table 1. Summary of gender stereotypes and gendered expectations	17
Table 2. Population of interest across data collection waves	23
Table 3. Parental behaviour outcome variables.....	26
Table 4. Definition of within-couple traditional gender inequality	28
Table 5. Descriptive statistics	38
Table 6. Mother and father 9-month parental behaviours.....	42
Table 7. Mother and father 9-month parental behaviours: Values	44
Table 8. 9-month mothers' and fathers' gendered parenting behaviours by traditional gender inequality status	49
Table 9. Mother and father 2-year parental behaviours by ethnicity	53
Table 10. 2-year mothers' and fathers' gendered parenting behaviours by traditional gender inequality status	56
Table 11. Mother 8-year parental behaviour by ethnicity.....	60
Table 12. 8-year mothers' gendered parenting behaviours by traditional gender inequality status	63

Executive summary

Gender inequality is a persistent issue in Aotearoa New Zealand. Underpinning it are conscious and subconscious attitudes towards and expectations of men and women. To help break the cycle of potentially harmful gender inequalities, it is important to understand how gender stereotyping is learned and passed on to new generations.

Research questions

This paper investigates the intergenerational transmission of gender attitudes and inequality in Aotearoa New Zealand from parents to their young children. We explore whether the parenting of boy and girl children differs in such a way that perpetuates traditional Western gender stereotypes and gendered expectations, and for which groups gendered parenting is most prevalent.

Data

We use the *Growing Up in New Zealand* (GUiNZ) study, a longitudinal survey of around 7,000 children born in 2009/10 in Auckland, Waikato, and Counties-Manukau. Our sample of interest is first-born singleton children, comprised of approximately 2,500 mother-child pairs and 1,700 father-child pairs. A large majority of fathers in our sample are the biological fathers of the children. The GUiNZ data provide rich information on many different aspects of parenting behaviours and attitudes shown toward children at 9 months, 2 years, and 8 years old. Such information includes the degree of parental involvement, the nature of the parent-child relationship, frequencies of positive and negative interactions with the child, the quality and quantity of positive connections with the child, the child's activities and experiences, recommendations for how the child should respond to bullying, and the values that the parent thinks are most important for their child. We evaluate over 40 parental behaviour outcome variables.

Method

We use exploratory factor analysis to group together similar parenting behaviour survey questions and run OLS regressions of parental behaviour on the child's sex assigned at birth for mothers and fathers separately. We run the regressions pooling ethnicities and disaggregated by ethnicity. We then run three sets of interaction regressions, interacting the child's birth sex with a measure of within-couple parental gender inequality, a measure of each parent's absolute socioeconomic inequality, and an indicator of parents' migrant status.

The developmental psychology literature does not support that there are any biological differences between the behaviour of boys and that of girls at the ages we consider. However, influences outside the home may encourage different behaviour in boys and girls, and the resulting behavioural differences may make

parents treat the sexes differently. We refer to such parenting differences as child-driven, and distinguish them conceptually from parent-driven differences, which result from gendered parental preferences or expectations of boy versus girl children, likely influenced by society's gendered structural constraints. We use two main approaches to help distinguish parent-driven from child-driven mechanisms. First, we explore a range of parental behaviours, some of which are less likely to be affected by the child's behaviour, such as the values that parents think are most important for their child's development.

Second, we look at the heterogeneity in gendered parenting by whether the father has higher socioeconomic status than the mother, which we consider a traditional Western relationship. We use parents' traditional versus non-traditional relationships status as a proxy for their own beliefs about gender roles and gendered expectations. We hypothesise parents in traditional relationships are more likely to treat children of different sexes differently in ways that perpetuate traditional Western gender stereotypes than are parents in non-traditional relationships. Testing this hypothesis sheds light on the extent to which parents' own experience shapes their parenting of boy versus girl children, and hence reveals information about the intergenerational transmission of gender norms and attitudes from parents to children. It also helps to distinguish the child-driven and parent-driven mechanisms of gendered parenting, because the developmental psychology literature suggests parents are likely to be relatively ineffectual at shielding their children from structural factors, meaning the child-driven mechanism should be constant across parental characteristics. Therefore, if we see differences in gendered parenting by traditional and non-traditional parents, we can conclude that the gendered parenting is parent-driven and not a response to different gender-specific behaviour on the part of the children. To test this, we run OLS regressions of parental behaviour interacting the child's birth sex with dummies for traditional and non-traditional within-couple inequality.

Further, to differentiate between within-couple inequality effects and socioeconomic class effects, we also run OLS regressions of parental behaviour interacting the child's birth sex with dummies for the parent having a high versus low absolute socioeconomic status.

Finally, as a robustness test, we check whether gendered parenting persists when including child personality proxies in our regressions. If the significant difference in the parenting of boy and girl children persists once controlling for the child's personality, this is weak evidence that such gendered parenting is parent-driven rather than child-driven.

Key findings

- There are many dimensions in which parents offer equal opportunities to their boy and girl children. There are no significant differences in mothers' and fathers' connections with girl versus boy babies, the activities and

experiences offered to boy and girl toddlers, the likelihood the mother discusses the child's ethnicity with their boy and girl children, or in the likelihood they agree with and validate the emotions of boys versus girls.

- However, there are also several aspects of parenting that show statistically significant differences toward boy and girl children.
- Mothers promote the values of "enjoying life" and "culture" significantly more for girls, and "taking on challenges" and "respect for others" significantly more for boys. These gender differences are emphasised by mothers in traditionally unequal relationships and by mothers with low absolute socioeconomic status. The girl preference for "culture" perpetuates the female stereotype of communality and the boy preference for "taking on challenges" perpetuates the male stereotype of agency.
- Mothers exhibit more positive behaviours, higher engagement, and more positive parent-child moments with girls than with boys.
- Parents are significantly more likely to have negative parent-child moments with boys than with girls. This difference is most prevalent amongst parents in a traditional relationship, and, at least for mothers, this is not attributable to socioeconomic class. This perpetuates the agency male stereotype since parents are more confrontational and less tolerant of incompetence and underperformance with boys than with girls.
- Mothers are more likely to encourage boy children than they are girl children to respond aggressively to bullying situations. This emphasises the masculine traits of competence and assertion.
- Mothers are substantially more likely to have savings for their sons than for their daughters. This gender difference reinforces the traditional stereotype of men being economic providers.
- There is some evidence of same-sex parental preference. We find some evidence that Māori fathers are more involved with boy children than with girl children, through higher engagement, more positive interactions, and doing more activities with boys than with girls. There is also some evidence that Māori and Pacific mothers are more likely to not work and to care for their babies if they have girls than if they have boys. The finding that mothers generally engage more with girls than boys is seen more strongly amongst mothers in non-traditional relationships than amongst mothers in traditional relationships.
- On average, migrant parents show less gendered parenting than do New Zealand-born parents.
- Overall, boy and girl children tend to be parented similarly. There are a number of parenting behaviours that show statistically significant differences by child birth sex, but these differences are mainly small in magnitude. To the extent that gendered parenting is observed, the prevalence of gendered parenting tends to be greater amongst parents who themselves are in a traditional relationship, and this is not always driven by mothers with low socioeconomic status in absolute terms. This is consistent with our hypothesis that gender stereotypes are passed on more strongly by adults who themselves embody stereotypical gender

roles and traits, and also suggests that gendered parenting is not solely driven by differences in the behaviour of boy and girl children.

Implications

We find that in most ways parents treat boy and girl children similarly in Aotearoa New Zealand, though in a few domains parents treat girls and boys differently in ways that could perpetuate traditional Western gender stereotypes, that are not entirely explainable by differences in boys' and girls' behaviour brought on by external influences.

We find some evidence of intergenerational transmission of gender stereotypes and gendered expectations, observing that parents in opposite-gender relationships where the man has higher socioeconomic status than the woman are more likely to exhibit stereotypical gendered parenting than are parents in relationships where the man has equal or lower socioeconomic status than the woman. Such stereotypical gendered parenting is not always evident amongst mothers with low absolute socioeconomic status, suggesting this difference is not purely a class effect.

Overall, the differences in parenting by the child's sex are not large enough to explain the gender inequality between adults in Aotearoa New Zealand. We infer that external structural factors outside parents' control likely play a primary role in perpetuating potentially harmful gender inequality. Parents alone cannot end the cycle of harmful gender inequalities, particularly since they are often pressured to parent within society's gendered structural constraints.

Introduction

Men and women do not achieve equal economic outcomes in Aotearoa New Zealand or in any other OECD country, and gender wage gaps have decreased little in recent years. Reinforcing many of the drivers of gender inequality are conscious and subconscious attitudes toward men and women and expectations of how the genders 'should' behave. Such gendered attitudes and expectations are often deeply rooted, stemming from historic gender stereotypes, making them challenging to shift. To help break the cycle of potentially harmful gender inequalities and build a society that offers equal opportunities to everyone, it is important to understand how gender stereotypes are learned and the transmission mechanisms through which they are passed to new generations. One obvious place to look for the transmission of gender stereotypes is from parents to their children, beginning in early childhood.

This paper investigates the intergenerational transmission of gender attitudes and inequality in Aotearoa New Zealand from parents to their young children. We use the *Growing Up in New Zealand* (GUiNZ) survey, a longitudinal survey of around 7,000 children born in 2009/10 in Auckland, Waikato, and Counties-Manukau, to explore whether the parenting of boy and girl children in Aotearoa New Zealand differs in such a way that perpetuates gender stereotypes and gendered expectations. Our population of interest is first-born singleton children, of whom we have approximately 2,500 mother-child pairs and 1,700 father-child pairs (a large majority of whom are the biological fathers). We keep only first-born singleton children so our results are unaffected by the dynamics of parents dividing their attention between multiple children who might be the same or opposite sexes.

The rich GUiNZ data allow us to explore many different aspects of parenting behaviours and attitudes exhibited by mothers and fathers when the child is 9 months, 2 years, and 8 years old. Such information includes the degree of parental involvement, the nature of the parent-child relationship, frequencies of positive and negative interactions with the child, the quality and quantity of positive connections with the child, the child's activities and experiences, recommendations for how the child should respond to bullying, and the values that the parent thinks are most important for their child.

We use exploratory factor analysis to group together survey questions that capture similar parental behaviours and attitudes. We run OLS regressions of parental behaviour factors on the child's sex assigned at birth to identify the prevalence of gendered parenting in Aotearoa. We show that a child's sex is sufficiently randomly assigned against parents' antenatal characteristics, allowing us to interpret our OLS regression estimates with a causal lens. We run the regressions of parental behaviour separately for mothers and fathers, both pooling ethnicities and disaggregated by ethnicity.

We find that in most ways parents treat boy and girl children similarly, though there are a few domains in which parents treat girls and boys differently. We find evidence of gendered expectations when exploring the values parents think are most important for their children. Values such as "enjoying life" and "culture" are encouraged significantly more for girls, while "taking on challenges" and "respect for others" are encouraged significantly more for boys. The psychology literature suggests the gendered encouragement of "culture" and "taking on challenges" perpetuate the female stereotype of communality and the male stereotype of agency respectively.

Regarding parental behaviours, we see parents, particularly mothers, exhibit more positive behaviours and higher engagement with girls than with boys. When considering the behaviours that reflect a quality connection between mothers and their children (e.g., saying nice things, taking an active interest, praising, enjoying the child's company, speaking warmly and affectionately, paying attention), mothers are significantly more likely to show these behaviours toward girls than toward boys.

Mothers and fathers are significantly more likely to have positive parent-child moments (e.g., making the child feel important, appreciating what the child does, telling the child they care about them) with girl children, and are significantly more likely to have negative parent-child moments (e.g., yelling, shouting, arguing, smacking) with boy children.

Therefore, from the outset we see signs that girl children receive softer and more positive parenting, perhaps encouraging the warmer traits associated with women's Western traditional role as the homemaker, while boy children receive harsher and more negative parenting, perhaps perpetuating the gendered expectation that men are to be more tough and resilient than women.

In the dimensions where it occurs, differential parental treatment of boy and girl children could be child-driven, where parents treat the sexes differently because the children behave differently for reasons unrelated to the parents, or parent-driven, where parents treat the sexes differently because of their own gender preferences or expectations of boy and girl children or because society constrains them to parent girls and boys in specific ways. The general conclusion from the developmental psychology literature is that there are no material biological differences between boy and girl children at the ages we study. Instead, most gender differences at this age are attributed to differences in socialisation. In other words, boy and girl children may behave differently and have different personalities because society treats them differently and teaches them different expected behaviour. For example, if in child care boys are encouraged more than girls to run around outside, boys may develop a preference for this type of play. They may then play outside more at home, leading parents to play outside more with boys than with girls. Parents may similarly adjust other aspects of their parenting to differentially respond to girl and boy children's behaviour. This type of gendered parenting should not be

considered the active perpetuation of potentially problematic gender stereotypes by parents. Instead, it is likely the product of deeply-rooted gendered structural factors that persist in society outside parents' control.

Alternatively, gendered parenting may result from (sub)conscious impulses driven by parents' attitudes toward gender stereotypes, gendered expectations, or gender preferences. Parents who exhibit gendered parenting promoting gender stereotypes and gendered expectations may use messages and behaviours that convey information about how girls and boys are 'supposed' to behave, or the skills and values that girls and boys are 'supposed' to have. Likewise, parents may treat boy and girl children differently to avoid backlash for parenting in ways contrary to society's expectations. Such behaviour may, directly or indirectly, transmit the parents' own beliefs (or society's beliefs) about gender stereotypes on to their children, thus shaping the children's perception about their role in society.

While we cannot perfectly distinguish these two mechanisms, we use two main approaches to help rule out differences in parenting being solely driven by differences in the behaviour of boy children versus girl children. First, we consider a range of different parenting questions, some of which are less likely to be affected by the child's behaviour. In particular, at 9 months parents are asked to identify the most important values for their child's development; while parents' responses might be influenced by the proclivities the child shows, this is less likely for such morals-based questions than for parenting questions regarding behaviours such as disciplining the child.

Second, we look at heterogeneity in gendered parenting by parental inequality in socioeconomic status. We hypothesise that parents who buy into gendered worldviews are more likely to be in traditional relationships (whereby the man has more education and a stronger labour market attachment than does the woman) and are more likely to pass on gendered traits and behaviours to their children. Therefore, we test whether gendered parenting differs for parents who follow the 1950's-Western traditional gender roles. This sheds light on the extent to which parents' own experience of gender roles and stereotypes shape their parenting of boy versus girl children, and hence reveals information about the intergenerational transmission of gender norms and attitudes from parents to children. It also helps to distinguish the child-driven and parent-driven mechanisms of gendered parenting, since the developmental psychology literature suggests parents are likely to be relatively ineffectual at shielding their children from structural factors, so the child-driven mechanism shouldn't differ systematically with parental characteristics.

To conduct this heterogeneity analysis, we split our samples of mothers and fathers into those whose antenatal relationships exhibit traditional Western gender inequality in socioeconomic status and those whose relationships do not. Inequality is constructed using indicators of the parents' socioeconomic status, including antenatal years of schooling, antenatal personal income, and antenatal

average hours worked per week. Parents are classified as embodying traditional gender inequality if the father has a higher socioeconomic status than the mother and are classified as non-traditional otherwise.

We interact a dummy of traditional parental inequality with the dummy for the child's sex assigned at birth to reveal the extent to which gendered parenting differs amongst mothers and fathers in traditional relationships compared with mothers and fathers in non-traditional relationships. If we see gendered parenting only by traditional parents, we can conclude the differences are at least partially parent-driven. If we see gendered parenting by both traditional and non-traditional parents, we cannot differentiate the child-driven and parent-driven mechanisms because it could be in response to child behaviour driven by ubiquitous societal pressures, or it could be that both types of parents exhibit gendered preferences. Even if the child-driven mechanism of gendered parenting were driven by biological differences between boy and girl children, this heterogeneity analysis would similarly distinguish the two mechanisms, because the biological inclinations of children are unlikely differ systematically by parents' characteristics.

To differentiate the effect of traditional inequality from overall class effects, we create dummy variables for whether the parent has a high or low socioeconomic status compared with their same-gender peers. We then run similar interaction regressions where the child's sex assigned at birth is interacted with each parent's absolute socioeconomic status. To the extent a gendered parenting behaviour is particularly evident among mothers (fathers) in traditional relationships, but not among mothers (fathers) with low (high) absolute socioeconomic status, we can conclude that the intergenerational transmission of gender stereotypes is related to parental gender inequality, not class.

Finally, as a robustness test, we check if our main estimates of gendered parenting change when controlling for a range of measures that capture aspects of the child's personality. GUiNZ data include a *Strengths and Difficulties Questionnaire*, which measures different aspects of child behaviour including emotional symptoms, peer relationship problems, hyperactivity/inattention, and prosocial behaviour. Although these variables cannot be considered fully exogenous to parenting behaviours and therefore are not an ideal proxy for child personality, controlling for them helps illuminate how much parenting differences for boy versus girl children may be related to different behaviour on the part of the child.

Overall, boy and girl children tend to be parented similarly. Although our results reveal a number of parenting behaviours that differ statistically by child birth sex, these differences are mostly small in magnitude. To the extent that gendered parenting is observed, the prevalence of gendered parenting tends to be greater amongst parents who embody traditional Western gender roles, and this is not always driven by parents' absolute socioeconomic class. We cannot reject that gendered parenting is at least partially child-driven, whereby parents

treat the sexes differently because the children behave differently, but we find evidence this is not the only mechanism.

Taken together, our findings suggest that the differences in parenting by the child's sex are not large enough to explain the gender inequality between adults in Aotearoa New Zealand. We infer that external structural factors outside parents' control likely play a primary role in perpetuating potentially harmful gender inequality. Parents alone cannot end the cycle of harmful gender inequalities, particularly since they are often pressured to parent within society's gendered structural constraints.

A primary policy issue relevant to this research is the persistently unequal opportunities offered to men and women in modern society, of which the gender wage gap is just one result. The gender wage gap is driven by a wide range of structural economic, cultural, and attitudinal factors that are deeply rooted and challenging to shift. These attitudes give rise to stereotypes that harm both men and women, such as toxic masculinity, and have created a culture of sexual harassment that made necessary the *#MeToo* movement. Furthermore, understanding how attitudes relating to biological sex are formed and expressed within the family and transmitted between generations is one step in building a society that offers equal opportunities to everyone, regardless of one's sex assigned at birth.

A large existing literature looks at differential treatment of boy children versus girl children within families, which can generally be thought about in three main strands: (a) the effect of child biological sex on abortion behaviour; (b) the effect of child birth sex on parental investments in children; and (c) the effect of child birth sex on parental and family outcomes. The unique and comprehensive nature of the GUINZ data means this paper makes a novel contribution to the second strand of this literature in the context of Aotearoa New Zealand.

The practice of sex-selective abortion reveals the extent to which parents prefer a child of a particular sex even before they are born. Many studies of sex-selective abortions show a clear historic preference for boy children over girl children, particularly across Asian countries (Junhong, 2001; Retherford & Roy, 2003; Dubuc & Coleman, 2007; Zhu, Lu, & Hesketh, 2008; Lamichhane et al., 2011; Frost, Puri, & Hinde, 2013; Lin, Liu, & Qian, 2014).

The second literature strand looks at how parental behaviour and investment in children differs by child birth sex once the child is born. Overall, the literature suggests that boys receive more parental time investment than girls (Raley & Bianchi, 2006), and more so from fathers than mothers (Raley & Bianchi, 2006; Lundberg, 2005). There is mixed evidence regarding the prevalence of same-sex parental bias. Within the psychology literature, Nikiforidis, Durante, Redden, and Griskevicius (2018) test favouritism in parental spending situations and find mothers consistently favour daughters and fathers consistently favour sons. In contrast, in recent family literature, Negraia, Yavorsky and Dukhovnov (2020)

find the gender composition of children is not associated with parental happiness or meaning.

A range of research finds evidence of implicit and explicit gender-stereotype parenting behaviours. For example, boys receive more parental play time (Mascaro, Rentscher, Hackett, & Mehl, 2017) and are taught more scientific thinking (Crowley, Callanan, & Tenenbaum, 2001) than are girls, and girls are more likely than boys to do housework (Raley & Bianchi, 2006). Parents, particularly fathers, are also more likely to sing and use analytical language when speaking to their daughters compared to sons (Mascaro et al., 2017). Parents are more likely to use authoritarian parenting styles (being extremely strict, focusing on obedience, discipline, and control, with high expectations for children) with boys, and authoritative parenting styles with girls (being nurturing, responsive, and supportive, while also having firm limits for children) (Russell et al., 1998).

However, when looking at parenting behaviours in terms of emotional connections (e.g., control, sensitivity, maternal warmth) rather than direct time investment, there is no conclusive evidence of differential treatment of boy versus girl children (Jennings et al., 2008; Hallers-Haalboom et al., 2014; Endendijk et al., 2016).

The third literature strand presents papers evaluating the impact of the child's sex on parents' outcomes, such as marital status or labour market attachment. Boy children tend to increase marriage stability and satisfaction relative to girl children (Lundberg, 2005; Raley & Bianchi, 2006). Girl children are consequently less likely to live with their fathers than are boy children, since girl children increase the rate of divorce and fathers are more likely to get custody of boys than of girls (Choi, Joesch, & Lundberg, 2008; Dahl & Moretti, 2008). However, these findings have been challenged by more recent literature (for example, Hamoudi & Nobels, 2014).

The evidence regarding the impact of the child's sex on parental labour market attachment is relatively mixed, but a general trend appears in that boy children tend to increase parents' working hours compared with girl children (Lundberg & Rose, 2002; Pollmann-Schult, 2017), particularly amongst fathers (Choi, Joesch, & Lundberg, 2008). However, parental educational attainment matters. Lundberg (2005) finds, compared with daughters, sons reduce the time spent at work amongst highly educated parents, but increase the time spent at work amongst lowly educated parents. Pollmann-Schult (2017) finds slight evidence that daughters are associated with a more traditional household division of labour than are sons.

The richness of the GUiNZ data allow us to explore the relationship between children's sex assigned at birth and parental investments in them through many different aspects of parental behaviour. To the best of our knowledge, this is the first time quantitative research on the prevalence of gendered parenting and the

intergenerational transmission of gender stereotypes has been conducted in Aotearoa New Zealand. This paper is also novel in that we look at heterogeneity in gendered parenting by the extent to which parents embody traditional Western gender stereotypes, as captured by within-couple comparisons in the socioeconomic status of mothers and fathers.

Background

This section describes the context in which we look at the intergenerational transmission of gender stereotypes and expectations. First, we describe the male and female stereotypes established by existing psychology literature. Second, we set out the mechanisms that could explain why parents treat sons and daughters differently.

Gender stereotypes

Conscious and subconscious attitudes toward, and expectations of, men and women contribute to the gender inequalities that persist today (Barreto & Schmitt, 2009; Cundiff & Vescio, 2016). Men and women with similar traits may have differential expression of such traits because of pressures to conform with society's expectations of each gender. Such gendered attitudes and expectations are often deeply rooted (Ellemers, 2018; Tabassum & Nayak, 2021), stemming from historic gender stereotypes and gender discrimination. The developmental psychology literature characterising gender stereotypes categorises men in the 'agency' domain and women in the 'communion' domain (Haines, Deaux, & Lofaro, 2016); Williams and Best (1990) show that these gender-trait stereotypes are evident across cultures from 30 different countries.

The agency domain includes traits such as competence, instrumentality, and independence. Agentic individuals are more likely to assert themselves, aim for success, performance and achievement, mastery, and strive for power (Bakan, 1966; Kite, Deaux, & Haines, 2008; Eagly & Wood, 2016). Ellemers (2018) states that people in the stereotypical agency domain prioritise work and neglect interpersonal connection, reflective of the traditional role of a 1950's middle-class man being the family economic provider (Lamb, 2011; Endendijk et al., 2016).

The communion domain incorporates traits of expressivity, warmth and friendliness, concern for others, and unselfishness (Kite, Deaux, & Haines, 2008; Eagly & Wood, 2016). Communion thus reflects a person's desire to avoid confrontation and conflict, to cooperate and merge with others, since they receive fulfilment from meaningful relationships (Bakan, 1966). Ellemers (2018) states that people in the stereotypical communality domain prioritise caring for others and neglect personal achievement. These warm traits reflect the traditional role of a 1950's woman being the homemaker and housewife (Lamb, 2011; Endendijk et al., 2016), who primarily bears the responsibility of child rearing and maintaining good relationships (van de Vijver, 2007).

Table 1 summarises the characteristics, traits, and expectations associated with the male 'agency' stereotype and the female 'communality' stereotype.

Table 1. Summary of gender stereotypes and gendered expectations

Male stereotype	Female stereotype
<i>Domain: Agency</i>	<i>Domain: Communion</i>
Competence	Warmth and friendliness
Independence	Desires cooperation and linking with others
Assertion	Unselfishness
Driven by success, performance, and achievement	Concern for others
Strives for power	Strives for meaningful relationships
Prioritises work	Prioritises caring for others and family
Lacks interpersonal connection	Lacks drive for personal achievement
Economic provider	Homemaker

Notes: This table combines the stereotypical agency and communality traits as described in: Bakan, 1966; van de Vijver, 2007; Kite, Deaux, & Haines, 2008; Haines, Deaux, & Lofaro, 2016; Eagly & Wood, 2016; Endendijk, et al., 2016; Ellemers, 2018.

This gender divide in the expectation of agency and communion traits can lead to certain behaviours and life choices that differentiate men and women in society (Ellemers, 2018), contributing to unequal outcomes. For example, action tendencies and overconfidence result in more men taking risky choices compared to women. This is also seen in occupational sorting by gender, whereby men tend to dominate in more confrontational roles (such as policing) and women dominate in more caring roles (such as nursing). Similarly, women are less likely to ask for, and receive, promotions relative to men (Ellemers, 2018), emphasising men's drive for individual performance and competence. There are also gender differences in the acceptability of certain traits that can lead to some people suppressing certain characteristics due to gendered social norms. For example, women who ask for promotions or who are more assertive in the workplace can be viewed negatively and penalised for this behaviour, often being seen as bossy or demanding, whereas men who exhibit the same behaviours are often seen as confident leaders (Babcock, Laschever, Gelfand, & Small, 2003).

A recent study by the OECD (2021) characterises norms of restrictive masculinities that directly hinder gender equality. These include the expectations

that men should be the breadwinner, be financially dominant and control household assets, work in a 'manly' job and be a 'manly' leader, prioritise work over all other aspects of life, make decisions for his household and exercise guardianship of family members, and not do unpaid care and domestic work.

While not all gender stereotypes result in unfavourable outcomes, we posit that some gender stereotypes result in inequalities that are objectively harmful to society. For example, the gender stereotype that women should take parental leave and men should keep working when a new child is born can be harmful for both men and women. It is harmful for men who wish to be around their newborn children but are judged by their peers and employers for not continuing to work and provide for the family. It is also harmful for women who want to return to work after childbirth and are labelled as bad mothers as a result. These gendered expectations and stereotypes devalue women's economic contribution, decision-making abilities, and leadership, and limit a woman's usefulness to household domestic work and child care (OECD, 2021). This is objectively harmful and unfavourable.

Therefore, understanding how gender stereotyping is learned and passed on to new generations is one important step toward breaking the cycle of potentially harmful gender inequalities.

Mechanisms of gendered parenting

Parents may treat boys and girls differently for reasons that originate with the parents, which we refer to as "parent-driven", or as a response to differences in the behaviour of the children, which we refer to as "child-driven". We consider these two mechanisms in a model of parenting that shows how parents' own traits and attitudes, life experiences, outcomes, and attitudes toward gendered traits and expectations affect the type of parenting received by a child and hence the child's life outcomes.

Gendered parenting may result from (sub)conscious impulses driven by parents' gendered expectations of traits and attitudes, attitudes toward gender stereotypes and roles in society, and explicit gender preferences, while being modified by constraints that society places on parental behaviour. Parents may use messages and behaviours that convey information about how girls and boys are 'supposed' to behave, or the skills and values that girls and boys are 'supposed' to have. Such behaviour may, directly or indirectly, transmit the parents' own beliefs about gender on to their children, thus shaping the children's perception about their role in society and later reinforcing perceived boundaries between men and women and further engraining gender stereotypes and social inequality (Ellemers, 2018).

Parents may have an expectation about the traits and attitudes that are best suited for children of a particular birth sex, such as those described in *Table 1*. This may influence the way parents engage with girl versus boy children to ensure the 'right' traits are inherited or developed by each sex. Further, these

gendered expectations of traits and attitudes may be driven by ideas about how gender functions within families. Parents may embrace a 1950's traditional western view of gender roles, whereby men are the economic providers and women are the homemakers, and adjust their expectations of traits and attitudes for their boy and girl children in light of what is socially accepted for each of their respective societal gender roles. Additionally, if parents have an explicit preference for boy children over girl children, they might gain more from investing in boys than in girls and parent accordingly.

Alternatively, parents may believe in gender equality and endeavour to raise their children accordingly. Even if this is the case, they may be constrained from equal treatment of boy and girl children by external structural factors and societal pressures, such as social norms and the belief others expect them or their children to behave in certain ways (UNFPA, 2020). Such pressures may prevent parents from raising their children in optimal ways (Freisthler & Maguire-Jack, 2015). For instance, parents may have an incentive to teach their children to adhere to certain gender norms even though they themselves don't believe in the norms in order to prevent their children from being bullied. Ignoring the constraints society imposes on the way mothers and fathers parent would place too much responsibility for breaking the transmission of gender stereotypes on parents (Zivkovic, Warin, Davies, & Moore, 2010).

These types of parent-driven gendered parenting therefore posit the active intergenerational transmission of gender stereotypes and gendered expectations.

Alternatively, gendered parenting may be child-driven, whereby parents treat the sexes differently because the children behave differently. While early psychology literature provides some evidence that biological sex causes differences in behaviour at the ages we study, it is now largely believed that most gender differences at this age are attributed to differences in external socialisation (Lumen, n.d.; Eliot, 2010; Peric Bralo & Masmjak, 2017).¹ Eliot (2010) argues that infants' brains are so malleable that small differences in the reinforcement of gender stereotypes after birth causes children themselves to intensify the differences. Understanding that sex differences emerge from gendered socialisation processes, rather than assuming them to be fixed

¹ Some developmental psychology literature shows the brain develops at different rates for boy and girl children, which leads to differences in the speed of progression through developmental milestones. While these studies show differences in boy and girl children's cognitive, social, and emotional skills (see, for example, Zahn-Waxler, Shirtcliff, & Marceau, 2008; and Toivainen, Papageorgiou, Tosto, & Kovas, 2017), Eliot (2010) suggests such differences are perpetuated by gendered socialisation rather than a biological or genetic component. For example, Eliot (2010) says girls are not naturally or biologically more empathetic, but instead they are allowed to express their feelings more than boys due to social pressures and gendered expectations. This is supported by Peric Bralo and Masmjak (2017) who find no statistically significant differences in the development of boy and girl children despite girl children achieving better results. These authors posit that consideration of gender stereotypes and gendered socialisation is currently missing from most studies in the development of preschool children.

biological facts, better explains why we observe behavioural differences in boy and girl children (Eliot, 2010).

These behavioural differences in boy and girl children may cause parents to behave differently in response. For example, if in child care boys are encouraged more than girls to run around outside, boys may develop a preference for this type of play. They may then play outside more at home, leading parents to play outside more with boys than with girls. This child-driven mechanism of gendered parenting should not be considered the direct perpetuation of gender stereotypes by the parents, but rather the result of exposure to the gendered society children experience outside the home.²

As discussed in the *Empirical Strategy* section, we argue that the child-driven mechanism of gendered parenting is likely to be relatively constant across parental characteristics. This is because gendered societal influences are so widespread and deeply rooted (Ellemers, 2018; Tabassum & Nayak, 2021) that parents are unlikely to be able to fully protect their children from them.

