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Child autism and parental income trajectories

A nationwide longitudinal study from New Zealand

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Research Summary

Why was the research done?

Parents of Autistic children often face increased caregiving demands that may limit their ability to participate in paid work. Previous studies, mainly from the United States and Australia, show large income penalties for mothers but are based on small samples and cross-sectional designs. There is little national evidence on the long-term economic impacts of autism for families in New Zealand or on how these effects are shared between mothers and fathers. This study uses linked administrative data to provide the first population-level longitudinal evidence on the financial consequences of raising an Autistic child in New Zealand.

What were the key findings?

Using the Integrated Data Infrastructure (IDI), the study followed over 170,000 families with first-born children between 2002 and 2012, comparing parents of Autistic and non-Autistic children from two years before to eight years after birth. Mothers of Autistic children experienced large and growing income losses, reaching around NZ$12,900 per year by eight years post-birth. Fathers' earnings also declined, by about NZ$5,800 per year. While families received modestly higher welfare payments, these did not offset the loss of labour income. Overall, total household income was approximately NZ$10,800 lower per year than for comparable families.

What does this mean for policy and practice?

Families raising Autistic children face substantial and enduring income penalties, increasing their risk of financial hardship. Policies that expand access to flexible and secure employment, adequate financial supports, and quality disability and respite services are critical to reducing these inequalities. Supporting parents to sustain employment while meeting their children's needs promotes both gender equity and family wellbeing.

Citation

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We acknowledge the Traditional Custodians of the lands on which we work and live across Australia.
We pay our respects to Elders past and present and recognise their continued connections
to land, sea and community.

Title: Child autism and parental income trajectories: A nationwide longitudinal study from New Zealand

Abstract

Parents of Autistic children often face increased care demands that can affect their capacity to participate in the labour market. This study provides the first nationwide longitudinal evidence on the economic impacts of having an Autistic child in New Zealand, using linked administrative data from the Integrated Data Infrastructure (IDI) for a cohort of 171,903 first-born children (2002–2012) and their parents. Employing a difference-in-differences design with two pre-birth and eight post-birth years of income data, we estimate the effects of child autism on mothers', fathers', and households' earnings and transfer income. Mothers of Autistic children experienced substantial and widening income losses, reaching approximately NZ$12,900 per year by eight years post-birth, partly offset by modest increases in welfare income. Fathers' earnings also declined by around NZ$5,800 per year, contrary to previous findings suggesting little paternal impact. Combined household earnings fell by NZ$16,200, with total income remaining NZ$10,800 lower despite increased transfers. These results indicate that families of Autistic children face enduring income penalties and heightened financial vulnerability. Policies that expand access to flexible employment, respite services, and adequate financial supports are essential to mitigate these disparities and promote the wellbeing of Autistic children and their families.

Keywords

Autism; parental employment; labour market outcomes; caregiving; administrative data; New Zealand; disability policy

A note on language

We recognise that there is no one term that is preferred by all people from the Autistic and autism communities. However, in partnership with co-authors of the present study and in recognition of the growing desire among Autistics to use terminology that reflects the belief that being Autistic is something intrinsic to them and is a part of their identity to be proud of, the terms ‘Autistic person’ and ‘Autistic’ have been prioritised (Bury, Jellett, et al., 2020; Monk, 2022). Autism spectrum disorder (ASD) is diagnostic terminology and typically used in the context of a person being diagnosed with autism spectrum disorder.

Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure, which is carefully managed by Statistics New Zealand. For more information about the Integrated Data Infrastructure, please visit https://www.stats.govt.nz/integrated-data/.

INTRODUCTION

Autistic children often require additional care, support, advocacy, and accommodations, placing substantial demands on parents' time and financial resources (Buescher et al., 2014; Rogge & Janssen, 2019). In addition to direct monetary costs, the need to accommodate therapy and difficulties with childcare or school attendance (Blacher, 2023; Montes & Halterman, 2008b) may significantly affect parents' employment and earnings. Available evidence suggests that impacts on earnings may be substantial, particularly for mothers (Callander & Lindsay, 2018; Cidav et al., 2012; Montes & Halterman, 2008a, 2008b). For example, Cidav et al. (2012), in an analysis of Medical Expenditure Panel Study (MEPS) data from 2002-2008 in the United States, shows 56% lower earnings, 5.6% lower employment, and 6.6 fewer weekly work hours among mothers of Autistic children in comparison to mothers of children with no health limitations. Callander and Lindsay (2018) similarly report ORs for non-participation in the labour market of 1.57-2.50 for Australian mothers of school-aged Autistic children. These studies suggest that families of Autistic children are likely to face elevated risks of financial hardship, potentially contributing to family stress and poorer health, education, and developmental outcomes for children (Chaudry & Wimer, 2016; Cooper, 2021).

