Child gender, ethnicity, and criminal behavior after birth

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Abstract

This paper aims to challenge the implicitly made assumption in the economics of crime literature that findings are universally applicable across cultures and race. Based on very precise judicial and demographic data from New Zealand we are able to replicate the results of an earlier study by Dustmann and Landersø (2018) across the average of the population. However, when splitting out by ethnicity we can show that the effect is entirely driven by the white part of the population and that there is no effect on the native Māori. The particular effect we are exploiting is the gender of the first-born child on convictions rates. The strong ethnic divide is observed along many dimensions. Our results serve as a caution that research can amplify implicit ethnic and racial bias.

JEL Classification: K42, K49, L38.
Keywords: Crime Research, Racial Bias.

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1 Introduction

In this paper we set out to understand how race and ethnicity impacts the generalisability of prior research across those two dimensions. For this we build on Dustmann and Landersø (2018) by studying a particular high-risk group, namely young fathers in New Zealand, and utilize the exogeneity of the gender of their first-born child to measure how a life shock can affect their criminal behavior to show that parent-child relationships and bonds differ by gender (Dustmann and Landersø 2018, Worthen 2011, Dahl and Moretti 2008). This can result in different behavioral reactions of fathers after the birth of their first child. So, even though being a young father can be indicative of risky practices of an individual and a broader disadvantaged background that, in general, may be strongly correlated with criminal behavior. By utilizing the randomness of the gender of the first-born child, we can analyse the exogenous variation in the criminal behavior of young father that would allow for causal inference.

This builds on earlier research that has shown that important events in a man's life, such as marriage or becoming a father, could lead them to refrain from or even take-up criminal activities (Sampson and Laub 1990, Corman et al. 2011). Trying to causally interpret the effect of these so called 'turning points', however, can be a challenge as these events aren't random. A turning point can be jointly correlated with the same unobserved characteristics that cause people to commit crimes. This can result in selection bias or simultaneity concerns when trying to analyse criminal behavior decisions.

The age-crime curve peaks for men in their late-teens and early-twenties, making young men one of the highest offending cohorts (Farrington 1986, Loeber 2012). Arrests and a criminal record at a young age can have long-term effects on future labor market prospects. The stigma of conviction can negatively affect employment opportunities and can undermine the acquisition of human and social capital (Western et al. 2001). Following rational choice theory, individuals that face adverse labor market opportunities and with low prospects for earning a legitimate wage are more likely turn to crime (Becker 1968), creating a cycle that can be difficult to escape from.

Thus, there is a dire importance to understand the mechanisms that drive criminal behavior in young populations so that communities can more effectively design crime prevention policies that focus on early intervention. In this paper we aim to show that these initiatives might backfire if they are not sufficiently tailored to the ethnic sub-groups in a society.

Young fathers are a vulnerable group where early crime prevention interventions

have the potential to create long-term positive outcomes for the individual and their family. Not only are young fathers more likely to be involved in illegal activities (Larson et al. 1996, Weinman et al. 2002, Weinmann et al. 2006), but they also face increased risks for dropping out of school and face less opportunities for employment (Weinman et al. 2002), affecting their ability to provide for their families. Grogger (1992) finds that an arrest record can contribute to persistent joblessness, and that it explains up to two-thirds of the employment differential between young white and black men. Incarceration and prison sentences also affect post-release earnings negatively (Grogger 1995). In contrast, Bhuller et al. (2020) show that incarceration can improve employability and discourage criminal behavior for individuals with low labor market aspiration. Previously employed incarcerated individuals experience lasting negative effects on employment. These negative labor market outcomes and increased risk factors for young fathers can translate to their children as well. Farrington et al. (1996) document the inter-generational persistence of crime in a study of London males. He finds that for fathers with previous convictions, 63% of their sons also held a conviction, while the corresponding figure was only 30% for those with no prior conviction. Dobbie et al. (2018) show that parental incarceration leads to a 17% points increase in teen crime, 7% points increase in teen pregnancy and a 27% points decrease in employment for their offspring's. The effects are concentrated amongst disadvantaged families. Bhuller et al. (2018) find that paternal incarceration does not affect a child's criminal activity or school performance. In contrast, using data from Ohio, Norris et al. (2020) show that parental incarceration has beneficial effects on children, reducing their likelihood of incarceration by 4.9% points. In his case the effects are driven by children from poor neighborhoods.

We contribute to the literature by expanding the analysis to study the differing effects by ethnicity in New Zealand (NZ). Ethnicity is an important consideration when designing policy as there is no one-size-fits-all policy response and, in the midst of the global attention to the Black Lives Matter (BLM) movement in 2020, cities and governments are currently reevaluating systemic issues of police violence against minority individuals and racial inequalities in the criminal justice system.

In NZ, the majority (70%) of the population is of European descent while Māori make up the largest minority population at 16.5% (StatsNZ 2019). Yet, Māori youth face an "overrepresentation in negative social statistics" (Elkington 2017, Karena 2012, Pihama et al. 2014, Kingi 2011, Quince 2007) and are often portrayed as "deviant and unable to help themselves" (Elkington 2017, Groot 2006, Johnston and Pihama 1994, Wall 1997). Researchers attribute these stereotypes to "systemic disadvantages" and risk factors that Māori are disproportionately exposed to compared

to the non-Māori (Elkington 2017, Durie 1994, Dyall 1997). These stereotypes also contribute to the 'ethnic toxicity' in New Zealand's criminal justice system. Despite being a minority group, Māori represent almost 56% of the prison population (Pratt 2006, McIntosh and Workman 2017). When designing early intervention policies, it is important to consider systemic issues that may be affecting certain populations as a design for the majority could be ineffective and even detrimental to a minority one.

This paper is structured as follows: In Section 2 we describe our data, sample, and the criminal justice setting in New Zealand. In Section 3 we present the descriptive statistics for crime and young fatherhood in New Zealand, by type of conviction and ethnic group. We then discuss our empirical strategy to identify the effects of the gender of the first child on criminal and labor market outcomes in Section 4. We present our results for convictions on the gender of the child in Section 5 and discuss further labor market and social outcomes in Section 6. And finally, in Section 7, we discuss the broader implications of racial and ethnic biases in research.

2 Data and sample selection

Our study on the effect of the child's gender on criminal behaviour utilizes various administrative data sources that are hosted in the NZ Integrated Data Infrastructure (IDI). The IDI is a large research database that holds complete datasets from various different agencies, including information from the Ministry of Justice (MoJ) on court charges. The individuals are linked across all datasets by an individual identifier.

The Department of Internal Affairs (DIA) hosts the birth register of the entire population. The data provides the birthday of an individual on monthly level, but more importantly enables us to link parents to children.[1] We define our main sample of young fathers as all males who father their first child between the age of 18 and 21. We chose 18 as the lower age threshold because we are evaluating the criminal trajectories of young fathers, which requires us to observe at least two years of pre-birth crime outcomes. Moreover, the Youth Justice System is responsible for offenders aged 14–16 years for which data access is restricted.[2]

Our crime data comes from the Ministry of Justice (MoJ) and contains records

[1] One caveat is that we are not able to differentiate between biological and adopted children. However, in contrast to other countries, adoption where there is a legal transfer of parenting rights and responsibilities from birth parents to adoptive parents rates are very low. For example, in 2010 there were almost 64 thousand life births (StatsNZ 2020) and in the same year, 193 adoptions were granted (MoJ 2020*a*).

[2] Depending on the seriousness of offence, 17 year old either go through the youth (less serious offending) or the adult (more serious offending) criminal justice system (MoJ 2020*b*).

of all charges processed by criminal courts since 1992. Each charge includes the date of the offence, when the charge was filed, and when it was resolved. A criminal charge may be filed by Police, Corrections, local authorities, or other government agencies. Usually, each charge refers to one offence. To give an example, an individual may attend court on one occasion for three charges of burglary and one of assault, which would result in four charges. In addition, the dataset holds information on the outcome of the charge, e.g. whether the individual was convicted or acquitted. As a conviction can hold multiple sentences, the dataset also holds information on the five most serious sentences. The ranking follows the Australian and New Zealand Society of Criminology (ANZSOC) code, and thus we are able to identify the most serious sentence imposed. These charges includes (hierarchically ranked) imprisonment, home detention, community detention, intensive supervision, community work, supervision, monetary fines, deferment, and others.[3]

Based on the seriousness of a conviction, we form the following two groups:

- *Serious sentence*: Most serious sentence is imprisonment, home or community detention, community work, supervision.
- *Non-serious sentence*: Most serious sentence is monetary fines, deferment or other.

We complement this data using additional individual-level information. First, we link demographic information including ethnicity[4], monthly information on wages and benefits provided by Inland Revenue Register, and border movement data provided by the Ministry of Business, Innovation and Employment. The DIA allows further use of important family formation indicators such as the date of marriage and civil union membership or whether someone deceased.

The sample period covers the years between 2003 to 2019.[5] Throughout this paper, we restrict the sample to live-born children (excluding those fathers whose first child was stillborn, the gender is not identified or twins and more) and a minimum of two subsequent observed years before the child was born and ten years thereafter. This puts the focus on fathers whose first child was born between January 2005

[3]Individuals with no sentence recorded as highest sentence are dropped from the sample.

[4]The ethnicity variable is derived from multiple collections in the IDI using a set of specific rules. Ethnicity variables are an 'ever-indicator' that shows all ethnicity an identity has recorded across data collections over time. It is possible that an individual states up to six different ethnic groups (NZ European, Māori, Pacific, Asian, MELAA, and other). For our study, we restrict the sample to those men with a single ethnicity on either NZ European or Māori.

[5]The *Sentencing Act 2002* let to a "a number of substantive and procedural changes to sentencing policy and procedure" (Roberts 2003, p. 254), including the type of sentence for juvenile offenders.

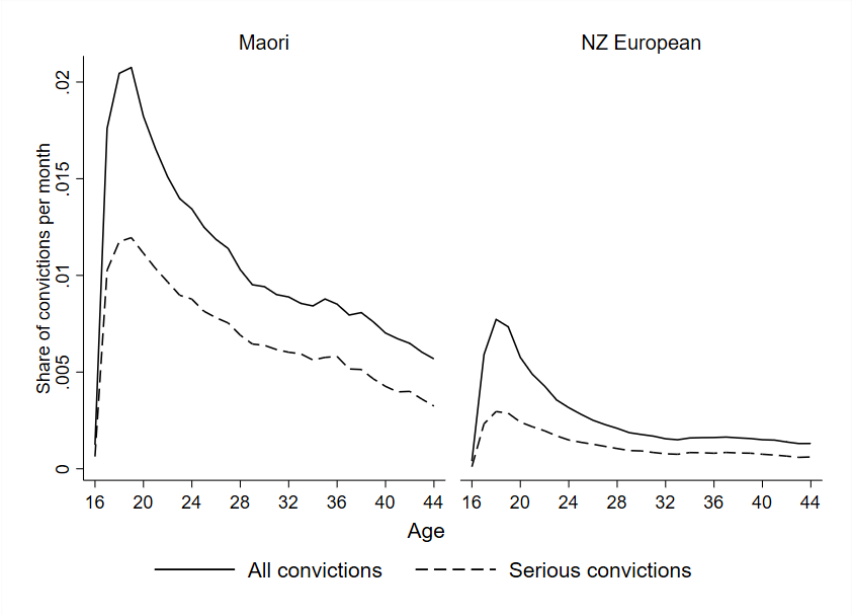
and June 2009 (court charges data are available until June 2019). With this sample selection we are able to analyse for each individual ten post-birth years. Over this time period, we observe 8085 individuals who become a father at the age of 21 or younger, where, 4404 of which were NZ European and 3681 Māori. The sample represents 11% of all new fathers.