Figure 1 combines these parent-driven and child-driven gendered parenting mechanisms to present five parenting pathways contributing to a child's life outcomes. Pathway **A** shows the 'natural' parenting approach whereby parents' own traits and attitudes naturally shape the way they parent and invest in their child. This can be considered the residual pathway of parental behaviour.

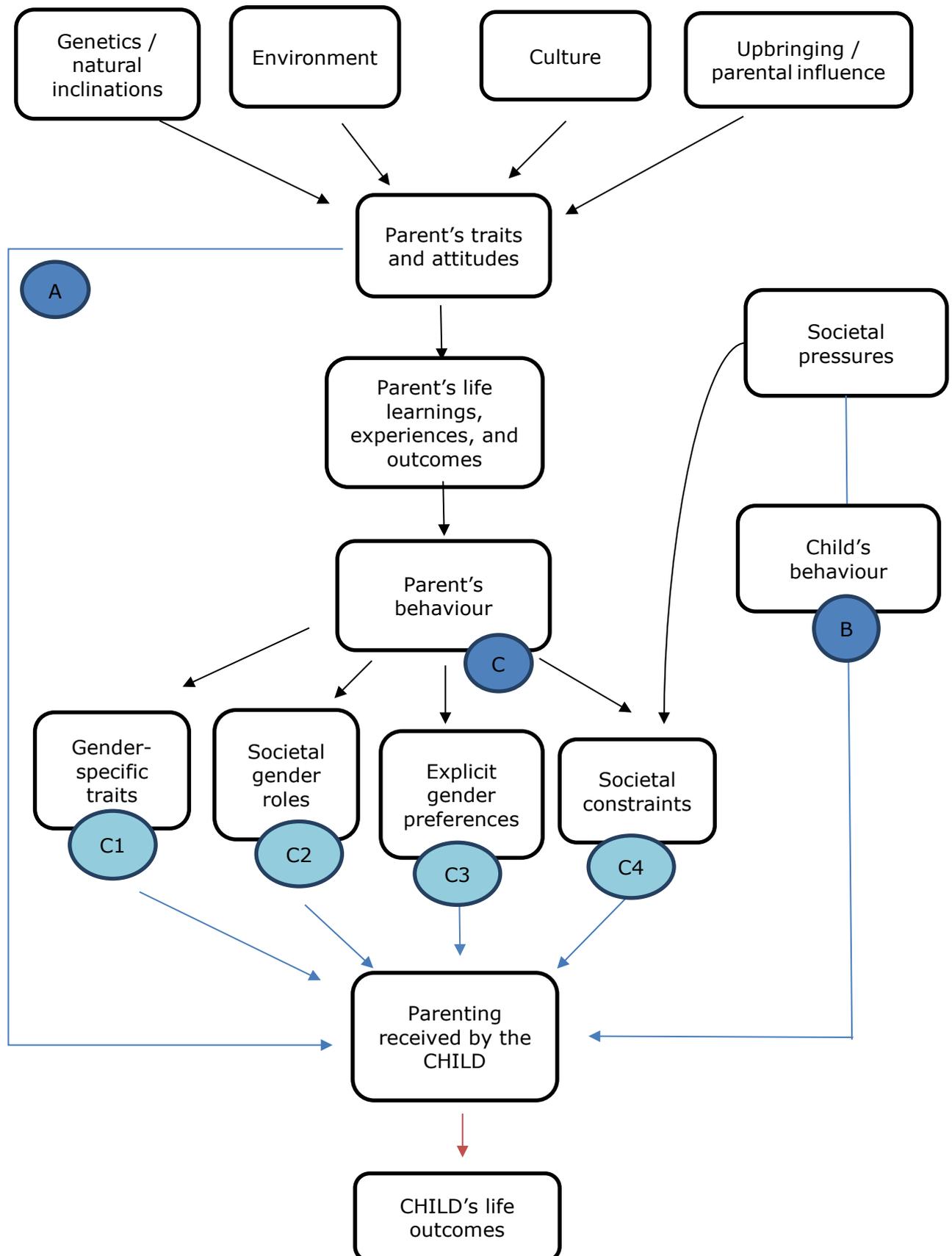
Pathway **B** represents the child-driven mechanism of gendered parenting, stemming from external societal factors influencing child behaviour. These outside pressures may encourage boy children to behave one way and girl children to behave another way; moreover, parents may treat boy and girl children differently in response to such differential behaviour.

Pathway **C** represents the direct parent-driven mechanism, divided into four pathways: **C1** (gendered expectations of traits and attitudes), **C2** (societal gender roles), **C3** (explicit gender preferences), and **C4** (societal constraints).

To the extent we observe differential parenting of boy and girl children in our data, we use two main approaches to help differentiate parent-driven and child-driven gendered parenting to reveal more information about the intergenerational transmission of gender norms and stereotypes. These approaches are explained in the *Empirical Strategy* section.

² The child-driven gendered parenting mechanism might also be indirectly affected by parents if they have some ability to shield their children from the gender stereotypes in society.

Figure 1. The intergenerational transmission of parental traits and attitudes



Data

To explore the prevalence of gendered parenting in Aotearoa New Zealand, this paper uses data from the *Growing Up in New Zealand* (GUINZ) survey. This longitudinal survey is child-centric, following children from before birth until they are eight years old. The intention is for the survey to continue until they reach 21 years old. Mothers and the mothers' partners are interviewed during different stages of the child's life to provide an in-depth understanding of what it is like to be a child growing up in Aotearoa New Zealand in the 21st century. GUINZ uses the terminology 'partner' because these individuals can be either gender, but our sample restricts to opposite-sex couples so all our partners are men. We thus refer to the partner respondents as 'fathers' for clarity and define 'parents' as the mothers and fathers who take on the parenting/caregiving responsibilities of the child and who respond to the GUINZ surveys.

The GUINZ survey began with 6,822 pregnant women, who were due to give birth between 25 April 2009 and 25 March 2010 in the regions of Auckland, Waikato, and Counties-Manukau, and 4,401 of their partners. There were 6,846 children born into the survey. The cohort was recruited to represent the diversity of current New Zealand families having children and is broadly generalisable to all the children born in New Zealand during this time frame (Growing Up in New Zealand, 2010; 2012).

We use parental characteristics from the antenatal survey as control variables and use reported parenting behaviours from the 9-month, 2-year, and 8-year surveys as outcome variables. We analyse parenting behaviours cross-sectionally because we are primarily interested in whether and for whom parenting behaviour is gendered, rather than the development of gendered parenting over time. Although parents' perception of the importance of gender roles and gender stereotypes may develop with the child's age, most of the parental behaviour questions we use were only asked in one data collection wave, so it is not possible to analyse changes over time.

Population of interest

Antenatal sample

Our population of interest is mothers and fathers of first-born singleton children for whom we have information about their sex assigned at birth. To arrive at this sample, we impose three restrictions on the GUINZ antenatal dataset.

First, we take the antenatal data comprised of 6,822 mothers and 4,401 fathers and drop any mothers and fathers who aren't subsequently linked to a child. We also drop fathers who didn't complete the antenatal survey. This leaves 6,669 mothers with 6,853 mother-child pairs, and 4,310 fathers with 4,437 father-child pairs.

Second, we condition on the child being a first-born singleton. We keep only first-born singleton children so our results are unaffected by the dynamics of parents dividing their attention between multiple children who might be the same or opposite sexes. Since the majority of our parenting behaviour variables are sourced from the 9-month survey, it is likely these first-born children will still be the only child in the household at this time.³ However, it is possible (and likely) that household structure may have changed by the time of the 2-year and 8-year surveys. After keeping only first-born children and dropping twins and triplets from the sample, we have 2,802 mother-child pairs and 1,933 father-child pairs.

Finally, we drop children with same-sex parents. This leaves us with 2,794 first-born singleton children in our baseline antenatal sample, of whom all are part of a mother-child pair and 1,933 of whom are in a father-child pair. We require mothers and fathers to be present in the antenatal dataset to obtain the necessary control variables for the parental behaviour regression analysis.

By construction, this means all mothers in our study are the biological mothers of the GUiNZ children. Fathers need not be the *biological* fathers of the children but must have been partnered with the mothers at the antenatal survey. However, the vast majority of fathers are the biological fathers. For the fathers' parental behaviour regressions, we control for the biological status of the man to the child. Data limitations prevent us from looking at non-biological mothers in our analysis.

Subsequent survey samples

The number of mother-child and father-child pairs linked from the antenatal survey to the 9-month, 2-year, and 8-year datasets are summarised in *Table 2*. Across all subsequent surveys, approximately 48 percent of children are girls.

Table 2. Population of interest across data collection waves

Data collection wave	Mother-child pairs	Father-child pairs
Antenatal	2,794	1,933
9-month	2,646	1,789
2-year	2,525	1,626
8-year child-observation	2,044	N/A
8-year child-proxy	2,017	N/A
8-year mother	2,217	N/A

³ Under the assumption that the parents do not adopt or become caregivers to another child within this 9-month time frame.

We conduct mean-difference t-tests on mothers' and fathers' antenatally-measured demographic and socioeconomic characteristics to describe the attrition between the antenatal survey and the 9-month, 2-year and 8-year surveys, respectively. Results are shown in *Table A 22*.

We find no significant attrition between the antenatal survey and the 9-month survey for either mothers or fathers. There is some attrition between the antenatal survey and the 2-year mother sample, but the most significant attrition occurs by the 8-year survey. The 8-year mother sample has a significantly higher proportion of European mothers and significantly lower proportions of Māori and Pacific mothers than does the antenatal sample. Relative to mothers in the antenatal sample, mothers in the 8-year survey work significantly more hours per week antenatally, have a significantly higher antenatal employment rate, and have significantly more years of schooling and higher antenatal personal income.

Attrition significantly changes the composition of the 2-year father sample compared to the antenatal sample. The 2-year father sample has significantly higher proportions of European and New Zealand-born fathers, and significantly lower proportions of Pacific and Asian fathers than does the antenatal survey. The socioeconomic variables are all significantly higher for the 2-year father sample compared to the antenatal sample, except for the within-couple socioeconomic inequality dummy.

Overall, *Table A 22* shows that mothers and fathers who drop out of the 2-year and 8-year surveys, but who were present in the antenatal survey, are more likely to be non-European, work fewer hours antenatally, are more likely to not be employed antenatally, and have fewer years of schooling and lower antenatal personal income.

Variables

Parental behaviour variables

We use exploratory factor analysis to group together GUiNZ survey questions that capture similar parental behaviours and attitudes to reduce the dimensionality of the data. The premise of factor analysis is that for a group of observed variables there is a set of underlying variables called 'factors' that explain the interrelationship among those variables (Suhr, 2006). By using these factors as outcome variables instead of the many separate parental behaviour survey variables, we can reduce the total number of outcome variables assessed.

We compute the Kaiser-Meyer-Olkin (KMO) test to see how suited each of the mother and father surveys is to factor analysis. The overall KMO statistic shows the proportion of variance among variables that might be common variance and hence suitable for factor analysis, with scores between 0 and 0.6 being inadequate, between 0.6 and 0.8 being mediocre, and between 0.8 and 1 being

desirable (Statistics How To, 2021). All our mother and father surveys pass the KMO test. The 9-month mother, 9-month father, 2-year mother, and 2-year father datasets all score 0.9 on the KMO and the 2-year child-proxy and 8-year child-proxy datasets both score approximately 0.8.

We conduct exploratory factor analysis on our parental behaviour variables separately for behaviours relating to each parent, in each data collection wave, to let the data determine the underlying factor structure and the number of factors that should be preserved to capture all interrelated measures of parenting. This means the grouping of parental behaviour variables is data-driven, rather than researcher-driven.⁴

Factors with eigenvalues greater than 1 are preserved since these factors have greater variance than any single observed variable, so dimensionality reduction is achieved. For each preserved factor, we rotate the factor loadings and label and interpret each factor based on the observed variables that have absolute rotated factor loadings greater than 0.3, as these observed variables are the most highly correlated. The resulting factors combine variables in such a way that closely reflects the groupings of questions in the GUiNZ surveys.

We calculate Cronbach's alpha for each factor to test whether the contributing variables are sufficiently closely related (UCLA, n.d.). Values between 0.6 and 0.79 are considered adequate and values above 0.8 are considered great. *Table 3* provides a list of parental behaviour outcome variables and factors used in our regression analysis across the 9-month, 2-year, and 8-year data collection waves. These dependent variables capture many different aspects of parenting, including the degree of parental involvement, the nature of the parent-child relationship, frequencies of positive and negative interactions with the child, the quality and quantity of positive connections with the child, the child's activities and experiences, recommendations for how the child should respond to bullying, and the values that the parent thinks are most important for their child. The Cronbach's alphas are reported in parentheses next to the factor variables in *Table 3* 10 of the 24 factors have alpha values exceeding 0.8, 11 have values between 0.6 and 0.79, and only three factors have inadequate values below 0.6. Overall, the Cronbach's alphas suggest our factor analysis passed the test for loading factors in a meaningful way.

We also include dummy variables for whether the child is in regular care at 9 months and whether the parent is not currently working at 9 months. While these variables are not necessarily direct parenting 'behaviours', they do shed light on the level of engagement between the parent and child. If the child is in care or the parent has returned to work, these decisions decrease the amount of face-to-face time the parent and child have together and thus can be thought of as indirect parenting behavioural decisions (regardless of whether the decision is

⁴ Parental behaviour variables with low response rates are excluded from the factor analysis to preserve the statistical power of the resulting factor(s).

financially motivated). Similarly, we include a dummy for whether the child’s father is in the same household as the child at 8 years, since being present in the household would increase the engagement opportunities between the father and child.

In *Appendix 1, Table A 1* expands *Table 3* by providing detailed definitions of each parental behaviour outcome variable and describes the input variables that are loaded to each factor outcome variable. These loadings are always positive, unless otherwise specified. The rotated factor loadings are presented in *Table A 2, Table A 3, Table A 4, and Table A 5*.

Some of the variables in *Table 3* are stand-alone dependent variables rather than rotated factors. We analyse these behaviours separately because the psychology literature suggests they have clear links to a gender stereotype or gendered trait/expectation (described in *Table 1*) and hence can help differentiate between the parent-driven versus child-driven gendered parenting mechanisms. For example, in the 9-month survey, mothers and fathers are asked to identify the most important values for their child’s development. While parents’ responses might be influenced by the proclivities the child shows, it is less likely to be the case for these values-based questions than for parenting questions regarding behaviours such as disciplining the child.

Table 3. Parental behaviour outcome variables

Survey	Parental behaviour outcome variables	Cronbach’s alpha	
		Mother	Father
9 month	Quality of connection with baby	0.85	0.87
	Quantity of connection with baby	0.82	0.85
	Things you do with your baby	0.57	0.66
	Values variables	--	--
	Age of baby (weeks) when parent started reading to them	--	--
	Number of languages spoken to baby for multilingual parents	--	--
	Child is in regular care	--	--
	Not currently working	--	--
2 year	Activities and experiences for toddlers (mother only)	0.78	--
	Outdoor play for toddlers (mother only)	0.88	--
	Quality of connection with child	0.91	0.88
	Positive parent-child relationship	0.83	0.86
	Negative parent-child relationship	0.78	0.75
	Parental enjoyment	0.56	0.78
	Frequency of being directly responsible for the child	--	--
8 year	Positive parenting	0.81	--
	Negative parenting	0.78	--
	Parental involvement	0.74	--
	Child activities	0.66	--
	Child activities – sport/play	0.48	--

Bullying responses – aggressive	0.77	--
Bullying responses – verbal	0.79	--
Bullying responses – ignore	0.67	--
Frequency of discussing ethnicity with the child	--	--
Adult father is living in the same house as the child	--	--
Any sort of savings for the child	--	--
Agreement with the child’s emotions	--	--

Notes: See Appendix 1 for the full definition of each parental behaviour outcome variable and the factor loadings for each factor. Cronbach’s alphas evaluate how closely related the variables are within each factor. For mothers and fathers separately, we provide the Cronbach’s alpha for combining all input variables that had factor loadings above 0.3 for each factor.

The child’s birth sex

Our independent variable of interest is a binary indicator that equals 1 if the child was assigned a girl at birth and equals 0 if the child was assigned a boy. There are two main reasons for why we categorise children dichotomously according to their sex assigned at birth. First, we primarily use the antenatal, 9-month and 2-year datasets, in which variables relating to the child’s own gender identity are not included. Second, children of these ages are unlikely to have expressed to their parents that their gender identity differs from the sex they were assigned at birth, so parental behaviour towards their children is likely to be based on the child’s sex assigned at birth rather than the gender identity they may subsequently assume. Although the 8-year survey asks children about their gender identity, for consistency our main analysis using the 8-year survey also categorises children by their assigned sex at birth. Understanding the parenting behaviours of mother and fathers with a child whose gender identity differs from their gender assigned at birth is left for future research.

Parental inequality

While the construction of gender roles has been fluid across time, we define traditional gender inequality reflecting the Western gender roles in the 1950’s, where the strong and large middle class set the standards about the roles men and women play within families. At this time, women were the homemakers and men were the economic providers, and men had higher socioeconomic status than women (Lamb, 2011). Traditional families are therefore those where the mother works little and has less labour market attachment than does the father (Kleven, Landais, & Sogaard, 2018). *Table 4* shows how we constructed a binary measure of within-couple traditional gender inequality in socioeconomic status.

Columns 1 and 2 define three constituent socioeconomic indicators at the parent level. Column 3 defines three continuous variables comparing fathers to mothers for each of the antenatally-measured socioeconomic indicators. These continuous comparisons are standardised so a standard deviation is equal to one. Column 4 takes the average of the three continuous variables to produce an overall index of within-couple traditional inequality. This index is re-standardised to also have a standard deviation equal to one. Finally, Column 5 defines a dummy variable of within-couple traditional gender inequality that

equals 1 if the continuous index is positive (the father has an average socioeconomic status higher than the mother) and equals 0 if the continuous index is less than or equal to 0 (the mother has at least the same average socioeconomic status as the father).

Table 4. Definition of within-couple traditional gender inequality

Socio-economic status indicator	Parent-level variable	Three continuous within-couple comparison variables (SD = 1)	Average continuous within-couple traditional inequality (SD = 1)	Binary within-couple traditional inequality
Antenatal years of schooling	Total number of years of education, derived from Sin and Stillman's (2012) conversions from qualification classifications.	= Father's years of schooling minus mother's years of schooling	= (continuous within-couple comparison in years of schooling + continuous within-couple comparison in personal income comparison + continuous within-couple comparisons in average weekly hours worked) / 3	= 1 if the continuous within-couple traditional inequality variable is greater than 0; and = 0 if continuous within-couple traditional inequality variable is less than or equal to 0
Antenatal personal income	Derived from the survey question: <i>In the last 12 months, what was your personal total income?</i> Mid-points are taken for each income bracket, with \$175,000 used as the top category.	= Father's personal income minus mother's personal income		
Antenatal average hours worked per week	Average number of hours per week the parent usually worked across all their jobs. Mid-points are taken for each hours bracket, with 45 hours used as the top category.	= Father's average weekly hours minus mother's average weekly hours		

The child's personality

In a robustness test, we use the Strengths and Difficulties Questionnaire (SDQ) to proxy the child's personality. The SDQ was initially developed by Dr Robert Goodman in the 1990's to aid his research in the mental health field and has since been used across a range of settings (Oranga Tamariki, 2019). The SDQ can be used for the clinical assessment of children, the evaluation of child outcomes, and in research to measure the delivery and improvement of health and/or social care (Child Outcomes Research Consortium, n.d.). In New Zealand, the SDQ is used with the Incredible Years' service, Gateway Assessment, and the B4 School Checks (Oranga Tamariki, 2019).

The SDQ is measured in the GUiNZ 54-month data collection wave and asks mothers to measure four aspects of their child's behaviour: emotional symptoms, peer relationship problems, hyperactivity/inattention, and prosocial behaviour.⁵ There are five questions asked within each behaviour aspect, each measured on a scale where 0=Normal, 1=Borderline, and 2=Abnormal. Scores are added together across all five questions to give the child a score out of 10 points for each behavioural aspect. In the next section, we discuss the important caveats for using the SDQ as a proxy for the child's personality.

Empirical strategy

Random assignment of children's birth sex

The random assignment of a child's birth sex allows us to interpret our parental behaviour regressions with a causal lens. For mothers and fathers separately, and across a range of antenatally-measured demographic, socioeconomic, and household parental characteristics, we calculate the mean value for parents with a first-born girl and the mean value for parents with a first-born boy. We use t-tests to determine whether the two means are statistically significantly different from each other, and therefore determine whether a child's birth sex is randomly assigned against parental antenatal characteristics.

If a child's birth sex is not randomly assigned against parental characteristics, this could mean a child's birth sex might also be correlated with parental behaviours, causing an endogeneity problem. A child's birth sex may be non-random if sex-selective abortion occurs (see Junhong, 2001; Retherford & Roy, 2003; Dubuc & Coleman, 2007; Zhu et al., 2009; Lamichhane et al., 2011; Frost et al., 2013; Lin et al., 2014), which may be driven by parents having a strong gender preference, or for some biological reason.

⁵ A fifth behaviour aspect ('conduct problems') is part of the original SDQ but was omitted from the 54-month child-proxy questionnaire and therefore cannot be used in our analysis.

Basic specification: The effect of the child's sex on parenting behaviours

To model the relationship between parenting behaviours and a child's birth sex, we estimate *Equation 1*.

Equation 1

$$Y_{ic} = \alpha + \beta \text{Girl}_{ic} + \gamma X_{ic} + u_{ic}$$

Where Y_{ic} is the parenting behaviour outcome Y from parent i to child c ; α is a constant; Girl is a dummy variable that equals 1 if the child is a girl, and equals 0 if the child is boy; X is a vector of the following parental time-invariant and antenatal control variables: *Demographic*: age, ethnicity⁶, migrant status, highest attained education; *Socioeconomic*: occupation, labour force status⁷, average weekly hours worked, personal income; and *Household (mother only)*: relationship status, whether the pregnancy was planned, household income, household deprivation index and rural/urban status, home ownership status, household structure⁸. u is the error term.

The main coefficient of interest in *Equation 1* is β , which shows the difference in the parenting behaviour variable Y for girls relative to boys. If β is statistically significant⁹, this suggests that girl and boy children are treated differently regarding that parental behaviour. To explore the robustness of this claim,

⁶ Ethnicity is determined by the self-prioritised ethnicity question in the mother/father antenatal survey, which asks "Which is your main ethnic group, that is the one you identify with the most". When we use ethnicity in our heterogeneity analysis, we allow for the 'total response' method of ethnic categorisation, meaning mothers/fathers that identify with more than one ethnic group will be classified in each of the ethnic groups that they reveal an affiliation with. Hence, using the total response categorisation, the total number of people in each ethnic group will exceed to total number of mothers/fathers in the sample since a parent can be counted in more than one group.

⁷ The 9-month survey also asks mothers and fathers about their pre-birth employment. For mothers, the 9-month survey asks "Did you have a paid job at any time while you were pregnant with baby?"; for fathers, the 9-month survey asks "Did you have a paid job at any time in the six months prior to the birth of the baby?". Despite being asked at the 9-month survey, these questions capture antenatal labour market attachment, and therefore are included as additional control variables in the regressions of child birth sex on parental behaviour for the 9-month dataset.

⁸ Household structure is separated into four categories: parent alone, two parents, parent(s) with extended family, and parent(s) living with non-kin and extended family. We acknowledge that extended family and non-kin household members play important roles in the upbringing of children, particularly for Māori and Pacific families in Aotearoa New Zealand. However, data limitations prevent us from exploring the presence of gendered caregiving behaviours amongst adults who aren't the child's biological mother or the male adult answering the partner surveys. Instead, we include these antenatal household structure variables as controls in the regressions of child birth sex on mothers' parental behaviour (since household structure is only asked in the mother antenatal survey, not the partner survey).

⁹ We consider p-values below 0.01 to indicate strong significance, p-values between 0.01 and 0.05 to indicate significance, and p-values from 0.05 to 0.10 to indicate weak or borderline significance. Asterisks in regression tables denote significance at: * p<0.10, ** p<0.05, *** p<0.01.

Appendix 6. Sharpened q-values for multiple hypothesis testing tests whether the differences in parental behaviour by a child's birth sex remain statistically significant after we adjust for multiple hypothesis testing and use sharpened q-values as the significance benchmark.¹⁰

Adding controls increases the precision of our regression estimates, so our preferred model includes a full set of controls as in *Equation 1*. The control variables are either time-invariant or measured antenatally. Because existing literature shows the sex of the first child can affect parents' post-birth human capital investment and labour market participation, and post-birth characteristics such as relationship stability (Lundberg & Rose, 2002; 2003; Lundberg, McLanahan, & Rose, 2007), using time-varying controls could introduce endogeneity concerns.

For each of the 9-month, 2-year, and 8-year parental behaviour outcomes, we also control for the age of the child at the data collection wave, measured in months, since the exact timing of the survey varies across families. For the 8-year mother outcomes, we also control for household structure. It is reasonable to expect that the level or type of parenting the mother shows the child could depend on either (a) the presence of additional children (older or younger) in the household, since the mother might split her time and resources across all children; and/or (b) the presence of other caregiving-aged adults in the household who could help with the parenting of the child. The 8-year mother survey identifies the number of additional people in the child's household and the ages of these people. Therefore, for the regressions of mothers' parental behaviour from the 8-year mother survey, we control for the number of caregiving-aged (14 years and older) adults and under-14-year-old children who live in the same household as the child.¹¹

We run the *Equation 1* regressions of parental behaviour regressions separately for mothers and fathers, omitting observations where the dependent variable is missing. We include 'missing value' dummy variables in our regressions in the small number of cases where control variables are missing to retain these observations.

¹⁰ When multiple hypotheses are being tested, McKenzie (2020) recommends employing a p-value adjustment method to control for either the family-wise error rate or the false discovery rate to reduce the probability that a null hypothesis is falsely rejected (a Type 1 error). This process is explained in the Appendix.

¹¹ It is possible that household composition is correlated with the child's sex if parents are more likely to have a second child based on the sex of the first child, or if parents are more likely to ask other adults to join their household (or move into someone else's household) to help care for the child if the child's birth sex makes parenting less enjoyable/harder to manage or if they feel more comfortable allowing others to care for a child of a particular sex. We test this hypothesis by regressing indicators of household structure (number of caregiving-aged adults in the household; number of under-14-year-old children in the household) on the child's sex, controlling for the abovementioned antenatal parental covariates. Results suggest that the 8-year household structure variables are uncorrelated with child birth sex, hence we include these dummies in the 8-year mother regressions in the hope to increase the precision of our estimates of gendered parenting behaviours.

We then run *Equation 1* by mothers' and fathers' ethnic subgroups categorised by the total response method. This means mothers and fathers who identify with more than one ethnicity are categorised in each of their identified ethnic groups.

We disaggregate mothers and fathers in this way because we are primarily interested in identifying the prevalence of gendered parenting behaviours within each ethnicity, rather than comparing the extent of gendered parenting between parents of different ethnicities. However, caution should still be used in interpreting the results for individual non-European ethnicities for reasons elucidated by Steward and Bond (2002). Specifically, measures of parenting are not standardised across cultures, meaning parents of different ethnicities might interpret the questions through the lens of their own culture as well as holding different values about what constitutes 'good' parenting. Similarly, some parents may follow culture-specific parenting practices that result in differential treatment of boy and girl children.

The GUiNZ data aggregate parental ethnicity responses into the following categories: European, Māori, Pacific, Asian, MELAA, Other, and New Zealander.¹² Data limitations thus prevent us from looking at the gendered parenting behaviours of parents from specific nationalities, meaning we are unable to identify heterogeneity between different Pacific and Asian nationalities that are grouped together. This makes the interpretation of gendered parenting by parents of Pacific and Asian ethnicities more difficult since gendered cultural values may differ between nationalities within each aggregate ethnic group.

As a robustness test, we re-run our parental behaviour regressions including control variables proxying the child's personality using the four behavioural aspect variables calculated from the SDQ. The frequency at which a parent uses certain positive or negative parenting techniques may depend on the child's own behaviour, which may be influenced by societal factors outside the home. Controlling for a proxy of the child's personality thus helps reduce omitted variable bias from our main regressions and to differentiate between gendered parenting driven by parents own attitudes toward gender stereotypes versus gendered parenting driven by the gender differences in child behaviour. However, there are three important caveats for using the SDQ as a proxy for the child's personality that lead us to interpret these analyses with caution.

First, in the parenting and child outcome literature, the SDQ is used to track changes in socioemotional development over time, suggesting the SDQ is time-varying. This means the child's 54-month SDQ scores are likely to differ from the scores the child would have got if the SDQ were asked in the 9-month, 2-year, or 8-year surveys. However, since the SDQ is asked only at the 54-month survey, we can use it only as a time-invariant proxy for child personality.

¹² For our analysis, we add the New Zealander responses to the European category and omit the MELAA and Other categories due to low sample counts.

Second, reverse causality is likely to be present, given that children's behaviour is affected by parental behaviour. In the parenting and child outcomes literature, the SDQ is often used to see how parenting and family environments matter for children's socioemotional development (see, for example, Finch, Yousafzai, Rasheed, & Obradovic, 2018; Briole, Le Forner, & Lepinteur, 2020), whereas in our study, we are using SDQ to control for the impact of child's personality on parenting practices. If children's personalities and parenting practices tend to reinforce each other, this is likely to mean our regressions that control for SDQ are over-controlled, and eliminate some genuine gender differences in parenting.

Third, the SDQ is mother-rated, potentially inducing bias in the reporting of the child's behaviour. For instance, the mother's personality and parenting style may affect how she responds to the SDQ, or if she thinks her parenting affects the child's socioemotional development, she might bias the SDQ reporting to put her parenting skills in a positive light.

Interacted specification: Heterogeneity in the effect of the child's sex on parenting behaviours

Heterogeneity by parental inequality

We next explore whether the gendered parenting trends identified from *Equation 1* are driven primarily by parents who themselves exhibit traditional Western gender inequality in socioeconomic status, primarily by parents who do not exhibit traditional gender inequality, or whether both types of parents show such gendered parenting.

As depicted in *Figure 1*, parents' own life experiences and outcomes can shape their perception of society's gender roles, gender-specific traits, and personal gender preferences and, in turn, can impact the way they parent their children. The hypothesis of intergenerational transmission of gender attitudes would therefore suggest that parents who themselves embody traditional gender roles would treat their boy and girl children more differently in gender-stereotypical ways compared to parents who do not. This concept is summarised by Blackstone (2003), who states "*those who maintain a traditional gender role orientation are likely to be influenced by the rules and rituals of the generations that came before them, by their parents and grandparents*", whereas "*individuals with non-traditional gender role orientations are more likely to believe in the value of egalitarian relationships between men and women*" (p. 338).

We use measures of within-couple gender inequality in socioeconomic status as a proxy for whether the parent holds traditional views relating to gendered expectations and stereotypes. However, we acknowledge gender attitudes are not the only reason individuals might marry people who are higher or lower socioeconomic status than themselves. To the extent within-couple gender inequality reflects other forces, such as the availability of partners with higher or

lower socioeconomic status, we expect smaller differences in gendered parenting between traditional and non-traditional couples.