The current study contributes to our understanding of the relationship between having an Autistic child and parental labour market outcomes by analysing population-level integrated administrative data contained in the IDI (Milne et al., 2019) for a nationwide cohort of first-born children (born 2002-2012) and their parents in NZ. To our knowledge this is the largest study of its kind, including the families of 3,711 Autistic children and 168,192 non-Autistic children. Our analysis further extends the evidence in several important dimensions. Previous studies of the relationship between child autism and parental labour market outcomes have been exclusively cross-sectional (Cidav et al., 2012; Montes & Halterman, 2008b) or limited

to post-birth periods (Callander & Lindsay, 2018) and are consequently unable to account for the possibility of pre-existing differences in parental earnings or employment. Autism is strongly heritable (Tick et al., 2016), and parents of Autistic children are therefore likely to share traits that may be influential with regard to labour market behaviour. Identification and diagnosis of autism is furthermore socially patterned (Bishop-Fitzpatrick & Kind, 2017), and these differences may be correlated with parental employment and earnings independently of the presence of an Autistic child. The direction and magnitude of these biases is unclear. For example, parents of Autistic children may share Autistic traits or a higher likelihood of mental health challenges, and these traits may in some instances contribute to poorer labour market outcomes. Conversely, genetic predisposition to autism has been linked to increased educational attainment (Dardani et al., 2021), and Autistic traits such as attention to detail, strong focus, innovative thinking, and logic and analytical thinking are valuable in a number of occupations (Bury, Hedley, et al., 2020; Cope & Remington, 2022). Addressing these limitations, we adopt a difference-in-difference approach to analyse changes in earnings across the first-birth transition for parents of Autistic/non-Autistic children, incorporating two years of pre-parenthood data.

Finally, a complete understanding of the financial implications of child autism for families requires evidence on potential compensation, which may come from fathers (who may increase work effort to compensate for mothers' potentially reduced earnings) or from the state in the form of additional financial transfers, such as tax credits or benefits. Previous studies have investigated paternal employment (Callander & Lindsay, 2018; Cidav et al., 2012) and earnings (Cidav et al., 2012). In accordance with the hypothesis that effects of child autism are concentrated on mothers, estimates from these studies have been small and statistically consistent with no effect. Two studies have also estimated differences in combined parental

income (Cidav et al., 2012) or total family income (Montes & Halterman, 2008a), both reporting negative effects which appear close in magnitude to effects on maternal income alone (Cidav et al., 2012). The available evidence therefore suggests that most impacts on families' income operate through maternal employment and earnings. However, it remains possible that there may be relevant effects on fathers, particularly considered in light of diverse child support needs and co-occurring conditions. No previous study has specifically considered the effect of child autism on income from government transfers. Eligibility for many benefits is inversely related to labour market income or directly related to child disability, suggesting that transfer income may form an important financial safety net for families.

METHODS

Study design, participants, and setting

This was a nationwide 11-year birth cohort study using data from the IDI (Milne et al., 2019), which combines administrative income, health, service, and demographic information for the NZ population. The parents of the birth cohort were tracked from two years pre-birth until eight years post birth.

Using Department of Internal Affairs (DIA) Birth Records, we obtained information on all singleton live births in NZ between 1st of January 2002 and 31st of December 2012. We then selected children who 1) had both a biological mother and father recorded on their birth record, 2) were the first-born child for both the mother and the father, and 3) had both parents linkable to the IDI spine. We also identified all children born to the mother and the father subsequent to their first child. First born children and their parents were included in the study only if all subsequent children shared the same mother and father as the first-born child. These criteria

ensured that neither of the parents had a subsequent child with a different mother or father from the first-born child, and that no first-born children selected into the study had the same mother or father.

Overseas spells data, held within the IDI, were used to determine the amount of time (in days) that parents were resident in NZ during the two years before their first child was born and in each year after the child's birth for up to eight years. Families were excluded from the study if they were overseas for more than six months in any given year of the study period.

Autism

Autism was identified using administrative data from publicly funded mental health services, hospital admissions, and disability support services following the case-identification strategy as described in Bowden et al. (2020). A child was identified as Autistic if a diagnosis code for autism was recorded in any of these datasets across the child's lifecourse. If a child was not identified as Autistic, they were placed in the non-Autistic control group.

Outcomes

Parental income was obtained from Inland Revenue Department (IRD) data for financial years from 1999 to 2020. We therefore obtain two years pre-birth and eight years post-birth outcome data for parents of all children born 2002 to 2012. Income was recorded separately for mothers, fathers, and parents (sum of maternal and paternal) and separated into labour income (wages, salary, and self-employment), transfer income (income from government payments and transfers), and total income (sum of labour income and transfer income, excluding income from investments, gifts, or inheritances). All monetary values are inflated to 2023 NZ dollars.

Covariates

Child level covariates extracted from Birth Records included sex and birth year. Child ethnicity was extracted from the IDI Personal Details table. Parental covariates were sourced from the 2013 and 2018 Census, the Personal Details table, their child's Birth Records and the Administrative Population Constants IDI dataset. These included age at the time of the child's birth, ethnicity, a binary variable indicating whether they were born in NZ, and highest level of education, recorded separately for mothers and fathers. We also include time-varying controls for the total number of children subsequently born to the parents and annual binary indicators for parental hospital admissions.

Analysis

To account for the presence of zeros and positively skewed distribution of income, we use exponential hurdle models (Cragg, 1971) to study the impact of child autism. The model includes two parts, a probit model for the probability of non-zero income and a continuous model for log-income. We report cluster robust standard errors to allow for repeated observations over time. Analysis was conducted using Stata MP version 16.1 between 1 February and 31 May, 2024.

RESULTS

Figure 1 presents the participant flow. It shows that there were 680,178 births in NZ between 2002 and 2012. After exclusion for still births, multiple births, and births without a recorded mother and father on the birth certificate 619,752 children remained. A further 385,506 children were excluded as they were not the first-born child to both the mother and father. After additional exclusions for children whose siblings had different parents, and whose parents did

not link to the spine, 221,412 children remained. A final exclusion of 49,509 children due to their parents being overseas for more than 6 months in any of the pre- or post-birth years resulted in an analysis sample of 171,903 children. Among those, 3,711 (2.2%) were identified as Autistic, and 168,192 (97.8%) as non-Autistic.