3 Descriptive statistics

3.1 Crime and fatherhood in New Zealand

Figure 1 shows the monthly share of individuals with a conviction in the age range 16 to 44 by Māori and NZ European ethnicity. The figure shows that convictions peak at the age of 18 for both groups and decreases gradually afterwards. The same pattern is followed by serious sentences.

Figure 1: Monthly share of individuals with a conviction (January 2005 - June 2009)



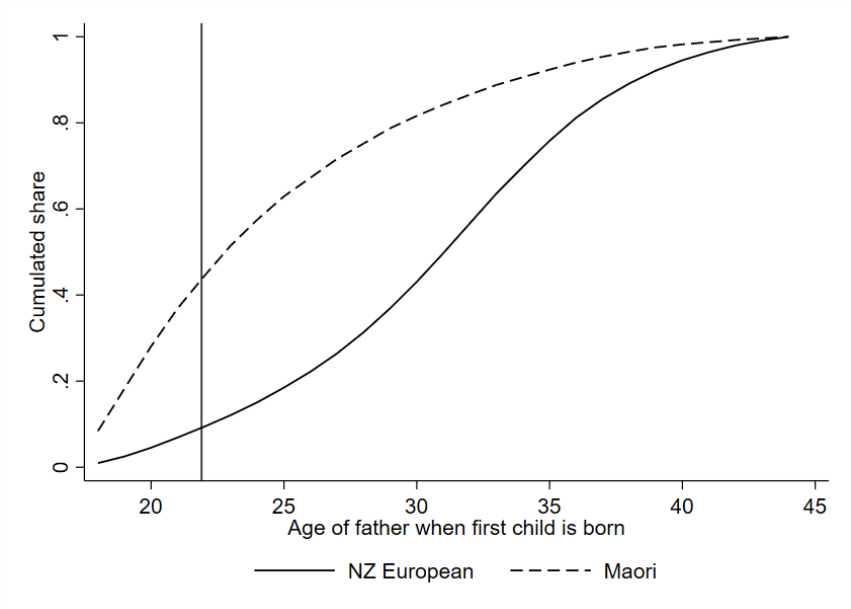
Notes: The graph shows for all Māori (left panel) and NZ European (right panel) men between 16 and 44 the number of convictions and serious convictions per month divided by population in that age bracket.

This shows that most criminal activity is among younger individuals. The differences in conviction rates across the two ethnic groups are particularly interesting. It shows that at any point in the life cycle, Māori men are about three times more likely to hold convictions than NZ Europeans.

Figure 2 shows the age when the first child was born for both ethnic groups. It documents that the two ethnic groups behave fairly different in terms of fatherhood.

By the age of 21, about 6.9% of all NZ Europeans have fathered their first child, whereas the equivalent figure stands at 37% among Māori.

Figure 2: Age when first child was born (January 2005 - June 2009)



Notes: The graph shows the age for all NZ European and Māori men between 18 and 44 when their first child was born. The vertical line corresponds to the month before turning 22.

3.2 The sample

To show the impact of ethnicity on crime, we exploit the randomness of the gender of the child to study criminal behavior after birth. Table 1 shows summary statistics measured prior to child birth of our main sample (column (1)) pooling individuals of both ethnicities together as it is commonly done in the literature. Panel A depicts baseline characteristics, whereas Panel B provides information on criminal activity measured during the year before birth. To put these numbers into perspective, column (3) depicts the same information using all first-time fathers of the full population, aged from 18 to 44. Our sample of young fathers are different in many aspects. Compared to the full population, our sample is characterized by younger individuals with lower marriage rates and lower average wages. Young fathers have also spend more time receiving benefits and less months in employment the year before birth. In line with our expectations, individuals in our sample have higher conviction rates compared to the full population of all first-time fathers. Overall, this comparison provides evidence that our sample of young fathers are from disadvantaged backgrounds.

Table 1: Summary statistics prior to child birth (pooled sample)

	Main sample		Population†
	mean	*p*-value boy vs. girl	mean
	(1)	(2)	(3)
Panel A: baseline characteristics			
Age	19.69	0.629	30.34
	(1.08)		(6.28)
Income	9.44	0.657	10.45
	(1.24)		(1.14)
Months employed	8.61	0.633	10.04
	(3.69)		(3.24)
Months benefits	1.61	0.459	0.60
	(3.24)		(2.20)
Married	0.03	0.743	0.38
	(0.03)		(0.24)
Panel B: convictions			
Convictions	0.26	0.921	0.06
	(0.46)		(0.24)
Serious convictions	0.14	0.673	0.03
	(0.36)		(0.18)

Notes: The table shows means and standard deviations in parentheses for the pooled sample of NZ Europeans and Māori. Age and marriage status refer to the time of birth of the child. Wage information is measured as the log average monthly wage one year before birth. Employment and benefits are measured as the average number of months in the respective state the year before birth. Crime information refer to the cumulative log number of crime convictions (+1) during the year before birth. †Accounts for all NZ European and Māori men who had their first child born between the age of 18 and 44. Statistics refer to first child.

Table 2 provides summary statistics stratified by the two ethnic groups of NZ Europeans and Māori. Columns (5) and (6) show again the same information using all first-time fathers of the full population. The divide between our sample and the full population also holds within each ethnic group (column (1) vs column (5), and column (3) vs column (6)). The table further documents interesting differences between NZ Europeans and Māori. The full population of Māori fathers have lower labor market aspirations and the share of all individuals being married is 32% points lower. Differences in criminal records are similarly pronounced. Among NZ European fathers, about 4% have any conviction before birth, whereas this share is with 21% for Māori, five times higher. This holds in particular for serious convictions. Within each group, the difference in conviction rates is less strong for fathers of Māori dissent, indicating higher overall conviction rates for the group of Māori. The fact, however, that young fathers are more likely from disadvantaged backgrounds also holds within each ethnic group.

Panel A of Table 3 shows the distribution of convictions by age for individuals without a child, and our sample of young fathers. Convictions rates are detrimentally higher among young fathers, which is true for both groups of NZ Europeans

Table 2: Summary statistics prior to child birth (by ethnicity)

	Main sample				Population†	
	NZ European		Māori		NZ European	Māori
	mean	*p*-value boy vs. girl	mean	*p*-value boy vs. girl	mean	mean
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: baseline characteristics						
Age	19.84	0.989	19.52	0.364	31.18	24.96
	(1.05)		(1.09)		(5.89)	(5.99)
Income	9.67	0.791	9.14	0.539	10.58	9.61
	(1.12)		(1.33)		(1.04)	(1.34)
Months employed	9.41	0.488	7.55	0.282	10.33	8.61
	(3.39)		(3.80)		(3.09)	(3.77)
Months benefits	1.30	0.276	1.99	0.897	0.38	1.98
	(2.96)		(3.50)		(1.78)	(3.65)
Married	0.05	0.881	0.01	0.804	0.43	0.09
	(0.05)		(0.01)		(0.25)	(0.08)
Panel B: convictions						
Convictions	0.22	0.715	0.30	0.749	0.04	0.21
	(0.43)		(0.48)		(0.19)	(0.42)
Serious convictions	0.12	0.696	0.17	0.301	0.02	0.13
	(0.34)		(0.39)		(0.14)	(0.34)

Notes: The table shows means and standard deviations in parentheses differentiating between NZ Europeans and Māori. Age and marriage status refer to the time of birth of the child. Wage information is measured as the log average monthly wage one year before birth. Employment and benefits are measured as the average number of months in the respective state the year before birth. Crime information refer to the cumulative log number of crime convictions (+1) during the year before birth. †Accounts for all NZ European and Māori men who had their first child born between the age of 18 and 44. Statistics refer to first child.

and Māori. Interestingly, the share of serious convictions among those with any convictions is about 15% points higher among NZ Europeans, while for Māori this difference is with 4% much smaller.

Crucial in our setup is that the gender of the child is unrelated to pre-birth observable characteristics of the father. Appendix Table A.1 shows that neither ethnicity, age at child birth, nor the year of birth are related to the gender of the child. This shows that selective abortion cannot drive the results, which in any case should not be possible in New Zealand given that abortions are illegal once the gender of the child becomes observable. Columns (2) and (4) of Table 2 provide further *p*-values of simple *t*-tests between individuals who father a boy versus a girl. Reassuringly, none of the differences are significant, indicating that our sample is well balanced with respect to the gender of the child.

Table 3: Convictions and early fatherhood

Age	NZ European			Māori		
	No child (1)	child (2)	p-value	No child (3)	child (4)	p-value
Panel A: Distribution of convictions						
18	0.0070	0.0456	0.000	0.0162	0.0572	0.000
19	0.0064	0.0394	0.000	0.0155	0.0555	0.000
20	0.0049	0.0292	0.000	0.0127	0.0490	0.000
21	0.0041	0.0241	0.000	0.0113	0.0430	0.000
Panel B: Share of serious sentences						
18	0.3657	0.4975	0.000	0.5590	0.5941	0.004
19	0.3686	0.5062	0.000	0.5561	0.5983	0.000
20	0.3865	0.5590	0.000	0.5859	0.6378	0.000
21	0.4083	0.5813	0.000	0.6053	0.6438	0.003

Notes: The table shows monthly conviction rates for young fathers aged between 18 and 21 with and without a child. Panel A provides the share of individuals with any convictions. Panel B shows the share of serious sentences conditional on having any conviction.