We acknowledge that men and women may have specific roles in society and within their families, driven by cultural factors, that do not imply that one gender is inferior to the other. Some non-Western cultures may have strong traditional gender roles to which conformity is highly valued (Selin, 2013). Thus, we do not insinuate that all differences between men and women are undesirable. In this heterogeneity analysis, we look at inequality between mothers and fathers only in terms of socioeconomic status. The traditional Western gender roles of men being economic providers and women being homemakers can lead to socioeconomic gender inequality through their effects on educational attainment, labour force participation, working hours, and occupational status (Qing, 2020). Gender differences in these socioeconomic measures can be heightened by gender stereotypes, such as men being ambitious and competitive and women being collaborative, resulting in men being more likely than women to compete for promotions and get more powerful, prestigious, and high-paying jobs. At the time same, gendered expectations mean mothers are expected to stay out of the labour market to fulfil their role as the family carer, both for infants and for elderly relatives. Therefore, we can think about traditional gender inequality in socioeconomic status as being a result of the traditional Western gender roles, and we expect couples who exhibit this inequality to be those who believe more strongly in these gender roles and gendered expectations.

We follow the approach of McHale, Crouter, and Whiteman (1999) to categorise mothers and fathers into either (a) parents with stereotypical, traditional gender inequality in socioeconomic status; or (b) parents without stereotypical, traditional gender inequality in socioeconomic status. As shown in *Table 4* above, we create a binary variable of within-couple traditional gender inequality, defined as the average difference in a father's and mother's antenatal years of schooling, antenatal personal income, and antenatal average hours worked per week. We interact the binary within-couple traditional inequality variable with the dummy for the child's sex assigned at birth to determine whether the direction of inequality between mothers and fathers matters for the prevalence of gendered parenting behaviours toward boy and girl children. *Equation 2* sets out this interaction model.

Equation 2

$$Y_{ic} = \alpha + \beta_1 \text{Traditional}_{ic} + \beta_2 \text{Girl} * \text{NonTraditional}_{ic} \\ + \beta_3 \text{Girl} * \text{Traditional}_{ic} + \gamma \mathbf{X}_{ic} + u_{ic}$$

Traditional is a dummy variable that equals 1 if parent *i* of child *c* is in a traditional relationship where the father has a higher average socioeconomic status than the mother, and equals 0 if in a non-traditional relationship where the mother has at least the same average socioeconomic status as the father.

*Girl*NonTraditional* is the product of an interaction between *Girl* and *1-Traditional*. *Girl*Traditional* is the product of an interaction between *Girl* and *Traditional*.¹³

Coefficient β_1 tells us the difference in the prevalence of parental behaviour Y_{ic} towards boy children between parents in a traditional relationship and parents who are not in a traditional relationship. Coefficient β_2 shows the difference in parental behaviour Y_{ic} for girl children compared with boy children, amongst parents who are not in traditional relationships. Coefficient β_3 shows the difference in parental behaviour Y_{ic} for girl children compared with boy children, amongst parents in traditional relationships. If there is a statistically significant difference between β_2 and β_3 , we conclude that the prevalence of gendered parenting differs significantly by the nature of parents' within-couple traditional gender inequality. Further, and as described in more detail below, if only one type of parent exhibits gendered parenting, then this is evidence that such gendered parenting is parent-driven and not a response to different gender-specific behaviour on the part of the children.

Appendix 2 replicates the analysis using alternative measures of within-couple traditional gender inequality. Appendix 2 (A) uses within-couple differences in antenatal hours worked, antenatal years of schooling, and antenatal personal income as separate binary variables. We subtract the mother's value from the father's and create three separate traditional inequality variables that each equal 1 if the difference between fathers and mothers is greater than zero, and equal 0 if the difference between fathers and mothers is less than or equal to zero. We run these separate interaction regressions for the parental behaviour outcome variables for which we find a statistically significant gender difference when using the combined socioeconomic within-couple traditional inequality binary variable. This helps identify whether the differences in gendered parenting by within-couple inequality is primarily related to inequality in hours worked, personal income, or education.

In Appendix 2 (B), we use the standardised continuous index of within-couple traditional gender inequality, combining inequality in antenatal hours worked, antenatal years of schooling, and antenatal personal income, defined in Column 4 of *Table 4*. In this set of robustness tests, estimated differences in the gendered nature of parenting behaviours by traditional parental inequality are driven by variation across the full distribution of parental inequality. In contrast, in our main specifications, differences are driven solely by the distinction between traditional couples where the man has higher socioeconomic status than the woman and non-traditional couples where the woman has equal or higher status. The overall stories from these robustness tests are the same as

¹³ We prefer to specify this regression with two interaction effects, rather than with two main effects and their interaction, so we can more easily determine whether both traditional and non-traditional parents exhibit the gendered parenting behaviour.

those told by the analysis using our preferred specification of within-couple traditional gender inequality.

If our main specifications find that mothers in traditional relationships are more likely to treat boy and girl children differently than are mothers not in traditional relationships, the difference could relate to the mother having lower socioeconomic status than her partner (a 'gender inequality' effect) or to the mother having low socioeconomic status in absolute terms (a socioeconomic 'class' effect). Studies suggest that higher socioeconomic status is associated with more equal gender expectations for children than is lower socioeconomic status (Lily, 1994; Mesman & Groeneveld, 2017; Samari & Coleman-Minahan, 2018).

Appendix 2 (C) attempts to differentiate the gender inequality effect from the class effect by testing whether the prevalence of gendered parenting is different for mothers (fathers) with above- versus below-median socioeconomic status relative to all mothers (fathers) in the sample. Note that this heterogeneity analysis by absolute socioeconomic status includes all parents, whereas the heterogeneity analysis by within-couple inequality necessarily excludes mothers without antenatal partners.

Heterogeneity by parental migrant status

We estimate whether the prevalence of gendered parenting behaviour differs by parents' migrant status. We run *Equation 2* interaction regressions replacing the traditional and non-traditional inequality interaction terms with interactions for the parent being a migrant or New Zealand-born.¹⁴ Results from these interaction regressions help to shed light on whether gender stereotypes induced through parental behaviour are being strengthened or weakened by the inflow of migrants to New Zealand.¹⁵

Drivers of gendered parenting behaviour

To the extent we observe differential parenting of boy and girl children, we use two key approaches to help differentiate parent-driven and child-driven gendered parenting.

First, we consider a range of different types of parenting questions, some of which are less likely to be affected by the child's behaviour and more likely to reflect parents' gender preferences, such as the values parents think are most important for their child's development.

¹⁴ Migrant status is naturally excluded from the vector of control variables in *Equation 2*.

¹⁵ Interacting parents' migrant status with ethnicity and *Girl* would reveal more information about whether and how gendered parenting differs within ethnic groups for first-generation immigrants compared with parents who are New Zealand-born. This would be particularly interesting for Asian and Pacific parents who may be exposed to different cultural backgrounds depending on whether they were born in New Zealand or not. However, our sample sizes are too small to produce meaningful estimates for these interactions, so this is left for future research.

Second, we test whether the overall gendered parenting trends are different amongst parents in traditional relationships (where the man has a higher socioeconomic status than the woman) compared with parents who are not in traditional relationships.

If parents can't protect their children from external gender-specific societal pressures, the gender-specific behaviour effects from society will be the same regardless of whether parents are traditional or not.¹⁶ Thus, if we see differences in gendered parenting between traditional and non-traditional parents, we can conclude that the gendered parenting is parent-driven and not a response to different gender-specific behaviour on the part of the children. This sheds light on the extent to which parents' own experience of gender roles and stereotypes shape their parenting of boy versus girl children, and hence reveals information about the intergenerational transmission of gender norms and attitudes from parents to children.

Alternatively, if parents can at least partially shield their children from these external gender pressures, the gender-specific behaviour effects from society may not be the same for children from traditional versus non-traditional parents. In this case, children of traditional parents may exhibit behaviour that is differently (more) gender-specific than do children of non-traditional parents.

However, the sociology and developmental psychology literatures suggest parents are likely to be relatively ineffectual at shielding their children from structural factors, given the network of circumstances and range of factors that are widely implicated in society and outside the focus of parent-child relationships (Zivkovic et al., 2010). Gendered societal influences are so widespread and deeply rooted (Ellemers, 2018; Tabassum & Nayak, 2021) that parents are unlikely to be able to fully protect their children from them. Therefore, we posit that the external socialisation of children occurs largely independently of parents' characteristics. If we see gendered parenting only by traditional parents, we can conclude the differences are at least partially parent-driven. If we see gendered parenting by both traditional and non-traditional parents, we cannot differentiate the child-driven and parent-driven mechanisms because it could be in response to child behaviour driven by ubiquitous societal pressures, or it could be that both types of parents exhibit gendered preferences.

¹⁶ Even if gender differences in children's behaviour stem from biological differences (which existing literature suggests is unlikely), these should similarly be observed in all children regardless of parental characteristics.

Results

Descriptive statistics

Table 5 presents the mean antenatal demographic and socioeconomic characteristics for the 9-month mother and father samples. These patterns stay broadly consistent across latter surveys with the abovementioned caveat that some attrition occurs between data collection waves. Table 5 also provides summary statistics for the parental behaviour dummy variables and non-standardised continuous parental behaviour variables from the 9-month and 8-year datasets.¹⁷ Means are calculated from the total number of non-missing responses for each characteristic. For variables that have a response rate less than 95%, we show the mean value for a 'missing' dummy variable.¹⁸

Table 5. Descriptive statistics

Characteristic	Mother		Father	
	Mean (SD)	N	Mean (SD)	N
9-month sample: Demographic characteristics				
Child is a girl	0.48 (0.500)	2646	0.47 (0.499)	1789
Born in New Zealand	0.63 (0.484)	2645	0.64 (0.481)	1789
European	0.67 (0.472)	2645	0.72 (0.451)	1787
Māori	0.16 (0.367)	2645	0.14 (0.348)	1787
Pacific	0.13 (0.338)	2645	0.11 (0.310)	1787
Asian	0.19 (0.393)	2645	0.17 (0.375)	1787
9-month sample: Socioeconomic characteristics				
Antenatal hours worked per week	27.96 (19.68)	2376	39.86 (12.68)	1677
Antenatal years of schooling	14.51 (2.117)	2643	14.37 (2.120)	1786
Antenatal personal income	44634 (3211)	2214	62657 (3764)	1618
Within-couple gender inequality across antenatal hours, schooling, and income	0.55 (0.498)	1529	0.55 (0.498)	1529
9-month parental behaviours				
Age of child (weeks) when parent started reading to them	11.64 (9.403)	2104	13.51 (9.611)	1258
Missing - Age of child (weeks) when parent started reading to them	0.20 (0.404)	2646	0.30 (0.457)	1789
Number of languages spoken to baby for multilingual parents	1.96 (0.651)	970	1.92 (0.700)	554
Not currently working	0.61 (0.488)	2640	0.09 (0.286)	1786
Baby is in regular care	0.39 (0.488)	2645		
8-year maternal behaviours				
Adult father is living in the same house as child	0.81 (0.396)	2111		
Missing - Adult father is living in the same house as child	0.05 (0.213)	2217		

¹⁷ All parental behaviour outcome variables from the 2-year datasets are either standardised or included in the exploratory factor analysis, so we do not provide descriptive statistics for these variables.

¹⁸ For our regression analysis, if there is missing information within a control variable, we include a 'missing' dummy in the regression to preserve observations.

Mother has any sort of savings for her child	0.84 (0.371)	1962
Missing - Mother has any sort of savings for her child	0.12 (0.319)	2217

Notes: Standard deviations are given in parenthesis. If more than 5% of observations are missing for a variable, we provide a missing dummy variable in the table. Missing boxes indicate the variable was not asked in the father antenatal survey. Ethnicity is measured with the 'total response' method, meaning mothers/fathers can identify with more than one ethnic group, so summing the proportion of people in each ethnic group can exceed 1. The antenatal within-couple inequality variable is a dummy that equals 1 if the mother and father are traditionally unequal across antenatal hours worked, antenatal years of schooling, and antenatal income, and equals 0 if the mother and father are not traditionally unequal. See Table 4 for more information on how traditional inequality is measured.

The grouped total ethnicity responses from the Census 2013 (Stats NZ, n.d.) show the New Zealand population is 70 percent European, about 14 percent Māori, about 7 percent Pacific Peoples, and 11 percent Asian. This means our GUiNZ sample of mothers and fathers (measured in 2010/11) is likely representative for European and Māori parents, and slightly over-representative for Pacific and Asian parents.

Random assignment of children's birth sex

Table A 23 shows the mean-difference t-tests comparing antenatal characteristics of mothers and fathers with a first-born girl versus mothers and fathers with a first-born boy. Results suggest a child's birth sex is randomly assigned.¹⁹ Columns 4 and 7 show that mothers and fathers each only have two variables that show a statistically significant difference by child birth sex, both of which relate to antenatal occupations. Since we are testing over 40 demographic and socioeconomic characteristics, we can reasonably attribute these significant differences to statistical chance.

Gendered parenting in Aotearoa New Zealand

This section presents the results from the basic model and the model of heterogeneity by parental inequality for parental behaviour variables in the 9-month, 2-year, and 8-year datasets. We discuss the extent to which any observed differences in the parenting of boys versus girls can be reasonably interpreted as evidence of within-family intergenerational transmission of gender stereotypes and gendered expectations or whether they are more likely to be child-driven.

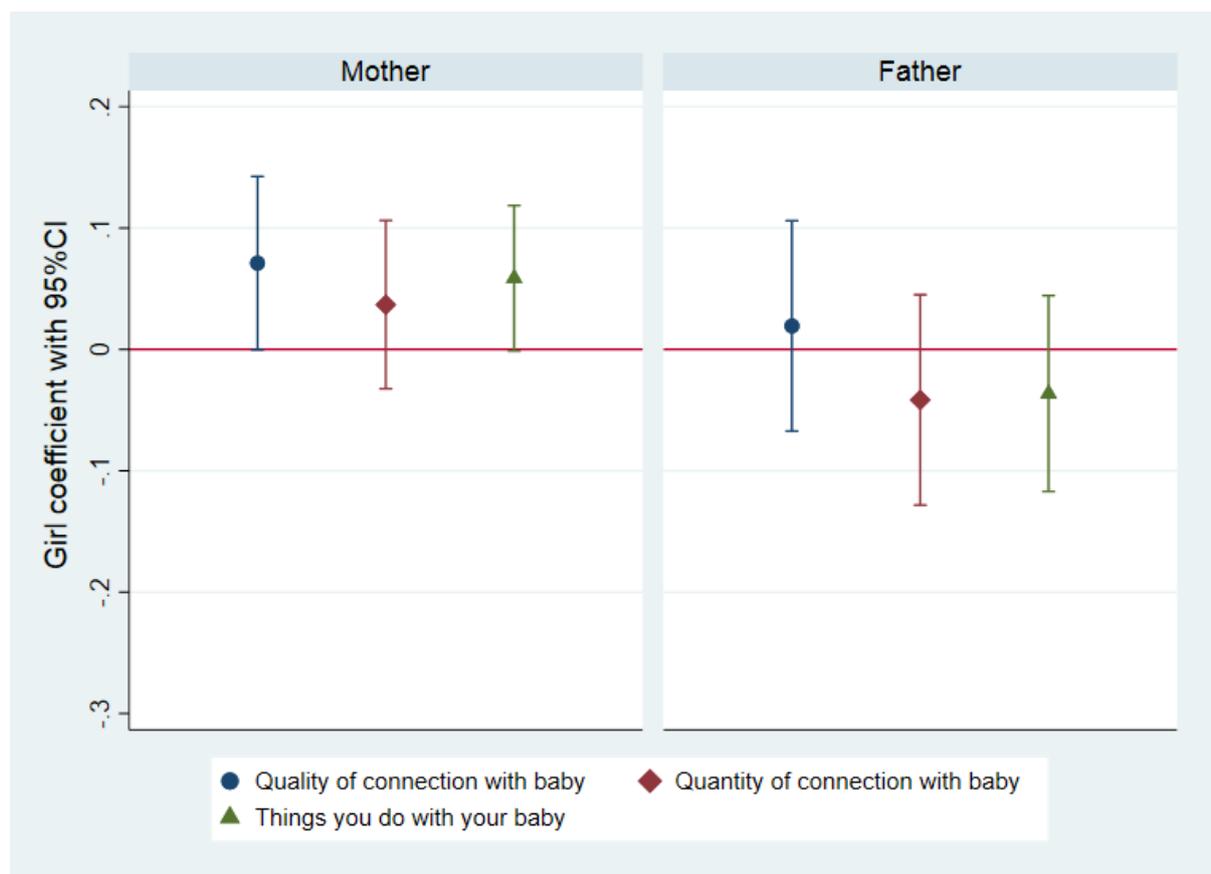
¹⁹ For completeness, we also test for the random assignment of a child's birth sex amongst the full sample of GUiNZ mothers and fathers in the antenatal survey for whom we have birth sex information for their baby. This sample consists of 6,454 mother-child pairs and 4,126 fathers-child pairs. These numbers are much higher than the 9-month mother/father populations of interest because we do not condition on the child being a first-born singleton. Columns 4 and 7 of Table A 24 shows a child's birth sex is still sufficiently randomly assigned against mothers' and fathers' antenatal characteristics.

9 month

Basic model

In this sub-section we provide the results from the mother and father 9-month parenting variables using the basic specification. Results are run pooling all ethnicities and then disaggregated by parents' ethnicities. *Figure 2* plots the coefficients and 95% confidence intervals on *Girl* from each *Equation 1* regression of 9-month mother and father behaviour factor variables for the full sample. The regressions control for antenatal parental demographic, socioeconomic, and household characteristics. The inclusion of these control variables does not affect the magnitude of the *Girl* coefficients, since child birth sex is randomly assigned, but it sometimes improves the precision of our regression estimates. *Table 6* presents the *Girl* coefficients for each of the same *Equation 1* regressions for mothers and fathers in total and disaggregated by ethnicity.

Figure 2. 9-month parental behaviour factors: Mothers and fathers



Notes: This graph plots the coefficients and 95% confidence intervals of the *Girl* dummy variable from each *Equation 1* regression of the 9-month mother and father behaviour factor variables, controlling for parental antenatal characteristics. The Y-axis is measured in standard deviations since the factors are standardised. A list of parental behaviour factors is shown in *Table 3*. The maximum observation count is 2,646 for each mother regression and 1,789 for each father regression; the number of observations in each individual regressions are up to 5 percent lower due to variations in response rate to the parental behaviour questions that make up each factor.

Quality of connection with baby

Overall, mothers are 0.071 standard deviations more likely to agree with positive statements about their connection with their girl babies than with their boy babies. This coefficient is statistically significant, but small in magnitude. *Table A 29*, which repeats the regression for each variable that makes a major contribution to the factor, shows that this is largely driven by significant gender differences in likelihood that the mother agrees that they praise the baby, enjoy having the baby around, and pay attention to the baby.

Table 6 shows this positive relationship between the overall factor and *Girl* is weakly significant for total mothers, significant for European mothers, comparable in magnitude but statistically insignificant for Māori and Asian mothers, and of opposite sign and insignificant for Pacific mothers. The second panel of *Figure 2* shows no such gender difference is evident among fathers.

Quantity of connection with baby

Figure 2 shows there is no statistically significant difference in the frequency with which mothers and fathers feel positively about their connection with girl babies compared with boy babies, although the coefficient on *Girl* is positive for mothers and negative for fathers. These feelings include the frequency of understanding what the baby needs, getting satisfaction from caring for the baby, relating to the baby, and feeling in tune with the baby (*Table A 29*).

Things done with baby

Mothers are 0.059 standard deviations more likely to do things with girl babies compared with boys, and *Table A 29* suggests this is driven by significant gender differences in the frequency of the mother playing games with the baby and, to a lesser extent, reading books to the baby. *Table 6* shows this coefficient is weakly significant for mothers overall, is largest in magnitude amongst Māori and Asian mothers, but is not statistically significant for any single ethnicity. We find no evidence that fathers are more likely to do things with babies of one sex than with babies of the other.

Parental behaviour factors by parent ethnicity

For the three parental behaviour factors shown in *Figure 2*, *Table 6* shows at least weakly significant differences in the parenting behaviours of Māori fathers for boy children compared with girl children. Māori fathers are 0.204 standard deviations more likely to agree with positive statements about their connection with their boy babies compared with girls, 0.342 standard deviations more likely to frequently feel a positive connection when parenting boys than parenting girls, and 0.305 standard deviations more likely to do activities with boys than with girls. These are quite large effects. In contrast, Māori mothers are 0.132 standard deviations more likely to agree with positive statements about their connection with their girls and 0.108 standard deviations more likely to do

activities with girls, although these differences are smaller and lack statistical significance. Taken together, *Table 6* shows some evidence consistent with same-sex parental preference from both parents, whereby Māori fathers show more of these behaviours toward boys and Māori mothers show more of these behaviours toward girls, though the latter is not enough to balance out the additional parenting shown to boys by Māori fathers.

Age when parent starts reading to baby

Table 6 reveals few significant differences in the remaining 9-month parental behaviour variables amongst mothers and fathers. We find no evidence that mothers and fathers overall start reading to boys and girls at different ages, although the *Girl* coefficient is positive amongst mothers and negative amongst fathers. We estimate Pacific fathers start reading to girls nearly five weeks earlier than to boys (relative to an overall average of 13.5 weeks, *Table 5*), and this gender difference is statistically significant.

Languages spoken to baby

We find no evidence that mothers who can speak multiple languages do speak more languages to either boys or girls. Multilingual fathers speak 0.98 more languages to boys than girls, relative to a mean of 1.92 languages (*Table 5*). This relationship is weakly statistically significant for Pacific fathers, and sizeable and insignificant for Asian fathers. The relationship takes the opposite sign for European and Māori fathers, though in neither case is statistically significant.

Child care and employment

Mothers and fathers overall are just as likely to be not working at 9 months with girl children and boy children. Māori mothers are significantly more likely and Pacific mothers substantially but insignificantly more likely to not be working with girls compared to boys. Further, there are no overall differences in the proportion of girl and boy children that are in regular child care at 9 months (mean = 0.39, *Table 5*); however, as above, Māori mothers are significantly and Pacific mothers weakly significantly more likely to have their boy children in child care compared with their girl children. Taken together, these results show Māori mothers and to some extent Pacific mothers are more likely to not work and to care for their child themselves if they have a girl relative to if they have a boy.

Table 6. Mother and father 9-month parental behaviours

Characteristic	Total	European	Māori	Pacific	Asian
Mother					
Quality of connection with baby	0.071* (0.036)	0.091** (0.035)	0.132 (0.085)	-0.121 (0.136)	0.109 (0.108)
Quantity of connection with baby	0.037 (0.035)	0.087** (0.042)	-0.045 (0.079)	0.008 (0.091)	-0.023 (0.099)

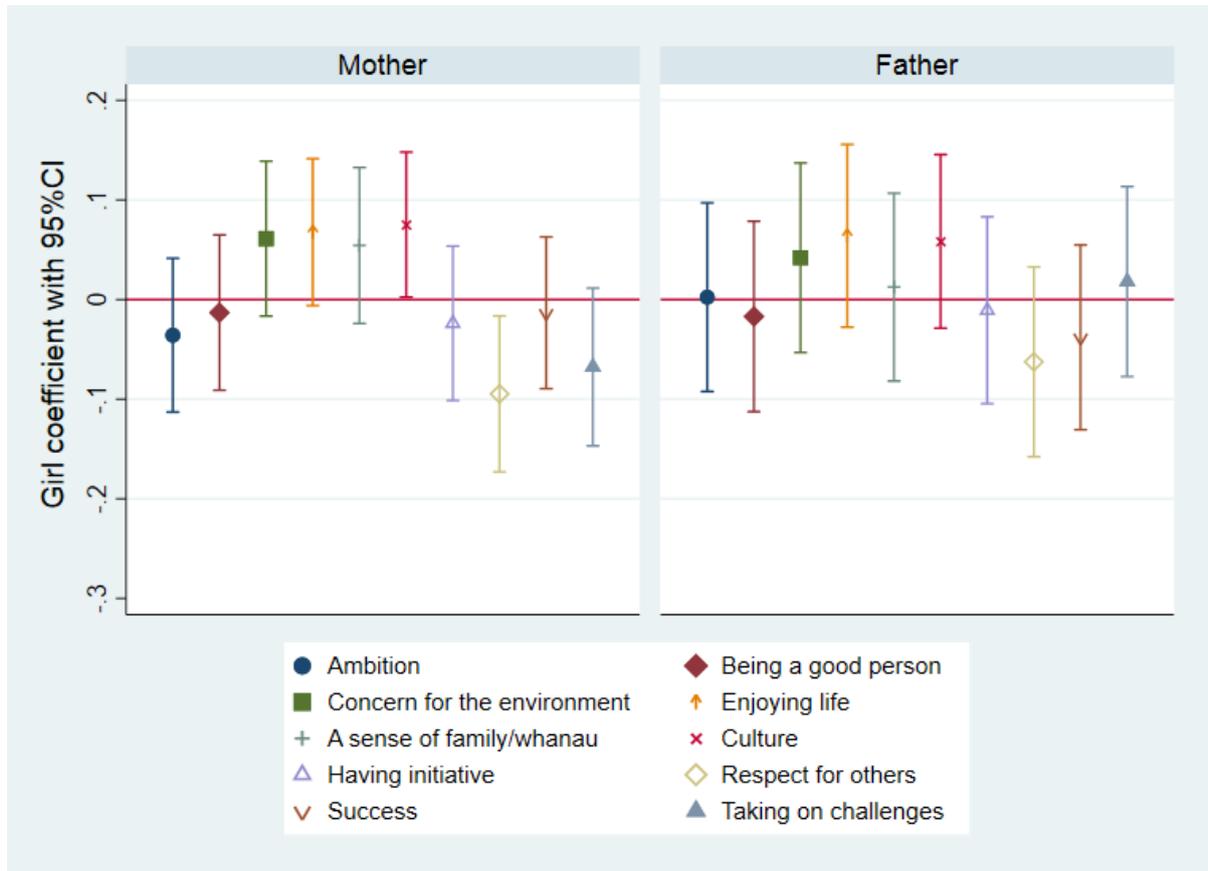
Things you do with your baby	0.059* (0.031)	0.041 (0.032)	0.108 (0.076)	-0.009 (0.107)	0.141 (0.092)
Age of baby when parent started reading to them	0.128 (0.377)	0.157 (0.428)	0.450 (0.981)	-0.725 (1.270)	0.728 (1.018)
Not currently working	-0.003 (0.036)	-0.028 (0.046)	0.192** (0.085)	0.133 (0.088)	0.046 (0.082)
Number of languages spoken to baby for multilingual parents	-0.015 (0.042)	0.041 (0.080)	0.051 (0.148)	-0.048 (0.098)	-0.108* (0.064)
Baby is in regular care	-0.039 (0.038)	-0.016 (0.047)	-0.217** (0.097)	-0.191* (0.102)	0.051 (0.090)
Father					
Quality of connection with baby	0.019 (0.044)	0.043 (0.046)	-0.204* (0.113)	0.187 (0.202)	-0.214 (0.130)
Quantity of connection with baby	-0.042 (0.044)	0.006 (0.051)	-0.342*** (0.114)	0.031 (0.135)	-0.187 (0.122)
Things you do with your baby	-0.036 (0.041)	-0.028 (0.046)	-0.305** (0.120)	0.026 (0.161)	0.019 (0.116)
Age of baby when parent started reading to them	-0.728 (0.533)	-0.528 (0.586)	1.418 (1.615)	-4.738** (1.963)	-0.932 (1.800)
Not currently working	0.061 (0.042)	0.016 (0.045)	0.333** (0.141)	0.108 (0.178)	0.230** (0.107)
Number of languages spoken to baby for multilingual parents	-0.098* (0.059)	0.101 (0.110)	0.164 (0.317)	-0.259* (0.138)	-0.140 (0.092)
<i>Mother observations (maximum)</i>	2646	1762	423	349	504
<i>Father observations (maximum)</i>	1789	1279	251	192	302

Notes: This table presents the coefficients on a dummy for the child being a girl in a set of OLS regressions (Equation 1) of maternal and paternal behaviour at 9 months on the sex of the child and controls for antenatal characteristics. Each coefficient is from a separate regression. Standard errors are in parentheses. Mothers and fathers are categorised by ethnicity using the 'total response' method. A list of the parental behaviour variables is shown in Table 3. Observations counts are for the number of mothers and fathers in each ethnic group; the number of observations in individual regressions are up to 25 percent lower due to variations in response rate to the parental behaviour questions, with the exception of the "Number of languages spoken to the child" and "Age of child when parent first started reading books to them" variables which have much lower counts, particularly within each separate ethnic group. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Values most important for baby's development

Figure 3 plots the coefficients and 95% confidence intervals on *Girl* from each Equation 1 regression of the 9-month mother and father variables that show parents' beliefs about the values that are most important for their baby's development. Table 7 shows the coefficients and 95% confidence intervals on *Girl* from regressions disaggregated by parents' ethnicity.

Figure 3. 9-month parental behaviour values questions: Mothers and fathers



Notes: This graph plots the coefficients and 95% confidence intervals of the Girl dummy variable from each Equation 1 regression of the 9-month mother and father behaviour variables that ask each parent to identify the top three most important values for their child’s development. These regressions control for parental antenatal characteristics. The Y-axis is measured in standard deviations since the resulting values variables are standardised. A list of parental behaviour factors is shown in Table 3. The maximum observation count is 2,646 for each mother regression and 1,789 for each father regression; the number of observations in each individual regressions are up to 6 percent lower due to variations in response rate to each parental behaviour question.

Table 7. Mother and father 9-month parental behaviours: Values

Characteristic	European	Māori	Pacific	Asian
Mother				
Ambition	-0.003 (0.046)	0.123 (0.103)	-0.087 (0.119)	-0.218** (0.102)
Being a good person	-0.049 (0.047)	-0.114 (0.113)	0.183 (0.130)	-0.041 (0.101)
Being concerned for the world/environment	0.030 (0.048)	0.209** (0.094)	0.131 (0.115)	0.093 (0.100)
Culture	0.037 (0.042)	0.068 (0.112)	0.120 (0.132)	0.060 (0.103)
Enjoying life	0.078* (0.040)	0.051 (0.095)	0.001 (0.131)	0.104 (0.118)
Having a sense of family/whanau	0.029 (0.049)	0.120 (0.102)	-0.019 (0.118)	0.213** (0.096)

Having initiative	0.023 (0.046)	-0.089 (0.106)	-0.065 (0.115)	-0.198* (0.106)
Respect for others	-0.110** (0.048)	-0.212** (0.105)	-0.159 (0.117)	0.135 (0.102)
Success	0.031 (0.045)	-0.141 (0.099)	-0.083 (0.119)	0.004 (0.103)
Taking on challenges	-0.019 (0.048)	0.044 (0.106)	-0.122 (0.122)	-0.185* (0.103)
Father				
Ambition	0.049 (0.056)	0.156 (0.140)	-0.085 (0.148)	-0.232* (0.128)
Being a good person	-0.020 (0.057)	-0.093 (0.157)	-0.028 (0.178)	-0.058 (0.113)
Being concerned for the world/environment	0.044 (0.057)	-0.028 (0.133)	0.361** (0.161)	-0.022 (0.124)
Culture	0.017 (0.048)	0.234 (0.144)	0.110 (0.192)	0.180 (0.139)
Enjoying life	0.041 (0.049)	-0.101 (0.127)	0.200 (0.180)	0.166 (0.150)
Having a sense of family/whanau	0.014 (0.057)	-0.056 (0.129)	-0.388** (0.157)	0.264** (0.125)
Having initiative	-0.046 (0.057)	0.108 (0.138)	0.029 (0.166)	0.040 (0.119)
Respect for others	-0.049 (0.056)	-0.203 (0.130)	0.118 (0.166)	-0.118 (0.128)
Success	-0.030 (0.054)	-0.136 (0.138)	-0.177 (0.171)	-0.133 (0.124)
Taking on challenges	0.036 (0.056)	0.081 (0.144)	0.056 (0.167)	-0.005 (0.131)
<i>Mother observations (maximum)</i>	1762	423	349	504
<i>Father observations (maximum)</i>	1279	251	192	302

Notes: This table presents the coefficients on a dummy for the child being a girl in a set of OLS regressions (Equation 1) of parental preferences for values that are most important for their child on the sex of the child and controls for antenatal characteristics. Each coefficient is from a separate regression. Standard errors are in parentheses. Mothers and fathers are categorised by ethnicity using the 'total response' method. Results for mothers and father in total are presented graphically in Figure 3. A list of the parental behaviour variables is shown in Table 3. Observations counts are for the number of mothers and fathers in each ethnic group; the number of observations in individual regressions are up to 12 percent lower due to variations in response rate. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Mothers show some significant gender differences in the promotion of certain values for their children. Mothers are 0.075 standard deviations more likely to promote "culture" and 0.068 standard deviations more likely to promote "enjoying life" to girls compared to boys; these relationships are small in magnitude and weakly significant and significant, respectively. The girl preference for "culture" aligns with the traditional female stereotype of communality which encompasses warmth, relationships, and connection with others over power and drive. Table 7 shows no single ethnicity promotes "culture" significantly more for girls than for boys, though the point estimates of

this coefficient are positive for every ethnicity and sizeable for Pacific mothers. For the promotion of “enjoying life” for girls, the relationship is statistically significant for European mothers and comparable in magnitude for Māori and Asian mothers. There is no evidence to suggest Pacific mothers have gendered views for this value.