Table 1 presents descriptive statistics for the analysis sample, separately by autism status (for a demographic description of the children, see Appendix Table A1). Notably, parents of Autistic children were slightly older and had higher levels of education on average than parents of non-Autistic children. Pre-birth incomes were similar for mothers, but fathers of Autistic children had higher pre-birth income compared to fathers of non-Autistic children ($59,280 vs. $56,196) leading to a slightly higher pre-birth combined household income for parents of Autistic children. Post birth, mothers of Autistic children had lower income compared to mothers of non-Autistic children ($30,402 vs. $34,274), fathers of Autistic children maintained a slightly higher income, however overall, the combined post birth income for parents of Autistic children was lower than parents of non-Autistic children.

Figure 1: Participant flow

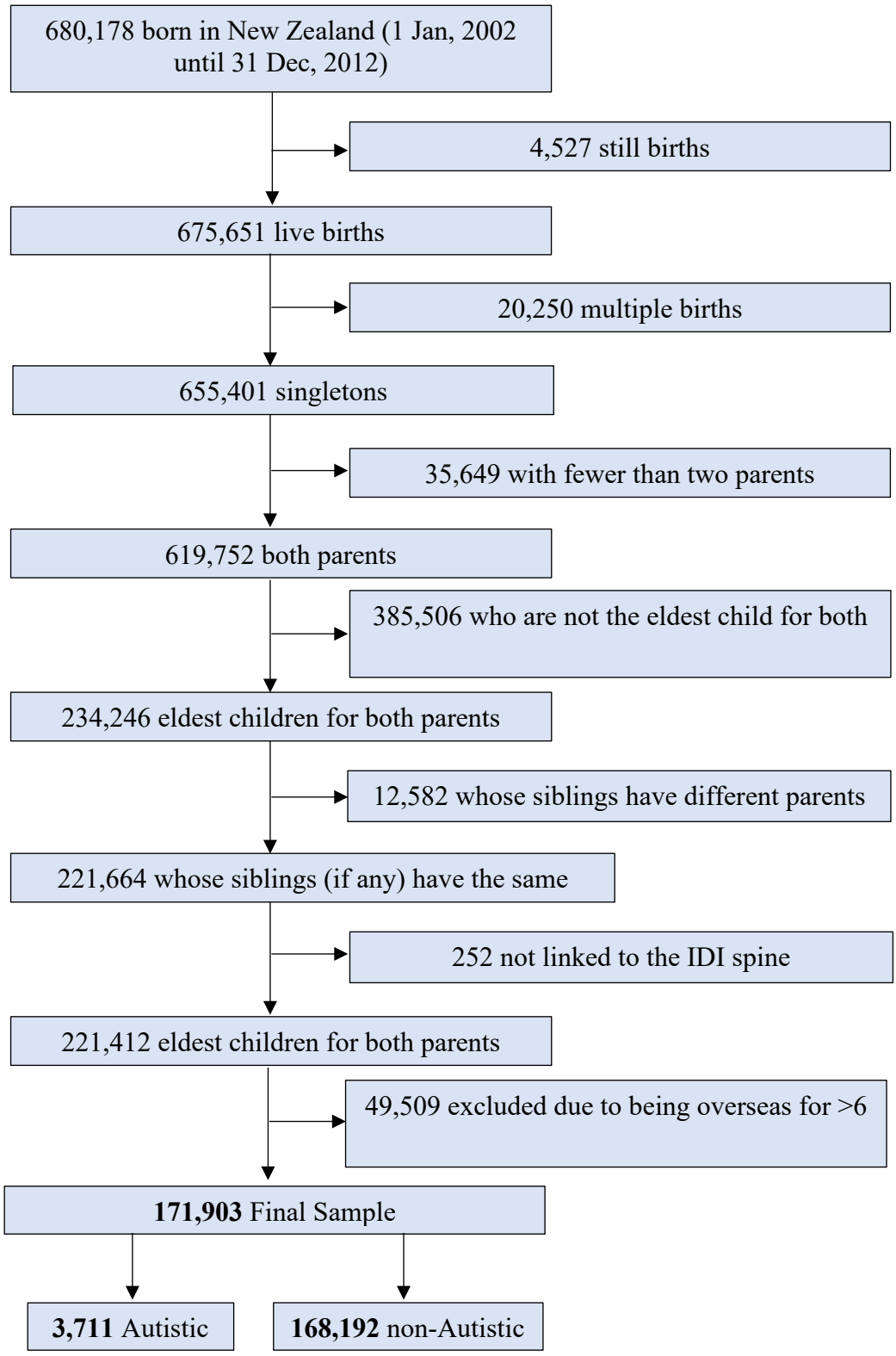


Table 1: Descriptive summary of the parent cohort stratified by autism status of first-born child.