3.3 Conviction rates around birth

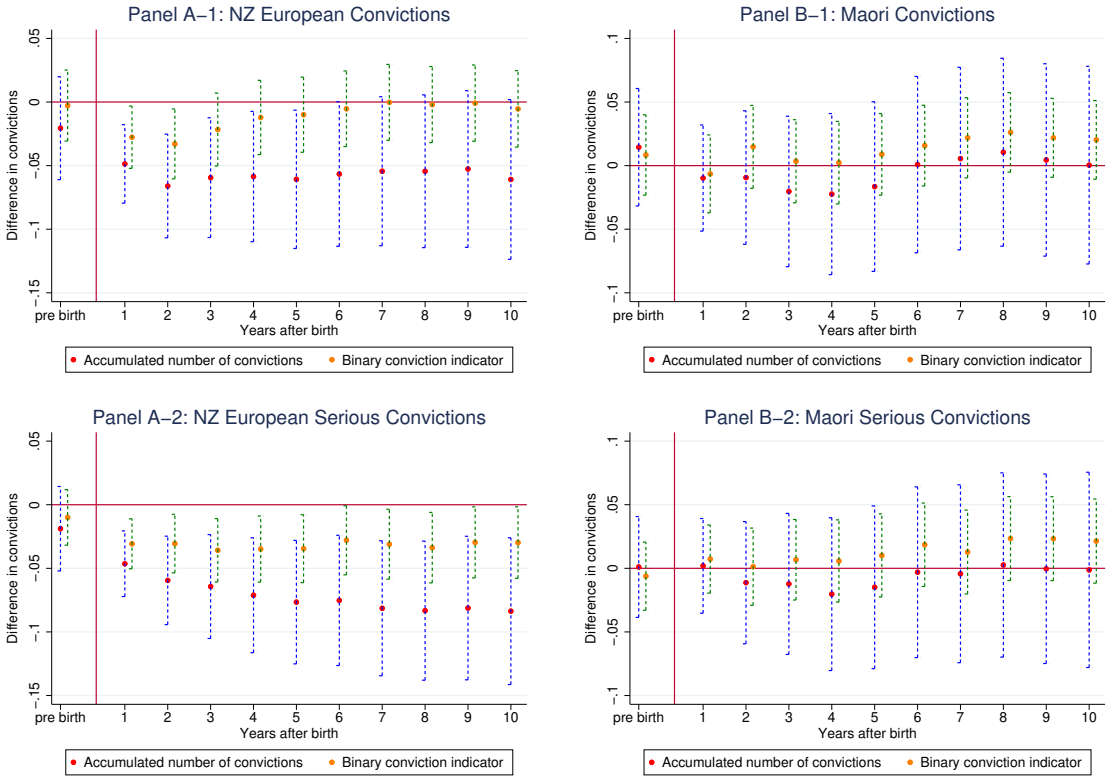
Figure 3 provides descriptive differences in conviction rates for first-time fathers with a son compared to a daughter, before and after birth, by NZ Europeans and Māori ethnicity. The upper panels of Figure 3 document differences in the total accumulated convictions (red dots) and conviction probabilities (orange dots) around birth of the child for all young fathers in our sample. On a descriptive basis, the difference in convictions for NZ Europeans is around 0.05 log points lower post birth, indicating that young fathers who father a boy have a 5% points fewer convictions than those that father a daughter. The probability of having convictions decreases by 3% points two years after birth and is precisely zero at the end of the observation window. For the sample of Māori we do not document differential behavior. The figure further shows as a placebo test conviction rates two years up to six months before birth. We choose six month before birth because women usually take an ultrasound test during pregnancy that typically can reveal the sex of the baby very accurately by the 12th-14th week of pregnancy Dahl and Moretti (2008). Descriptively, we do not observe differential effects with respect to the gender of the child for either ethnic group prior to birth.

The lower panels of Figure 3 show that the effect for NZ Europeans is driven by serious convictions. Three noteworthy facts can be derived from this panel. First, accumulated serious convictions prior to birth are similar for young fathers who father a girl vs. a boy. This holds for both, NZ Europeans and Māori. Second, among NZ Europeans, accumulated numbers of serious convictions are persistently lower for individuals who father a boy compared to a girl. This difference is contin-

uously increasing and amounts to 8 log points 10 years after birth. At the extensive margin, serious conviction probabilities decrease persistently by about 3% points. Third, Māori do not behave differently if they father a daughter versus a son.

Appendix Table A.2 provides information on all convictions, serious and non-serious convictions rates. In terms of serious convictions, NZ Europeans who father a boy have on average ten years after birth 3.6 convictions, whereas those who father a girl have on average 4.1 convictions. Māori, in turn, have irrespective of the gender of the child on average 7.5 serious convictions accumulated ten years after birth.

Figure 3: Child-gender related difference in conviction rates



Notes: The graph shows the child-gender related difference (boy vs. girl) based on standard t-test of the log accumulated number of convictions (red dots) and a binary indicator of having received convictions (orange dots) before and after child birth. Each dot corresponds to a separate t-test. Panels A-1 and A-2 refer to NZ Europeans. Panels B-1 and B-2 refer to Māori. The pre-birth period refers to the time period between two year before birth up to six months before birth, which is the time when the gender of the child can first be identified. Dotted lines around each point estimate correspond to the 95% confidence interval. Number of observations: 4404 NZ Europeans and 3681 Māori.

4 Empirical strategy

In our empirical analysis, we compare conviction outcomes among individuals who father a boy compared to a girl. Our outcome variable of interest, y_{it}, is either the accumulated number of convictions an individual i receives after the birth of the child up to year t or the probability the individual i has committed crime after birth of the child up to year t.

To estimate the effect of the child-gender on criminal activities, our model takes the following form:

$$y_{it}^{r} = \alpha + \beta_{\text{son}} \text{son}_i + X_i\gamma + u_{it}, \tag{1}$$

where son_i is an indicator equal to 1 if the child's gender is male, and zero otherwise. The coefficient of interest, β_{son}, measures the causal effect of the gender of the child on crime. As outlined before, we (i) count the number of convictions from birth and (ii) estimate probability models of having convictions t years after birth. We follow each individual for ten years. As for the accumulated number of convictions, we log the outcome variable up to time t and add a value of 1. In this case, our outcome variable is:

$$y_{it}^{r} = \log(\sum_{0}^{t} \text{convictions}_{it} + 1), \tag{2}$$

with $t \in \{0, \ldots, 10\}$. As described above, our observation period for the pre-birth period ranges from 24 months to six months before birth and are used as a placebo exercise. When estimating the probability of having convictions t years after birth, we transform Equation (2) as $y_{it}^{r} = \mathbb{1}\{y_{it}^{r} > 1\}$. Superscript r refers to the overall number of convictions, serious, and non-serious convictions.

The vector X_i includes several pre-birth period related information, including year and month of birth of the child, age of the father, log number of convictions in the pre-period and an indicator on being imprisoned in the pre-period. Despite the exogenous nature the of child's gender, we include these pre-birth observable characteristics to increase the precision of our estimates. We also restrict the sample to the following two post-birth characteristics: we only account for individual i at year t if the individual is not deceased[6] and whether the individual has not spent more than 80% of the months since birth until t overseas.

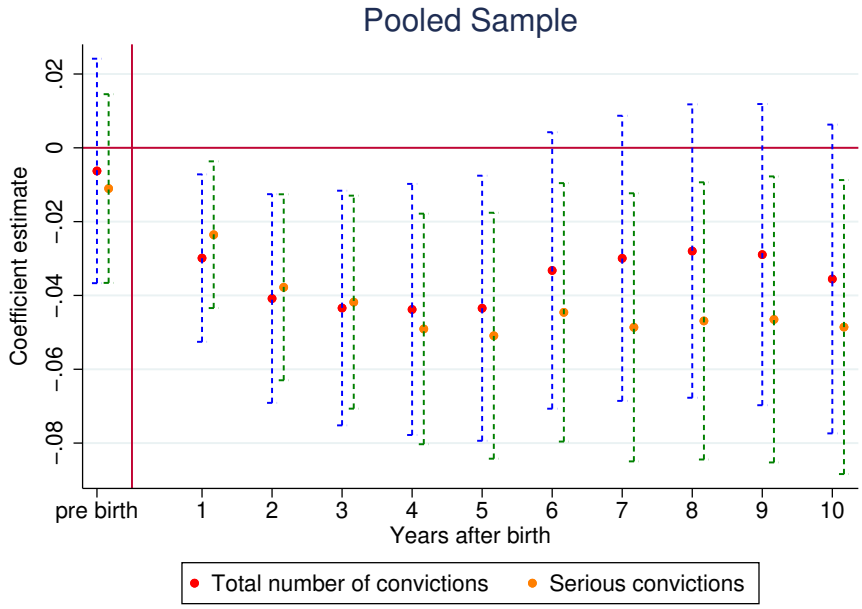
[6]This is only relevant for a small percent of our sample population and cannot be disclosed due to confidentiality.

5 Results

5.1 Baseline results

Figure 4 provides point estimates of the gender of the child (indicator variable equal to 1 if the child is a boy, 0 otherwise) on the total number of accumulated convictions before and after birth and the number of accumulated serious convictions pooling NZ Europeans and Māori.

Figure 4: Child-gender related difference in conviction rates



Notes: The graph shows the child-gender related difference (boy vs. girl) based on OLS regressions with robust standard errors of the log accumulated number of convictions (red dots) and the log accumulated number of serious convictions (orange dots) before and after child birth. Each dot corresponds to a separate regression. The pre-birth period refers to the time period between two year before birth up to six months before birth, which is the time when the gender of the child can first be identified. Dotted lines around each point estimate correspond to the 95% confidence interval. Number of observations: 8085.

In line with Dustmann and Landersø (2018) we find that the number of total convictions decreased by about 5% points at least for four years after birth if the first-born child a boy (vs. a girl). This effect is driven by serious convictions, where the negative effect is still significant ten years after birth. However, when splitting the sample by ethnicity we find very different results across the two groups. Figure 3 depicts the descriptive results, while Figure 5 provides point estimates along with 95% confidence intervals of convictions rates before and after birth on the gender of the first child. In line with the above results, total accumulated convictions drop persistently by 5% points for ten years after birth in case NZ Europeans father a

boy relative to a girl. This again is driven by serious crime (orange dots) with the point estimate being consistently around -8% points for ten years after birth. In contrast, the point estimates for Māori are statistically not significant and hoover close to zero.

At the extensive margin, Table A.4 in the Appendix provides for the pooled sample regression results using as the outcome variable the binary indicator of having received any convictions or any serious convictions. This extensive margin estimate provides evidence for no effect of the gender of the child, indicating that the intensive margin is adjusted. In the appendix, Table A.5 shows the results using the binary indicator differentiated by ethnicity. At the extensive margin, the probability of receiving any serious convictions decreases by 2.4% points ten years after child birth among NZ Europeans. Importantly, pre-birth crime is not affected by the gender of the child, providing credibility for the exogeneity of the gender of the child.

The results so far point to the importance of heterogeneous effects across ethnic groups. Māori do not seem to adjust their criminal behavior after child birth depending on the gender of the child, whereas young fathers of European descent who father a boy reduce their criminal behavior at the intensive and extensive margin relative to individuals who father a girl. Thus, life changing events, so called 'turning points', cause different behavior across ethnic groups.