Mothers are 0.095 standard deviations more likely to promote “respect for others” and 0.069 standard deviations more likely to promote “taking on challenges” to boys compared with girls; these relationships are both small and are significant and weakly significant, respectively. The boy preference for “taking on challenges” aligns with the traditional male stereotype of agency which embraces traits of leadership, drive, and success. *Table 7* shows a statistically significant relationship between “respect for others” and boy children is evident for European and Māori mothers, while a comparable in magnitude but insignificant relationship is seen for Pacific mothers. Asian mothers seem to promote “respect for others” more for girls than boys, but this is statistically insignificant. Asian mothers are significantly more likely to promote “taking on challenges” to boys than to girls.

Further, there are some values in *Figure 3* for which we find no evidence of gendered preferences, despite being stereotypically gendered traits. Mothers are just as likely to promote “ambition” and “success” for girls as they are boys, even though these traits are stereotypically associated with the traditionally male stereotype of agency.

The second panel of *Figure 3* shows there are no statistically significant gender differences in the values fathers think are most important for girl babies compared to for boy babies. The signs on the *Girl* coefficients are largely the same across the values questions for mothers and fathers, but the father regressions lack statistical power due to a smaller sample size (see *Table 2*).

Table 7 suggests some aspects of gendered parenting are common to both mothers and fathers within an ethnicity. Asian mothers are 0.218 standard deviations significantly more likely to promote “ambition” to boys than girls, and this coefficient is 0.232 and borderline significant for Asian fathers. Similar comparisons are seen amongst Asian parents for the promotion of “having a sense of family/whanau” for girls over boys. Māori mothers are 0.212 standard deviations significantly more likely to promote “respect for others” to boys than girls, and this coefficient is comparable in magnitude but insignificant amongst Māori fathers.

Controlling for the child’s personality

Table A 25 repeats the 9-month parental behaviour regressions with the addition of the SDQ child personality proxy variables. Results show that most significant gender differences in the parental behaviour variables are reduced in magnitude and significance when controlling for the child’s personality, though as discussed

in the *Empirical Strategy* section adding these controls may eliminate gendered parenting that is genuinely present.

When it comes to the values that the parent thinks are important for the baby's development, the coefficients remain relatively unchanged with the inclusion of personality controls. Mothers' preferences of "culture" for girls and "respect for others" for boys become more prominent and remain statistically significant with the inclusion of the SDQ child personality proxy. This suggests such gendered parenting is more likely to be parent-driven than child-driven, which makes sense conceptually because parents' answers to such values-based questions are likely to be driven by their own beliefs and values rather than by observing their child's behaviour.

Heterogeneity by parental socioeconomic inequality

In this sub-section we test whether the abovementioned significant gendered parenting trends are driven primarily by parents in traditional relationships, primarily by parents who are not in traditional relationships, or whether both types of parents show such gendered parenting. We use interaction regressions following *Equation 2*. These regressions are based on within-couple comparisons of antenatal socioeconomic variables so both the mother and father are required to be present in the antenatal and 9-month datasets.

As explained above, the hypothesis of intergenerational transmission of gender attitudes suggests that parents in a traditional Western relationship (where the father has a higher socioeconomic status than the mother) would treat their boy and girl children more differently in gender-stereotypical ways, since the parents' own experience of gender inequality would shape their perception of the gender roles and expectations of their children. Further, if one type of parent exhibits gendered parenting more than the other, then this is suggestive evidence that such difference is driven by parents' gendered preferences and expectations, because we don't expect the external gender socialisation of children (and hence the child-driven mechanism of gendered parenting) to differ substantially by parents' characteristics.

We follow *Equation 2* and regress the parental behaviour variable on a dummy for traditional parental inequality (as defined in *Table 4*), an interaction between *Girl* and a dummy for non-traditional parental inequality, and an interaction between *Girl* and traditional parental inequality. We control for parental antenatal characteristics. Results are presented in *Table 8*. The first column shows β_1 , the coefficient on *Traditional*, which captures the difference in the treatment of boys between traditional and non-traditional parents. The second column shows β_2 , the coefficient on *Girl*Non-Traditional*, which can be interpreted as the difference in treatment between boys and girls by parents who are not in traditional relationships. The third column shows β_3 , the coefficient on *Girl*Traditional*, which can be interpreted as the difference in treatment between boys and girls by parents who are in traditional relationships.

The fourth column shows asterisks if there is a statistically significant difference in the gendered parenting by parents who are not in traditional relationships compared with the gendered parenting of parents who are in traditional relationships, i.e., if β_2 and β_3 are significantly different. The last column gives the observation count in each regression.

Parental behaviour factors

Mothers in a non-traditional relationship are more likely to agree with positive statements about their connection with their girl babies than with their boy babies, and are more likely to do things with girl babies than boys. These differences are statistically significant. *Table A 7* and *Table A 8* show these gender differences are likely driven by inequality in hours worked and personal income, respectively. There are no significant gender differences in these variables amongst mothers in traditional relationships, though the difference between gendered parenting from non-traditional mothers compared to traditional mothers is not statistically significant. Since these gendered differences are only evident amongst one group of mothers, such gender disparities are likely driven by parents' gender preferences rather than child-driven.

That this gendered parenting is exhibited only by parents who are not in traditional Western relationships is counter to our prediction (and that from the sociology literature) that traditional parents will exhibit gendered parenting across a wider range of dimensions than will other parents. The reason for this unexpected finding is unclear. However, it is possible that non-traditional mothers are trying to compensate for what they see as societal disadvantage against girls, or that only non-traditional mothers feel free to act on their inherent girl preference.

In contrast, fathers facing non-traditional gender inequality are 0.102 standard deviations more likely to agree with positive statements about their connection with boy babies than girls, whereas traditional fathers are 0.108 standard deviations more likely to agree with positive statements about their connection with girls than boys; however, only the latter is statistically significant, and both these effects are relatively small.

Values most important for baby's development

When it comes to the values that mothers think are most important for their child's development, *Table 8* shows mothers who face traditional gender inequality perpetuate gender stereotypes more strongly than mothers who are more equal with their partners, and this is particularly driven by gender inequality in hours worked (*Table A 7*) and personal income (*Table A 8*).

For the stereotypically female value of "culture", mothers in traditional relationships are 0.101 standard deviations more likely to promote this value to girls than to boys; this coefficient is half the size and negative for non-traditional

mothers. However, neither coefficient is statistically significant. Regarding the stereotypically male value of “taking on challenges”, traditional mothers are 0.143 standard deviations significantly more likely to promote this value to boys than to girls and this gender preference shown by traditional mothers is statistically significantly different from the preference of non-traditional mothers, who show no significant gender differences in the promotion of “taking on challenges”.

Table 8 provides little evidence to suggest that the values fathers want for boys versus girls differ by overall within-couple gender inequality. However, Table A 6 suggests fathers who have higher education than their partners are significantly more likely to promote “culture” to girls compared to boys, whereas fathers who have less than or the same education as their partners are significantly more likely to promote “respect for others” to boys than girls. Similar gender differences are also evident for fathers in Table A 7 when looking at within-couple inequality in hours worked.

Table 8. 9-month mothers’ and fathers’ gendered parenting behaviours by traditional gender inequality status

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H0: B2- B3=0	N
Parental behaviours					
Mother					
Quality of connection with baby	0.075 (0.067)	0.137** (0.065)	0.003 (0.059)		1509
Things you do with your baby	0.076 (0.058)	0.164*** (0.057)	0.073 (0.051)		1509
Father					
Quality of connection with baby	-0.075 (0.066)	-0.102 (0.072)	0.108* (0.064)	**	1500
Things you do with your baby	-0.151** (0.060)	-0.067 (0.066)	-0.061 (0.059)		1500
Values important for the baby’s development					
Mother					
Enjoying life	-0.024 (0.073)	0.068 (0.071)	0.131** (0.064)		1450
Culture	-0.121* (0.071)	-0.045 (0.070)	0.101 (0.063)		1450
Respect for others	0.084 (0.080)	0.030 (0.079)	-0.191*** (0.070)	**	1450
Taking on challenges	0.213*** (0.081)	0.066 (0.080)	-0.143** (0.071)	*	1450
Father					
Enjoying life	-0.003 (0.071)	0.045 (0.077)	0.078 (0.070)		1449
Culture	0.044 (0.071)	0.125 (0.077)	0.014 (0.070)		1449

Respect for others	0.002 (0.072)	-0.074 (0.078)	-0.023 (0.071)	1449
Taking on challenges	-0.046 (0.073)	0.012 (0.079)	0.038 (0.072)	1449

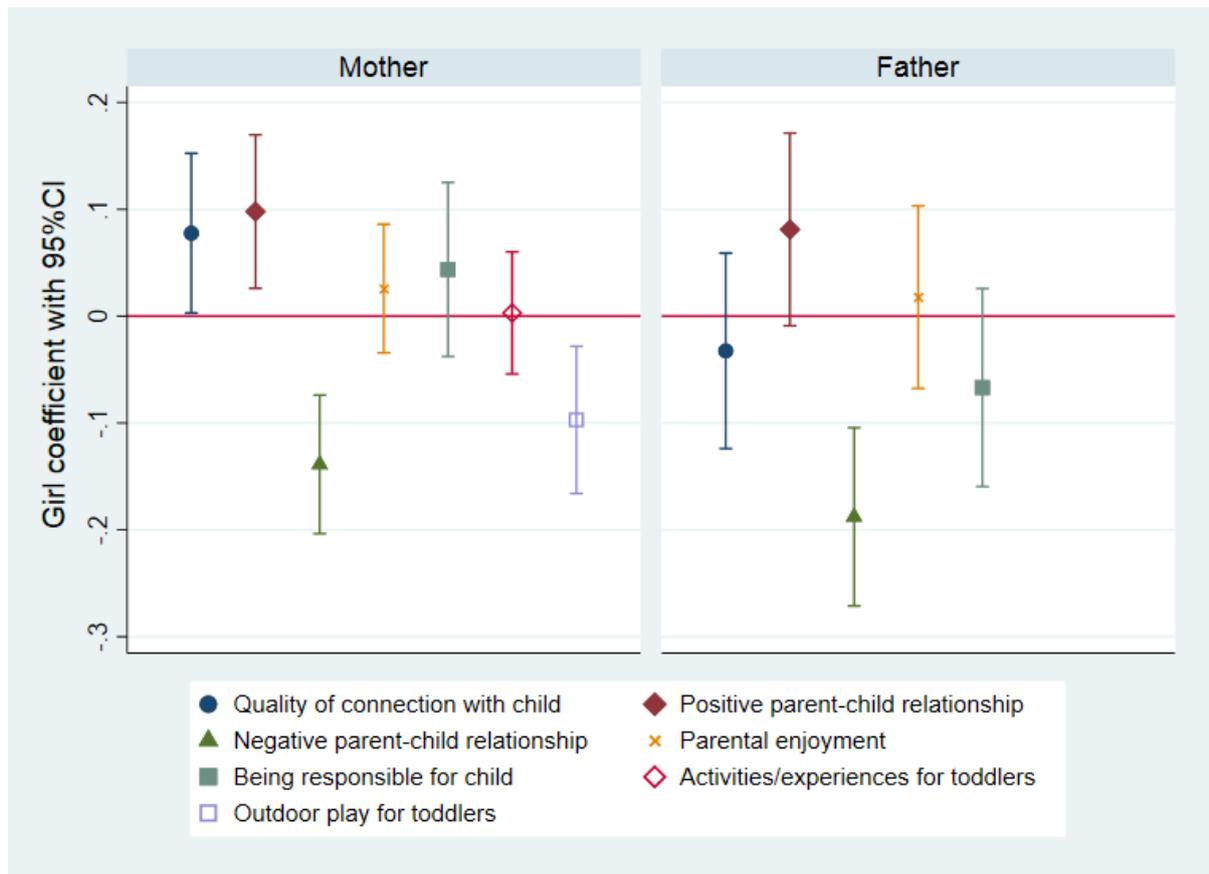
*Notes: Mothers and fathers are separated into those that are in traditional relationships, where the father has a higher socioeconomic status than the mother, and those that are not in traditional relationships. Socioeconomic inequality between mothers and fathers is measured as an average across within-couple comparisons in antenatal hours worked, education, and personal income, as defined in Table 4. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

2 year

Basic model

In this sub-section we present the results from the mother and father 2-year parenting variables using the basic specification. Results are run pooling all ethnicities and then disaggregated by parents' ethnicities. *Figure 4* plots the coefficient and 95% confidence intervals of *Girl* from each *Equation 1* regression of the 2-year mother and father behaviour variables for the full population. The regressions control for antenatal parental demographic, socioeconomic, and household characteristics. *Table 9* presents the *Girl* coefficients for each of the same *Equation 1* regressions for mothers and fathers disaggregated by ethnicity.

Figure 4. 2-year parental behaviour factors: Mothers and fathers



Notes: This graph plots the coefficient and 95% confidence intervals of the *Girl* dummy variable from each Equation 1 regression of the 2-year mother and father behaviour variables controlling for parental antenatal characteristics. The Y-axis is measured in standard deviations since the variables are standardised. A list of the parental behaviour variables is shown in Table 3. The maximum observation count is 2,525 for each mother regression and 1,626 for each father regression; the number of observations in each individual regressions are up to 11 percent lower due to variations in the response rate of different parental behaviour questions.

Quality of connection with child

Overall, mothers are 0.078 standard deviations more likely to agree with positive statements about their connection with girls than with boys, and this difference is statistically significant, though small in magnitude. Table A 30 suggests this finding is driven by significant gender differences in the likelihood that the mother agrees that they praise the child, tell the child how proud they are when they do good, make the child feel important, pay attention to the child, and make the child happy. Table 9 shows the relationship between the overall factor and *Girl* is positive and significant for European mothers, and larger in magnitude but insignificant amongst Māori and Asian mothers. Little gender difference is evident for this factor amongst Pacific mothers.

Note ethnic differences should be interpreted in light of cultural values that may differ. For example, one component of the quality of connection with child factor is a variable that asks parents whether they praise their child when their child

deserves it. Some mothers may adopt a Western view of praise and consider praising a positive parenting strategy that reinforces desirable behaviour and improves the self-esteem of their child. Other mothers may share the Eastern Asian belief that improved performance is motivated through criticism rather than praise, because praise encourages people to stop putting in effort (Lau, Fung, & Yung, 2010). Such differences in the cultural interpretation of behaviours may affect contribute to ethnic differences in gendered parenting.

Fathers overall show no significant differences in the likelihood that they agree with positive statements about their connection with girl children versus with boy children.

Positive and negative parent-child interactions

Mothers and fathers, overall and across all ethnicities, are more likely to have positive parent-child moments with girl children and are more likely to have negative parent-child moments with boy children. Mothers overall are 0.098 standard deviations more likely to have positive parent-child moments with girl children than with boy children. This difference is small yet highly significant and *Table A 30* shows it is driven by significant gender differences in the frequency of the mother letting the child know they really care about them, letting the child know they appreciate the things they do, and acting supportively and understandingly with the child. This relationship is significant for European and Asian mothers, comparable in magnitude but statistically insignificant for Māori mothers, and smaller and insignificant for Pacific mothers.

Similarly, fathers are 0.081 standard deviations more likely to have positive moments with girl children than with boy children, and this difference is weakly significant, driven by the frequency of the father letting the child know they really care about them (*Table A 30*). This coefficient is slightly larger and weakly significant amongst European fathers, over double in size and statistically significant for Māori fathers, and larger but insignificant for Pacific fathers. There is little evidence to suggest Asian fathers show gendered preferences in their positive interactions with their children.

Mothers are 0.139 standard deviations and fathers are 0.188 standard deviations more likely to have negative moments with boys than girls, and both these differences are highly significant and moderate in size. For fathers, almost all variables contributing to the negative parent-child relationship factor show sizable, negative, and significant coefficients on *Girl*. For mothers, this gender difference is driven by the frequency of getting angry with the child, shouting at the child because she was upset, smacking the child because they were naughty, and shouting at the child because the child was naughty (*Table A 30*).

The *Girl* coefficient for the negative parent-child factor is more negative and statistically significant amongst European and Asian mothers and is smaller (but still sizeable and negative) and insignificant for Māori and Pacific mothers. All

coefficients are large, negative, and at least weakly significant for fathers of all ethnicities, with the largest gender difference amongst Māori, Pacific, and Asian fathers.

Parental enjoyment

There is no significant evidence suggesting mothers and fathers enjoy being the parent of girl children more than boy children, although the *Girl* coefficient for this variable is positive for both parents overall (*Figure 4*). There are also no significant differences for any individual ethnicity.

Parental responsibility for the child

We see some evidence of same-sex parental compensation or preference whereby mothers are more likely to be directly responsible for girl children and fathers directly responsible for boy children, although these gender differences overall are not statistically significant (*Figure 4*). This same-sex parental preference is seen significantly amongst Asian mothers, who are 0.305 standard deviations more likely to be directly responsible for girl children compared to boy children, and amongst Māori fathers, who are 0.558 standard deviations more likely to be directly responsible for boy children compared with girl children. These are large effects. European and Pacific fathers show same-sex parental preference, although these negative coefficients on *Girl* are statistically insignificant.

Activities, experiences, and outdoor play

The outcome variables exploring toddler's activities, experiences, and outdoor play are asked in the 2-year child-proxy survey, which is answered by mothers. *Figure 4* and *Table 9* show there are no significant gender differences in the activities experienced by children overall or for any ethnicity. Boy children are 0.97 standard deviations more likely to play outdoors than are girl children, and this difference is highly significant.

This relationship is highly significant and larger in magnitude amongst Europeans, smaller in magnitude and insignificant amongst Māori, and larger in magnitude and insignificant amongst Pacific Peoples. There is no evidence Asian boys play outside more than Asian girls.

Table 9. Mother and father 2-year parental behaviours by ethnicity

Characteristic	European	Māori	Pacific	Asian
Mother				
Activities and experiences for toddlers (cp)	-0.001 (0.033)	0.081 (0.078)	0.108 (0.094)	-0.027 (0.081)
Outdoor play for toddlers (cp)	-0.120*** (0.044)	-0.079 (0.124)	-0.134 (0.096)	0.057 (0.060)
Quality of connection with child	0.069* (0.041)	0.089 (0.102)	0.015 (0.143)	0.122 (0.108)

Positive parent-child relationship	0.090** (0.043)	0.083 (0.096)	0.038 (0.105)	0.201* (0.105)
Negative parent-child relationship	-0.187*** (0.038)	-0.110 (0.094)	-0.090 (0.108)	-0.181** (0.087)
Parental enjoyment	0.016 (0.034)	0.058 (0.086)	0.022 (0.099)	0.080 (0.095)
Frequency mother is directly responsible for child	0.009 (0.049)	-0.001 (0.110)	-0.032 (0.127)	0.305*** (0.110)
Father				
Quality of connection with child	0.018 (0.049)	-0.031 (0.120)	0.121 (0.217)	-0.118 (0.149)
Positive parent-child relationship	0.106** (0.051)	0.287** (0.129)	0.174 (0.161)	0.007 (0.145)
Negative parent-child relationship	-0.187*** (0.047)	-0.275** (0.135)	-0.290* (0.167)	-0.228* (0.125)
Parental enjoyment	-0.026 (0.049)	0.047 (0.092)	0.123 (0.099)	0.201 (0.135)
Frequency father is directly responsible for child	-0.075 (0.052)	-0.558*** (0.139)	-0.102 (0.178)	0.206 (0.143)
<i>Mother observations (max)</i>	1722	404	319	454
<i>Father observations (max)</i>	1197	213	161	253

*Notes: This table presents the coefficients on a dummy for the child being a girl in a set of OLS regressions (Equation 1) of maternal and paternal behaviour at 2 years on the sex of the child and controls for antenatal characteristics. Each coefficient is from a separate regression. Standard errors are in parentheses. Mothers and fathers are categorised by ethnicity using the 'total response' method. A list of the parental behaviour variables is shown in Table 3. Observations counts are for the number of mothers and fathers in each ethnic group; the number of observations in individual regressions are up to approximately 20 percent lower due to variations in response rate to the parental behaviour questions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Controlling for the child's personality

Table A 26 repeats the 2-year parental behaviour regressions with the addition of the SDQ child personality proxy variables. Like in the 9-month survey for overall mothers, the *Girl* coefficient on the quality of connection with child factor decreases and becomes statistically insignificant when controlling for the child's personality. The *Girl* coefficient remains positive for the positive parent-child moments factor for both mothers and fathers, but the coefficients are smaller in magnitude and statistically insignificant.

The finding that mothers and fathers are significantly more likely to have negative moments with boys than girls persists with the inclusion of our child personality controls; the coefficients decrease slightly in magnitude but remain highly significant. This provides suggestive evidence that the negative parenting received by boys is at least partially driven by parents' gendered preferences. However, recall that the SDQ is not a perfect proxy for child personality, so there is likely many other aspects of the child's personality that affect parenting behaviour but aren't fully captured by these controls.

Heterogeneity by parental socioeconomic inequality

In this sub-section we use interaction regressions from *Equation 2* to test whether the abovementioned significant gendered parenting trends at 2 years are driven primarily by parents who themselves exhibit traditional gender inequality, primarily by parents who do not exhibit traditional inequality, or whether both types of parents show such gendered parenting. *Table 10*, which presents the results of these regressions, is structured in the same way as *Table 8*.

Quality of connection with child

Despite total mothers being significantly more likely to agree with positive statements about their connection with their girl child than their boy child, *Table 10* shows that, amongst coupled mothers, this parental behaviour factor is greater for boys than girls for mothers in both traditional and non-traditional relationships. This difference is explained by mothers without partners in the antenatal GUiNZ survey being included in the basic regressions but omitted from the interaction regressions, and such mothers exhibiting a strong girl preference in terms of this behaviour. Nonetheless, since both traditional and non-traditional mothers exhibit the same gendered parenting, we cannot determine whether the underlying mechanism is child-driven or parent-driven.

Positive parent-child interactions

Mothers and fathers in non-traditional and traditional relationships both have more positive parent-child moments with girls than with boys. However, these gender differences are small and not statistically significant.

Negative parent-child interactions

The result that boys are significantly more likely than girls to experience negative parent-child moments is evident amongst mothers and fathers in non-traditional and traditional relationships but is particularly strong amongst traditional couples, driven by inequalities in hours worked (*Table A 10*) and personal income (*Table A 11*). Mothers (fathers) facing non-traditional gender inequality are 0.130 (0.134) standard deviations more likely to have negative interactions with boy children than with girl children, which increases to 0.180 (0.248) standard deviations for mothers (fathers) in traditional relationships. All gender differences are significant and moderate in size. Since this relationship is more pronounced amongst traditional parents, we cannot rule out that the tendencies of mothers and fathers to have more negative interactions with boys than girls are at least partially driven by parents' preferences. As discussed above, *Table A 26* shows that this relationship persists with the inclusions of our child personality proxies. This provides further suggestive evidence that the negative parenting received by boys is at least partially driven by parents' gendered preferences and not solely by differences in boy and girl children's behaviour.

Moreover, through having more negative moments with boy children, parents might – consciously or subconsciously – be encouraging the agency male stereotype through being more confrontational and less tolerant of incompetence and underperformance with boys compared to girls, which happens more so amongst parents who themselves might be more exposed to gender stereotyping.

Table 10. 2-year mothers' and fathers' gendered parenting behaviours by traditional gender inequality status

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H₀: B2- B3=0	N
Mother					
Outdoor play for toddlers	-0.015 (0.073)	-0.141** (0.071)	-0.092 (0.064)		1371
Quality of connection with child	0.025 (0.069)	-0.029 (0.067)	-0.061 (0.061)		1381
Positive parent-child relationship	-0.045 (0.072)	0.077 (0.070)	0.074 (0.064)		1381
Negative parent-child relationship	-0.079 (0.065)	-0.130** (0.063)	-0.180*** (0.058)		1381
Father					
Quality of connection with child	-0.096 (0.071)	-0.069 (0.074)	0.015 (0.068)		1390
Positive parent-child relationship	0.001 (0.069)	0.056 (0.073)	0.077 (0.066)		1390
Negative parent-child relationship	0.180*** (0.064)	-0.134** (0.067)	-0.248*** (0.061)		1390

*Notes: Mothers and fathers are separated into those that are in traditional relationships, where the father has a higher socioeconomic status than the mother, and those that are not in traditional relationships. Socioeconomic inequality between mothers and fathers is measured as an average across within-couple comparisons in antenatal hours worked, education and personal income, as defined in Table 4. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother/father regressions. The 'Outdoor play for toddlers' factor is comprised of variables from the child-proxy survey and is therefore only asked to mothers. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

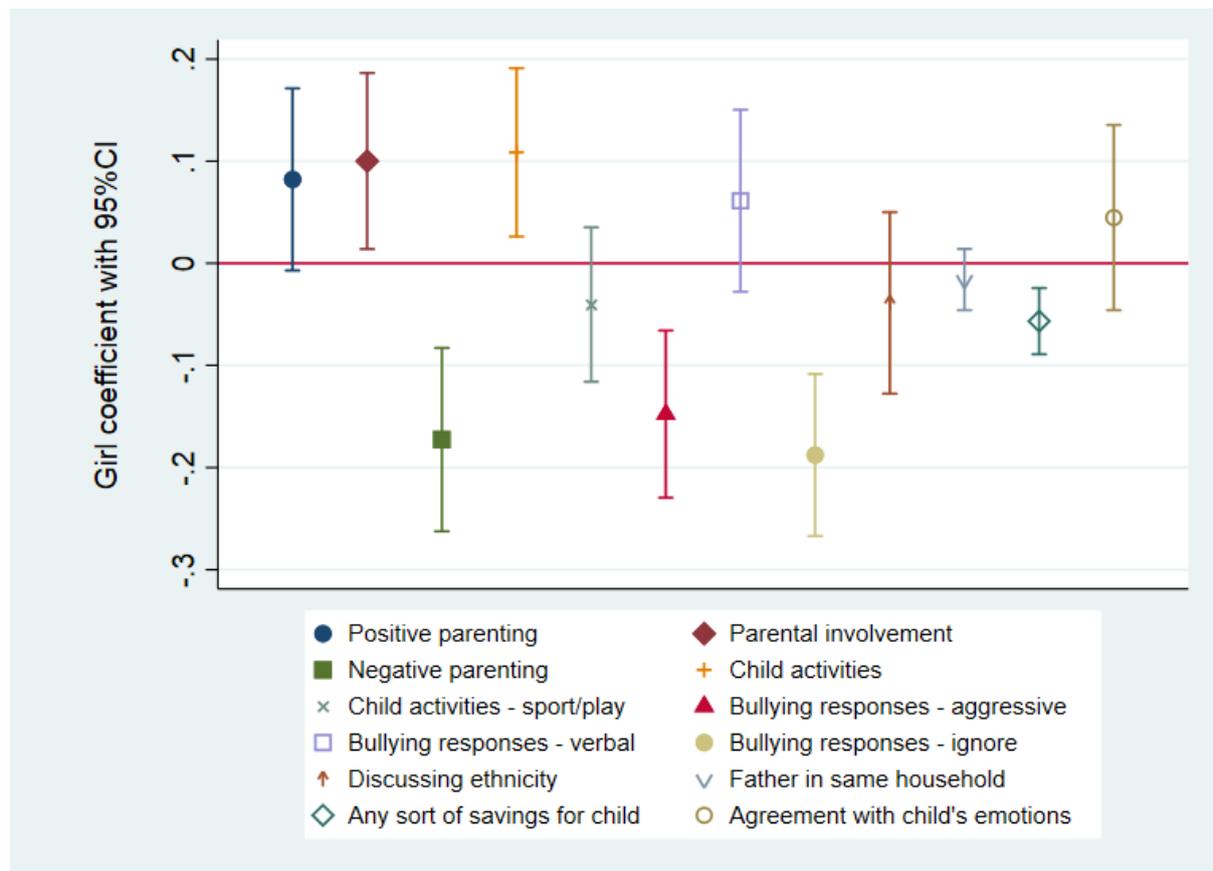
8 year

Basic model

In this sub-section we provide the results from the mother 8-year parenting variables using the basic specification. Results are run pooling all ethnicities and

then disaggregated by mothers' ethnicities. *Figure 5* plots the coefficients and 95% confidence intervals of *Girl* from each *Equation 1* regression of the 8-year mother behaviour variables for the full population of mothers. The regressions control for antenatal maternal demographic, socioeconomic, and household characteristics. *Table 11* presents the *Girl* coefficients for each *Equation 1* regression for mothers disaggregated by ethnicity.

Figure 5. 8-year parental behaviour factors: Mothers



Notes: This graph plots the coefficients and 95% confidence intervals of the *Girl* dummy variable from each *Equation 1* regression of the 8-year mother behaviour variables controlling for maternal antenatal characteristics. The Y-axis is measured in standard deviations for all variables except "Father in same household" and "Any sort of savings for the child" since these variables are not standardised. For these variables, the coefficients are interpreted as percentage points. A list of the parental behaviour variables is shown in *Table 3*. The maximum observation count is 2,044 for each mother regression; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rates to the parental behaviour questions within and across each survey in the 8-year data collection wave.

Positive and negative parent-child interactions

Figure 5 shows the same general gendered parenting trends as the 9-month and 2-year mother surveys, whereby mothers have more positive interactions with girls and more negative interactions with boys. Mothers are 0.082 standard deviations more likely to have positive parenting moments with girls compared with boys; this relationship is relatively small and weakly significant. *Table A 31* shows this is driven by significant gender differences in the frequency of the

mother hugging/holding their child for no reason, having warm and close times with the child, and feeling close to the child when they are happy or upset. *Table 11* shows this relationship is larger in magnitude and statistically significant for European mothers, larger in magnitude and insignificant for Asian mothers, and smaller and insignificant for Māori mothers. Pacific mothers have a large, negative, and insignificant *Girl* coefficient for this variable.