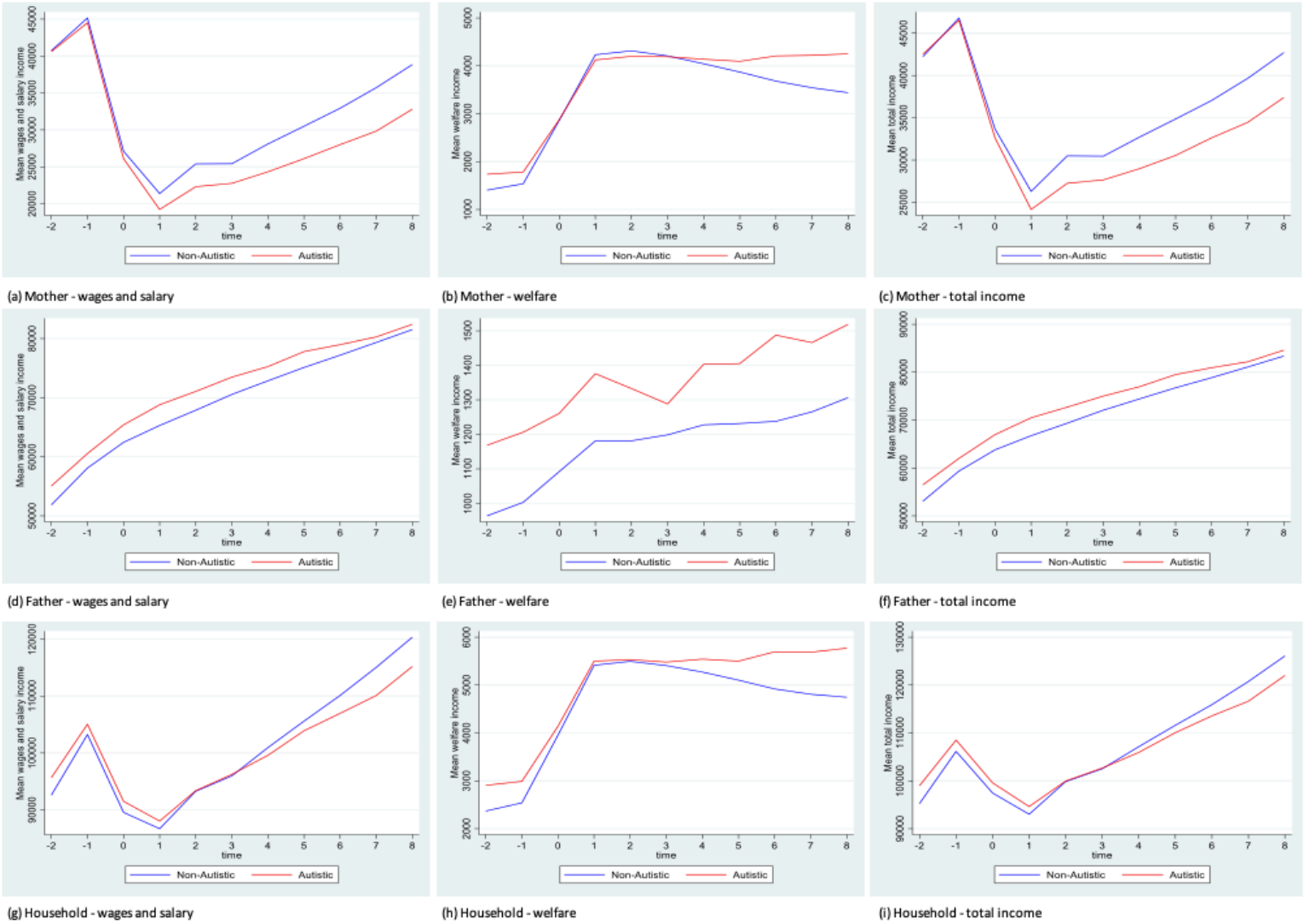
	Mother				Father				Household			
	Non-Autistic		Autistic		Non- Autistic		Autistic		Non- Autistic		Autistic	
	n	%	N	%	n	%	n	%	n	%	n	%
Total	168,192		3711		168,192		3,711					
Age (years)												
<20	18,021	10.7	270	7.3	10,359	6.2	153	4.1				
20-29	77,838	46.3	1650	44.5	67,500	40.1	1,344	36.2				
30-39	68,049	40.5	1650	44.5	76,476	45.5	1,818	49.0				
40-49	4,254	2.5	..S	n/a	12,930	7.7	378	10.2				
50+	27	0.0	..S	n/a	927	0.6	27	0.7				
Ethnicity												
European	128,916	76.6	3114	83.9	127,089	75.6	3,111	83.8				
Māori	32,439	19.3	546	14.7	33,006	19.6	564	15.2				
Pacific	13,095	7.8	165	4.4	15,531	9.2	216	5.8				
Asian	19,503	11.6	375	10.1	17,043	10.1	318	8.6			n/a	
MELAA	1,695	1.0	54	1.5	1,734	1.0	51	1.4				
Other	2,691	1.6	96	2.6	3,516	2.1	99	2.7				
Born overseas												
Yes	38,901	23.1	831	22.4	37,278	22.2	771	20.8				
No	127,803	76.0	2850	76.8	129,126	76.8	2,901	78.2				
Highest qualification												
None	17,820	10.6	345	9.3	24,999	14.9	480	12.9				
School	74,220	44.1	1656	44.6	69,543	41.3	1,557	42.0				
Diploma	27,774	16.5	600	16.2	35,184	20.9	753	20.3				
Graduate degree	43,224	25.7	1029	27.7	29,781	17.7	744	20.0				
Missing	5,154	3.1	84	2.3	8,685	5.2	180	4.9				