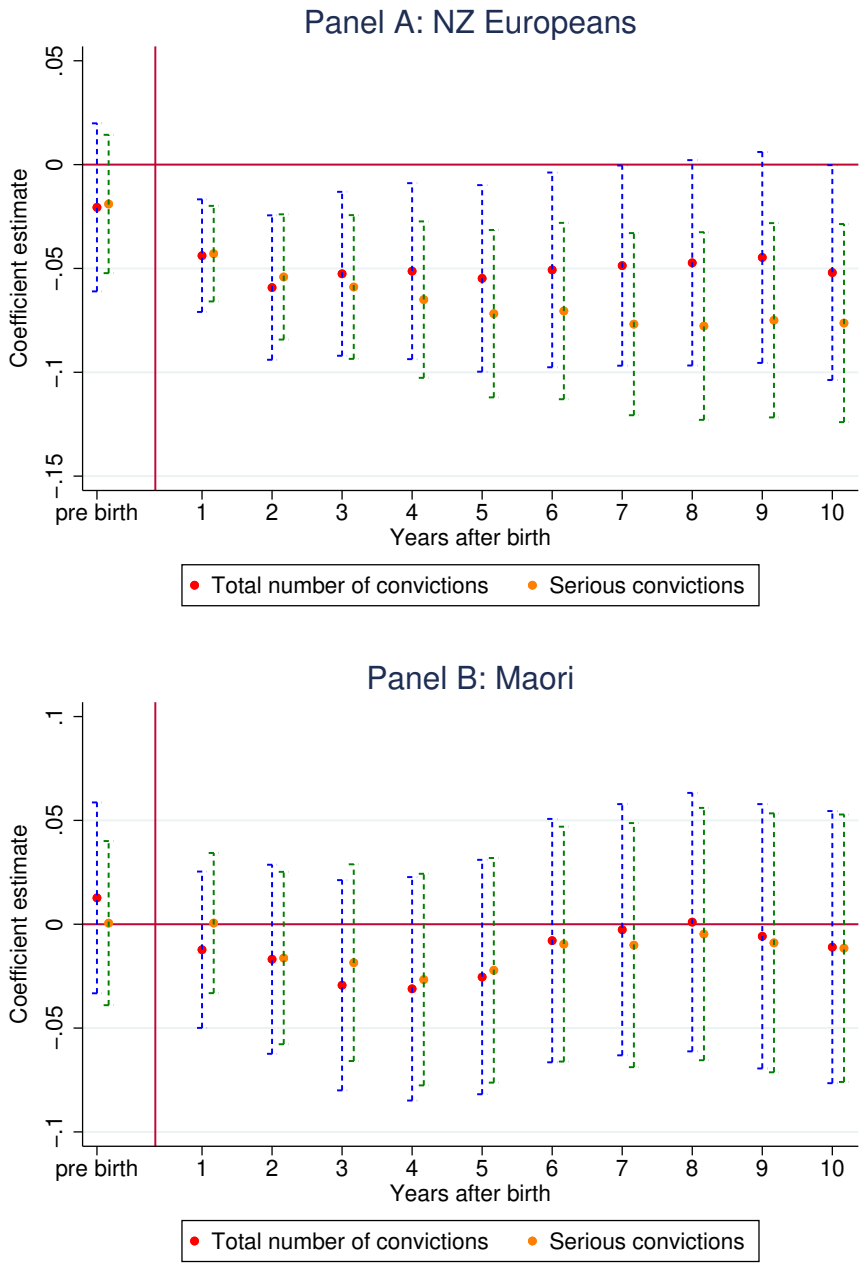
5.2 Stratifying by severity

In the following we stratify our sample by the type of criminal convictions before birth of the first-born child. For this we define three groups for our period between 24 months and 6 months before birth: the first consists of individuals with any criminal records, the second one with sentences for serious crimes only, and the last with no prior convictions. As we had shown in Table 2 above, the overall pre-birth level of convictions for young fathers is high, with 22% of NZ European and 38% Māori.

The results for the first group are depicted in Panels A-1 and B-1 of Figure 6.[7] The left hand side of the Panel shows the results for the NZ Europeans, and the right hand side for Māori. Each panel then shows two results, one for all convictions, and

[7]We again show for each group the accumulated number of total convictions, as well as serious convictions and refer to the Appendix for the effects of gender-related conviction probabilities (extensive margin).Table A.3 provides information on actual conviction rates for individuals with different pre-birth criminal records. Conditional on having at least one conviction prior to birth, NZ Europeans with a daughter have on average 3.9 convictions 10 years after birth, whereas young fathers with a boy have on average 3.2 overall convictions. In comparison, Māori have accumulated around 7 convictions 10 years after birth.

Figure 5: Child-gender related difference in conviction rates by ethnicity



Notes: The graph shows the child-gender related difference (boy vs. girl) based on OLS regressions with robust standard errors of the log accumulated number of convictions (red dots) and the log accumulated number of serious convictions (orange dots) before and after child birth. Each dot corresponds to a separate regression. Panel A provides the results for NZ Europeans. Panel B provides the results for Māori. The pre-birth period refers to the time period between two year before birth up to six months before birth, which is the time when the gender of the child can first be identified. Dotted lines around each point estimate correspond to the 95% confidence interval. Number of observations: 4 404 NZ Europeans and 3 681 Māori.

one for the sub-category of serious convictions. In the first Panels we document a significant drop in criminal convictions for NZ Europeans if the first born was a boy

(vs. a girl), while for Māori it declines slightly but remains insignificant. For NZ Europeans ten years after birth, the differential effect amounts to about 13% points. Having said that, the differential effect between ethnic NZ Europeans and Māori is particularly strong for those with serious pre-birth convictions. For this group of individuals, the differential effect is about 25% points, with the improvements being entirely confined to the NZ Europeans. For ethnic Māori we again observe a small but insignificant decline. Finally, Panels A-3 and B-3 of Figure 6 provide the results for those with no prior criminal record. Again we document ethnic differences. Looking at Māoris we can show an alternating - albeit insignificant - coefficient around zero, while for NZ Europeans we again show a decline which however is only significant for the serious convictions category.

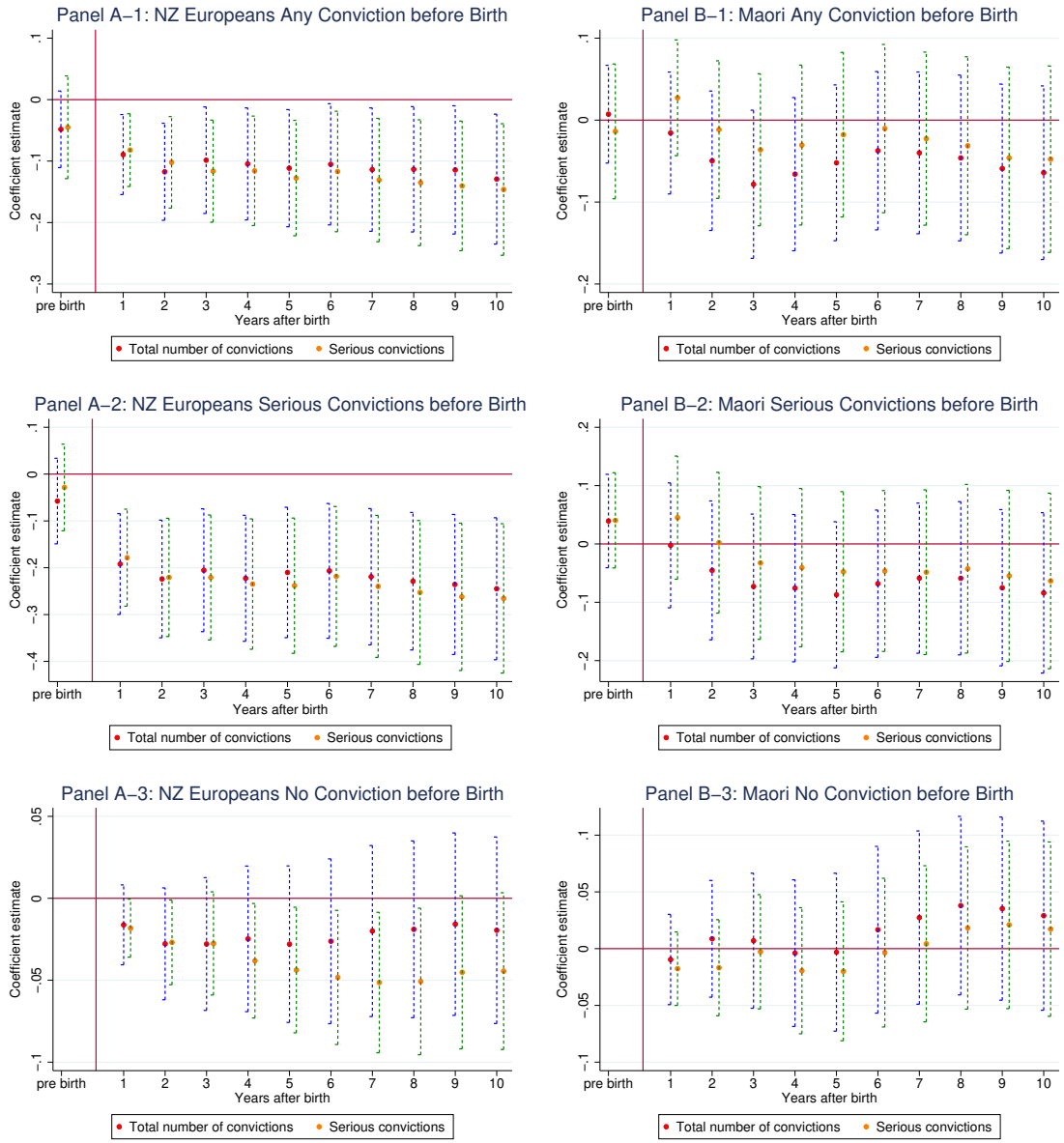
Appendix Tables A.6 to A.9 provide estimates of the impact of son vs. daughter on fathers' crime probability. The effect for Māori are again insignificant with the point estimates close to zero. In terms of the extensive margin, NZ Europeans with a serious conviction before birth experience a decrease in the probability of having a serious conviction ten years after birth by almost 9% points.

6 Labor market performance and marriage

The evidence presented in Section 5 reveals strong gender differences in a fathers' crime convictions among NZ Europeans. We complement the analysis by studying labor market outcomes in terms of income/wages and labor market participation, and the probability of marriage.

There are many theoretical explanations for why individuals might react differently depending on the gender of the child and how they re-allocate time towards alternatives. The model put forward by Dahl and Moretti (2008) presents possible channels in an utility maximizing framework to study family formation decisions. This can be applied in a broader context to derive implications on the allocation of time. Fathers might want to become a *role model* to their newborn which might be more pronounced if the child is a boy rather than a girl. It might also be the case that young fathers derive more *utility* from spending time with a boy than a girl. This would allocate time away from criminal activity or away from hanging out with potential criminal peers who might affect the probability of engaging in crime. Related to it, it might be the case that to *bring up a child is harder* if the child is a boy than a girl or that fathers have a *comparative advantage* in raising a boy. If the father cares about his child outcomes', he would allocate time away from

Figure 6: Child-gender related difference in conviction rates by ethnicity and pre-birth criminal record



Notes: The graph shows the child-gender related difference (boy vs. girl) based on OLS regressions with robust standard errors of the log accumulated number of convictions (red dots) and the log accumulated number of serious convictions (orange dots) before and after child birth. Each dot corresponds to a separate regression. Panel A provides the results for NZ Europeans. Panel B provides the results for Māori. The pre-birth period refers to the time period between two year before birth up to six months before birth, which is the time when the gender of the child can first be identified. Dotted lines around each point estimate correspond to the 95% confidence interval. Number of observations: Panel A-1: 1 473; Panel A-2: 717; Panel A-3: 2 931; Panel B-1: 1 443; Panel B-2: 807; Panel B-3: 2 238; .

alternatives which could cause a reduction in criminal activity.[8]

[8]The importance of the father on child- and family-related outcomes, such as child development or investment decisions, is studied in various fields such as psychology, sociology, and economics. Lamb (1976) provides an overview of the early literature. Page and Stevens (2004) show that the

These are all possible channels of why individuals who father a boy might reduce their criminal activity compared to young fathers who father a girl. We use a series of outcome variables to shed some light on the effects found in Section 5. Studying labor market performance and family formation, however, are unlikely to favor one explanation over the other. We intend to put the main findings of the child's gender on crime into perspective by providing estimates of gender-related differences on additional outcomes variables.