In contrast, mothers are 0.173 standard deviations more likely to have negative parenting moments with boys compared to girls, a difference which is moderate in size, highly significant overall, and evident across mothers of all ethnicities. *Table A 31* reveals this is driven by significant gender differences in the frequency of the mother losing her temper with the child, feeling the child got away with something they shouldn't have, raising her voice and shouting at the child, being angry at the child, telling the child off, and sending the child to time out. Relative to overall mothers, *Table 11* shows this relationship is more pronounced amongst European, Māori, and Asian mothers, although only the former is statistically significant. Pacific mothers have a slightly smaller but still sizeable negative coefficient.

Parental involvement

As with the 9-month data, mothers tend to do more things with girls than with boys. Mothers are 0.100 standard deviations significantly more likely to be involved with girls compared to boys, which *Table A 31* suggests is driven by gender differences in the frequency of singing, playing music, or doing musical activities with the child, drawing pictures or doing arts and crafts with the child, and cooking or baking with the child. When disaggregating by ethnicity (*Table 11*), mothers of all ethnicities have a positive *Girl* coefficient for parental involvement, with Asian mothers having the largest and only significant coefficient (0.214 standard deviations) and Māori mothers having the smallest (0.030 standard deviations).

Activities and experiences

Even though there were no significant differences in the activities and experiences mothers took their 2-year-old boy and girl children to, mothers are 0.109 standard deviations more likely to have taken their 8-year-old girl children to do activities compared to boys. This relationship is larger and statistically significant for European mothers, larger but insignificant for Māori mothers, and smaller and insignificant for Asian mothers. In contrast, Pacific mothers are 0.383 standard deviations more likely to have taken their boy children to do activities compared with their girl children, though this gender difference is insignificant. When decomposing this factor in *Table A 31*, we see that mothers overall are significantly more likely take girls to attend plays/musicals and dance/concerts, and to participate in musical activities, whereas they are significantly more likely to take boys to the cinema and to watch a sports game.

These gender differences in activities are highly stereotypical (Jakubowska & Byczkowska-Owczarek, 2018).

Discussion of ethnicity

There is no evidence to suggest that mothers discuss children's ethnicity more with girls than with boys or that they agree with and validate girl children's emotions more than they do boy children's emotions. There are also no significant differences in these behaviours across ethnicities.

Father in the same household

Overall, mothers report that biological fathers are similarly likely to be in the same household as their girl children as they are to be with their boy children (overall mean = 0.81, *Table 5*). This is contrary to the common finding from the sociology literature that fathers are more likely to be in the households of their sons than to be in those of their daughters because they more often marry and stay married when they have sons than when they have daughters (Lundberg, 2005; Raley & Bianchi, 2006; Choi, Joesch, & Lundberg, 2008). However, our 95% confidence interval doesn't rule out fathers being up to 4.5 percentage points less likely to be in the household if they have a daughter.

Savings for child

Mothers are about 15 percentage points more likely to have any sort of savings for their child if they have a boy than if they have a girl, relative to a mean of 84 percent (*Table 5*). When boys are prepared to become more financially savvy than girls, this relates to the traditional gender stereotypes that men are the economic providers whereas women are the homemakers. This gender difference is highly significant overall and larger and highly significant amongst European, Māori, and Pacific mothers – with the coefficient for Pacific mothers being over three times larger than the coefficient for overall mothers.

Asian mothers are insignificantly more likely to have savings for girls than for boys, though are more likely to have savings for their child irrespective of gender than are mothers of other ethnicities, consistent with other research in this space (Ye, Pan, Lian, & Ng, 2020).

There are cultural reasons why some Asians might be more likely to have savings for girl children than for boy children. For instance, Anukriti, Prakash, and Kwon (2021) show Indian families with a first-born daughter have higher household savings than families with a first-born son due to the prospect of needing to pay a dowry for their daughter. In contrast, in China parents with a son raise their savings more than parents with a daughter to improve their son's relative attractiveness for marriage (Wei & Zhang, 2011). However, due to data limitations, we cannot test for gender differences in the likelihood the mother has savings for her child for mothers of different cultures within each of our aggregated ethnic groups.

Recommendations for responding to bullying

Regarding mothers' recommendations about strategies children should adopt when responding to common bullying-type scenarios, *Figure 5* provides evidence both for and against the perpetuation of gender stereotypes. Mothers are 0.148 standard deviations more likely to encourage aggressive responses for boys compared with for girls, a difference that is moderate in size and highly significant. *Table A 31* shows this is mainly driven by gender differences the recommendation of asking the person "What's your problem?". This supports the agency male stereotype of competence and assertion since the boy child is encouraged to confront the situation, showing dominance.

However, mothers are also 0.188 standard deviations more likely to encourage boys to ignore the situation and walk away than they are girls; this difference is moderate in size and highly significant in the basic specification. These patterns are evident across mothers of all ethnicities. Such passive behaviour more closely aligns with the communality female stereotype and therefore could be interpreted as counter-stereotypical advice for boy children. Kane (2006) finds similar trends in her study of parents' responses to children's gender nonconformity. She found that for sons in particular, parents make the effort to stray from gender conformity in some areas, but this is balanced with conscious efforts to promote hegemonic masculinity. This aligns with our findings whereby mothers promote nonconformity for their sons in terms of the female passivity stereotype, while at the same time ensuring their sons will be competent and dominant in times of conflict.

Table 11. Mother 8-year parental behaviour by ethnicity

Characteristic	European	Māori	Pacific	Asian
Mother				
Positive parenting	0.097** (0.049)	0.063 (0.139)	-0.202 (0.228)	0.158 (0.145)
Negative parenting	-0.215*** (0.052)	-0.283* (0.147)	-0.164 (0.203)	-0.213 (0.131)
Parental involvement	0.075 (0.048)	0.030 (0.144)	0.083 (0.277)	0.214* (0.124)
Child activities	0.124*** (0.044)	0.142 (0.131)	-0.383 (0.252)	0.062 (0.135)
Child activities – sport/play	-0.015 (0.039)	-0.040 (0.121)	-0.064 (0.208)	-0.087 (0.137)
Frequency of discussing ethnicity with child	-0.003 (0.056)	0.001 (0.111)	-0.110 (0.133)	-0.103 (0.094)
Mother's agreement with child's emotions	0.017 (0.052)	-0.018 (0.137)	0.034 (0.173)	0.068 (0.145)
Adult father is living in the same house as child	-0.062 (0.045)	0.032 (0.135)	0.240 (0.163)	-0.015 (0.084)
Mother has any sort of savings for her child	-0.192*** (0.051)	-0.232* (0.137)	-0.513*** (0.190)	0.091 (0.112)

Bullying responses – aggressive	-0.142*** (0.045)	-0.348** (0.151)	-0.494* (0.252)	-0.145 (0.124)
Bullying responses – verbal	0.083* (0.050)	-0.207 (0.149)	-0.331 (0.209)	0.031 (0.138)
Bullying responses – ignore	-0.191*** (0.045)	-0.201 (0.134)	-0.091 (0.200)	-0.172 (0.124)
<i>Mother observations (maximum)</i>	1608	309	225	396

*Notes: This table presents the coefficients on a dummy for the child being a girl in a set of OLS regressions (Equation 1) of maternal behaviour at 8 years on the sex of the child and controls for antenatal characteristics. Each coefficient is from a separate regression. Standard errors are in parentheses. Mothers are categorised by ethnicity using the 'total response' method. A list of the parental behaviour variables is shown in Table 3. Observations counts are for the number of mothers and fathers in each ethnic group; the number of observations in individual regressions are up to 20 percent lower due to variations in response rate to the parental behaviour questions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Controlling for the child's personality

Table A 26 repeats the 8-year maternal behaviour regressions with the addition of the SDQ child personality proxy variables. The positive and significant coefficients on positive parenting and parental involvement decrease in size and become statistically insignificant when controlling for the child's personality. However, mothers are still significantly more likely to have negative parenting moments with boys compared to girls, significantly more likely to have taken their 8-year-old girl children to do activities compared to boys, and are significantly more likely to have any sort of savings for their child if they have a boy than if they have a girl.

Regarding the bullying response variables, controlling for the child's personality does not change the large, negative, and significant coefficients on the aggressive response variable and the ignoring response variable. This suggests that such gendered behaviour expectations are more likely to be parent-driven than child-driven. This makes sense conceptually, because parents' answers to such hypothetical questions are likely to be driven by their beliefs and values rather than by the reality of their child's behaviour.

Heterogeneity in parental socioeconomic inequality

In this sub-section we use interaction regressions from *Equation 2* to test whether the abovementioned significant gendered parenting trends at 8 years are driven primarily by mothers who themselves exhibit traditional gender inequality, primarily by mothers who do not exhibit traditional inequality, or whether both types of mothers show such gendered parenting. This within-couple gender inequality comparison is computed at the antenatal level, so the interaction regressions are possible even though partners are not surveyed at the 8-year data collection wave. *Table 12* is structured in the same way as *Table 8* and *Table 10*.

Positive and negative parent-child interactions

Results from the interaction regressions in *Table 12* reveal similar trends to those of mothers from the 2-year data: mothers in both non-traditional and traditional relationships are more likely to have positive parenting moments with girls and negative parenting moments with boys. These gender differences are most notable for negative parenting behaviour, where traditional mothers are 0.285 standard deviations significantly more likely to exhibit negative parenting toward boys than girls, while this relationship is 0.107 standard deviations and statistically insignificant amongst non-traditional mothers. Overall, like the 2-year data, we conclude that the gender difference in the prevalence of positive parenting is likely child-driven while the gender difference in the prevalence of negative parenting is at least partly parent-driven. Mothers who are in traditional relationships perpetuate the agency male stereotype more than mothers who are not, and *Table A 21* suggests this is not driven by differences in class.

Parental involvement

Both types of mothers are more likely to be involved with girls than boys and are more likely to do activities with girls than boys, and these coefficients are largest amongst non-traditional mothers. This is consistent with our 2-year findings.

Savings for child

The *Girl* coefficient on the binary variable of whether the mother has any type of savings prepared for her child is negative, significant, and similar in magnitude (16-17 percentage points) for traditional mothers and non-traditional mothers. Since a mother's choice of whether to have savings prepared for her child is unlikely to be a decision based on observing the child's behaviour, we interpret this gender difference as being driven by a gendered parental belief shared by both traditional and non-traditional mothers.

Recommendations for responding to bullying

Regarding the strategies mothers recommend to their children for handling common bullying-type scenarios, *Table 12* suggests mothers in traditional relationships may encourage less gender stereotypical responses to bullying than do mothers in non-traditional relationships, but none of the differences between types of mother are statistically significant. Mothers encourage an aggressive response to bullying to boys more than to girls, and this gender difference is insignificantly stronger for non-traditional mothers than for traditional mothers. Although the difference between parent types is statistically insignificant, its sign is the opposite to what we would expect if traditional mothers imposed stereotypical gender roles more strongly on their children.

Both types of mothers encourage boys more than girls to ignore bullying and walk away, and this gender difference, which goes against gender stereotypes, is insignificantly stronger for traditional mothers.

Table 12. 8-year mothers' gendered parenting behaviours by traditional gender inequality status

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H₀: B2- B3=0	N
Mother					
Positive parenting	-0.170** (0.082)	0.116 (0.077)	0.083 (0.075)		1076
Negative parenting	0.086 (0.086)	-0.107 (0.081)	-0.285*** (0.079)		1076
Parental involvement	-0.101 (0.078)	0.204*** (0.074)	0.114 (0.072)		1076
Child activities	0.037 (0.074)	0.247*** (0.069)	0.128* (0.067)		1076
Mother has any sort of savings prepared for her child	0.021 (0.081)	-0.171** (0.077)	-0.160** (0.073)		1268
Bullying responses – aggressive	-0.031 (0.071)	-0.191*** (0.067)	-0.075 (0.065)		1076
Bullying responses – verbal	0.082 (0.083)	0.168** (0.078)	0.032 (0.076)		1076
Bullying responses – ignore	0.054 (0.075)	-0.186*** (0.071)	-0.306*** (0.068)		1076

Notes: Mothers are separated into those that are in traditional relationships, where the father has a higher socioeconomic status than the mother, and those that are not in traditional relationships. Socioeconomic inequality between mothers and fathers is measured as an average across within-couple comparisons in antenatal hours worked, education and personal income, as defined in Table 4. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Interaction with migrant status

We run *Equation 2* regressions with interactions for the parent being a migrant or New Zealand-born. We do this for the parental behaviour variables that showed a significant gender difference in the *Equation 1* regressions. Results for the 9-month, 2-year, and 8-year data are presented in *Table A 32*, *Table A 33*, and *Table A 34*, respectively.

The interaction term coefficients tend to go in the same direction for migrant and non-migrant parents, with the coefficients generally being larger in absolute terms and more significant amongst non-migrant parents, particularly non-migrant mothers. Therefore, we find evidence that migrant parents on average

show less gendered parenting than New Zealand-born parents. We expect the degree of gendered parenting amongst migrants to differ by country of origin; however, data limitations prevent us from determining which origin countries drive this result.

Some of the gendered parenting behaviours are driven solely by non-migrant parents. For example, only non-migrant mothers promote “respect for others” more for boys compared to girls at 9-months, and only non-migrant fathers are more likely to have positive parent-child moments at 2 years with girls than boys. The interaction coefficients for these parental behaviours are almost zero for the migrant mothers and fathers, respectively.

Overall, there is a bit more variation by migrant status amongst fathers compared to mothers. For example, migrant fathers are significantly more likely to promote “taking on challenges” to boys than to girls, whereas non-migrant fathers are significantly more likely to promote this value for girls, and the difference between these gender differences is highly significant (*Table A 32*). At the 2-year survey, migrant fathers are significantly more likely to agree with positive statements about their connection with their boys than with their girls, whereas the opposite is found amongst non-migrant fathers, and the difference between these two groups is weakly significant (*Table A 33*).

Interaction with parental socioeconomic status relative to peers

The differences in gendered parenting behaviour by parents in traditional relationships compared with parents not in traditional relationships could alternatively be explained by a ‘class’ effect, whereby parenting behaviour is related to parents having a high or low socioeconomic status in absolute terms, rather than to their embodiment of traditional gender inequality within their relationship. *Appendix 2 (C)* defines a measure of parents’ socioeconomic status relative to their peers. To distinguish an inequality effect from a class effect, we interact mothers’ and fathers’ absolute socioeconomic status with *Girl* and run regressions from *Equation 2*, substituting indicators of within-couple traditional (non-traditional) gender inequality for indicators of above-median (below-median) socioeconomic status. *Table A 18*, *Table A 19*, *Table A 20*, and *Table A 21* present the results.

Here we summarise the results for the parental behaviour variables that show economically significantly different gendered parenting for parents in traditional relationships compared with parents in non-traditional relationships. Overall, we find evidence that some gendered parenting behaviours are shown mainly by traditional mothers with a lower socioeconomic status than their partners, and not by mothers with an overall low socioeconomic status compared with their peers. This suggests that some gendered parenting tendencies are at least partially driven by parents’ own attitudes toward traditional gender roles, as proxied by within-couple traditional inequality. However, there are other parenting behaviours where all groups of parents (traditional and non-

traditional, and low and high socioeconomic status) exhibit the same gendered preferences so we cannot differentiate the gender inequality effect from the class effect.

9-month (Table A 18, Table A 19)

We previously showed that mothers in traditional relationships exhibit a stronger girl preference than do other mothers in terms of doing things with their children and agreeing with positive statements about their connection with their children. However, *Table A 18* shows this preference is stronger for mothers with high socioeconomic status than for mothers with low socioeconomic status. This suggests the difference in gendered parenting between traditional and non-traditional couples is driven by gender inequality effects rather than by traditional mothers having low socioeconomic status in absolute terms.

For the promotion of different values to boy and girl children, *Table A 19* shows that male and female stereotypes are perpetuated more by mothers with lower socioeconomic status than their partners and by mothers with low absolute socioeconomic status. Therefore, we cannot differentiate between these two mechanisms for mothers' gendered preferences in child values.

2-year (Table A 20)

The finding that mothers and fathers are more likely to have positive parent-child moments with girls and more likely to have negative parent-child moments with boys is prevalent amongst all four groups of parents (those in both traditional and non-traditional relationships, and those with both high and low absolute socioeconomic status). Amongst fathers, these relationships are more evident for those with a high socioeconomic status, both relative to the mother and relative to his peers, meaning these two mechanisms cannot be differentiated. In contrast, amongst mothers the gender difference in negative parent-child moments is more evident amongst those with low socioeconomic status relative to their partner but high socioeconomic status relative to their peers. This suggests, like the 9-month data, the tendency for mothers to exhibit gendered parenting is at least partially parent-driven, motivated by mothers' within-couple experience of gender inequality and not primarily her absolute socioeconomic status.

8-year (Table A 21)

As shown previously in *Table 12*, both traditional and non-traditional mothers are more likely to be involved with, and do activities with, girls than with boys, and these gender differences are larger amongst non-traditional mothers. The heterogeneity analysis by mothers' absolute socioeconomic status in *Table A 21* tells the same story, whereby mothers with high absolute socioeconomic status have a larger and more significant girl preference in terms of these variables than do mothers with low absolute socioeconomic status. We thus cannot

distinguish whether such gendered parenting is related to the mother's socioeconomic status relative to her partner or her socioeconomic status in general.

Both traditional and non-traditional mothers are more likely to exhibit positive parenting behaviours toward girls than boys, although these gender differences are not statistically significant. When looking at gendered parenting by absolute socioeconomic status, we see that mothers with high socioeconomic status relative to their peers are more likely to show positive parenting behaviours toward girls than boys, whereas those with low absolute socioeconomic status show no gender differences. This suggests gender differences in positive parenting behaviours at 8 years are primarily related to the mother's absolute socioeconomic status.

Mothers in traditional and non-traditional relationships and mothers with high and low absolute socioeconomic status are all more likely to show negative parenting behaviours toward boys than toward girls. This relationship is strongest and most significant amongst mothers in traditional relationships and mothers with low socioeconomic status relative to their peers. We thus cannot determine whether such gender preferences are related to the mother's socioeconomic status relative to her partner or relative to her peers.

Conclusions

Gender stereotyping is a contributing factor to the unequal opportunities offered to men and women in Aotearoa New Zealand. Understanding how gender stereotypes and gendered expectations are learned, and the transmission mechanisms by which they are passed on to new generations, helps to break the cycle of potentially harmful gender inequalities. This paper used the *Growing Up in New Zealand* survey to explore the prevalence of gendered parenting and the intergenerational transmission of gender attitudes and inequality in Aotearoa New Zealand from parents to their young children.

Overall, this research shows that there are many dimensions in which parents offer boys and girls equal opportunities in their upbringing. There are no significant differences in the activities and experiences to which mothers take their girl and boy 2-year-olds. There is also no evidence to suggest that mothers discuss children's ethnicity more with their 8-year-old girls compared with boys or that they agree with and validate girl children's emotions more than boy children's.

However, there are also several aspects of parenting that show statistically significant differences toward boy and girl children that do not seem to be explainable by differences in the behaviour of boy and girl children.

Parents show a girl preference when engaging in positive parent-child moments, the likelihood that they agree with positive statements about their connection

with their children, and being involved with and doing things with their children. In contrast, parents are significantly more likely to have negative parent-child moments with boys than girls, including being more likely to get angry, shout, and smack boys than girls. When parents show more negative parenting behaviours toward boys than girls, this could be interpreted as perpetuating the traditional male agency stereotype, since parents are more confrontational and less tolerant of incompetence and underperformance with boys compared with girls. We cannot rule out that some of the relationship between negative parenting factors and boy children is driven by differences in the behaviour of boy and girl children; however, we provide suggestive evidence that this gender difference is also at least partially driven by parents' own attitudes toward gender stereotypes and expectations.

Mothers show some evidence of perpetuating gendered stereotypes and expectations in the promotion of certain values and confrontation strategies for their children and in their children's activities. "Culture" is encouraged more to girls and "taking on challenges" is encouraged more to boys. Mothers are more likely to encourage boy children to aggressively respond to bullying situations than they are girl children, emphasising the masculine traits of competence and assertion. Mothers are more likely to take their 8-year-old girls to attend musicals and dance concerts and are more likely to take 8-year-old boys to the cinema and to watch sports games. Mothers are also more likely to have savings prepared for their sons than their daughters, reinforcing the traditional stereotype of men being the economic providers.

There are some aspects of mothers' parenting behaviours that are atypical of gender stereotypes. There are no significant gender differences in the promotion of "ambition" and "success" for boy and girl children, despite these being more stereotypically male traits. Mothers are significantly more likely to recommend "ignore and walk away" strategies to boy children than to girl children faced with bullying, even though such behaviour is arguably more closely aligned with the female communality domain.

The significant gendered parenting behaviours are generally seen across parents of all ethnicities, although the estimates vary in magnitude. However, a few ethnicity-specific patterns emerge. For example, we find suggestive evidence that Māori fathers are more engaged with boy children than with girl children, as they are more likely to agree with positive statements about their connection with their boys compared with their girls, are more likely to frequently feel a positive connection when parenting boys than girls, and are more likely to do activities with boys than with girls. We also find evidence to suggest that Māori mothers and to some extent Pacific mothers are more likely not to work and to care for their 9-month-old child if they have a girl than if they have a boy.

We find evidence that migrant parents on average show less gendered parenting than New Zealand-born parents. Although we expect the degree of gendered parenting to differ by country of origin, data limitations prevent us determining

the origin countries that drive this result. Overall, this suggests that immigration in the long term may help to reduce the gender stereotyping in Aotearoa New Zealand. However, research also shows that acculturation is common and occurs over multiple generations, meaning that first generation migrants often show a partial shift towards their receiving country's values, but this shift is larger amongst the second and third generation migrants (Mesoudi, 2018). Therefore, while the gendered parenting behaviours of first-generation migrants suggests migration could reduce gender stereotypes in Aotearoa New Zealand in the long run, this reduction may be lower than suggested by the parenting behaviours of first-generation migrants due to the acculturation of second- and subsequent-generation migrants.

We take two main steps to help identify if differential treatment of boys and girls is at least partially driven by parents' own attitudes and beliefs toward gender rather than solely being a response to differential behaviour from boy and girl children. First, we consider a range of different types of parenting questions, some of which are likely to be less affected by the child's behaviour. Second, we look at heterogeneity in gendered parenting by whether the father has a higher socioeconomic status than the mother, which we define as a traditional Western relationship. We hypothesise that parents with more gendered worldviews are more likely to be in traditional relationships, and we might expect these parents to pass society's gender stereotypes on to their children more strongly than do parents in non-traditional relationships. This heterogeneity analysis therefore sheds light on the intergenerational transmission of gender stereotypes. It also helps to distinguish the child-driven and parent-driven mechanisms of gendered parenting because we don't expect the external gender socialisation of children (and hence the child-driven mechanism of gendered parenting) to differ substantially by parents' characteristics.

Further, to ensure our analysis of within-couple traditional inequality is capturing the intergenerational transmission of gender stereotypes (by using parents' traditional inequality status as a proxy for their views toward gender stereotypes, roles, and expectations), we look at heterogeneity in gendered parenting by whether the parent has high or low absolute socioeconomic status. This helps determine whether the observed differences in gendered parenting between parents in traditional versus non-traditional relationships are attributable to class.

When the children are 9-months old, we find suggestive evidence of intergenerational transmission of gender stereotypes, since mothers in traditional relationships perpetuate both male and female stereotypes more than mothers in non-traditional relationships. In particular, we see this through the promotion of "culture" for girls, which relates to the female communality stereotype, characterised by warmth, friendliness, unselfishness, and meaningful relationships; and the promotion of "taking on challenges" for boys, which relates to the male agency stereotype, characterised by competence, drive, and striving for power.

In later surveys, we see that that the intergenerational transmission of gender stereotypes mainly relates to the perpetuation of male stereotypes. At 2 years, the extent to which mothers have more negative parent-child interactions with boys than with girls is greater for traditional mothers than non-traditional mothers. At 8 years, a similar difference is evident in the negative parenting factor and in having savings for the child.

However, evidence of same-sex parental preference, where mothers generally engage more with girls than with boys, is stronger for non-traditional mothers than for traditional mothers. We see this through the likelihood that mothers agree with positive statements about their connection with their babies and the things they do with their babies, and the level of parental involvement and activities the child participates in when they are 8 years old. Both traditional and non-traditional mothers show these behaviours more with girls than boys, but these relationships tend to be more significant and greater in magnitude for mothers in non-traditional relationships. This could reflect the idea that mothers facing traditional inequality feel like they cannot 'prioritise' girl children and reveal their same-sex preferences if their beliefs align with the traditional gender thinking of men being superior to women, whereas non-traditional mothers don't feel such constraints. Although this same-sex preference seems stronger in non-traditional parents than in traditional parents, we do not consider this as evidence that non-traditional parents perpetuate gender stereotypes more strongly than do traditional parents, because the link from these parental behaviour factors to gender stereotypes is weak.

As robustness tests, we add controls for the child's personality using the Strengths and Difficulties Questionnaire (SDQ) questions as proxies. While the magnitudes and statistical significance of the coefficients tend to decrease, results suggest that most gendered parenting behaviours, particularly those promoting male stereotypes, persist once controlling for child-specific behaviour.

Overall, this research suggests there is little gender differentiation in many parenting practises by mothers and fathers in Aotearoa New Zealand, but some gender stereotypes seem to persist and are evidenced through differential treatment of boy versus girl children. We find some evidence of intergenerational transmission of gender stereotypes, whereby parents in traditional Western relationships are more likely to promote gender stereotypes and gendered expectations to their children, particularly to their sons, compared with parents in non-traditional relationships. We show that this result is not entirely driven by differences in absolute social class.

Further, while the gender differences we find in parenting behaviours are not large enough to explain the gender inequality observed in society. We infer the external structural factors that persist in society outside parents' control play a much larger role in the cycle of harmful stereotypes. Therefore, parents cannot be held fully responsible for perpetuating the gender inequality that persists today. However, there are some differences in parents' treatment of boys and

girls that could contribute to the intergenerational transmission of gender stereotypes and inequality and these might be quicker and easier for parents to address than are the deeply-rooted gendered structural factors. Finally, we see that migrant parents are less likely to exhibit strong gendered parenting behaviour, so immigration could play a role in reducing gender stereotypes and inequality in the long run.

Limitations and next steps

The GUiNZ survey provides rich information about many different aspects of parental behaviour and attitudes in Aotearoa New Zealand. However, the study has some important limitations.

First, social desirability bias may mean parents refrain from admitting to supposedly 'bad' parenting practices when asked about their behaviours in the GUiNZ survey. It is also possible that the child's biological sex plays a role in the extent to which social desirability bias impacts parents' responses to the survey. For example, parents may consider it worse to admit they smack their girl children compared to their boy children if social pressures rule that smacking is not an appropriate disciplining strategy for girls. This would mean our estimates of gendered parenting may be overestimated if social desirability bias differentially affects the reporting of certain behaviours toward girl versus boy children.

Second, there are some significant differences in the characteristics of mothers and fathers who drop out of the 2-year and 8-year surveys, compared with those who were present in the antenatal survey. Those who drop out are more likely to be non-European, have low socioeconomic status, and be less attached to the labour market. This non-random attrition may mean our results underestimate gendered parenting in the population as a whole, since previous studies have shown that people with lower socioeconomic status are more likely to exhibit gendered expectations and gendered views for their children than those with higher socioeconomic status (Lily, 1994; Mesman & Groeneveld, 2017; Samari & Coleman-Minahan, 2018).

Third, as mentioned throughout the report, we cannot perfectly distinguish parent-driven versus child-driven gendered parenting, although we do use two approaches to help separate the mechanisms.

Fourth, the modest sample size, particularly when disaggregated by ethnicity and interacted with parental inequality, means statistical power is limited, making it difficult to draw conclusions about gendered parenting for some groups of parents.

Fifth, as highlighted by Stewart and Bond (2002), there are inconsistencies and a lack of standardisation in measures of parenting across cultures. We cannot compare the prevalence of certain gendered parenting behaviours across parents of different ethnicities when this paper does not delve into the culture-specific

meanings of such behaviour or cultural practices that may influence parenting styles. He and van de Vijver (2012) describe this issue as item bias, where a survey item may have different psychological meaning across cultures. In addition, many different nationalities are aggregated into the four main ethnic groups, which means we lose cultural variation. Because of this, we have made little inference as to why some parents of some ethnicities exhibit differential treatment of boy and girl children while others do not.

Due to these limitations, there are areas of this research that we couldn't fully delve into and hence are left for future research. One area is understanding how parenting behaviours and attitudes differ for parents with gender diverse children compared to parents of boy or girl children. The inclusion of gender identity questions in the GUiNZ 8-year child survey would provide an interesting first look at this topic. Another area is understanding how parenting strategies differ by New Zealand-born Asian and Pacific parents compared to immigrant Asian and Pacific parents, since parents may be exposed to different cultural backgrounds depending on whether they were born in New Zealand or not. This acculturation lens could also be explored by categorising migrants by age of migration since you could expect that type of parenting behaviours may differ by whether the parent migrated during adulthood or childhood. Similarly, if larger data sets were available, it would be interesting to see whether and how parenting behaviours differ by nationalities within each of the Asian and Pacific ethnic groups, where culture-specific contexts can be better identified and understood.

References

- Anukriti, S., Prakash, N., & Kwon, S. (2021). How dowry influences household decisions in rural India. *World Bank Blogs*. Retrieved 4 February 2022, from <https://blogs.worldbank.org/developmenttalk/how-dowry-influences-household-decisions-rural-india>
- Babcock, L., Laschever, S., Gelfand, M., & Small, D. (2003). Nice girls don't ask. *Harvard Business Review*, *October 2003*. Retrieved from <https://hbr.org/2003/10/nice-girls-I-ask>
- Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Chicago: Rand McNally.
- Barreto, M. R., & Schmitt, M. T. (2009). The glass ceiling in the 21st century: Understanding barriers to gender equality. *American Psychological Association*. <https://doi.org/10.1037/11863-000>
- Blackstone, A. M. (2003). Gender roles and society. In J. R. Miller, R. M. Lerner, & L. B. Schiamberg (Eds.), *Human ecology: An encyclopaedia of Children, families, communities, and environments* (pp. 335-338). Santa Barbara, CA: The University of Main DigitalCommons@Umaine.
- Briole, S., Le Forner, H., & Lepinteur, A. (2020). Children's socio-emotional skills: Is there a quantity-quality trade-off? *Labour Economics*, *64*(June). doi.org/10.1016/j.labeco.2020.101811
- Child Outcomes Research Consortium. (n.d.). *Strengths and Difficulties Questionnaire (SDQ)*. Retrieved 17 January 2022, from <https://www.corc.uk.net/outcome-experience-measures/strengths-and-difficulties-questionnaire-sdq/>
- Choi, H., Joesch, J. M., & Lundberg, S. (2008). Sons, daughters, wives, and the labour market outcomes of West German men. *Labour Economics*, *15*(5), 795-811.
- Crowley, K., Callanan, M. A., & Tenenbaum, H. R. (2001). *Psychological Science*, *12*(3). doi.org/10.1111/1467-9280.00347
- Cundiff, J. L., & Vescio, T. K. (2016). Gender stereotypes influence how people explain gender disparities in the workplace. *Sex Roles: A Journal of Research*, *75*(3-4), 126-138.
- Dahl, G. B., & Moretti, E. (2008). The demand for sons. *The Review of Economic Studies*, *75*(4), 1085-1120.