Health										
any pre-birth hospitalisation	37,221	11.1	969	13.1	16,926	5.0	381	5.1		
any post-birth hospitalisation	291,414	21.7	6459	21.8	78,153	5.8	1,827	6.2		
Pre-birth income (mean annual)										
Total		$44,509		$44,552		$56,196		$59,280	$100,705	$103,833
Wage and Salary		$42,940		$42,588		$54,967		$57,845	$97,907	$100,433
Welfare		$1,471		$1,761		$984		$1,188	$2,455	$2,950
Post-birth income (mean annual)										
Total		$34,274		$30,402		$75,333		$77,862	$109,607	$108,264
Wage and Salary		$29,786		$25,691		$73,718		$76,067	$103,504	$101,758
Welfare		$3,917		$4,182		$1,229		$1,411	$5,146	$5,593

MELAA= Middle Eastern, Latin American or African.
..S = count less than six suppressed due to confidentiality rules.

Observed trends for all outcomes are shown separately by autism status in Figure 2. Before the birth, there were negligible differences in wage and salary income between mothers of Autistic and non-Autistic children, although mothers of Autistic children received slightly more welfare income. Fathers of Autistic children earned approximately three thousand dollars more than fathers of non-Autistic children before the birth, and similarly received approximately two hundred dollars more in welfare income. After the birth, mothers of Autistic children earned less than mothers of non-Autistic children, with the gap increasing in magnitude with the age of the child to in excess of ten thousand dollars per year by eight years post birth. Mothers' welfare income was similar until school-entry (approximately year 5), after which a gap emerged as receipt of welfare income declined among mothers of non-Autistic children while remaining roughly constant for mothers of Autistic children. The wage and salary advantage enjoyed by fathers of Autistic children appears to remain roughly constant before diminishing slightly at older ages, while the gap in fathers' receipt of welfare income displays no clear change. These descriptive results provide preliminary evidence that having an Autistic child may have important effects on mothers' wage and salary income, with comparatively minimal impacts elsewhere.

Figure 2: Observed mother, father, and combined household wages and salary, welfare, and total annual income over time.