Figure 7 provides the results for all young fathers with a serious conviction before birth. Young fathers of European descent with a first-born boy experience higher average wages after child birth (Panel A-1). This effect becomes visible four years after birth with the point estimates being around 10% points up to ten years after birth. They, moreover, accumulate higher numbers of months employed (Panel A-2) and less numbers of months in means tested benefits (Panel A-3) which, in combination, results in higher accumulated income (Column (1) of Appendix Table A.11). This observation might speak to the role model explanation. With such an behavioral adjustment, they might want to signal socially desirable behavior to the boy. On the other hand, if it is harder to raise a boy, families will face higher monetary or non-monetary costs making the families relatively poorer. This cost disadvantage might lead fathers to work more.

Consistent with presented evidence on criminal activity, the effect of the gender of the first-born child on labor market indicators among Māori is statistically not significant. The behavioral adjustment after an exogenous shock again highly depends on the ethnic groups under consideration[9].

Finally, Dahl and Moretti (2008) provide evidence that couples with first-born girls are less likely to marry and more likely to divorce. In our setting, marriage rates for NZ Europeans do adjust for the total sample (Appendix Table A.10). Unlike criminal activity among serious convicted individuals before birth, we do not document differential marriage rates after child birth (Panel A-4 of Figure 7). This might point to the fact that, despite a reduction in crime of fathers with a first-born boy (Panel A-3 of Figure 6), marriage capital might still be too low for pre-birth criminals. In contrast, young fathers with first-born boys and without a conviction before birth are less likely to commit crime and, therefore, might possess

absence of the father has important consumption implications to the child. Empirical evidence for parental beliefs about the importance of fathers for the long-term development of sons is provided by Lundberg et al. (2007). In terms of investment decisions, Baker and Milligan (2016) find little support for parental preferences at young ages.

[9]While we could make stipulations about differences in access to resources of familial dynamics in the home, data limitations would impose sever obstacles to identify the channels that lead young NZ European fathers to react more strongly to the birth of their first child than Māori fathers.

more marriage capital, resulting in higher marriage rates. The fact that there is a differential effect within the group of NZ Europeans might also speak against the pure utility explanation. Importantly, we do not find systemic differences in marriages rates among the group of Māori. Overall, these results point strongly to the fact that racial bias in research and technology is more far reaching and potentially occurs along many dimensions.

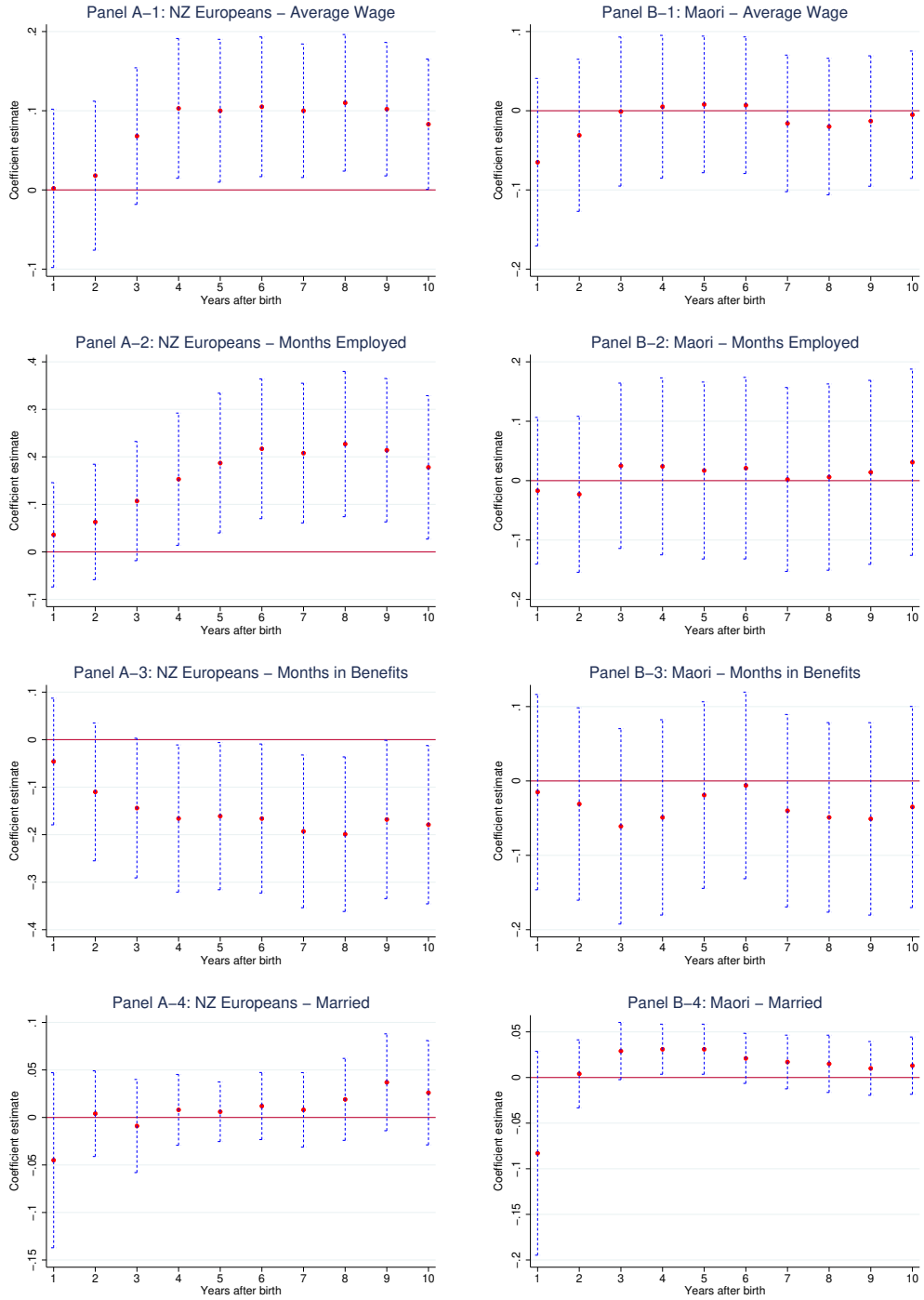
7 Discussion and Conclusions

This paper builds on the novel identification strategy proposed by Dustmann and Landersø (2018) to explore the exogenous variation in criminal behavior of an individual using the random variation of the gender of their first child. Based on very precise administrative records from New Zealand we were able to argue that different ethnicities react very differently to exogenous events like the birth of a male child.

Though our findings for are consistent with Dustmann and Landersø (2018) we were able to establish a stark ethnic divide in our results. For NZ Europeans, total convictions drop by 5% points up to ten years after birth and can be as much as 13% points for those with any pre-birth criminal record. However, we find that any estimates for the Māori population are close to zero and not statistically significant. We also explore additional effects of the birth of a first child on labor market and social outcomes, again finding that only NZ European fathers experiences higher average wages, more months of employment, and higher accumulated income.

Our estimates illustrate the ethnic biases that may occur in research and have important implications for approaches to crime research and economic analysis more broadly. There are many examples of implicit ethnic/racial and gender biases in research and technology. In examining AI-facial analysis programs from major technology companies, MIT and Stanford University found that error rates are lowest for light-skinned men, never higher than 0.8%, but can be as much as 34% for darker-skinned women (Hardesty 2018). Even recent studies of cutaneous manifestations of COVID-19 show racial biases. Though people of color have tended to be disproportionately impacted by COVID-19 in countries like the USA and UK, articles describing the virus' symptoms on a patient's skin almost exclusively show images from lighter-skinned patients (Lester et al. 2020). As the BLM movement brings these concerns of implicit biases and institutionalized racism to the forefront of social and political dialogue, we argue that economists will also need to do more to prevent potential biases in our own work.

Figure 7: Child-gender related difference in labor market indicators and marriage rates by ethnicity - all individuals with pre-birth serious convictions



Notes: The graph shows the child-gender related difference (boy vs. girl) based on OLS regressions with robust standard errors of log average wages, log months employed, log months receiving benefits, and being married. Each dot corresponds to a separate regression. Panel A provides the results for NZ Europeans. Panel B provides the results for Māori. Dotted lines around each point estimate correspond to the 95% confidence interval. Number of observations: 717 NZ Europeans and 807 Māori.

Our results further serve as a warning that economists should be wary of generalizing the results of a majority population on a minority, as these groups may react very differently to a similar exogenous event. Thus, it would be wrong to draw conclusions and suggest policy responses from research that has not yet considered the diversity in a population, as a policy designed around the way a majority group reacts could be ineffective for minority groups, leaving them out from the potential benefits of research.

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Supplementary Appendix

A Data Addendum

Table A.1: The gender of the child

	Total Sample	Māori	NZ European
NZ European	0.00700		
	(0.0147)		
Birthyear (reference: 2005)			
2006	-0.0168	0.00146	-0.0200
	(0.0139)	(0.0382)	(0.0150)
2007	-0.00274	0.0109	-0.00495
	(0.0138)	(0.0378)	(0.0149)
2008	0.00531	0.00604	0.00519
	(0.0139)	(0.0381)	(0.0150)
2009	0.0231	0.0268	0.0217
	(0.0179)	(0.0491)	(0.0192)
Birthmonth (reference: January)			
February	-0.0211	0.0341	-0.0296
	(0.0215)	(0.0595)	(0.0231)
March	-0.00193	0.0220	-0.00567
	(0.0211)	(0.0584)	(0.0226)
April	-0.00800	-0.0304	-0.00382
	(0.0213)	(0.0578)	(0.0230)
May	0.0176	0.00262	0.0205
	(0.0212)	(0.0578)	(0.0227)
June	-0.0176	0.0271	-0.0246
	(0.0214)	(0.0593)	(0.0230)
July	0.00697	0.0569	-0.00150
	(0.0228)	(0.0621)	(0.0245)
August	0.0368	0.000834	0.0433*
	(0.0228)	(0.0617)	(0.0246)
September	0.0474**	0.0290	0.0503**
	(0.0228)	(0.0623)	(0.0245)
October	0.00839	0.0496	0.00168
	(0.0227)	(0.0625)	(0.0244)
November	0.0126	0.0719	0.00339

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Table A.1 – continued from previous page