- Dubuc, S., & Coleman, D. (2007). An increase in the sex ratio of births to India-born mothers in England and Wales: Evidence for sex-selective abortion. *Population and Development Review, 33*(2), 383-400.
- Eagly, A. H., & Wood, W. (2016). Social role theory of sex differences. In N. Naples, R. C. Hoogland, M. Wickramasinghe, & W. C. A., Wong. (Eds.), *The Wiley Blackwell Encyclopedia of Gender and Sexuality Studies*. New Jersey, USA: John Wiley & Sons.
- Eliot, L. (2010). *Pink brain, blue brain: How do small differences grow into troublesome gaps and what we can do about it*. New York, NY: Simon and Schuster.
- Ellemers, N. (2018). Gender stereotypes. *Annual Review of Psychology, 68*(7:53), 19.7-19.24.
- Endendijk, J. J., Groeneveld, M. G., Makermans-Kranenburg, M. J., & Mesman, J. (2016). Gender-differentiated parenting revisited: Meta-analysis reveals very few differences in parental control of boys and girls. *PLoS ONE, 11*(17). Doi:10.1371/journal.pone.0159193
- Finch, J. E., Yousafzai, A. K., Rasheed, M., & Obradovic, J. (2018). Measuring and understanding social-emotional behaviours in preschoolers from rural Pakistan. *PLoS One, 13*(11). Doi: 10.1371/journal.pone.0207807
- Frost, M. D., Puri, M., & Hinde, P. R. A. (2013). Falling sex ratios and emerging evidence of sex-selective abortion in Nepal: Evidence from nationally representative survey data. *BMJ Open, 3*(5). Doi: 10.1136/bmjopen-2013-002612
- Freisthler, B., & Maguire-Jack, K. (2015). Understanding the interplay between neighbourhood structural factors, social processes, and alcohol outlets on child physical abuse. *Child Maltreat, 20*(4), 268-277.
- Growing Up in New Zealand. (2010). *Before we are born*. Retrieved from <https://www.growingup.co.nz/sites/growingup.co.nz/files/2019-10/report01.pdf>
- Growing Up in New Zealand. (2012). *Now we are born*. Retrieved from <https://www.growingup.co.nz/sites/growingup.co.nz/files/2019-10/report02.pdf>
- Haines, E. L., Deaux, K., & Lofaro, N. (2016). The times they are a-changing... or are they not? A comparison of gender stereotypes, 1983-2013. *Psychology of Women Quarterly, 1*-11.
- Hallers-Haalboom, E. T.,(man, J., Groeneveld, M. G., Endendijk, J. J., van Berkel, S. R., van der Pol, L. D., & Bakermans-Kranenburg, M. J. (2014).

- Mothers, fathers, sons and daughters: Parental sensitivity in families with two children. *Journal of Family Psychology*, 28(2), 138-147. Doi: 10.1037/a0036004
- Hamoudi, A., & Nobels, J. (2014). Do daughters really cause divorce? Stress, pregnancy, and family composition. *Demography*, 51(4), 1423-1449.
- He, J., van de Vijver, F. (2012). Bias and equivalence in cross-cultural research. *Online Readings in Psychology and Culture*, 2(2).
<https://doi.org/10.9707/2307-0919.1111>
- Jakubowska, H., & Byczkowska-Owczarek, D. (2018). Girls in football, boys in dance: Stereotypization processes in socialisation of young sportsmen and sportswomen. *Quantitative Sociology Review*, XIV(2). DOI: 10.18778/1733-8077.14.2.02
- Jennings, K. D., Sandberg, I., Kelley, S. A., Valdes, L., Yaggi, K., Abrew, A., & Macey-Kalcevic, M. (2008). Understanding of self and maternal warmth predict later self-regulation in toddlers. *International Journal of Behavioral Development*, 32(2), 108-118.
- Junhong, C. (2001). Prenatal sex determination and sex-selective abortion in rural central China. *Population and Development Review*, 27(2), 259-281.
- Kane, E. W. (2006). "No way my boys are going to be like that!" Parents' responses to children's gender nonconformity. *Gender and Society*, 20(2), 149-176.
- Kite, M. E., Deaux, K., & Haines, E. L. (2008) Gender stereotypes. In *Psychology of Women: A handbook of issues and theories*, Vol. 2, ed. FL Denmark, MA Paludi, pp. 206-236. New York: Praeger.
- Kleven, H., Landais, C., & Sogaard, J. E. (2018). Children and gender inequality: Evidence from Denmark. *American Economic Journal: Applied Economics*, 11(4), 181-209.
- Lamb, V. M. (2011). The 1950's and the 1960's and the American woman: The transition from the 'housewife' to the feminist. *HAL Working Paper 00680821*. Retrieved from <https://dumas.ccsd.cnrs.fr/dumas-00680821/document>
- Lamichhane, P., Harken, T., Puri, M., Darney, P. D., Blum, M., Harper, C. C., & Henderson, J. T. (2011). Sex-selective abortion in Nepal: A qualitative study of health workers' perspectives. *Womens Health Issues*, 21(3), 37-41.

- Lau, A. S., Fung, J. J., & Yung, B. (2010). Group parent training with immigrant Chinese families: enhancing engagement and augmenting skills training. *Journal of Clinical Psychology, 66*(8), 880-894.
- Lily, S. (1994). Socioeconomic status, parents' sex-role stereotypes, and the gender gap in computing. *Journal of Research on Computing in Education, 26*(4). Doi.org/10.1080/08886504.1994.10782102
- Lin, M., Liu, J., & Qian, N. (2014). More missing women, fewer dying girls: The impact of sex-selective abortion on sex at birth and relative female mortality in Taiwan. *Journal of the European Economic Association, 12*(4), 899-926.
- Lumen, (n.d.). Gender socialisation. *Boundless Sociology: Gender stratification and inequality*. Retrieved from <https://courses.lumenlearning.com/boundless-sociology/chapter/gender-and-socialization/>
- Lundberg, S., & Rose, E. (2002). The effects of sons and daughters on men's labor supply and wages. *Review of Economics and Statistics, 84*(2), 251-268.
- Lundberg, S., & Rose, E. (2003). Child gender and the transition to marriage. *Demography, 40*(2), 333-349.
- Lundberg, S. (2005). Sons, daughters, and parental behaviour. *Oxford Review of Economic Policy, 21*(3). Doi: 10.1093/oxrep/gri020
- Lundberg, S., McLanahan, S., Rose, E. (2007). Child gender and father involvement in fragile families. *Demography, 44*(1), 79-92.
- Mascaro, J. S., Rentscher, K. E., Hackett, P. D., & Mehl, M. R. (2017). Child gender influences paternal behavior, language, and brain function. *Behavioural Neuroscience, 131*(3), 262-273.
- McKenzie, D. (2020). An overview of multiple hypothesis testing commands in Stata. Development Impact. Retrieved 5 July, 2021, from <https://blogs.worldbank.org/impactevaluations/updated-overview-multiple-hypothesis-testing-commands-stata>
- McHale, S. M., Crouter, A. C., & Tucker, C. J. (1999). Family context and gender role socialisation in middle childhood: Comparing girls to boys and sisters to brothers. *Child Development, 70*(4), 990-1004.
- Mesman, J., & Groeneveld, M. (2017). Gendered parenting in early childhood: Subtle but unmistakable if you know where to look. *Child Development Perspectives, 12*(1). Doi:10.1111/cdep.12250

- Mesoudi, A. (2018). Migration, acculturation, and the maintenance of between-group cultural variation. *PLOS ONE*, *14*(4). DOI:10.1371/journal.pone.0216316
- Negraia, D. V., Yavorsky, J. E., & Dukhovnov, D. (2020). Mothers' and fathers' well-being: Does the gender composition of children matter? *Journal of Marriage and Family*, *83*(3), 820-844.
- Nikiforidis, L., Durante, K. M., Redden, P. J., & Griskevicius, V. (2018). Do mothers spend more on daughters while fathers spend more on sons? *Journal of Consumer Psychology*, *28*(1), 149-156.
- OECD. (2021). Man Enough? Measuring Masculine Norms to Promote Women's Empowerment. *Social Institutions and Gender Index*. Paris, France: OECD Publishing.
- Oranga Tamariki. (2019). *Strengths and Difficulties Questionnaire (SQD): Manual*. Retrieved from <https://www.orangatamariki.govt.nz/assets/Uploads/Working-with-children/School-programmes/SwiS/SDQ/SDQ-manual.pdf>
- Peric Bralo, M., & Masnjak, R. F. (2017). *Differences between boys and girls in developmental areas*. Paper presented at the Early Childhood Intervention: For meeting sustainable development goals of the new millennium (Eurlaid Conference 2017), Belgrade, Serbia. Retrieved from https://www.researchgate.net/publication/342282813_Differences_between_Boys_and_Girls_in_Developmental_Areas
- Pollmann-Schult, M. (2017). Sons, daughters, and the parental division of paid work and housework. *Journal of Family Issues*, *38*(1), 100-123.
- Qing, S. (2020). Gender role attitudes and male-female income differences in China. *The Journal of Chinese Sociology*, *7*(12). Retrieved from <https://journalofchinesesociology.springeropen.com/articles/10.1186/s40711-020-00123-w>
- Raley, S., & Bianchi, S. (2006). Sons, daughters, and family processes: Does gender of children matter? *Annual Review of Sociology*, *32*, 401-421.
- Retherford, D., & Roy, T. K. (2003). Factors affecting sex-selective abortion in India and 17 major states. *National Family Health Survey Subject Reports*, *21*. <http://hdl.handle.net/10125/3488>
- Russell, A., Aloa, V., Feder, F., Glover, A., Miller, H., & Palmer, G. (1998). Sex-based differences in parenting styles in a sample with preschool children. *Australian Journal of Psychology*, *50*(2), 89-99.

- Samari, G., & Coleman-Minahan, K. (2018). Parental gender expectations by socioeconomic status and nativity: Implications for contraceptive use. *Sex Roles, 78*(9-10), 669-684.
- Selin, H. (2013). *Parenting across cultures: Childrearing, motherhood and fatherhood in non-Western cultures*. Berlin, Germany: Springer Science & Business Media.
- Statistics How To. (2021). *Kaiser-Meyer-Olkin (KMO) test for sampling adequacy*. Retrieved December 13, 2021, from <https://www.statisticshowto.com/kaiser-meyer-olkin/>
- Stats NZ. (n.d.). *Ethnic group (grouped total responses) and Māori descent indicator by sex, for the census usually resident population count, 2001, 2006, 2013 (RC, TA, AU)*. Retrieved December 15, 2021, from <http://nzdotstat.stats.govt.nz/wbos/Index.aspx#>
- Stewart, S. M., & Bond, M. H. (2003). A critical look at parenting research from the mainstream: Problems with uncovering while adapting Western research to non-Western cultures. *British Journal of Developmental Psychology, 20*, 379-392.
- Suhr, D. (2006). Exploratory or confirmatory factor analysis? *Statistics and Data Analysis*, paper 200-31. Retrieved from <https://support.sas.com/resources/papers/proceedings/proceedings/sugi31/200-31.pdf>
- Tabassum, N., & Nayak, B. S. (2021). Gender stereotypes and their impact on women's career progressions from a managerial perspective. *IMM Kozhikode Society and Management Review, 10*(2), doi.org/10.1177/2277975220975513
- Toivainen, T., Papageorgiou, K. A., Tosto, M .G., & Kovas, Y. (2017). Sex differences in non-verbal and verbal abilities in childhood and adolescence. *Intelligence, 24*(2017), 81-88.
- UCLA. (n.d.). *What does Cronbach's alpha mean? SPSS FAQ*. Retrieved from <https://stats.oarc.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/>
- UNFPA. (2020). *How changing social norms is crucial in achieving gender equality*. Retrieved from <https://www.unfpa.org/social-norms-change>
- van de Vijver, F. J. R. (2007). Cultural and gender differences in gender-role beliefs, sharing household task and child-care responsibilities, and well-being among immigrants and majority members in the Netherlands. *Sex Roles, 53*, 813-824.

- Wei, S., & Zhang, X. (2011). The competitive saving motive: Evidence from rising sex ratios and savings rates in China. *Journal of Political Economy*, 119(3), 511-564.
- William, J. E., & Best, D. L. (1990). *Measure sex stereotypes: A multinational study*. Thousand Oaks, CA: Sage.
- Ye, D., Pan, S., Lian, Y., & Ng, Y. (2020). Culture and savings: Why do Asians save more? *The Singapore Economic Review*, 66(3).
<https://doi.org/10.1142/S0217590819500607>
- Zahn-Waxler, C., Shirtcliff, E. A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology*, 4, 275-303.
- Zhu, W. X., Lu, L., & Hesketh, T. (2008). China's excess males, sex selective abortion, and one child policy: Analysis of data from 2005 national intercensus survey. *BMJ*, 338. Doi:10.1136/bmj.b1211
- Zivkovic, T., Warin, M., Davies, M., & Moore, V. (2010). In the name of the child: The gendered politics of childhood obesity. *Journal of Sociology*, 46(4), 375-392.

Appendix

Appendix 1. Parental behaviour variables and factor loadings

Table A 1. Definitions of parental behaviour outcome variables

Variable	Definition/Factor loadings description
9-month data	
Quality of connection with baby	This factor variable is comprised of survey questions asking mothers and fathers about the different ways they act towards their baby and whether they agree with positive statements about their connection with their baby. These variables measure, on a four-point scale, the extent to which the parent agrees that they: say nice things about their baby, take an active interest in their baby, are interested in the things their baby does, praise their baby when he/she deserves it, enjoy having their baby around them, tell their baby how proud they are of him/her, tell the baby how proud they are of them when he/she is good, make their baby feel proud when he/she does well, talk to their baby in a warm and affectionate way, make their baby feel what he/she does is important, pay a lot of attention to their baby, try to make their baby happy, and like to spend time with their baby. This factor variable includes the same components for both mothers and fathers.
Quantity of connection with baby	This factor variable is comprised of survey questions asking mothers and fathers about what it has been like being the parent of a new baby and the frequency for which they feel positively about their connection with their baby. These variables ask parents on a six-point scale: how much of the time can you tell what your baby needs, how much do you think you are positively affecting your baby's development, how much the tasks of taking care of your new baby have been satisfying, how much do you think that you know your baby, how well are you meeting your expectations of yourself as a parent, how in tune do you feel with your baby, how satisfied are you with the way that you relate to your baby and their needs, how confident are you caring for your baby, and how close do you feel with your baby. For fathers, this factor also includes the questions: to what extent are you involved in the day-to-day care of your baby (e.g. feeding, holding, changing), and how much of the time are you directly responsible for your baby (e.g. in sole care, making babysitting arrangements, looking after them when they are sick).
Things you do with your baby	This factor variable is comprised of survey questions asking mother and fathers about some of the activities they do with their baby. These variables measure, on a five-point scale, the frequency that the parent: plays games with their baby (e.g. hand-clapping games, face-hiding games, finger games), play with toys with their baby, sing songs or tell stories to their baby, read books to their baby. This factor also loads the variable asking parents to what extent they are involved with the day-to-day care of their baby. The father factor also includes the survey variable of how often they talk to their baby during everyday activities. These latter variables are measured on a four-point scale.

10 values variables	<p>Parents are asked about the qualities they value and that they want their child to learn as they grow up. Of the list of 10 values, parents are asked to pick three values that are most important and three that are least important to their child's development. Each value variable is coded as -1 if the value is considered least important, 0 if the value is not ranked, and 1 if the value is considered most important. The resulting variable is then standardised.</p> <p>The 10 separate values outcome variables are as follows: to be ambitious; to be a good person; to take on challenges; to have a concern for our world and environment; to have a sense of family/whānau; to have an understanding of their culture; to be successful; to enjoy life; to have initiative; to respect others.</p>
Age of baby (weeks) when parent started reading to them	How old was your baby [in weeks] when you first started reading books to him or her?
Number of languages spoken to the child for multilingual parents	The number of languages the parent speaks to the child. This variable is defined only for parents who speak multiple languages.
Child is in regular care	This variable equals 1 if there is a non-zero answer to the question: how many hours each week in total does your baby spend in a regular care arrangement?
Not currently working	This variable equals 1 if the parent is still on leave or not currently employed at the 9-month survey and equals 0 if they are working part-time or full-time.
2-year data	
Activities and experiences for toddlers	This factor variable is comprised of variables from the child-proxy survey, which asks mothers to indicate the activities the child has done, or the places the child has been at any time since the child was born. These include going to the zoo, aquarium, a farmers' market, gallery, library, museum, a music group, a play group, a gala, swimming, out for coffee, doing physical activities, going on a picnic, and going on a nature walk. This factor also includes the standardised variable reflecting how many hours the child spends at home watching TV, DVDs, or videos, which is loaded negatively to the factor.
Outdoor play for toddlers	This factor variable is comprised of two variables from the child-proxy survey which ask mothers to indicate over the last four weeks how many hours the child has spent outdoors on an average weekday and on an average weekend day.
Quality of connection with child	This factor variable is comprised of survey questions asking mothers and fathers about the different ways they act towards their children and whether they agree with positive statements about their connection with their children. These survey questions are the same as those asked at the 9-month survey, measuring on a four-point scale the extent to which the parent agrees that they: say nice things about their baby, take an active interest in their baby, are interested in the things their baby does,

	praise their baby when he/she deserves it, enjoy having their baby around them, tell their baby how proud they are of him/her, tell the baby how proud they are of them when he/she is good, make their baby feel proud when he/she does well, talk to their baby in a warm and affectionate way, make their baby feel what he/she does is important, pay a lot of attention to their baby, try to make their baby happy, and like to spend time with their baby. This factor variable includes the same components for both mothers and fathers.
Positive parent-child relationship	This factor variable is comprised of survey questions asking mothers and fathers about their parent-child relationship. These variables measure, on a seven-point scale, how often the parent: lets the child know they really care about them, lets the child know they appreciate the things he/she does, acts lovingly and affectionately toward the child, helps the child do something that is important to them, acts supportively and understandingly towards the child. This factor variable includes the same components both mothers and fathers.
Negative parent-child relationship	This factor variable is comprised of survey questions asking mothers and fathers about their parent-child relationship and parenting practices. These variables measure, on a seven-point scale, how often they: get angry at the child, criticise the child's ideas, argue with the child when they disagree about something, and shout at the child because they are upset with them. Two additional variables measured on a five-point scale are: how often the parent shouts at the child when they are naughty and how often the parent smacks the child when they are naughty. The fathers factor also includes two variables measured on a five-point scale asking how often they take away treats when the child is naughty and how often they tell the child off when they are naughty.
Parental enjoyment	This factor variable is comprised of survey questions asking mothers and fathers about parental enjoyment. These variables measure, on a five-point scale, the level of agreement with the statements: " <i>Being a parent is very satisfying</i> " and " <i>On the whole, it is good to be a parent</i> ". The father factor also includes the statement " <i>On the whole, I enjoy being a parent</i> ".
Frequency of being directly responsible for child	Standardised scale for how much of the time the parent is directly responsible for the child (e.g. in sole care of them, making babysitting arrangements, looking after them when they are sick).
8-year data	
Positive parenting	This factor variable is comprised of survey questions asking mothers to think about the way they behave toward their child. These variables measure, on a five-point scale, how often the mother does the following things when interacting with her child: express affection by hugging, kissing and holding, hug or hold the child for no particular reason, have warm, close times together with the child, feel close to the child both when they are happy and upset, enjoy listening to the child and doing things with them, and tell the child how happy they make them.
Negative parenting	This factor variable is comprised of survey questions asking mothers to think about the way they have behaved toward their child. These variables measure, on a five-point scale, how often the mother does the following things when interacting with the child: lose temper with child,

	feel the child got away with something they shouldn't have, raise her voice and shout at the child, be angry at the child, the child's cry gets on the mother's nerves, tell the child off, send the child to time out, ignore the child's behaviour.
Parental involvement	This factor variable is comprised of survey questions asking mothers about some of the activities they might do with the child in relation to the typical time that they spend with the child. These variables measure, on a five-point scale, how often the mother: reads books to/with the child, talks about the child's feelings/issues and comforts them, sings a song, plays music or does some other musical activity with the child, draws pictures or other art/craft activity with the child, talks to the child about what happens at school and/or what they did at school, takes part in physical activity with the child (e.g. passing a ball, go for a walk), does cooking or baking together, and does chores with the child. This factor variable also includes the question of how often the child has participated in household chores on average per week, over the past 12 months, measured on a six-point scale.
Child activities	This factor variable is comprised of survey questions reflecting how often, on a six-point scale, the child has been to the following places or events, or participated in the following extracurricular activities, over the past 12 months: going to plays, musicals, dance, concerts, circus or other live shows; art gallery, museum or historic site; religious or cultural site, event or festival (e.g. marae, Pasifika, Diwali); zoo, aquarium, wildlife reserve or farm; fair or theme park; cinema; watching sport as a spectator at community, regional, national or international level; participated in a community group or club (e.g. Cubs, Brownies or cultural group); participated in art, music, or dance, lessons, practice and performances (e.g. piano, dance, choir, drama, kapa haka).
Child activities – sport/play	This factor variable is comprised of survey questions reflecting how often, on a six-point scale, the child has participated in the following extracurricular activities over the past 12 months: organised team sport (e.g. football, cricket, netball, cheerleading – includes practice and games), active play (e.g. running around playing informal games, bike riding), quiet/inactive play (e.g. Lego, board game, drawing), household chores. This factor also includes the survey variable asked to mothers: <i>"If you tell the child that he/she will be disciplined if he/she doesn't stop doing something, but he/she keeps doing it, how often will you discipline?"</i> . This is measured on a five-point scale.
Bullying responses – aggressive	This factor variable is comprised of variables reflecting the likelihood (measured on a five-point scale) that the mother would recommend different types of strategies to their child to help them respond to common (bullying-type) situations that might occur at school or when playing with friends. Two problem sets are presented: <ul style="list-style-type: none"> • Problem 1 asked to the mother: <i>"Imagine this just happened to {NAME}. {NAME} is playing a ball game on the playground at school with a bunch of other children from {HIS/HER} class. {NAME} turns around for a minute to look for a friend who {HE/SHE} thinks might want to play too. While {NAME'S} back is turned, one of the</i>

	<p><i>{BOYS/GIRLS} runs towards {NAME} and yells "Hey you!" and hits {NAME} in the back with the ball. Then the {BOY/GIRL} picks up the ball lying beside {NAME} and yells loudly "Catch!" and starts to laugh at {NAME}. {HE/SHE} hit [NAME] with the ball really hard and it hurts."</i></p> <ul style="list-style-type: none"> • Problem 2 asked to the mother: <i>"Imagine this just happened to {NAME}. {NAME} is on the playground at school during the break and sees a group of children from {HIS/HER} class playing a game together. {NAME} thinks it looks like fun, so goes over and asks one of the {BOYS/GIRLS} if {HE/SHE} can play too. {HE/SHE} looks at {NAME} and says in a really nasty voice: "No. We don't want you to play with us, you are not allowed in our game."</i> <p>This factor includes recommendations of: hitting or shoving the person for doing that, yelling at the person, ask "what's your problem?", for both problem 1 and problem 2.</p>
Bullying responses – verbal	<p>This factor variable is comprised of variables reflecting the likelihood (measured on a five-point scale) that the mother would recommend different types of strategies to their child to help them respond to common (bullying-type) situations that might occur at school or when playing with friends. This factor includes recommendations of: telling the person that was a really mean thing to do, asking the person why they did that, say "stop it, I don't like it", ask "what's your problem?", for both problem 1 and problem 2.</p>
Bullying responses – ignore and walk away	<p>This factor variable is comprised of variables reflecting the likelihood (measured on a five-point scale) that the mother would recommend different types of strategies to their child to help them respond to common (bullying-type) situations that might occur at school or when playing with friends. This factor includes recommendations of: ignore it and act like it didn't happen, walk away from the situation, for both problem 1 and problem 2.</p>
Frequency of discussing ethnicity with child	<p>How often do you discuss the child's ethnicity or culture with them?</p>
Adult father is living in the same house as child	<p>Whether the adult father lives in the same household as the child at the time of the survey.</p>
Mother has any sort of savings for her child	<p>This variable equals 1 if the mother has any sort of savings for her child, including a KiwiSaver, a bank account, bonus bonds or other savings, and 0 otherwise.</p>
Mother's agreement with child's emotions	<p>The interviewer asks the mother to choose between three topics and discuss the chosen topic with her child while the interviewer observes the mothers' validation of the child's emotions. This variable is coded as -1 if the mother disagrees with the child's emotion at least once, equals 1 if the mother agrees with the child's emotions at least once, and equals 0 if the mother either both or neither agrees and disagrees. The resulting variable is standardised.</p>

Table A 2. Factor loadings for 9-month parental behaviours

9-month GUINZ survey variables	Mother 9-month factors			Father 9-month factors		
	Quality of connection with baby	Quantity of connection with baby	Things you do with baby	Quality of connection with baby	Quantity of connection with baby	Things you do with baby
To what extent are you involved with the day-to-day care of your baby			0.30	0.30		0.31
How much of the time are you directly responsible for your baby				0.45		
Frequency of playing games with your baby			0.53			0.65
How often you talk to your baby during everyday activities						0.54
Frequency of playing with toys with your baby			0.55			0.67
Frequency of singing songs or telling stories to your baby			0.44			0.50
Frequency of reading books to your baby			0.46			0.46
To what extent do you: say nice things about your baby	0.48			0.60		
To what extent do you: take an active interest in your baby	0.54			0.63		
To what extent are you: interested in the things your baby does	0.56			0.67		
To what extent do you: praise your baby then he/she deserves it	0.60			0.68		
To what extent do you: enjoy having your baby around you	0.61			0.56		
To what extent do you: tell your baby how proud you are of him/her	0.59			0.50		
To what extent do you: make your baby feel proud when he/she does well	0.68			0.64		
To what extent do you: talk to your baby in a warm and affectionate way	0.54			0.60		
To what extent do you: make your baby feel what he/she does is important	0.62			0.61		
To what extent do you: pay a lot of attention to your baby	0.54			0.50		
To what extent do you: try to make your baby happy	0.64			0.62		
To what extent do you: like to spend time with your baby	0.62			0.62		
How much of the time can you tell what your baby needs		0.54			0.63	
How much of the time do you think you are positively affecting your baby's development	0.38				0.51	

Table A.2 Continued...

9-month GUiNZ survey variables

	Mother 9-month factors			Father 9-month factors		
	Quality of connection with baby	Quantity of connection with baby	Things you do with baby	Quality of connection with baby	Quantity of connection with baby	Things you do with baby
How much the tasks of taking care of your new baby have been satisfying		0.58		0.56		
How much do you think that you know your baby		0.59		0.66		
How well are you meeting your expectations of yourself as a parent		0.64		0.66		
How much satisfaction do you get from your baby's development and growth		0.39		0.36		
How in tune do you feel with your baby		0.69		0.75		
How satisfied are you with the way that you relate to your baby and their needs		0.60		0.66		
How close do you feel with your baby		0.49		0.53		
How confident are you caring for your baby		0.60		0.63		

Notes: GUiNZ survey variables with factor loadings less than 0.3 in absolute terms are omitted from this table since the definition of each factor is created based on the GUiNZ variables that have a relatively high contribution to the factor. Variables with absolute factor loadings less than 0.3 are still included in the outcome variable factor for the regression analysis but are less important for the interpretation of the factor. Factor loadings are rotated for easier interpretation and are rounded to two decimal places.

Table A 3. Factor loadings for 2-year parental behaviours

2-year GUiNZ survey variables	Mother 2-year factors				Father 2-year factors			
	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment
To what extent do you: say nice things about your child	0.53				0.48			
To what extent do you: take an active interest in your child	0.61				0.67			
To what extent are you: interested in the things your child does	0.61				0.66			
To what extent do you: praise your child then he/she deserves it	0.68				0.62			
To what extent do you: enjoy having your child around you	0.61				0.57			
To what extent do you: tell your child how proud you are of him/her	0.77				0.59			
To what extent do you: make your child feel proud when he/she does well	0.81				0.62			
To what extent do you: make your child feel what he/she does is important	0.71				0.60			
To what extent do you: talk to your child in a warm and affectionate way	0.56				0.54			
To what extent do you: pay a lot of attention to your child	0.63				0.57			

To what extent do you: try to make your child happy 0.70 0.55

2-year GUiNZ survey variables	Mother 2-year factors			Father 2-year factors				
	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment
To what extent do you: like to spend time with your child	0.67				0.61			
To what extent do you agree: On the whole, I enjoy being a parent								0.72
To what extent do you agree: Being a parent is very satisfying				0.56				0.73
To what extent do you agree: On the whole, it is good to be a parent				0.50				0.65
How often do you let the child know you really care about them		0.63				0.70		
How often do you let the child know you appreciate the things they do		0.70				0.75		
How often do you act lovingly and affectionately toward the child		0.73				0.79		
How often do you help the child do something important to them		0.68				0.68		
How often do you act supportively and understandingly towards the child		0.70				0.69		
How often do you get angry at the child			0.67				0.72	
How often do you get shout at the child because you are upset with them			0.78				0.74	
How often do you criticise the child's ideas			0.35				0.33	

Table A.3 Continued...

2-year GUiNZ survey variables

	Mother 2-year factors			Father 2-year factors				
	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment	Quality of connection with child	Positive parent-child relationship	Negative parent-child relationship	Parental enjoyment
How often do you argue with the child when they disagree about something			0.53				0.49	
How often do you smack the child when they are naughty			0.55				0.53	
How often do you get shout at the child when they are naughty			0.69				0.71	
How often do you take treats away when the child is naughty							0.35	
How often do you tell the child off when they are naughty							0.41	

Notes: GUiNZ survey variables with factor loadings less than 0.3 in absolute terms are omitted from this table since the definition of each factor is created based on the GUiNZ variables that have a relatively high contribution to the factor. Variables with absolute factor loadings less than 0.3 are still included in the outcome variable factor for the regression analysis but are less important for the interpretation of the factor. Factor loadings are rotated for easier interpretation and are rounded to two decimal places.

Table A 4. Factor loadings for maternal behaviours from 2-year child-proxy survey

2-year child-proxy GUiNZ survey variables	Mother 2-year child-proxy survey factors	
	Activities and experiences for toddlers	Outdoor play for toddlers
How many hours has the child spent outdoors on an average weekday		0.83
How many hours has the child spent outdoors on an average weekend day		0.84
How many hours the child spends at home watching TV, DVDs, or videos	-0.36	
Has the child been:		
To a zoo	0.42	
To an aquarium	0.39	
To a farmer's market	0.52	
To a gallery	0.36	
To a library	0.43	
To a museum	0.42	
To a music group	0.56	
On a nature walk	0.48	
To a play group	0.44	
Swimming	0.41	
Out for coffee	0.62	
Doing physical activities	0.43	
On a picnic	0.43	
To a gala/fair	0.39	

Notes: GUiNZ survey variables with factor loadings less than 0.3 in absolute terms are omitted from this table since the definition of each factor is created based on the GUiNZ variables that have a relatively high contribution to the factor. Variables with absolute factor loadings less than 0.3 are still included in the outcome variable factor for the regression analysis but are less important for the interpretation of the factor. Factor loadings are rotated for easier interpretation and are rounded to two decimal places.