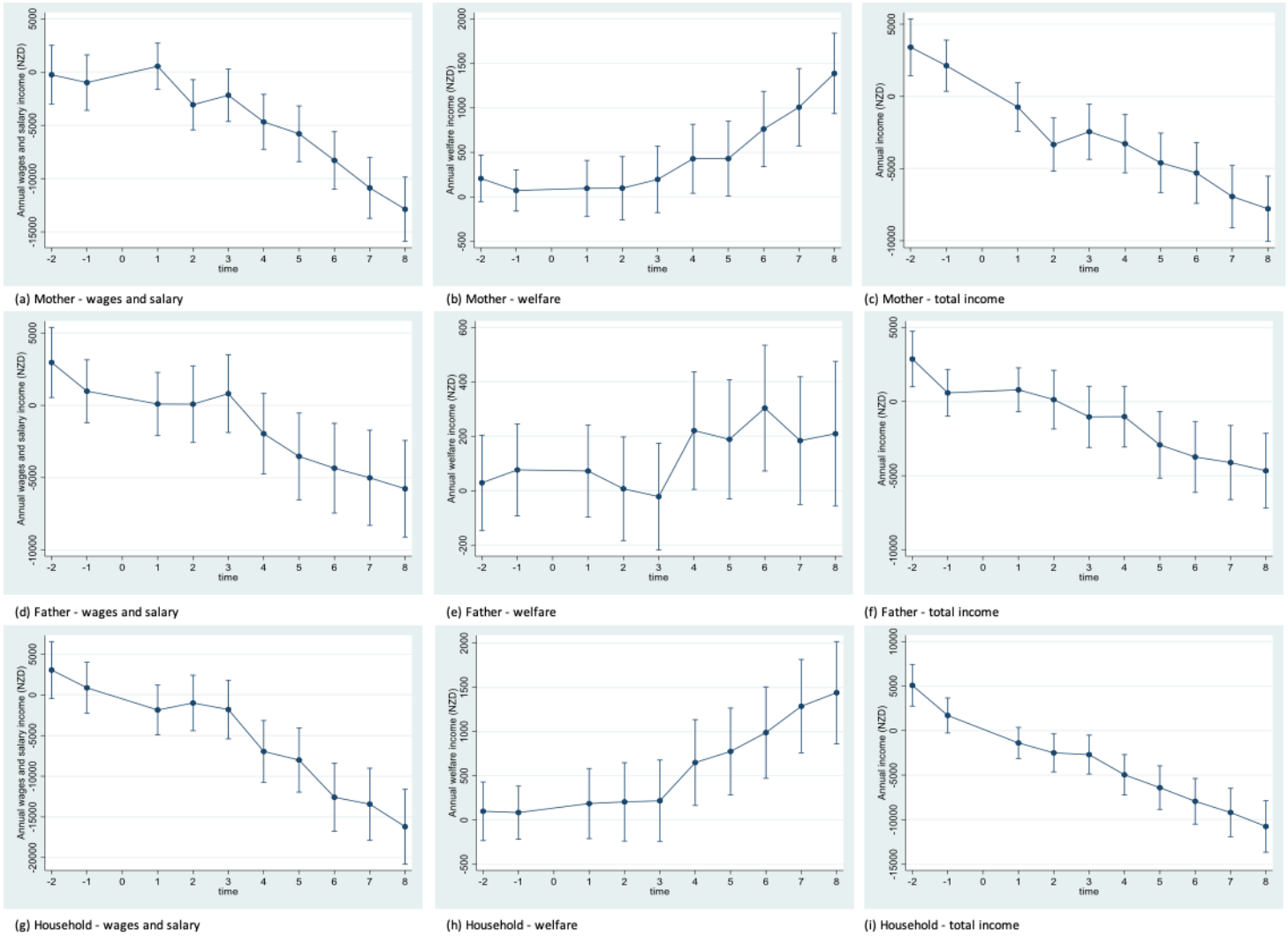


Difference-in-difference estimates of the effects of child autism on parental income and employment, adjusted for covariates, are presented in Figure 3 (for more detail on effect estimates, see Appendix Tables A2-A4). For mothers, the difference-in-difference estimates essentially re-confirmed the descriptive findings: compared to mothers of non-Autistic children, wage and salary income four to five years after the birth was reduced by approximately five thousand dollars and declined further once children reached school age, reaching a deficit of approximately $12,877 per year at year eight. Mothers' welfare income did not differ significantly before school age, but increased thereafter and reached a gap of $1,387 per year in favour of mothers of Autistic children by year eight.

For fathers, estimates indicated a relative decline in wage and salary income following the birth of an Autistic child. Fathers' earnings dropped by about three thousand dollars three to four years after the birth, and this downward trend continued as the child grew older, culminating in an annual deficit of $5,767 by year eight. Welfare income for fathers showed little significant variation throughout the early years but exhibited slight increases in later years, though these changes were not as pronounced as those observed in mothers.

On aggregate, when examining household income, the difference-in-difference estimates highlighted a significant reduction in total earnings post birth of an Autistic child. Household wage and salary income decreased steadily, with a notable drop to around six thousand dollars by year four, continuing to decline to a deficit of $16,200 by year eight. Welfare income for households initially showed minimal changes but saw an increase in later years, indicating some level of compensatory support, though it was insufficient to offset the loss of income to wages and salary, resulting in an overall decline in total household income of $10,761.

Figure 3: Predicted annual difference in wages and salary, welfare, and total annual income over time for parents of Autistic children compared to parents of non-Autistic children.



DISCUSSION

This nationwide 11-year birth cohort study enhances our understanding of the relationship between child autism and parental labour market outcomes by utilising integrated administrative data for a large cohort of first-born children and their parents in NZ. This longitudinal approach, including data from two years before and eight years after the birth, addresses limitations of previous cross-sectional studies by accounting for potential pre-existing differences in parental earnings and employment. We found significant labour market impacts of having an Autistic child for the mother, father, and the household. The cumulative impact at eight years post birth on household wages and salary income was approximately $16,200. There was a slight offset of income loss from increased welfare payments but overall, household income was still negatively impacted by $10,761.

Our findings might first be interpreted in the context of the additional care, support, advocacy, and accommodations required for Autistic children, placing substantial demands on parents' time and financial resources. This increased burden can significantly affect parental employment and earnings, particularly for mothers who may need to accommodate therapy sessions and face difficulties with childcare or school attendance. In this sense our findings are consistent with evidence that consistently shows that the financial impact of raising an Autistic child is particularly significant for mothers (Callander & Lindsay, 2018; Cidav et al., 2012; Montes & Halterman, 2008a, 2008b). While previous studies have found minimal effects on paternal employment and earnings, the current analysis challenges these findings and indicates paternal income is also significantly affected.

The findings suggest that families of Autistic children are at an elevated risk of financial hardship, which can contribute to increased family stress and poorer outcomes for children in terms of health, education, and development. The financial strain on these families underscores the need for targeted support and resources to mitigate these adverse effects. The findings highlight the critical need for policies and support systems that address the financial challenges faced by families of Autistic children. Ensuring access to adequate financial assistance and flexible employment opportunities for parents, particularly mothers, can help mitigate the adverse economic impacts and promote better outcomes for both parents and children.

The study must be viewed in the context of several limitations. First, the method for identifying autism is not validated. It is likely this method undercounts in its capture of autism. However, this means some Autistic children would be included in the non-Autistic cohort, therefore, if anything our findings would underestimate income loss associated with having an Autistic child. Second, we were not able to verify whether either parent had any other (older or younger children) who were not born in NZ. Steps were taken to mitigate this by using multiple sources to search for any older siblings of the index child: checking the birth records of any siblings that were recorded in the index child's birth data, checking whether any siblings' birth records include a sibling that was older than the index child, a search of birth records for any other children born to either parent before the index child's date of birth.

CONCLUSION

This comprehensive study offers an in-depth exploration of the life course outcomes for Autistic children, youth, and their families in NZ, utilising population-level linked data from the IDI. The findings reveal significant disparities across various domains for Autistic youth, including healthcare, education, the labour market, social services, and the CJS. It also highlights health and labour market impacts on parents of Autistic children. Overall, the study highlights the need for targeted interventions and policy adjustments to support this population effectively.