Variable	Total Sample	Māori	NZ European
	(0.0228)	(0.0626)	(0.0245)
December	0.00641	0.110*	-0.00989
	(0.0228)	(0.0625)	(0.0245)
Age of father (reference: 18 years old)			
19	0.0427	0.0417	0.0451
	(0.0434)	(0.0590)	(0.0647)
20	0.0177	0.0112	0.0226
	(0.0423)	(0.0591)	(0.0617)
21	-0.00498	-0.0463	0.0199
	(0.0419)	(0.0605)	(0.0603)
22	-0.0318	-0.000993	-0.0443
	(0.0421)	(0.0631)	(0.0598)
23	-0.0118	-0.0333	-0.00103
	(0.0419)	(0.0640)	(0.0592)
24	-0.0424	-0.0218	-0.0472
	(0.0417)	(0.0670)	(0.0585)
25	-0.0122	0.115*	-0.0423
	(0.0412)	(0.0695)	(0.0576)
26	0.00199	0.0246	-0.000368
	(0.0411)	(0.0743)	(0.0571)
27	-0.0670*	-0.0576	-0.0665
	(0.0404)	(0.0742)	(0.0563)
28	-0.0486	-0.154*	-0.0347
	(0.0398)	(0.0795)	(0.0556)
29	-0.0420	-0.0500	-0.0393
	(0.0393)	(0.0797)	(0.0551)
30	0.0186	0.0167	0.0208
	(0.0390)	(0.0861)	(0.0547)
31	-0.0157	-0.0255	-0.0130
	(0.0387)	(0.0890)	(0.0544)
32	-0.00807	-0.0253	-0.00507
	(0.0385)	(0.0928)	(0.0543)
33	-0.00217	-0.0175	0.000620
	(0.0386)	(0.0943)	(0.0543)
34	-0.0226	-0.137	-0.0150
	(0.0391)	(0.103)	(0.0547)

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Table A.1 – continued from previous page

Variable	Total Sample	Māori	NZ European
35	-0.0555	-0.126	-0.0497
	(0.0393)	(0.105)	(0.0548)
36	-0.0367	-0.191*	-0.0270
	(0.0398)	(0.107)	(0.0552)
37	-0.0383	0.107	-0.0435
	(0.0411)	(0.116)	(0.0562)
38	-0.00260	0.0604	-0.00363
	(0.0425)	(0.127)	(0.0572)
39	-0.0946**	-0.0620	-0.0944
	(0.0439)	(0.132)	(0.0584)
40	0.00129	0.0860	-0.000401
	(0.0462)	(0.155)	(0.0602)
41	-0.0347	0.0702	-0.0367
	(0.0490)	(0.181)	(0.0624)
42	0.0478	-0.161	0.0596
	(0.0516)	(0.187)	(0.0646)
43	0.0414	0.0134	0.0454
	(0.0566)	(0.208)	(0.0690)
44	-0.0649	-0.158	-0.0567
	(0.0613)	(0.206)	(0.0734)
Constant	0.0487	0.0214	0.0582
	(0.0377)	(0.0639)	(0.0542)

Notes: The table shows probit regression results (marginal effects) of the gender of the child on the years of birth, month of birth, and the age of the father. Column (1) refers to the full sample. Column (2) refers to the ethnic group of Māori. Column (3) refers to the ethnic group of NZ Europeans. Significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.2: Distribution of convictions

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All convictions						
pre-birth	0.428	0.407	0.319	0.487	0.502	0.539
	(0.697)	(0.672)		(0.705)	(0.722)	
1	0.265	0.217	0.002	0.395	0.385	0.647
	(0.553)	(0.482)		(0.641)	(0.636)	
2	0.427	0.361	0.001	0.634	0.624	0.726
	(0.72)	(0.65)		(0.815)	(0.793)	
3	0.539	0.48	0.013	0.809	0.789	0.501
	(0.821)	(0.76)		(0.912)	(0.896)	
4	0.618	0.56	0.025	0.93	0.907	0.488
	(0.893)	(0.826)		(0.976)	(0.957)	
5	0.681	0.62	0.028	1.026	1.009	0.628
	(0.945)	(0.876)		(1.027)	(1.005)	
6	0.728	0.672	0.051	1.096	1.096	0.982
	(0.986)	(0.916)		(1.068)	(1.044)	
7	0.764	0.709	0.069	1.161	1.166	0.88
	(1.015)	(0.944)		(1.103)	(1.076)	
8	0.794	0.74	0.076	1.216	1.226	0.78
	(1.039)	(0.967)		(1.136)	(1.104)	
9	0.819	0.766	0.094	1.271	1.276	0.908
	(1.062)	(0.991)		(1.163)	(1.128)	
10	0.846	0.785	0.058	1.32	1.321	0.992
	(1.082)	(1.01)		(1.191)	(1.157)	
Panel B: Serious sentence convictions						
pre-birth	0.232	0.213	0.265	0.29	0.291	0.958
	(0.573)	(0.55)		(0.605)	(0.62)	
1	0.171	0.125	0	0.266	0.267	0.918
	(0.475)	(0.391)		(0.571)	(0.569)	
2	0.276	0.217	0.001	0.444	0.433	0.645
	(0.628)	(0.541)		(0.741)	(0.73)	
3	0.359	0.295	0.002	0.574	0.562	0.665
	(0.721)	(0.65)		(0.853)	(0.841)	

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Table A.2 – continued from previous page

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
4	0.425	0.354	0.002	0.678	0.657	0.508
	(0.796)	(0.72)		(0.924)	(0.909)	
5	0.477	0.4	0.002	0.758	0.743	0.648
	(0.853)	(0.773)		(0.985)	(0.965)	
6	0.516	0.441	0.004	0.822	0.819	0.928
	(0.897)	(0.815)		(1.032)	(1.012)	
7	0.548	0.466	0.003	0.883	0.878	0.905
	(0.929)	(0.846)		(1.071)	(1.052)	
8	0.574	0.491	0.003	0.931	0.934	0.943
	(0.955)	(0.873)		(1.111)	(1.085)	
9	0.596	0.515	0.005	0.979	0.979	0.993
	(0.982)	(0.899)		(1.145)	(1.112)	
10	0.616	0.532	0.004	1.026	1.025	0.975
	(1.003)	(0.919)		(1.176)	(1.143)	
Panel C: Non-serious sentence convictions						
pre-birth	0.261	0.251	0.436	0.264	0.284	0.198
	(0.468)	(0.456)		(0.455)	(0.466)	
1	0.124	0.113	0.25	0.169	0.161	0.468
	(0.317)	(0.306)		(0.363)	(0.352)	
2	0.218	0.196	0.092	0.297	0.288	0.541
	(0.43)	(0.416)		(0.477)	(0.46)	
3	0.285	0.268	0.269	0.397	0.377	0.246
	(0.503)	(0.481)		(0.539)	(0.523)	
4	0.329	0.316	0.399	0.466	0.444	0.234
	(0.545)	(0.52)		(0.581)	(0.565)	
5	0.366	0.353	0.474	0.524	0.502	0.282
	(0.572)	(0.551)		(0.611)	(0.598)	
6	0.396	0.386	0.581	0.565	0.551	0.522
	(0.593)	(0.575)		(0.634)	(0.622)	
7	0.418	0.414	0.801	0.602	0.596	0.778
	(0.609)	(0.594)		(0.653)	(0.641)	
8	0.435	0.432	0.857	0.636	0.632	0.866
	(0.621)	(0.605)		(0.669)	(0.657)	

Continued on next page

Table A.2 – continued from previous page

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
9	0.449	0.447	0.914	0.672	0.665	0.779
	(0.634)	(0.618)		(0.684)	(0.675)	
10	0.471	0.46	0.589	0.701	0.693	0.743
	(0.648)	(0.63)		(0.697)	(0.688)	
Observations	4 404			3 681		

Notes: The table shows log-transformed accumulated numbers of convictions (+1) for individuals who fathers a girl (columns (1) and (4)) and who father a boy (column (2) and (5)), differentiated by ethnic group. The p-values in columns (3) and (6) corresponds to a standard t-test. Panel A to C differentiate convictions type. Panel A refers to all convictions. Panel B refers to serious convictions. Panel C refers to non-serious conviction. Standard errors in parentheses. Significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: Distribution of convictions for different pre-birth ranks

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: conviction before birth						
pre-birth	1.272	1.221	0.105	1.256	1.266	0.743
	(0.608)	(0.599)		(0.56)	(0.588)	
1	0.562	0.446	0.001	0.683	0.661	0.577
	(0.732)	(0.643)		(0.742)	(0.761)	
2	0.861	0.712	0.001	1.086	1.022	0.165
	(0.885)	(0.819)		(0.863)	(0.885)	
3	1.055	0.922	0.007	1.353	1.258	0.056
	(0.976)	(0.914)		(0.913)	(0.957)	
4	1.202	1.066	0.01	1.519	1.432	0.093
	(1.034)	(0.969)		(0.948)	(0.994)	
5	1.305	1.167	0.012	1.643	1.569	0.167
	(1.074)	(1.016)		(0.98)	(1.01)	
6	1.382	1.252	0.022	1.742	1.681	0.261
	(1.108)	(1.049)		(1.004)	(1.021)	
7	1.449	1.309	0.016	1.839	1.776	0.254
	(1.125)	(1.077)		(1.024)	(1.039)	
8	1.496	1.354	0.016	1.923	1.853	0.216
	(1.145)	(1.095)		(1.054)	(1.055)	
9	1.538	1.395	0.019	1.999	1.915	0.143
	(1.17)	(1.113)		(1.075)	(1.074)	
10	1.581	1.424	0.011	2.065	1.973	0.121
	(1.183)	(1.135)		(1.093)	(1.103)	
Panel B: pre-birth serious sentence convictions						
pre-birth	1.639	1.58	0.205	1.527	1.573	0.252
	(0.606)	(0.63)		(0.561)	(0.588)	
1	0.833	0.636	0.001	0.837	0.837	0.989
	(0.806)	(0.707)		(0.769)	(0.811)	
2	1.216	0.986	0.001	1.277	1.23	0.457
	(0.925)	(0.876)		(0.869)	(0.918)	
3	1.448	1.244	0.005	1.587	1.511	0.251
	(0.979)	(0.937)		(0.887)	(0.971)	

Continued on next page

Table A.3 – continued from previous page

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
4	1.63	1.415	0.004	1.774	1.692	0.225
	(1.012)	(0.968)		(0.902)	(0.992)	
5	1.748	1.553	0.011	1.931	1.838	0.171
	(1.042)	(0.999)		(0.904)	(0.99)	
6	1.834	1.647	0.02	2.033	1.96	0.287
	(1.074)	(1.037)		(0.932)	(0.99)	
7	1.909	1.716	0.017	2.138	2.079	0.394
	(1.083)	(1.065)		(0.943)	(0.993)	
8	1.965	1.764	0.015	2.227	2.17	0.422
	(1.101)	(1.077)		(0.967)	(1.007)	
9	2.009	1.805	0.015	2.312	2.238	0.3
	(1.122)	(1.099)		(0.978)	(1.025)	
10	2.056	1.843	0.013	2.395	2.304	0.221
	(1.139)	(1.118)		(0.988)	(1.052)	
Panel C: pre-birth non-serious sentence convictions						
pre-birth	0.903	0.895	0.718	0.893	0.898	0.841
	(0.318)	(0.319)		(0.287)	(0.312)	
1	0.289	0.274	0.702	0.474	0.449	0.63
	(0.522)	(0.522)		(0.647)	(0.634)	
2	0.506	0.463	0.39	0.828	0.773	0.379
	(0.678)	(0.674)		(0.786)	(0.776)	
3	0.663	0.63	0.571	1.035	0.957	0.249
	(0.799)	(0.786)		(0.851)	(0.848)	
4	0.778	0.75	0.66	1.171	1.121	0.492
	(0.869)	(0.856)		(0.899)	(0.904)	
5	0.869	0.818	0.438	1.25	1.247	0.966
	(0.916)	(0.9)		(0.943)	(0.939)	
6	0.937	0.894	0.529	1.341	1.347	0.94
	(0.952)	(0.926)		(0.963)	(0.955)	
7	0.993	0.938	0.439	1.432	1.42	0.878
	(0.972)	(0.946)		(0.989)	(0.977)	
8	1.028	0.981	0.51	1.506	1.479	0.737
	(0.988)	(0.972)		(1.027)	(0.987)	