Table A 5. Factor loadings for 8-year maternal behaviour

8-year child-proxy GUiNZ survey variables	Positive parenting	Negative parenting	Parental involvement	Child activities	Child activities: sport/play	Bullying responses: aggressive	Bullying responses: verbal	Bullying responses: ignore
Has the child been to: a play, musical, dance, concert, circus or other live show				0.53				
Has the child been to: an art gallery, museum, or historic site				0.53				
Has the child been to: a religious or cultural site, event or festival				0.40				
Has the child been to: a zoo, aquarium, wildlife reserve or farm				0.42				
Has the child been to: a fair or theme park				0.45				
Has the child been to: the cinema				0.33				
Has the child watched sport as a spectator at community, regional, national, or international level				0.33				
Has the child participated in a community group or club				0.31				
Has the child participated in extracurricular activities: organised team sport					0.33			
Has the child participate in art, music or dance, lessons, practice, and performances				0.39				
Has the child participated in extracurricular activities: active play					0.41			
Has the child participated in extracurricular activities: quiet/inactive play					0.43			
Has the child participated in chores			0.34		0.32			

Table A. 5 Continued...

8-year child-proxy GUiNZ survey variables	Positive parenting	Negative parenting	Parental involvement	Child activities	Child activities: sport/play	Bullying responses: aggressive	Bullying responses: verbal	Bullying responses: ignore
How often do you read books to/with your child			0.38					
How often do you talk about the child's feelings/issues and comfort them			0.44					
How often do you sing a song , play music, or do some musical activity with your child			0.47					
How often do you draw pictures or other art/craft activity with the child			0.50					
How often do you help the child with homework or school work			0.46					
How often do you talk to the child about what happens at school and/or what they did at school			0.43					
How often do you take part in physical activity with the child			0.51					
How often do you do cooking or baking with your child			0.55					
How often do you do chores with the child			0.62					
How often do you express affection by hugging, kissing, and holding the child	0.66							
How often do you lose temper with the child		0.76						
How often do you feel the child got away with something they shouldn't have		0.39						
How often do you hug the child for no reason	0.80							
How often do you have warm close times together with the child	0.73							
How often do you raise your voice and shout at your child		0.75						

Table A. 5 Continued...

8-year child-proxy GUiNZ survey variables	Positive parenting	Negative parenting	Parental involvement	Child activities	Child activities: sport/play	Bullying responses: aggressive	Bullying responses: verbal	Bullying responses: ignore
How often do you follow up with disciplining the child after threatening discipline					0.37			
How often do you feel close to the child both when they are happy and upset	0.54							
How often do you get angry at your child		0.78						
How often does the child's cry get on your nerve		0.36						
How often do you enjoy listening to the child and doing things with them	0.46							
How often do you tell the child how happy they make you	0.63							
How often do you tell the child off		0.60						
How often do you send the child to time out		0.42						
How often do you ignore the child's behaviour		0.33						
Problem 1: Ignore it and act like it didn't happen								0.46
Problem 1: Walk away from the situation								0.59
Problem 1: Tell the person it was a really mean thing to do							0.63	
Problem 1: Ask the person why they did that							0.64	
Problem 1: Say 'Stop it, I don't like it'							0.54	
Problem 1: Hit or shove the person for doing that						0.68		
Problem 1: Yell at the person						0.64		
Problem 1: Ask 'What's your problem?'						0.59	0.43	
Problem 2: Ignore it and act like it didn't happen								0.55
Problem 2: Walk away from the situation								0.57
Problem 2: Tell the person it was a really mean thing to do							0.60	
Problem 2: Ask the person why they did that							0.62	

Table A. 5 Continued...

8-year child-proxy GUiNZ survey variables	Positive parenting	Negative parenting	Parental involvement	Child activities	Child activities: sport/play	Bullying responses: aggressive	Bullying responses: verbal	Bullying responses: ignore
Problem 2: Say 'Stop it, I don't like it'					-0.43		0.45	
Problem 2: Hit or shove the person for doing that						0.57		
Problem 2: Yell at the person						0.59		
Problem 2: Ask 'What's your problem?'						0.53	0.43	

Notes: GUiNZ survey variables with factor loadings less than 0.3 in absolute terms are omitted from this table since the definition of each factor is created based on the GUiNZ variables that have a relatively high contribution to the factor. Variables with absolute factor loadings less than 0.3 are still included in the outcome variable factor for the regression analysis but are less important for the interpretation of the factor. Factor loadings are rotated for easier interpretation and are rounded to two decimal places.

Appendix 2. Other empirical specifications using Equation 2

A. Within-couple traditional gender inequality in hours worked, personal income, and education

Here we look at within-couple gender inequality through three separate measures of socioeconomic status: antenatal average hours worked per week, antenatal personal income, and antenatal years of schooling. For each measure of socioeconomic status, we subtract the mother's value from the father's and create a traditional inequality variable equal to 1 if the difference is greater than zero, and equal to 0 if the difference is less than or equal to zero.

We interact the resulting three binary variables with the *Girl* dummy variable and run the same regressions as set out in *Equation 2*, replacing the *Traditional* variable to be either *Traditional_education*, *Traditional_hours*, or *Traditional_income*. Results are presented below.

Table A 6. 9-month mothers' and fathers' gendered parenting behaviours by within-couple inequality in education

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H ₀ : B2- B3=0	N
Parental behaviours					
<i>Mother</i>					
Quality of connection with baby	0.015 (0.073)	0.077 (0.048)	0.105 (0.082)		1758
Things you do with your baby	0.157** (0.062)	0.131*** (0.041)	0.022 (0.070)		1758
<i>Father</i>					
Quality of connection with baby	-0.080 (0.074)	-0.004 (0.052)	0.084 (0.086)		1737
Things you do with your baby	-0.060 (0.069)	-0.026 (0.048)	-0.039 (0.080)		1737
Values important for the baby's development					
<i>Mother</i>					
Enjoying life	-0.166** (0.079)	0.089* (0.052)	0.187** (0.089)		1685
Culture	0.051 (0.077)	0.079 (0.051)	0.019 (0.087)		1685
Respect for others	-0.001 (0.084)	-0.103* (0.056)	-0.009 (0.095)		1685
Taking on challenges	-0.010 (0.087)	-0.112* (0.058)	0.008 (0.098)		1685
<i>Father</i>					
Enjoying life	0.020 (0.079)	0.051 (0.054)	0.101 (0.092)		1686

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H ₀ : B2- B3=0	N
Culture	-0.072 (0.075)	0.024 (0.052)	0.144* (0.087)		1686
Respect for others	-0.084 (0.082)	-0.106* (0.057)	0.062 (0.095)		1686
Taking on challenges	0.142* (0.082)	0.053 (0.057)	-0.069 (0.095)		1686

Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in education is defined as traditional if the father has more years of schooling than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional education inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional education inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional education inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's years of schooling, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 7. 9-month mothers' and fathers' gendered parenting behaviours by within-couple inequality in hours worked

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H ₀ : B2- B3=0	N
Parental behaviours					
<i>Mother</i>					
Quality of connection with baby	0.096 (0.097)	0.114** (0.053)	-0.013 (0.068)		1641
Things you do with your baby	-0.008 (0.085)	0.103** (0.046)	0.100* (0.059)		1641
<i>Father</i>					
Quality of connection with baby	-0.122* (0.067)	-0.013 (0.058)	0.076 (0.074)		1623
Things you do with your baby	-0.101 (0.062)	-0.061 (0.054)	-0.020 (0.069)		1623
Values important for the baby's development					
<i>Mother</i>					
Enjoying life	-0.111 (0.110)	0.036 (0.059)	0.207*** (0.076)	*	1575
Culture	-0.032 (0.107)	0.012 (0.057)	0.137* (0.074)		1575
Respect for others	0.099 (0.118)	0.004 (0.064)	-0.185** (0.082)	*	1575
Taking on challenges	-0.007 (0.120)	-0.046 (0.065)	-0.113 (0.083)		1575
<i>Father</i>					

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
Enjoying life	-0.141** (0.070)	0.055 (0.061)	0.134* (0.078)		1575
Culture	0.027 (0.066)	0.098* (0.058)	-0.021 (0.074)		1575
Respect for others	-0.013 (0.073)	-0.138** (0.064)	0.007 (0.082)		1575
Taking on challenges	-0.116 (0.073)	-0.032 (0.064)	0.085 (0.082)		1575

*Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in average hours worked per week is defined as traditional if the father works more hours than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional hours inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional hours inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional hours inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's average weekly hours worked, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 8. 9-month mothers' and fathers' gendered parenting behaviours by within-couple inequality in income

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
Parental behaviours					
Mother					
Quality of connection with baby	0.055 (0.064)	0.130** (0.062)	-0.028 (0.062)	*	1522
Things you do with your baby	0.114** (0.056)	0.164*** (0.054)	0.066 (0.054)		1522
Father					
Quality of connection with baby	-0.129* (0.067)	-0.094 (0.066)	0.106 (0.065)	**	1513
Things you do with your baby	-0.237*** (0.063)	-0.119* (0.062)	-0.025 (0.061)		1513
Values important for the baby's development					
Mother					
Enjoying life	0.042 (0.069)	0.092 (0.068)	0.118* (0.067)		1463
Culture	-0.079 (0.068)	0.018 (0.066)	0.064 (0.066)		1463
Respect for others	0.069 (0.076)	-0.027 (0.074)	-0.152** (0.073)		1463
Taking on challenges	0.123 (0.077)	0.006 (0.075)	-0.090 (0.074)		1463

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
<i>Father</i>					
Enjoying life	0.001 (0.072)	0.102 (0.071)	0.049 (0.070)		1462
Culture	-0.008 (0.068)	0.057 (0.067)	0.042 (0.067)		1462
Respect for others	0.013 (0.075)	-0.038 (0.074)	-0.046 (0.074)		1462
Taking on challenges	0.040 (0.076)	0.079 (0.075)	0.005 (0.075)		1462

*Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in personal income is defined as traditional if the father has a higher income than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional income inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional income inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional income inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's personal income, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 9. 2-year mothers' and fathers' gendered parenting behaviours by within-couple inequality in education

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
<i>Mother</i>					
Outdoor play for toddlers	-0.164** (0.077)	-0.116** (0.051)	0.048 (0.087)		1573
Quality of connection with child	0.106 (0.077)	0.005 (0.051)	-0.066 (0.087)		1590
Positive parent-child relationship	0.135* (0.078)	0.126** (0.051)	-0.053 (0.088)	*	1590
Negative parent-child relationship	-0.132* (0.070)	-0.183*** (0.046)	-0.142* (0.079)		1590
<i>Father</i>					
Quality of connection with child	-0.002 (0.079)	-0.035 (0.054)	-0.013 (0.092)		1598
Positive parent-child relationship	0.099 (0.078)	0.100* (0.053)	0.029 (0.091)		1598
Negative parent-child relationship	0.042 (0.071)	-0.224*** (0.049)	-0.114 (0.083)		1598

Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in education is defined as traditional if the father has more years of schooling than the mother. A separate regression is run for each parental behaviour outcome variable. A list of parental behaviour variables is shown in Table 3. B1 is the

coefficient on the dummy for traditional education inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional education inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional education inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's years of schooling, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 10. 2-year mothers' and father's gendered parenting behaviours by within-couple inequality in hours worked

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
<i>Mother</i>					
Outdoor play for toddlers	0.154 (0.112)	-0.072 (0.057)	-0.145* (0.074)		1473
Quality of connection with child	-0.041 (0.109)	0.009 (0.056)	-0.071 (0.074)		1488
Positive parent-child relationship	-0.047 (0.111)	0.101* (0.057)	0.034 (0.075)		1488
Negative parent-child relationship	0.083 (0.100)	-0.159*** (0.052)	-0.212*** (0.068)		1488
<i>Father</i>					
Quality of connection with child	0.043 (0.071)	0.038 (0.061)	-0.130 (0.080)	*	1494
Positive parent-child relationship	0.055 (0.070)	0.117* (0.060)	-0.000 (0.078)		1494
Negative parent-child relationship	0.073 (0.064)	-0.148*** (0.055)	-0.278*** (0.071)		1494

Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in average hours worked per week is defined as traditional if the father works more hours than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional hours inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional hours inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional hours inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's average hours worked per week, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 11. 2-year mothers' and fathers' gendered parenting behaviours by within-couple inequality in income

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H₀: B2- B3=0	N
Mother					
Outdoor play for toddlers	0.008 (0.070)	-0.102 (0.068)	-0.135** (0.067)		1381
Quality of connection with child	0.015 (0.067)	-0.048 (0.064)	-0.056 (0.064)		1391
Positive parent-child relationship	0.067 (0.069)	0.121* (0.066)	0.008 (0.067)		1391
Negative parent-child relationship	-0.022 (0.062)	-0.100* (0.060)	-0.222*** (0.060)		1391
Father					
Quality of connection with child	-0.138* (0.071)	-0.037 (0.071)	-0.000 (0.070)		1400
Positive parent-child relationship	-0.138** (0.070)	0.055 (0.069)	0.098 (0.069)		1400
Negative parent-child relationship	0.120* (0.064)	-0.139** (0.064)	-0.250*** (0.063)		1400

Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in personal income is defined as traditional if the father has a higher income than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional income inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional income inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional income inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's personal income, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 12. 8-year mothers' gendered parenting behaviours by within-couple inequality in education

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H₀: B2- B3=0	N
Mother					
Positive parenting	0.110 (0.093)	0.118** (0.058)	-0.026 (0.104)		1221
Negative parenting	-0.084 (0.097)	-0.205*** (0.061)	-0.110 (0.109)		1221
Parental involvement	-0.034 (0.089)	0.113** (0.056)	0.114 (0.100)		1221
Child activities	0.009 (0.084)	0.131** (0.053)	0.149 (0.095)		1221

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
Mother has any sort of savings prepared for her child	-0.115 (0.091)	-0.197*** (0.059)	0.021 (0.101)	*	1450
Bullying responses - aggressive	-0.056 (0.083)	-0.125** (0.052)	-0.125 (0.093)		1221
Bullying responses - ignore	-0.094 (0.085)	-0.263*** (0.054)	-0.116 (0.096)		1221

*Notes: Mothers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in education is defined as traditional if the father has more years of schooling than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional education inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional education inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional education inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's years of schooling, the observations are fewer than the total mother regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 13. 8-year mothers' gendered parenting behaviours by within-couple inequality in hours worked

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	Ho: B2- B3=0	N
<i>Mother</i>					
Positive parenting	0.250* (0.134)	0.172*** (0.065)	-0.117 (0.090)	**	1152
Negative parenting	-0.028 (0.139)	-0.225*** (0.067)	-0.117 (0.094)		1152
Parental involvement	0.159 (0.127)	0.192*** (0.061)	-0.017 (0.086)	**	1152
Child activities	-0.025 (0.122)	0.186*** (0.059)	0.105 (0.082)		1152
Mother has any sort of savings prepared for her child	0.008 (0.125)	-0.162** (0.065)	-0.071 (0.087)		1363
Bullying responses - aggressive	0.080 (0.119)	-0.176*** (0.057)	-0.089 (0.080)		1152
Bullying responses - ignore	-0.006 (0.123)	-0.192*** (0.059)	-0.245*** (0.083)		1152

Notes: Mothers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in average hours worked per week is defined as traditional if the father works more hours than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional hours inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional hours inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional hours inequality. The fourth column shows stars if there is a statically significant difference between B2

and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's average hours worked per week, the observations are fewer than the total mother regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 14. 8-year mothers' gendered parenting behaviours by within-couple inequality in income

Characteristic	B1 Traditional	B2 Girl * Non- Traditional	B3 Girl * Traditional	H₀: B2- B3=0	N
Mother					
Positive parenting	-0.078 (0.079)	0.089 (0.074)	0.091 (0.078)		1084
Negative parenting	0.088 (0.082)	-0.140* (0.077)	-0.253*** (0.082)		1084
Parental involvement	-0.049 (0.075)	0.124* (0.071)	0.154** (0.075)		1084
Child activities	0.055 (0.071)	0.193*** (0.066)	0.138* (0.071)		1084
Mother has any sort of savings prepared for her child	0.047 (0.078)	-0.084 (0.074)	-0.248*** (0.076)		1279
Bullying responses - aggressive	-0.085 (0.068)	-0.200*** (0.064)	-0.061 (0.068)		1084
Bullying responses - ignore	0.003 (0.071)	-0.209*** (0.067)	-0.298*** (0.071)		1084

Notes: Mothers are separated into those in traditional relationships and those not in traditional relationships. Within-couple differences in personal income is defined as traditional if the father has a higher income than the mother. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for traditional income inequality, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for non-traditional income inequality, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for traditional income inequality. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's personal income, the observations are fewer than the total mother regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B. Continuous index of within-couple traditional gender inequality

Equation 3 sets out the regression for interacting a continuous index of within-couple traditional gender inequality with the child's birth sex. *Traditional_index* is a standardised continuous variable calculated as the average of the continuous variables (standardised to standard deviation = 1) comparing fathers' and mothers' antenatal hours worked, antenatal personal income, and antenatal years of schooling (as defined in Table 4).

Equation 3

$$Y_{ic} = \alpha + \beta_1 \text{Girl}_{ic} + \beta_2 \text{Traditional}_{index_{ic}} +$$

$$\beta_3(\text{Girl}_{ic} * \text{Traditional}_{index_{ic}}) + \beta X_{ic} + u_{ic}$$

Coefficient β_1 tells us the level difference in the relationship between the traditional gender inequality index and the parental behaviour outcome variable for parents of girl children compared to boy children. Coefficient β_2 is the slope of the regression line for the relationship between traditional parental inequality and parental behaviour for parents of boy children. If β_2 is positive, then the boy child will receive more of parental behaviour Y_{ic} as the level of traditional inequality increases (i.e., as the gap increases between the father's and mother's socioeconomic statuses). $\beta_2 + \beta_3$ is the slope of the regression line for the relationship between traditional parental inequality and parental behaviour Y_{ic} for parents of girl children. If $\beta_2 + \beta_3$ is positive, then the girl child will receive more of parental behaviour Y_{ic} as the level of traditional inequality increases. The p-value for β_3 tells us whether there is a statistically significant difference in the relationship between traditional parental inequality and parental behaviour Y_{ic} toward boy children compared to the relationship between traditional parental inequality and parental behaviour Y_{ic} toward girl children (i.e., whether the slopes of the boy regression line and the girl regression line are statistically significantly different from each other).

Table A 15. 9-month mothers' and fathers' gendered parenting behaviours by within-couple inequality measured continuously

Characteristic	B1 Girl	B2 Traditional index	B3 Girl* Traditional index	N
Parental behaviours				
Mother				
Quality of connection with baby	0.072 (0.045)	0.030 (0.036)	-0.035 (0.043)	1509
Things you do with your baby	0.114*** (0.039)	0.074** (0.032)	0.002 (0.038)	1509
Father				
Quality of connection with baby	-0.016 (0.049)	-0.079** (0.034)	0.082* (0.047)	1500
Things you do with your baby	-0.080* (0.045)	-0.110*** (0.032)	0.016 (0.044)	1500
Values important for the baby's development				
Mother				
Enjoying life	0.097** (0.049)	-0.048 (0.040)	0.024 (0.048)	1450
Culture	0.024 (0.048)	-0.025 (0.039)	0.040 (0.047)	1450
Respect for others	-0.076 (0.054)	0.031 (0.044)	-0.064 (0.052)	1450
Taking on challenges	-0.037 (0.055)	0.050 (0.044)	-0.040 (0.053)	1450

Characteristic	B1 Girl	B2 Traditional index	B3 Girl* Traditional index	N
<i>Father</i>				
Enjoying life	0.079 (0.052)	-0.003 (0.036)	-0.014 (0.050)	1449
Culture	0.046 (0.049)	-0.015 (0.034)	0.027 (0.047)	1449
Respect for others	-0.060 (0.054)	0.033 (0.038)	0.034 (0.052)	1449
Taking on challenges	0.038 (0.055)	0.010 (0.039)	0.002 (0.053)	1449

*Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Inequality is measured continuously by averaging within-couple comparisons in antenatal hours worked, education and personal income, as defined in Table 4. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for Girl, B2 is the coefficient on the continuous within-couple traditional inequality index, and B3 is the coefficient on the interaction between the Girl indicator with the continuous within-couple traditional inequality index. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 16. 2-year mothers' and father's gendered parenting behaviours by within-couple inequality measured continuously

Characteristic	B1 Girl	B2 Traditional index	B3 Girl* Traditional index	N
<i>Mother</i>				
Outdoor play for toddlers (cp)	-0.121** (0.049)	-0.024 (0.040)	0.028 (0.048)	1371
Quality of connection with baby	-0.036 (0.047)	0.033 (0.038)	-0.041 (0.045)	1381
Positive parent-child relationship	0.079 (0.048)	0.007 (0.040)	-0.024 (0.047)	1381
Negative parent-child relationship	-0.160*** (0.044)	-0.036 (0.036)	-0.008 (0.043)	1381
<i>Father</i>				
Quality of connection with child	-0.014 (0.052)	-0.023 (0.037)	-0.037 (0.050)	1390
Positive parent-child relationship	0.074 (0.051)	-0.016 (0.036)	-0.017 (0.049)	1390
Negative parent-child relationship	-0.191*** (0.046)	0.106*** (0.033)	-0.016 (0.045)	1390

Notes: Mothers and fathers are separated into those in traditional relationships and those not in traditional relationships. Inequality is measured continuously by averaging within-couple comparisons in antenatal hours worked, education and personal income, as defined in Table 4. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for Girl, B2 is the coefficient on the continuous within-couple traditional inequality index, and B3 is the coefficient on

the interaction between the Girl indicator with the continuous within-couple traditional inequality index. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother/father regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 17. 8-year mothers' gendered parenting behaviours by within-couple inequality measured continuously

Characteristic	B1 Girl	B2 Traditional index	B3 Girl* Traditional index	N
Mother				
Positive parenting	0.093* (0.055)	-0.049 (0.046)	-0.019 (0.054)	1076
Negative parenting	-0.188*** (0.057)	0.019 (0.048)	-0.061 (0.057)	1076
Parental involvement	0.141*** (0.052)	-0.029 (0.044)	0.043 (0.052)	1076
Child activities	0.184*** (0.049)	0.047 (0.041)	-0.010 (0.049)	1076
Mother has any sort of savings prepared for her child	-0.172*** (0.054)	0.036 (0.044)	0.030 (0.053)	1268
Bullying responses - aggressive	-0.133*** (0.047)	-0.022 (0.039)	0.022 (0.047)	1076
Bullying responses - ignore	-0.237*** (0.050)	0.026 (0.041)	-0.064 (0.049)	1076

Notes: Mothers are separated into those in traditional relationships and those not in traditional relationships. Inequality is measured continuously by averaging within-couple comparisons in antenatal hours worked, education and personal income, as defined in Table 4. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for Girl, B2 is the coefficient on the continuous within-couple traditional inequality index, and B3 is the coefficient on the interaction between the Girl indicator with the continuous within-couple traditional inequality index. The final column shows the number of observations in each parental behaviour regression. Since each regression requires a comparison between a mother's and father's socioeconomic status, the observations are fewer than the total mother regressions. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C. Inequality defined by mothers'/fathers' socioeconomic status relative to the median of all mothers/fathers

In addition to within-couple traditional gender inequality, we can also test whether the prevalence of gendered parenting differs by the parent's own socioeconomic status relative to their peers. This is computed in four steps.

First, we calculate the median antenatal hours worked, antenatal personal income, and antenatal years of schooling for all mothers and fathers separately in our sample. Second, for each of the three socioeconomic variables, we compute a continuous relative socioeconomic status variable by subtracting the median socioeconomic status of all mothers [fathers] from the mother's [father's] own socioeconomic status. Third, we standardise each continuous

relative socioeconomic variable (to standard deviation = 1) and then take the average across the three variables. This gives us a continuous relative socioeconomic index for each parent, of which we re-standardise. Fourth, for each parent, we create a binary indicator that equals 1 if the continuous relative socioeconomic index is greater than zero (i.e., the parent has a high socioeconomic status relative to their peers) and equals 0 if the continuous relative socioeconomic index is less than or equal to zero (i.e., the parent has a low, or equivalent, socioeconomic status relative to their peers).

We interact these measures of relative societal socioeconomic status with *Girl* and run regressions from *Equation 2*, substituting indicators of traditional gender inequality for indicators of above-median socioeconomic status. Coefficient β_2 now shows the difference in parental behaviour Y_{ic} for girl children compared to boy children, amongst mothers/fathers who have a below median (or equal) socioeconomic status relative to their peers. Coefficient β_3 shows the difference in parental behaviour Y_{ic} for girl children compared to boy children, amongst mothers/fathers who have an above median socioeconomic status relative to their peers. If there is a statistically significant difference between in β_2 and β_3 , we conclude that the prevalence of gendered parenting differs significantly by the parents' absolute socioeconomic status.

Table A 18. 9-month mothers' and fathers' gendered parenting behaviours by relative socioeconomic status

Characteristic	B2 Girl * Below median	B3 Girl * Above median	Ho: B2- B3=0	N
<i>Mother</i>				
Quality of connection with baby	-0.014 (0.058)	0.118** (0.051)	*	2167
Quantity of connection with baby	-0.064 (0.058)	0.146*** (0.052)	***	2167
Things you do with your baby	0.052 (0.049)	0.075* (0.044)		2167
Age of baby when parent started reading to them	-0.247 (0.632)	0.255 (0.523)		1762
Not currently working	0.056 (0.060)	-0.038 (0.053)		2197
Number of languages spoken to baby for multilingual parents	-0.004 (0.064)	-0.067 (0.065)		781
Baby is in regular care	0.028 (0.063)	-0.105* (0.056)		2199
<i>Father</i>				
Quality of connection with baby	0.005 (0.063)	0.049 (0.068)		1575
Quantity of connection with baby	-0.100 (0.063)	0.024 (0.068)		1575

Characteristic	B2 Girl * Below median	B3 Girl * Above median	H₀: B2- B3=0	N
Things you do with your baby	-0.105* (0.059)	-0.022 (0.064)		1575
Age of baby when parent started reading to them	-1.149 (0.782)	-0.403 (0.803)		1146
Not currently working	0.140** (0.064)	-0.012 (0.070)		1607
Number of languages spoken to baby for multilingual parents	-0.134 (0.088)	0.034 (0.096)		480

*Notes: Mothers and fathers are separated into those that have a high socioeconomic status relative to their respective peers and those that have a low or equivalent socioeconomic status relative to their respective peers. A mother's/father's societal socioeconomic status is measured relative to the median of all mothers/fathers combined average of antenatal hours worked, education and personal income. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for below (or equal to) median relative socioeconomic status, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for above median relative socioeconomic status. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 19. 9-month mothers' and fathers' gendered parenting behaviours by relative socioeconomic status: Values

Characteristic	B2 Girl * Below median	B3 Girl * Above median	H₀: B2- B3=0	N
Mother				
Ambition	-0.092 (0.065)	0.001 (0.057)		2074
Being a good person	0.083 (0.064)	-0.029 (0.057)		2074
Being concerned for the world/environment	0.174*** (0.065)	-0.006 (0.058)	**	2074
Culture	0.147** (0.060)	-0.013 (0.054)	**	2074
Enjoying life	0.078 (0.061)	0.056 (0.054)		2074
Having a sense of family/whanau	0.121* (0.066)	0.044 (0.059)		2074
Having initiative	-0.167** (0.065)	0.091 (0.058)	***	2074
Respect for others	-0.107 (0.066)	-0.104* (0.059)		2074
Success	-0.099 (0.064)	0.042 (0.057)	*	2074

Characteristic	B2 Girl * Below median	B3 Girl * Above median	H₀: B2- B3=0	N
Taking on challenges	-0.092 (0.066)	-0.031 (0.058)		2074
Father				
Ambition	-0.033 (0.070)	0.081 (0.075)		1525
Being a good person	-0.033 (0.070)	0.014 (0.075)		1525
Being concerned for the world/environment	0.012 (0.070)	0.005 (0.075)		1525
Culture	0.052 (0.069)	0.086 (0.074)		1525
Enjoying life	0.145** (0.069)	-0.018 (0.074)		1525
Having a sense of family/whanau	0.008 (0.070)	0.060 (0.075)		1525
Having initiative	-0.058 (0.070)	0.039 (0.075)		1525
Respect for others	-0.021 (0.070)	-0.106 (0.075)		1525
Success	0.011 (0.070)	-0.104 (0.075)		1525
Taking on challenges	-0.020 (0.070)	0.035 (0.076)		1525

*Notes: Mothers and fathers are separated into those that have a high socioeconomic status relative to their respective peers and those that have a low or equivalent socioeconomic status relative to their respective peers. A mother's[father's] societal socioeconomic status is measured relative to the median of all mothers[fathers] combined average of antenatal hours worked, education and personal income. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for below (or equal to) median relative socioeconomic status, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for above median relative socioeconomic status. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 20. 2-year mothers' and fathers' gendered parenting behaviours by relative socioeconomic status

Characteristic	B2 Girl * Below median	B3 Girl * Above median	H₀: B2- B3=0	N
Mother				
Activities and experiences for toddlers	0.012 (0.048)	-0.047 (0.042)		2036
Outdoor play for toddlers	-0.080 (0.059)	-0.150*** (0.051)		2036

Quality of connection with child	-0.011 (0.062)	0.099* (0.054)	2057
Positive parent-child relationship	0.071 (0.061)	0.109** (0.052)	2057
Negative parent-child relationship	-0.124** (0.055)	-0.162*** (0.047)	2057
Parental enjoyment	0.003 (0.051)	0.029 (0.044)	2057
Frequency mother is directly responsible for child	0.104 (0.071)	0.029 (0.058)	1896
Father			
Quality of connection with child	-0.092 (0.068)	0.047 (0.070)	1453
Positive parent-child relationship	0.028 (0.067)	0.135** (0.069)	1453
Negative parent-child relationship	-0.170*** (0.062)	-0.233*** (0.064)	1453
Parental enjoyment	-0.002 (0.061)	0.054 (0.063)	1453
Frequency father is directly responsible for child	-0.090 (0.069)	-0.003 (0.071)	1476

*Notes: Mothers and fathers are separated into those that have a high socioeconomic status relative to their respective peers and those that have a low or equivalent socioeconomic status relative to their respective peers. A mother's[father's] societal socioeconomic status is measured relative to the median of all mothers[fathers] combined average of antenatal hours worked, education and personal income. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for below (or equal to) median relative socioeconomic status, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for above median relative socioeconomic status. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 21. 8-year mothers' gendered parenting behaviours by relative socioeconomic status

Characteristic	B2 Girl * Below median	B3 Girl * Above median	H₀: B2- B3=0	N
Mother				
Positive parenting	-0.037 (0.072)	0.162** (0.065)	**	1409
Negative parenting	-0.223*** (0.073)	-0.202*** (0.066)		1409
Parental involvement	0.045 (0.070)	0.203*** (0.063)	*	1409
Child activities	-0.021 (0.066)	0.233*** (0.060)	***	1409
Child activities - sport/play	-0.021 (0.060)	-0.030 (0.054)		1409

Frequency of discussing ethnicity with child	0.039 (0.071)	-0.041 (0.068)		1699
Mother's agreement with child's emotions	0.099 (0.073)	-0.066 (0.069)		1563
Adult father is living in the same house as child	-0.006 (0.059)	-0.073 (0.058)		1794
Mother has any sort of savings prepared for her child	-0.232*** (0.068)	-0.070 (0.065)	*	1679
Bullying responses - aggressive	-0.150** (0.064)	-0.153*** (0.058)		1409
Bullying responses - verbal	-0.016 (0.072)	0.140** (0.066)		1409
Bullying responses - ignore	-0.250*** (0.063)	-0.130** (0.057)		1409