The study underscores higher healthcare utilisation rates among Autistic youth compared to their non-Autistic counterparts, including both mental and physical health services. In addition, the study identifies a significantly elevated mortality risk among Autistic children and young people. Educational outcomes similarly reflect disparities, with Autistic students facing challenges in school attendance and attainment. This is likely exacerbated by inadequate support systems within the educational sector, which often fail to accommodate the unique needs of Autistic learners. Labour market outcomes for Autistic individuals and their families also demonstrate significant disparities. Autistic youth, particularly those with intellectual disabilities, are at a considerable disadvantage in securing and maintaining employment. The study highlights lower income levels and fewer months in paid employment for this group, compared to non-Autistic peers. The economic impact extends to parents, particularly mothers, who often face reduced labour force participation and earnings due to caregiving responsibilities. Social service use data reveal a reliance on government support among Autistic individuals and their families, reflecting the financial and social challenges they face.

One of the key strengths of this study is its use of a large, near-national dataset, which allows for comprehensive analysis across a wide range of outcomes. The inclusion of detailed sociodemographic and health-related variables provides a nuanced understanding of the challenges faced by Autistic individuals and their families. The study's retrospective design and the application of propensity score matching apporach further enhance the validity of the findings by controlling for potential confounders.

However, there are several limitations to consider. The method used to identify the Autistic population, while consistent with existing literature, is unvalidated. This raises concerns about potential undercounting or false positives, which could affect the accuracy of the prevalence estimates and associated outcomes. Additionally, the reliance on administrative data, which may not capture all relevant variables (such as detailed educational supports or familial factors), limits the scope of the analysis.

The findings highlight several areas for future research. One critical area is the impact of autism on siblings, which remains underexplored. Understanding the experiences and outcomes of siblings can provide valuable insights into the broader familial impact of autism. Additionally, examining the effect of autism on parental relationships, including divorce rates, could help elucidate the family dynamics and potential stressors associated with raising an Autistic child. Another important area for future research is the evaluation of health and education-based support systems. This includes understanding the benefits and challenges associated with existing support structures and identifying gaps that may be addressed through policy interventions. Such research can inform the development of more effective, inclusive practices that support the well-being and social integration of Autistic individuals.

In conclusion, this study offers a critical assessment of the life course outcomes for Autistic individuals and their families in NZ. While it identifies significant disparities and challenges, it also highlights opportunities for improving support systems and reducing inequities. Future research and policy efforts should focus on addressing these challenges to ensure that Autistic individuals and their families have access to the resources and supports necessary for achieving positive life outcomes.

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Appendix

Table A1: Sociodemographic characteristics of the birth cohort, stratified by autism status.

	Non-Autistic		Autistic	
	n	%	n	%
Total	168,192		3,711	
Sex				
Male	85,767	51.0	2,883	77.7
Female	82,425	49.0	828	22.3
Ethnicity				
European	133,449	79.3	3,213	86.6
Māori	43,185	25.7	807	21.7
Pacific	18,114	10.8	240	6.5
Asian	20,607	12.3	393	10.6
MELAA	1,917	1.1	54	1.5
Other	4,131	2.5	132	3.6
Birth year				
2002	12,939	7.7	270	7.3
2003	13,395	8.0	285	7.7
2004	13,986	8.3	276	7.4
2005	14,370	8.5	336	9.1
2006	14,928	8.9	351	9.5
2007	16,191	9.6	396	10.7
2008	16,368	9.7	339	9.1
2009	16,389	9.7	363	9.8
2010	16,662	9.9	366	9.9
2011	16,257	9.7	384	10.3
2012	16,710	9.9	354	9.5

Table A2: Predicted margins to estimate the effect of having an Autistic first born child compared to a non-Autistic child on mother's wages and salary, welfare, and total income.

Mother wages and salary						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	-249.50	1407.06	-0.18	0.859	-3007.30	2508.29
-1	-987.21	1329.92	-0.74	0.458	-3593.80	1619.38
1	548.42	1105.12	0.50	0.620	-1617.58	2714.42
2	-3066.96	1202.40	-2.55	0.011	-5423.63	-710.30
3	-2177.67	1257.42	-1.73	0.083	-4642.16	286.82
4	-4674.23	1317.74	-3.55	0.000	-7256.96	-2091.50
5	-5790.70	1333.77	-4.34	0.000	-8404.84	-3176.56
6	-8291.30	1376.33	-6.02	0.000	-10988.86	-5593.74
7	-10875.51	1455.60	-7.47	0.000	-13728.43	-8022.58
8	-12877.35	1543.10	-8.35	0.000	-15901.78	-9852.92
Mother welfare						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	207.18	134.45	1.54	0.123	-56.33	470.69
-1	72.04	118.12	0.61	0.542	-159.46	303.55
1	96.34	159.96	0.60	0.547	-217.19	409.86
2	98.25	180.77	0.54	0.587	-256.05	452.56
3	196.03	189.90	1.03	0.302	-176.16	568.22
4	428.66	197.83	2.17	0.030	40.93	816.40
5	430.08	214.23	2.01	0.045	10.21	849.96
6	762.39	215.85	3.53	0.000	339.34	1185.45
7	1007.33	221.54	4.55	0.000	573.13	1441.53
8	1387.36	230.41	6.02	0.000	935.77	1838.95
Mother total income						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	3404.61	1002.76	3.40	0.001	1439.24	5369.98
-1	2126.51	904.28	2.35	0.019	354.16	3898.86
1	-744.98	857.41	-0.87	0.385	-2425.48	935.52
2	-3338.41	938.31	-3.56	0.000	-5177.48	-1499.35
3	-2450.30	976.04	-2.51	0.012	-4363.31	-537.29
4	-3280.47	1028.84	-3.19	0.001	-5296.95	-1263.98
5	-4603.91	1051.65	-4.38	0.000	-6665.10	-2542.73
6	-5304.18	1074.88	-4.93	0.000	-7410.92	-3197.45
7	-6941.17	1101.53	-6.30	0.000	-9100.12	-4782.22
8	-7787.23	1153.98	-6.75	0.000	-10048.99	-5525.47

Table A3: Predicted margins to estimate the effect of having an Autistic first born child compared to a non-Autistic child on father's wages and salary, welfare, and total income.