Continued on next page

Table A.3 – continued from previous page

Years to birth	NZ European			Māori		
	daughter	son	p-value	daughter	son	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
9	1.064	1.022	0.578	1.572	1.536	0.665
	(1.017)	(0.989)		(1.055)	(1.005)	
10	1.103	1.042	0.421	1.617	1.583	0.684
	(1.025)	(1.009)		(1.07)	(1.034)	
Panel D: no conviction before birth						
1	0.114	0.101	0.278	0.209	0.203	0.77
	(0.348)	(0.319)		(0.484)	(0.455)	
2	0.208	0.185	0.182	0.345	0.36	0.556
	(0.492)	(0.452)		(0.632)	(0.593)	
3	0.279	0.256	0.277	0.461	0.476	0.618
	(0.576)	(0.546)		(0.722)	(0.695)	
4	0.322	0.303	0.399	0.553	0.559	0.855
	(0.633)	(0.597)		(0.79)	(0.75)	
5	0.366	0.343	0.356	0.63	0.638	0.82
	(0.683)	(0.636)		(0.847)	(0.811)	
6	0.397	0.377	0.436	0.683	0.71	0.465
	(0.719)	(0.669)		(0.888)	(0.864)	
7	0.419	0.406	0.606	0.726	0.766	0.311
	(0.746)	(0.693)		(0.917)	(0.897)	
8	0.442	0.429	0.644	0.764	0.813	0.222
	(0.769)	(0.719)		(0.94)	(0.927)	
9	0.459	0.448	0.714	0.805	0.853	0.248
	(0.788)	(0.743)		(0.962)	(0.95)	
10	0.477	0.464	0.638	0.847	0.888	0.333
	(0.805)	(0.76)		(0.992)	(0.974)	
Observations	4404			3681		

Notes: The table shows log-transformed accumulated numbers of convictions (+1) for individuals who fathers a girl (columns (1) and (4)) and who father a boy (column (2) and (5)), differentiated by ethnic group. The p-values in columns (3) and (6) corresponds to a standard t-test. Panel A to D differentiate by pre-birth convictions. Panel A refers to individuals with at least one conviction before birth. Panel B refers to individuals with at least one serious conviction before birth. Panel C refers to individuals with at least one non-serious conviction before birth. Panel D refers to individuals with no conviction before birth. Standard errors in parentheses. Significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.4: The effect of child gender on father's crime (pooled sample)

	Pooled sample				Convicted before birth			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre-	-0.006	0.001	-0.011	-0.009	-0.023	-	-0.033	-0.026
birth	(0.016)	(0.011)	(0.013)	(0.009)	(0.022)		(0.03)	(0.019)
1	-0.030***	-0.015*	-0.024**	-0.011	-0.053**	-0.041**	-0.028	-0.013
	(0.012)	(0.009)	(0.01)	(0.007)	(0.025)	(0.018)	(0.023)	(0.016)
2	-0.041***	-0.011	-0.038***	-0.014	-0.086***	-0.046***	-0.059**	-0.03
	(0.014)	(0.01)	(0.013)	(0.008)	(0.03)	(0.017)	(0.029)	(0.017)
3	-0.043***	-0.012	-0.042***	-0.015*	-0.092***	-0.034**	-0.079**	-0.037
	(0.016)	(0.01)	(0.015)	(0.009)	(0.032)	(0.016)	(0.032)	(0.017)
4	-0.044**	-0.008	-0.049***	-0.016*	-0.088***	-0.033**	-0.076**	-0.02
	(0.017)	(0.01)	(0.016)	(0.009)	(0.034)	(0.015)	(0.034)	(0.017)
5	-0.043**	-0.005	-0.051***	-0.015	-0.085**	-0.028*	-0.075**	-0.02
	(0.018)	(0.01)	(0.017)	(0.009)	(0.035)	(0.015)	(0.035)	(0.017)
6	-0.033*	0.001	-0.045**	-0.007	-0.074**	-0.020	-0.066*	-0.009
	(0.019)	(0.01)	(0.018)	(0.01)	(0.036)	(0.015)	(0.037)	(0.017)
7	-0.030	0.006	-0.049***	-0.012	-0.081**	-0.023	-0.081**	-0.023
	(0.02)	(0.01)	(0.019)	(0.01)	(0.036)	(0.014)	(0.038)	(0.017)
8	-0.028	0.007	-0.047**	-0.009	-0.083**	-0.018	-0.088**	-0.021
	(0.02)	(0.01)	(0.019)	(0.01)	(0.037)	(0.014)	(0.039)	(0.016)
9	-0.029	0.006	-0.046**	-0.006	-0.089**	-0.013	-0.096**	-0.021
	(0.021)	(0.01)	(0.02)	(0.01)	(0.038)	(0.014)	(0.04)	(0.016)
10	-0.036*	0.003	-0.049**	-0.007	-0.097**	-0.020	-0.098**	-0.022
	(0.021)	(0.01)	(0.02)	(0.01)	(0.039)	(0.014)	(0.041)	(0.016)
N	8 085				2 916			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all individuals pooling NZ Europeans and Māori. Columns (5) to (8) correspond to all individuals with any conviction before child birth and pooling NZ Europeans and Māori. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.5: The effect of child gender on father's crime (full sample)

	NZ European				Māori			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre-birth	-0.021	-0.003	-0.019	-0.010	0.013	0.006	0.001	-0.007
	(0.021)	(0.014)	(0.017)	(0.011)	(0.023)	(0.016)	(0.02)	(0.014)
1	-0.044***	-0.021*	-0.043***	-0.024***	-0.012	-0.007	0.001	0.006
	(0.014)	(0.011)	(0.012)	(0.009)	(0.019)	(0.014)	(0.017)	(0.012)
2	-0.059***	-0.028**	-0.054***	-0.023**	-0.017	0.009	-0.016	-0.001
	(0.018)	(0.012)	(0.015)	(0.01)	(0.023)	(0.015)	(0.021)	(0.014)
3	-0.053***	-0.018	-0.059***	-0.029***	-0.029	-0.003	-0.018	0.004
	(0.02)	(0.013)	(0.018)	(0.011)	(0.026)	(0.015)	(0.024)	(0.014)
4	-0.051**	-0.009	-0.065***	-0.029**	-0.031	-0.004	-0.027	0.003
	(0.022)	(0.013)	(0.019)	(0.011)	(0.027)	(0.015)	(0.026)	(0.015)
5	-0.055**	-0.008	-0.072***	-0.029**	-0.025	0.002	-0.022	0.006
	(0.023)	(0.013)	(0.021)	(0.012)	(0.029)	(0.015)	(0.028)	(0.015)
6	-0.051**	-0.003	-0.071***	-0.023*	-0.008	0.009	-0.010	0.015
	(0.024)	(0.014)	(0.022)	(0.012)	(0.03)	(0.015)	(0.029)	(0.015)
7	-0.049**	0.001	-0.077***	-0.026**	-0.003	0.015	-0.010	0.009
	(0.025)	(0.014)	(0.022)	(0.012)	(0.031)	(0.015)	(0.03)	(0.015)
8	-0.047*	0.000	-0.078***	-0.029**	0.001	0.019	-0.005	0.019
	(0.025)	(0.014)	(0.023)	(0.012)	(0.032)	(0.015)	(0.031)	(0.015)
9	-0.045*	0.001	-0.075***	-0.024**	-0.006	0.015	-0.009	0.018
	(0.026)	(0.014)	(0.024)	(0.012)	(0.032)	(0.015)	(0.032)	(0.015)
10	-0.052**	-0.003	-0.076***	-0.024*	-0.011	0.013	-0.012	0.016
	(0.026)	(0.014)	(0.024)	(0.013)	(0.033)	(0.015)	(0.033)	(0.015)
N	4404				3681			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all NZ Europeans. Columns (5) to (8) correspond to all Māori. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.6: The effect of child gender on father's crime (any conviction before birth)

	NZ European				Māori			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre-	-0.048	-	-0.045	-0.021	0.007	-	-0.014	-0.028
birth	(0.032)		(0.043)	(0.026)	(0.03)		(0.042)	(0.026)
1	-0.089***	-0.050**	-0.082***	-0.045**	-0.016	-0.029	0.027	0.022
	(0.033)	(0.024)	(0.03)	(0.022)	(0.038)	(0.025)	(0.036)	(0.025)
2	-0.117***	-0.054**	-0.102***	-0.044*	-0.050	-0.035	-0.012	-0.015
	(0.04)	(0.024)	(0.038)	(0.024)	(0.043)	(0.023)	(0.043)	(0.025)
3	-0.099**	-0.021	-0.116***	-0.055**	-0.078*	-0.044**	-0.036	-0.017
	(0.044)	(0.024)	(0.042)	(0.024)	(0.046)	(0.021)	(0.047)	(0.024)
4	-0.105**	-0.025	-0.116**	-0.037	-0.066	-0.040**	-0.030	-0.003
	(0.046)	(0.023)	(0.045)	(0.024)	(0.048)	(0.02)	(0.05)	(0.024)
5	-0.112**	-0.028	-0.128***	-0.042*	-0.052	-0.026	-0.018	0.003
	(0.049)	(0.023)	(0.048)	(0.024)	(0.048)	(0.018)	(0.051)	(0.023)
6	-0.105**	-0.019	-0.117**	-0.029	-0.037	-0.020	-0.010	0.011
	(0.05)	(0.022)	(0.05)	(0.024)	(0.049)	(0.018)	(0.052)	(0.022)
7	-0.114**	-0.027	-0.131**	-0.042*	-0.040	-0.018	-0.023	-0.002
	(0.051)	(0.022)	(0.051)	(0.024)	(0.05)	(0.017)	(0.054)	(0.022)
8	-0.113**	-0.027	-0.135***	-0.046*	-0.046	-0.009	-0.031	0.007
	(0.052)	(0.022)	(0.052)	(0.024)	(0.052)	(0.017)	(0.055)	(0.022)
9	-0.114**	-0.019	-0.140***	-0.045*	-0.059	-0.008	-0.046	0.003
	(0.053)	(0.022)	(0.054)	(0.024)	(0.053)	(0.016)	(0.056)	(0.021)
10	-0.129**	-0.028	-0.146***	-0.045*	-0.064	-0.013	-0.048	0
	(0.054)	(0.022)	(0.055)	(0.024)	(0.054)	(0.016)	(0.058)	(0.021)
N	1473				1443			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all NZ Europeans with at least one pre-birth conviction of any type. Columns (5) to (8) correspond to all Māori with at least one pre-birth conviction of any type. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.7: The effect of child gender on father's crime (serious conviction before birth)