*Notes: Mothers are separated into those that have a high socioeconomic status relative to their respective peers and those that have a low or equivalent socioeconomic status relative to their respective peers. A mother's societal socioeconomic status is measured relative to the median of all mothers combined average of antenatal hours worked, education and personal income. A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for below (or equal to) median relative socioeconomic status, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for above median relative socioeconomic status. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Appendix 3. Characterising attrition across surveys

Table A 22. Characterising mothers' and fathers' attrition across surveys

Characteristic	Mother				Father		
	Antenatal	9-month	2-year	8-year	Antenatal	9-month	2-year
<i>Antenatal demographic variables</i>							
European	0.65	0.67	0.68**	0.73***	0.69	0.71	0.74***
Māori	0.17	0.16	0.16	0.14**	0.14	0.14	0.13
Pacific	0.14	0.13	0.13	0.10***	0.12	0.11	0.10*
Asian	0.20	0.19	0.18	0.18	0.18	0.17	0.16*
Born in New Zealand	0.62	0.63	0.64	0.65	0.63	0.64	0.65*
<i>Antenatal socioeconomic variables</i>							
Average hours worked per week	27.48	27.96	28.35	30.01***	39.22	39.86	40.48***
Employed dummy	0.64	0.65	0.65	0.69***	0.79	0.80	0.81*
Average years of schooling	14.47	14.51	14.55	14.73***	14.31	14.37	14.47**
Average annual personal income	43750	44634	45376*	47778***	61036	62657	64298**
Dummy for within-couple gender inequality across antenatal hours, schooling, and income	0.55	0.55	0.54	0.53	0.55	0.55	0.54
<i>Observations</i>	2794	2646	2525	2217	1933	1789	1626

Notes: This table compares antenatally-measured demographic and socioeconomic characteristics from the antenatal sample to the subsequent survey samples of mothers and fathers, respectively. For the 9-month, 2-year, and 8-year samples separately, we calculate mean-difference t-tests to determine whether the characteristic is significantly different from that in the antenatal sample. Stars indicate whether the difference in means is statistically significant at the conventional levels (if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$).*

Appendix 4. Testing random assignment of child birth sex

Table A 23. Testing random assignment of the child's birth sex amongst 9-month mother and father samples

Characteristic	Mother has a girl	Mother has a boy	Mean- difference	Father has a girl	Father has a boy	Mean- difference
Demographic						
Age at antenatal survey	28.24	28.49	0.24	31.73	31.83	0.10
European	0.58	0.58	0.00	0.65	0.65	0.00
Māori	0.11	0.11	0.00	0.1	0.08	-0.01
Pacific	0.1	0.11	0.01	0.07	0.09	0.02
Asian	0.18	0.17	-0.01	0.17	0.15	-0.02
MELAA	0.02	0.02	-0.00	0.01	0.02	0.01
Born in NZ	0.63	0.63	0.00	0.63	0.64	0.01
Labour force						
Employed	0.64	0.66	0.02	0.8	0.81	0.01
Unemployed	0.08	0.08	0.00	0.05	0.05	0.01
Student	0.08	0.08	0.00	0.14	0.13	-0.01
Not in workforce	0.2	0.18	-0.02	0.02	0.01	-0.01
Missing labour force status	0.1	0.09	-0.01	0.05	0.05	0.00
Works 0 hours per week	0.29	0.28	-0.02	0.07	0.07	-0.00
Works >0 <15 hours per week	0.03	0.03	-0.00	0.02	0.02	-0.00
Works >=15 <30 hours per week	0.07	0.07	-0.00	0.03	0.03	-0.00
Works >=30 <40 hours per week	0.13	0.12	-0.00	0.07	0.07	0.00
Works >=40 hours per week	0.47	0.5	0.02	0.82	0.82	0.00
Hours and labour force status missing	0.1	0.09	-0.01	0.05	0.05	0.00
Personal income is \$50k or less	0.64	0.62	-0.03	0.43	0.43	-0.00
Missing personal income	0.17	0.16	-0.01	0.09	0.1	0.00
Occupation						
Manager	0.1	0.11	0.01	0.15	0.18	0.03
Professional	0.46	0.5	0.04*	0.33	0.34	0.01

Characteristic	Mother has a girl	Mother has a boy	Mean-difference	Father has a girl	Father has a boy	Mean-difference
Technician	0.05	0.04	-0.02	0.22	0.18	-0.04**
Community worker	0.07	0.09	0.01	0.05	0.05	0.00
Admin	0.19	0.17	-0.02	0.04	0.07	0.03**
Sales	0.08	0.05	-0.03**	0.07	0.05	-0.01
Machinery	0.01	0.01	0.00	0.07	0.06	-0.01
Labourer	0.04	0.03	-0.01	0.07	0.06	-0.01
Missing occupation and labour force status	0.1	0.09	-0.01	0	0	0.00
Not employed so missing occupation	0.27	0.26	-0.01	0.07	0.07	0.00
Education						
No secondary	0.04	0.05	0.01	0.06	0.06	0.01
Diploma/NCEA 5-6	0.29	0.3	0.01	0.37	0.33	-0.04
Bachelor	0.26	0.25	-0.01	0.21	0.21	-0.00
Higher than Bachelor	0.18	0.2	0.02	0.18	0.18	-0.00
Household						
Household receiving any benefit antenatally	0.13	0.13	-0.00			
Missing household benefit receipt	0.01	0.01	0.00			
Family owns home antenatally	0.53	0.53	-0.00			
Missing home ownership	0.1	0.09	-0.01			
One parent household	0.03	0.02	-0.00			
Two parent household	0.61	0.62	0.00			
Parent(s) with extended family in household	0.27	0.29	0.02			
Parent(s) with non-kin in household	0.09	0.07	-0.01			
Deprivation Index	5.84	5.88	0.04			
Rural area	0.06	0.06	-0.00			
Relationship						
Pregnancy was planned	0.63	0.63	0.00			
Mother has a current partner antenatally	0.93	0.94	0.00			
Relationship status missing	0.1	0.09	-0.01			
Mother lives with partner antenatally	0.88	0.88	0.00			

Characteristic	Mother has a girl	Mother has a boy	Mean-difference	Father has a girl	Father has a boy	Mean-difference
Missing cohabitation because mother not in relationship	0.1	0.09	-0.01			
<i>Observations</i>	1,270	1,376		846	943	

Notes: This table tests for the randomness of child birth sex amongst mothers and fathers antenatal characteristics, using the 9-month mother and father samples separately. Column 1 lists the variables we use to test for randomness of child birth sex. Column 2 and Column 5 present the mean characteristics of mothers and fathers that have a first-born singleton girl, respectively. Column 3 and Column 6 present the mean characteristics of mothers and fathers that have a first-born singleton boy, respectively. Column 4 and Column 7 present the difference in means between the former two groups of mothers and fathers, respectively, with stars indicating whether the difference in means is statistically significant at the conventional levels (if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$).*

Table A 24. Testing random assignment of the child's birth sex amongst antenatal mothers and fathers for whom we have information on the child's birth sex

Characteristic	Mother has a girl	Mother has a boy	Mean-difference	Father has a girl	Father has a boy	Mean-difference
Demographic						
Age at antenatal survey	30.13	30.29	0.16	33.16	33.13	-0.03
European	0.57	0.56	-0.01	0.66	0.65	-0.01
Māori	0.13	0.14	0.01	0.1	0.09	-0.01
Pacific	0.13	0.14	0.01	0.09	0.11	0.01
Asian	0.14	0.14	-0.00	0.12	0.13	0.00
MELAA	0.02	0.02	-0.00	0.02	0.02	0.00
Born in NZ	0.65	0.64	-0.01	0.66	0.66	0.00
Labour force						
Employed	0.58	0.58	0.00	0.81	0.81	-0.01
Unemployed	0.07	0.08	0.00	0.04	0.05	0.01
Student	0.07	0.07	-0.00	0.13	0.13	0.00
Not in workforce	0.28	0.27	-0.01	0.02	0.02	-0.00
Missing labour force status	0.05	0.05	-0.00	0.05	0.06	0.01
Works 0 hours per week	0.38	0.38	0.00	0.06	0.07	0.01
Works >0 <15 hours per week	0.07	0.07	0.00	0.01	0.02	0.00

Characteristic	Mother has a girl	Mother has a boy	Mean- difference	Father has a girl	Father has a boy	Mean- difference
Works >=15 <30 hours per week	0.12	0.11	-0.01	0.02	0.02	0.00
Works >=30 <40 hours per week	0.11	0.12	0.00	0.07	0.06	-0.00
Works >=40 hours per week	0.32	0.32	0.00	0.83	0.82	-0.01
Hours and labour force status missing	0.05	0.05	-0.00	0.05	0.06	0.01
Personal income is \$50k or less	0.73	0.74	0.01	0.4	0.42	0.01
Missing personal income	0.16	0.18	0.01	0.09	0.1	0.01
Occupation						
Manager	0.09	0.11	0.02**	0.18	0.2	0.01
Professional	0.46	0.46	0.00	0.32	0.33	0.00
Technician	0.04	0.03	-0.01**	0.21	0.18	-0.03**
Community worker	0.08	0.09	0.01	0.05	0.05	0.01
Admin	0.2	0.19	-0.01	0.04	0.06	0.01*
Sales	0.07	0.07	0.00	0.05	0.05	0.00
Machinery	0.01	0.01	-0.00	0.07	0.06	-0.01
Labourer	0.05	0.04	-0.01**	0.07	0.07	0.00
Missing occupation and labour force status	0.05	0.05	-0.00	0	0	0.00
Not employed so missing occupation	0.35	0.35	0.00	0.07	0.07	0.01
Education						
No secondary	0.06	0.07	0.01	0.06	0.06	0.01
Diploma/NCEA 5-6	0.31	0.31	-0.00	0.38	0.36	-0.02
Bachelor	0.23	0.24	0.01	0.19	0.2	0.01
Higher than Bachelor	0.16	0.16	0.00	0.18	0.18	-0.00
Household						
Household receiving any benefit antenatally	0.13	0.13	0.01			
Missing household benefit receipt	0.01	0.01	0.00			
Family owns home antenatally	0.53	0.54	0.00			
Missing home ownership	0.09	0.1	0.01			
One parent household	0.03	0.03	-0.00			
Two parent household	0.67	0.67	-0.01			

Characteristic	Mother has a girl	Mother has a boy	Mean-difference	Father has a girl	Father has a boy	Mean-difference
Parent(s) with extended family in household	0.24	0.25	0.01			
Parent(s) with non-kin in household	0.05	0.05	0.00			
Deprivation Index	5.91	6.00	0.09			
Rural area	0.08	0.06	-0.01**			
Relationship						
Pregnancy was planned	0.62	0.61	-0.01			
Mother has a current partner antenatally	0.95	0.95	0.00			
Relationship status missing	0.1	0.1	0.01			
Mother lives with partner antenatally	0.91	0.91	-0.00			
Missing cohabitation because mother not in relationship	0.1	0.1	0.01			
<i>Observations</i>	3,122	3,332		1,989	2,137	

Notes: This table tests for the randomness of child birth sex amongst mothers and fathers antenatal characteristics, using the total population of antenatal mothers and fathers for whom we have biological sex information about their child. This requires that the antenatal mothers and fathers are linked to a child in the 9-month survey since this is the first time we can identify the biological sex of the child. This sample of mothers and fathers differs from the 9-month population of interest for mothers and fathers because we do not condition on the child being a first-born singleton. This larger sample consists of 6,454 mother-child pairs and 4,126 father-child pairs. Column 1 lists the variables we use to test for randomness of child birth sex. Column 2 and Column 5 present the mean characteristics of mothers and fathers that have a first-born singleton girl, respectively. Column 3 and Column 6 present the mean characteristics of mothers and fathers that have a first-born singleton boy, respectively. Column 4 and Column 7 present the difference in means between the former two groups of mothers and fathers, respectively, with stars indicating whether the difference in means is statistically significant at the conventional levels (if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$).*

Appendix 5. Regression analysis controlling for child's personality

Table A 25. Mother and father 9-month parental behaviours controlling for child's personality

Characteristic	Mother	Father
Parental behaviours		
Quality of connection with baby	0.037 (0.037)	0.012 (0.045)
Quantity of connection with baby	-0.023 (0.035)	-0.051 (0.045)
Things you do with your baby	0.023 (0.031)	-0.047 (0.042)
Age of baby when parent started reading to them	0.245 (0.384)	-0.761 (0.540)
Not currently working	-0.002 (0.037)	0.056 (0.043)
Number of languages spoken to baby for multilingual parents	-0.021 (0.042)	-0.100* (0.060)
Baby is in regular care	-0.045 (0.039)	
Values important for baby's development		
Ambition	-0.047 (0.040)	0.001 (0.049)
Being a good person	-0.031 (0.041)	-0.017 (0.050)
Being concerned for the world/environment	0.069* (0.041)	0.046 (0.050)
Culture	0.084** (0.038)	0.072 (0.046)
Enjoying life	0.055 (0.038)	0.054 (0.048)
Having a sense of family/whanau	0.058 (0.041)	0.005 (0.049)
Having initiative	-0.017 (0.040)	-0.022 (0.049)
Respect for others	-0.104** (0.041)	-0.053 (0.050)
Success	-0.001 (0.040)	-0.033 (0.048)
Taking on challenges	-0.063 (0.041)	0.027 (0.050)
<i>Maximum observations</i>	2646	1789

*Notes: This table shows the coefficients and 95% confidence intervals of the Girl dummy variable from each Equation 1 regression of the 9-month mother and father behaviour variables controlling for the child's personality using the GUINZ Strengths and Difficulties Questionnaire at the 54-month survey. A list of the parental behaviour variables is shown in Table 3. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 26. Mother and father 2-year parental behaviours controlling for child's personality

Characteristic	Mother	Father
Activities and experiences for toddlers	-0.012 (0.030)	
Outdoor play for toddlers	-0.100*** (0.036)	
Quality of connection with child	0.029 (0.038)	-0.060 (0.047)
Positive parent-child relationship	0.047 (0.037)	0.063 (0.047)
Negative parent-child relationship	-0.114*** (0.033)	-0.180*** (0.043)
Parental enjoyment	0.005 (0.031)	0.024 (0.044)
Frequency parent is directly responsible for child	0.038 (0.042)	-0.068 (0.048)
<i>Maximum observations</i>	2,525	1,626

*Notes: This table shows the coefficients and 95% confidence intervals of the Girl dummy variable from each Equation 1 regression of the 2-year mother and father behaviour variables controlling for the child's personality using the GUiNZ Strengths and Difficulties Questionnaire at the 54-month survey. A list of the parental behaviour variables is shown in Table 3. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 27. Mother 8-year parental behaviours controlling for child's personality

Characteristic	Mother
Positive parenting	-0.006 (0.045)
Negative parenting	-0.117** (0.046)
Parental involvement	0.042 (0.044)
Child activities	0.109** (0.043)
Child activities - sport/play	-0.076** (0.039)
Frequency of discussing ethnicity with child	-0.008 (0.046)
Mother's agreement with child's emotions	0.039 (0.047)
Adult father is living in the same house as child	-0.034 (0.039)
Mother has any sort of savings for her child	-0.150*** (0.045)

Bullying responses - aggressive	-0.118*** (0.042)
Bullying responses - verbal	0.035 (0.046)
Bullying responses - ignore	-0.180*** (0.041)
<hr/> <i>Maximum observations</i>	<hr/> 2,044

*Notes: This table shows the coefficients and 95% confidence intervals of the Girl dummy variable from each Equation 1 regression of the 8-year mother behaviour variables controlling for the child's personality using the GUiNZ Strengths and Difficulties Questionnaire at the 54-month survey. A list of the parental behaviour variables is shown in Table 3. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question and differences across the surveys within the 8-year data collection wave. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Appendix 6. Sharpened q-values for multiple hypothesis testing

Even after combining similar survey questions using exploratory factor analysis, we are regressing about 40 dependent variables in our baseline specification. When multiple hypotheses are being tested, McKenzie (2020) recommends employing a p-value adjustment method to control for either the family-wise error rate or the false discovery rate (FDR) to reduce the probability that a null hypothesis is falsely rejected (a Type 1 error).

The p-value adjustment method we use is the computation of sharpened q-value values, which controls for the FDR.²⁰ Here, we save the p-values from all parental behaviour regressions (for mothers and fathers in total) and adjust these p-values for the expected probability of a false rejection. In other words, the sharpened q-values are calculated as the expected proportion of significant p-values that are Type 1 errors (false positives) as a proportion of the total number of hypotheses that gave a significant result. This increases the level of statistical significance required before the finding of gendered parenting can be considered as significantly different from zero, hence reducing the probability of a false discovery.

Table A 28 lists the parental behaviour outcome variables that showed a statistically significant gender difference in our basic specification (*Equation 1*) for mothers and fathers in each survey. Column 3 shows the coefficient on the *Girl* dummy variable for each parental behaviour regression and indicates with asterisks the conventional levels of significance using p-values (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Column 4 repeats the *Girl* coefficient for each outcome variable and indicates with asterisks the conventional levels of significance using sharpened q-values (* $q < 0.10$, ** $q < 0.05$, *** $q < 0.01$). We see that most of the 9-month gendered parenting behaviours lose their significance when adjusting for multiple hypothesis testing, but much of the 2-year and 8-year gendered parenting behaviours remain statistically significant.

²⁰ Specifically, we use Michael Anderson's Stata code to produce these sharpened q-values, as per the instructions of McKenzie (2020). See: <https://blogs.worldbank.org/impactevaluations/updated-overview-multiple-hypothesis-testing-commands-stata>

Table A 28. Gendered parenting results using sharpened q-values

Survey	Variable showing significant gender difference in basic specification	Girl coefficient and level of significance from p-value	Girl coefficient and level of significance from sharpened q-value
9-month mother	Quality of connection with baby	0.071*	0.071
	Quantity of connection with baby	0.059*	0.059
	Culture	0.075**	0.075
	Enjoying life	0.068*	0.068
	Respect for others	-0.095**	-0.095*
	Taking on challenges	-0.068*	-0.068
9-month father	Number of languages spoken to baby for multilingual parents	-0.098*	-0.098
2-year mother	Outdoor play for toddlers	-0.097***	-0.097**
	Quality of connection with child	0.078**	0.078
	Positive parent-child relationship	0.098***	0.098**
	Negative parent-child relationship	-0.139***	-0.139***
2-year father	Positive parent-child relationship	0.081*	0.081
	Negative parent-child relationship	-0.188***	-0.188***
8-year mother	Positive parenting	0.082*	0.082
	Negative parenting	-0.173***	-0.173***
	Parental involvement	0.100**	0.100
	Child activities	0.109***	0.109*
	Any sort of savings for the child	-0.153***	-0.153***
	Bullying responses – aggressive	-0.148***	-0.148***
	Bullying responses – ignore	-0.188***	-0.188***

Appendix 7. Decomposing factors in regression analysis

Table A 29. Decomposed 9-month significant parental behaviour factors

Characteristic	Mother
<i>Quality of connection with baby</i>	
Frequency of mother saying nice things about the baby	0.046 (0.039)
Frequency of mother taking active interest in the baby	0.002 (0.038)
Frequency of mother taking interest in what the baby does	0.012 (0.038)
Frequency of mother praising baby	0.078** (0.038)
Frequency of mother enjoying having baby around	0.097** (0.039)
Frequency of mother telling baby how proud they are when good	0.037 (0.039)
Frequency of mother telling baby how proud they are when doing well	0.026 (0.039)
Frequency of mother talking to baby in a warm and affectionate way	0.055 (0.039)
Frequency of mother making the baby feel important	0.025 (0.039)
Frequency of mother paying attention to baby	0.095** (0.039)
Frequency of mother making baby happy	0.059 (0.039)
Frequency of mother spending time with baby	0.062 (0.039)
<i>Things you do with your baby</i>	
Involvement with day-to-day care by mother	0.056 (0.038)
Frequency of mother playing games with baby	0.083** (0.039)
Frequency of mother plays with toys with baby	0.002 (0.038)
Frequency of mother sings or tells stories to baby	-0.023 (0.039)
Frequency of mother reading books to baby	0.065* (0.036)
<i>Maximum observations</i>	2646

*Notes: This table takes each of the rotated factors in the 9-month parental behaviour regression analysis showing a significant gender difference in Figure 2 or Figure 3, and decomposes each factor to determine which input variable is driving the significant gender difference. There are two significant factors from the 9-month regression analysis, both of which come from mothers' responses. We use each separate input variable as the dependent variable in an Equation 1 regression and show the coefficient and 95% confidence interval of the Girl dummy variable. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question and differences across the surveys within the 9-month data collection wave. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 30. Decomposed 2-year significant parental behaviour factors

Characteristic	Mother	Father
<i>Quality of connection with child</i>		
Frequency of parent spending time with baby	-0.016 (0.040)	
Frequency of parent telling baby how proud they are when good	0.090** (0.040)	
Frequency of parent telling baby how proud they are when doing well	0.042 (0.040)	
Frequency of parent praising baby	0.089** (0.039)	
Frequency of parent paying attention to baby	0.071* (0.040)	
Frequency of parent taking active interest in the baby	0.036 (0.039)	
Frequency of parent saying nice things about the baby	0.014 (0.040)	
Frequency of parent making the baby feel important	0.108*** (0.040)	
Frequency of parent making baby happy	0.078** (0.040)	
Frequency of parent taking interest in what the baby does	0.051 (0.039)	
Frequency of parent enjoying having baby around	-0.002 (0.040)	
Frequency of parent talking to baby in a warm and affectionate way	0.050 (0.040)	
<i>Positive parent-child relationship</i>		
Frequency parent helped child to do something important	0.065 (0.040)	0.064 (0.049)
Frequency parent let the child know they really care about them	0.082** (0.040)	0.122** (0.050)
Frequency parent act lovingly and affectionately towards child	0.043 (0.040)	0.064 (0.050)
Frequency parent act supportively and understandingly with child	0.091** (0.040)	0.003 (0.050)
Frequency parent let child know that parent appreciates things they do	0.111*** (0.040)	0.081 (0.049)
<i>Negative parent-child relationship</i>		
Frequency parent shouted at child because parent was upset	-0.130*** (0.038)	-0.201*** (0.047)
Frequency parent smacks child when they are naughty.	-0.128*** (0.037)	-0.160*** (0.047)
Frequency parent was angry at the child	-0.126*** (0.039)	-0.128*** (0.048)
Frequency parent argued with child when in disagreement	0.012 (0.039)	-0.088* (0.049)

Characteristic	Mother	Father
Frequency parent criticised child	-0.013 (0.038)	-0.008 (0.047)
Frequency parent shouts at the child when they are naughty.	-0.171*** (0.039)	-0.221*** (0.049)
Frequency parent takes away treats when the child is naughty.		-0.112** (0.048)
Frequency parent tells child off when naughty.		-0.101** (0.048)
<i>Maximum observations</i>	2,525	1,626

*Notes: This table takes each of the rotated factors in the 2-year parental behaviour regression analysis showing a significant gender difference in Figure 4, and decomposes each factor to determine which input variable is driving the significant gender difference. There are three significant factors from the 2-year regression analysis for mothers and two significant factors from the 2-year regression analysis for fathers. The "Negative parent-child relationship" factor includes two extra input variables for the father regression compared to the mother regression. We use each separate input variable as the dependent variable in an Equation 1 regression and show the coefficient and 95% confidence interval of the Girl dummy variable. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question and differences across the surveys within the 2-year data collection wave. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Table A 31. Decomposed 8-year significant parental behaviour factors

Characteristic	Mother
<i>Positive parenting</i>	
Frequency mother expresses affection by hugging kissing or holding the child	0.010 (0.045)
Frequency that the mother hugs/holds their child for no reason	0.083* (0.045)
Frequency that the mother has warm close times with the child	0.086* (0.045)
Frequency that mother feels close to child when they are happy and upset	0.144*** (0.045)
Frequency that mother enjoys listening to and doing things with the child	0.014 (0.045)
Frequency that mother tells the child how happy they make her	0.063 (0.045)
<i>Negative parenting</i>	
Frequency that mother loses temper with child	-0.147*** (0.045)
Frequency mother feels child got away with something they shouldn't have	-0.084* (0.046)
Frequency that the mother raised her voice and shouted at child	-0.162*** (0.045)
Frequency that mother has been angry with child	-0.168*** (0.045)
Frequency that the child's cry gets on the mother's nerves	0.122*** (0.045)

Characteristic	Mother
Frequency mother tells the child off	-0.242*** (0.045)
Frequency mother sends child to time out	-0.163*** (0.045)
Frequency mother ignored child's behaviour	-0.039 (0.046)
<i>Parental involvement</i>	
Frequency of child participating in chores	0.003 (0.045)
How often the mother reads books to/with child	-0.061 (0.046)
How often the mother talks about feelings, issues, or comforts child	0.051 (0.046)
How often the mother sings, plays music, or do musical activities with the child	0.189*** (0.046)
How often the mother draws pictures or does arts and craft child	0.167*** (0.046)
How often the mother helps with homework or school work, or talks about it with the child	-0.019 (0.046)
How often the mother talks to the child about what happens at school	0.024 (0.046)
How often the mother does physical activities with child	-0.074 (0.047)
How often the mother does cooking or baking with child	0.250*** (0.046)
How often the mother does chores with the child	0.011 (0.045)
<i>Child activities</i>	
Frequency of child going to plays/musicals or dance/concerts	0.138*** (0.045)
Frequency of child going to gallery museum or history site	-0.016 (0.044)
Frequency of child going to religious or cultural site	0.061 (0.044)
Frequency of child participating with animals	-0.012 (0.045)
Frequency of child going to fair/theme park	0.025 (0.045)
Frequency of child going to cinema	-0.143*** (0.046)
Frequency of child watching sport game	-0.209*** (0.045)
Frequency of child participating in club/community group	0.029 (0.046)
Frequency of child participating in musical activities	0.533*** (0.043)
<i>Bullying responses - aggressive</i>	
Problem 1 - Hit or shove the person for going that	-0.027 (0.031)

Characteristic	Mother
Problem 1 - Yell at the person	-0.070* (0.038)
Problem 1 - Ask the person 'What's your problem?'	-0.204*** (0.052)
Problem 2 - Hit or shove the person for going that	-0.016 (0.026)
Problem 2 - Yell at the person	-0.027 (0.028)
Problem 2 - Ask the person 'What's your problem?'	-0.153*** (0.053)
<i>Bullying responses - ignore</i>	
Problem 1 - Ignore it and act like it didn't happen	-0.167*** (0.050)
Problem 1 - Walk away from the situation	-0.100** (0.051)
Problem 2 - Ignore it and act like it didn't happen	-0.166*** (0.050)
Problem 2 - Walk away from the situation	-0.123** (0.048)
<i>Maximum observations</i>	2,017

*Notes: This table takes each of the rotated factors in the 8-year parental behaviour regression analysis showing a significant gender difference in Figure 5, and decomposes each factor to determine which input variable is driving the significant gender difference. There are six significant factors from the 8-year regression analysis for mothers. We use each separate input variable as the dependent variable in an Equation 1 regression and show the coefficient and 95% confidence interval of the Girl dummy variable. The maximum observation count is given in the last row; the number of observations in each individual regressions are up to 20 percent lower due to variations in response rate to each parental behaviour question and differences across the surveys within the 2-year data collection wave. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Appendix 8. Regression analysis – Interaction with parental migrant status

Table A 32. 9-month mothers' and fathers' gendered parenting behaviours by migrant status

Characteristic	B1 NZ born	B2 Girl * Migrant	B3 Girl * NZ born	H ₀ : B2- B3=0	N
Parental behaviours					
Mother					
Quality of connection with baby	0.025 (0.061)	0.042 (0.060)	0.088* (0.046)		2606
Things you do with your baby	0.057 (0.051)	0.118** (0.050)	0.024 (0.039)		2606
Father					
Quality of connection with baby	0.028 (0.073)	-0.012 (0.074)	0.037 (0.055)		1744
Things you do with your baby	0.010 (0.068)	0.030 (0.068)	-0.074 (0.051)		1744
Values important for the baby's development					
Mother					
Enjoying life	0.111* (0.062)	0.145** (0.062)	0.023 (0.047)		2490
Culture	-0.033 (0.061)	0.095 (0.061)	0.064 (0.047)		2490
Respect for others	0.114* (0.066)	0.002 (0.066)	-0.151*** (0.050)	*	2490
Taking on challenges	-0.041 (0.067)	-0.129* (0.067)	-0.032 (0.051)		2490
Father					
Enjoying life	0.039 (0.077)	0.087 (0.078)	0.051 (0.058)		1692
Culture	-0.012 (0.073)	0.123* (0.074)	0.023 (0.055)		1692
Respect for others	0.095 (0.080)	-0.091 (0.081)	-0.046 (0.061)		1692
Taking on challenges	-0.076 (0.080)	-0.151* (0.081)	0.113* (0.061)	***	1692

Notes: Mothers and fathers are separated into those that are NZ born and those that are migrants (1 – NZ born). A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for NZ born, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being a migrant, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being NZ born. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 33. 2-year mothers' and fathers' gendered parenting behaviours by migrant status

Characteristic	B1 NZ born	B2 Girl * Migrant	B3 Girl * NZ born	H₀: B2- B3=0	N
Mother					
Outdoor play for toddlers	0.151** (0.059)	0.005 (0.059)	-0.153*** (0.044)	**	2427
Quality of connection with child	0.008 (0.064)	0.044 (0.064)	0.096** (0.048)		2457
Positive parent-child relationship	-0.044 (0.061)	0.087 (0.062)	0.104** (0.046)		2457
Negative parent-child relationship	-0.118** (0.055)	-0.127** (0.056)	-0.145*** (0.041)		2457
Father					
Quality of connection with child	-0.104 (0.077)	-0.142* (0.080)	0.025 (0.058)	*	1602
Positive parent-child relationship	-0.129* (0.076)	-0.000 (0.078)	0.124** (0.057)		1602
Negative parent-child relationship	0.036 (0.070)	-0.129* (0.073)	-0.219*** (0.053)		1602

Notes: Mothers and fathers are separated into those that are NZ born and those that are migrants (1 – NZ born). A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for NZ born, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being a migrant, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being NZ born. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A 34. 8-year mothers' gendered parenting behaviours by migrant status

Characteristic	B1 NZ born	B2 Girl * Migrant	B3 Girl * NZ born	H₀: B2- B3=0	N
Mother					
Positive parenting	-0.073 (0.075)	0.069 (0.081)	0.088 (0.055)		1629
Negative parenting	0.037 (0.076)	-0.149* (0.082)	-0.183*** (0.055)		1629
Parental involvement	-0.055 (0.073)	0.106 (0.078)	0.098* (0.053)		1629
Child activities	-0.127* (0.070)	0.072 (0.075)	0.125** (0.051)		1629
Mother has any sort of savings prepared for her child	0.063 (0.075)	-0.059 (0.078)	-0.198*** (0.054)		1962
Bullying responses - aggressive	0.047 (0.069)	-0.053 (0.074)	-0.191*** (0.050)		1629

Bullying responses - ignore	0.122*	-0.189***	-0.187***	1629
	(0.067)	(0.072)	(0.049)	

*Notes: Mothers are separated into those that are NZ born and those that are migrants (1 – NZ born). A separate regression is run for each parental behaviour outcome variable. A list of the parental behaviour variables is shown in Table 3. B1 is the coefficient on the dummy for NZ born, B2 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being a migrant, and B3 is the coefficient on a variable that multiplies the Girl indicator with the dummy for being NZ born. The fourth column shows stars if there is a statically significant difference between B2 and B3. The final column shows the number of observations in each parental behaviour regression. Asterisks denote significance at: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*