Father wages and salary						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	2968.18	1237.82	2.40	0.016	542.09	5394.26
-1	977.92	1109.10	0.88	0.378	-1195.88	3151.72
1	94.58	1115.38	0.08	0.932	-2091.54	2280.69
2	82.01	1350.63	0.06	0.952	-2565.17	2729.19
3	809.07	1371.88	0.59	0.555	-1879.77	3497.91
4	-1959.59	1421.89	-1.38	0.168	-4746.44	827.27
5	-3529.17	1530.87	-2.31	0.021	-6529.61	-528.73
6	-4345.09	1582.09	-2.75	0.006	-7445.92	-1244.26
7	-5010.20	1680.17	-2.98	0.003	-8303.26	-1717.19
8	-5767.34	1705.62	-3.38	0.001	-9110.30	-2424.38
Father welfare						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	29.09	89.26	0.33	0.745	-145.86	204.04
-1	76.42	86.29	0.89	0.376	-92.71	245.55
1	72.43	86.31	0.84	0.401	-96.74	241.60
2	7.09	97.15	0.07	0.942	-183.31	197.49
3	-21.79	99.95	-0.22	0.827	-217.69	174.11
4	220.91	110.26	2.00	0.045	4.80	437.02
5	188.69	111.64	1.69	0.091	-30.13	407.50
6	303.37	117.92	2.57	0.010	72.24	534.49
7	183.89	119.76	1.54	0.125	-50.83	418.60
8	209.46	135.62	1.54	0.122	-56.35	475.28
Father total income						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	2864.87	953.55	3.00	0.003	995.96	4733.79
-1	585.64	803.18	0.73	0.466	-988.56	2159.85
1	792.24	754.71	1.05	0.294	-686.96	2271.44
2	129.70	1009.68	0.13	0.898	-1849.23	2108.64
3	-1033.31	1051.87	-0.98	0.326	-3094.94	1028.33
4	-1017.73	1044.31	-0.97	0.330	-3064.53	1029.07
5	-2920.65	1141.60	-2.56	0.011	-5158.14	-683.17
6	-3734.36	1219.47	-3.06	0.002	-6124.48	-1344.25
7	-4109.96	1272.84	-3.23	0.001	-6604.67	-1615.24
8	-4664.26	1285.69	-3.63	0.000	-7184.16	-2144.36

Table A4: Predicted margins to estimate the effect of having an Autistic first born child compared to a non-Autistic child on household wages and salary, welfare, and total income.

Household wages and salary						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	3059.49	1784.92	1.71	0.087	-438.88	6557.86
-1	868.91	1601.19	0.54	0.587	-2269.37	4007.18
1	-1853.88	1560.16	-1.19	0.235	-4911.73	1203.98
2	-995.15	1740.99	-0.57	0.568	-4407.43	2417.12
3	-1797.00	1836.31	-0.98	0.328	-5396.10	1802.11
4	-6953.12	1937.78	-3.59	0.000	-10751.10	-3155.13
5	-8009.74	2013.03	-3.98	0.000	-11955.20	-4064.27
6	-12586.76	2124.85	-5.92	0.000	-16751.39	-8422.14
7	-13434.61	2254.29	-5.96	0.000	-17852.94	-9016.29
8	-16200.72	2351.10	-6.89	0.000	-20808.79	-11592.64
Household welfare						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	98.06	169.21	0.58	0.562	-233.58	429.70
-1	83.67	152.69	0.55	0.584	-215.61	382.94
1	185.39	202.19	0.92	0.359	-210.89	581.67
2	204.46	226.23	0.90	0.366	-238.95	647.86
3	216.55	234.90	0.92	0.357	-243.86	676.95
4	649.34	247.56	2.62	0.009	164.14	1134.55
5	774.97	250.29	3.10	0.002	284.41	1265.53
6	987.89	263.92	3.74	0.000	470.63	1505.16
7	1286.15	270.08	4.76	0.000	756.80	1815.50
8	1439.32	295.22	4.88	0.000	860.70	2017.94
Household total income						
Year	Contrast	Std. Err.	z	P>z	[95% CI)	
-2	5080.01	1190.85	4.27	0.000	2745.99	7414.04
-1	1700.96	1003.40	1.70	0.090	-265.66	3667.58
1	-1386.53	890.00	-1.56	0.119	-3130.90	357.84
2	-2501.84	1087.35	-2.30	0.021	-4633.01	-370.66
3	-2697.00	1114.00	-2.42	0.015	-4880.39	-513.60
4	-4963.70	1157.68	-4.29	0.000	-7232.71	-2694.69
5	-6409.39	1247.86	-5.14	0.000	-8855.14	-3963.64
6	-7940.56	1309.09	-6.07	0.000	-10506.32	-5374.80
7	-9199.14	1384.45	-6.64	0.000	-11912.62	-6485.66
8	-10760.93	1480.37	-7.27	0.000	-13662.40	-7859.45