	NZ European				Māori			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre-	-0.058	-	-0.029	-	0.039	-	0.040	-
birth	(0.047)		(0.047)		(0.041)		(0.042)	
1	-0.192***	-0.093***	-0.179***	-0.088**	-0.002	-0.036	0.045	0.03
	(0.055)	(0.036)	(0.053)	(0.036)	(0.055)	(0.034)	(0.054)	(0.034)
2	-0.224***	-0.095***	-0.221***	-0.095***	-0.045	-0.047*	0.002	-0.005
	(0.064)	(0.032)	(0.064)	(0.036)	(0.061)	(0.028)	(0.061)	(0.032)
3	-0.205***	-0.055*	-0.221***	-0.088***	-0.073	-0.054**	-0.033	-0.027
	(0.067)	(0.03)	(0.068)	(0.034)	(0.063)	(0.024)	(0.067)	(0.03)
4	-0.223***	-0.053*	-0.235***	-0.066**	-0.076	-0.049**	-0.041	-0.02
	(0.069)	(0.027)	(0.071)	(0.032)	(0.064)	(0.021)	(0.069)	(0.028)
5	-0.210***	-0.041	-0.238***	-0.068**	-0.087	-0.047**	-0.048	-0.007
	(0.071)	(0.026)	(0.074)	(0.031)	(0.064)	(0.021)	(0.07)	(0.026)
6	-0.207***	-0.037	-0.219***	-0.058*	-0.068	-0.034*	-0.046	0.005
	(0.073)	(0.025)	(0.076)	(0.031)	(0.064)	(0.019)	(0.07)	(0.025)
7	-0.219***	-0.047*	-0.240***	-0.078***	-0.059	-0.030	-0.048	-0.004
	(0.074)	(0.024)	(0.077)	(0.03)	(0.066)	(0.019)	(0.072)	(0.024)
8	-0.229***	-0.045*	-0.253***	-0.087***	-0.059	-0.026	-0.042	0
	(0.075)	(0.024)	(0.078)	(0.03)	(0.067)	(0.018)	(0.074)	(0.023)
9	-0.236***	-0.041*	-0.262***	-0.086***	-0.075	-0.025	-0.055	0.003
	(0.076)	(0.024)	(0.08)	(0.03)	(0.068)	(0.017)	(0.075)	(0.023)
10	-0.245***	-0.043*	-0.265***	-0.087***	-0.084	-0.029*	-0.063	-0.009
	(0.077)	(0.023)	(0.081)	(0.03)	(0.07)	(0.017)	(0.077)	(0.022)
N	717				807			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all NZ Europeans with at least one serious pre-birth conviction. Columns (5) to (8) correspond to all Māori with at least one serious pre-birth conviction. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.8: The effect of child gender on father's crime (non-serious conviction before birth)

	NZ European				Māori			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre-	-0.005	-	-	-	0.000	-	-	-
birth	(0.023)				(0.024)			
1	0.000	-0.016	0.004	-0.007	-0.019	-0.012	0.016	0.023
	(0.037)	(0.031)	(0.03)	(0.024)	(0.051)	(0.038)	(0.044)	(0.033)
2	-0.021	-0.022	0.007	0.001	-0.052	-0.021	-0.021	-0.021
	(0.048)	(0.035)	(0.04)	(0.029)	(0.061)	(0.038)	(0.057)	(0.038)
3	-0.006	0.003	-0.018	-0.025	-0.081	-0.032	-0.030	0.004
	(0.057)	(0.036)	(0.049)	(0.032)	(0.066)	(0.036)	(0.065)	(0.039)
4	0.000	-0.004	-0.003	-0.009	-0.052	-0.030	-0.008	0.023
	(0.062)	(0.036)	(0.056)	(0.033)	(0.07)	(0.034)	(0.07)	(0.04)
5	-0.024	-0.020	-0.024	-0.018	-0.007	-0.006	0.030	0.02
	(0.065)	(0.036)	(0.06)	(0.034)	(0.073)	(0.034)	(0.074)	(0.039)
6	-0.015	-0.006	-0.023	-0.002	0.002	-0.009	0.045	0.021
	(0.067)	(0.036)	(0.063)	(0.035)	(0.075)	(0.032)	(0.077)	(0.039)
7	-0.020	-0.012	-0.030	-0.009	-0.014	-0.004	0.019	0.006
	(0.069)	(0.035)	(0.065)	(0.035)	(0.077)	(0.031)	(0.08)	(0.038)
8	-0.011	-0.014	-0.027	-0.009	-0.027	0.013	-0.008	0.02
	(0.07)	(0.035)	(0.067)	(0.035)	(0.079)	(0.031)	(0.082)	(0.038)
9	-0.004	-0.001	-0.025	-0.005	-0.037	0.010	-0.025	0.008
	(0.072)	(0.035)	(0.07)	(0.036)	(0.08)	(0.03)	(0.084)	(0.038)
10	-0.024	-0.016	-0.033	-0.005	-0.036	0.002	-0.011	0.019
	(0.073)	(0.035)	(0.071)	(0.036)	(0.083)	(0.03)	(0.087)	(0.038)
N	756				636			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all NZ Europeans with at least one non-serious pre-birth conviction. Columns (5) to (8) correspond to all Māori with at least one non-serious pre-birth conviction. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.9: The effect of child gender on father's crime (no conviction before birth)

	NZ European				Māori			
Years	total		serious		total		serious	
to	count†	binary‡	count†	binary‡	count†	binary‡	count†	binary‡
birth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	-0.016	-0.008	-0.018**	-0.015**	-0.010	0.006	-0.018	-0.003
	(0.012)	(0.012)	(0.009)	(0.007)	(0.02)	(0.017)	(0.017)	(0.013)
2	-0.028	-0.018	-0.027**	-0.016	0.009	0.039**	-0.017	0.008
	(0.017)	(0.014)	(0.013)	(0.01)	(0.026)	(0.019)	(0.022)	(0.015)
3	-0.028	-0.018	-0.028*	-0.020*	0.007	0.026	-0.003	0.018
	(0.021)	(0.015)	(0.016)	(0.011)	(0.03)	(0.021)	(0.026)	(0.017)
4	-0.025	-0.003	-0.038**	-0.027**	-0.004	0.022	-0.019	0.007
	(0.023)	(0.016)	(0.018)	(0.012)	(0.033)	(0.021)	(0.028)	(0.018)
5	-0.028	0.000	-0.044**	-0.026**	-0.003	0.024	-0.020	0.008
	(0.024)	(0.016)	(0.02)	(0.013)	(0.035)	(0.021)	(0.031)	(0.019)
6	-0.026	0.002	-0.048**	-0.024*	0.017	0.032	-0.004	0.018
	(0.026)	(0.017)	(0.021)	(0.013)	(0.037)	(0.021)	(0.033)	(0.02)
7	-0.020	0.013	-0.051**	-0.023*	0.027	0.040*	0.004	0.017
	(0.027)	(0.017)	(0.022)	(0.014)	(0.039)	(0.021)	(0.035)	(0.02)
8	-0.019	0.010	-0.051**	-0.024*	0.038	0.041*	0.018	0.028
	(0.028)	(0.017)	(0.023)	(0.014)	(0.04)	(0.021)	(0.036)	(0.02)
9	-0.016	0.007	-0.045*	-0.019	0.035	0.035	0.021	0.029
	(0.028)	(0.017)	(0.024)	(0.014)	(0.041)	(0.021)	(0.038)	(0.02)
10	-0.020	0.005	-0.044*	-0.019	0.029	0.035*	0.017	0.027
	(0.029)	(0.017)	(0.024)	(0.014)	(0.042)	(0.022)	(0.039)	(0.021)
N	2 931				2 238			

Notes: The table shows the child-gender related difference (boy vs. girl) based on OLS regressions of total convictions and serious convictions before and after child birth. Each coefficient corresponds to a separate regression. †Count refers to the log-transformed accumulated number of convictions (+1). ‡Binary refers to an indicator variable taking the value of 1 if number of convictions are above zero and 0 otherwise. Columns (1) to (4) correspond to all NZ Europeans with no pre-birth conviction. Columns (5) to (8) correspond to all Māori with no pre-birth conviction. The pre-birth period refers to the time period between two year and up to six months before birth, which is the time when the gender of the child can first be identified. Robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.10: Labour market effects of child gender, marginal effects (total sample)

Years to birth	NZ European						Māori					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
1	-0.019	-0.008	-0.012	0.004	-0.001	0.044	0	-0.005	0.005	-0.01	-0.004	-0.016
	(0.03)	(0.016)	(0.017)	(0.013)	(0.005)	(0.045)	(0.043)	(0.022)	(0.025)	(0.016)	(0.003)	(0.04)
2	-0.005	0.000	-0.005	-0.001	-0.004	-0.007	-0.013	-0.011	-0.002	-0.016	-0.004	-0.042
	(0.031)	(0.015)	(0.019)	(0.014)	(0.008)	(0.046)	(0.044)	(0.02)	(0.027)	(0.016)	(0.004)	(0.039)
3	0.03	0.02	0.01	-0.002	-0.003	0.000	0.008	-0.009	0.017	-0.022	-0.001	-0.044
	(0.031)	(0.014)	(0.02)	(0.014)	(0.009)	(0.045)	(0.044)	(0.02)	(0.028)	(0.016)	(0.005)	(0.039)
4	0.05	0.026*	0.024	0.003	-0.001	-0.013	-0.006	-0.009	0.003	-0.028*	-0.003	-0.03
	(0.032)	(0.014)	(0.021)	(0.014)	(0.011)	(0.046)	(0.044)	(0.019)	(0.029)	(0.015)	(0.006)	(0.039)
5	0.04	0.02	0.02	0.001	0.015	0.021	-0.007	-0.006	-0.001	-0.014	-0.002	-0.041
	(0.032)	(0.014)	(0.021)	(0.014)	(0.012)	(0.046)	(0.044)	(0.018)	(0.029)	(0.015)	(0.007)	(0.039)
6	0.045	0.019	0.026	-0.002	0.027**	0.026	0.003	0.005	-0.002	-0.012	-0.004	-0.019
	(0.032)	(0.014)	(0.022)	(0.014)	(0.013)	(0.046)	(0.044)	(0.018)	(0.029)	(0.014)	(0.008)	(0.04)
7	0.033	0.014	0.019	0.001	0.035**	0.006	-0.002	-0.001	-0.002	-0.009	0	-0.021
	(0.032)	(0.013)	(0.022)	(0.014)	(0.014)	(0.047)	(0.044)	(0.017)	(0.03)	(0.014)	(0.009)	(0.041)
8	0.028	0.012	0.017	0.003	0.047***	0.016	-0.017	-0.008	-0.01	-0.011	0.001	-0.012
	(0.032)	(0.013)	(0.022)	(0.014)	(0.015)	(0.048)	(0.044)	(0.017)	(0.03)	(0.014)	(0.009)	(0.041)
9	0.03	0.011	0.019	-0.001	0.046***	0.037	-0.014	-0.005	-0.009	-0.007	-0.004	-0.021
	(0.032)	(0.013)	(0.022)	(0.014)	(0.016)	(0.049)	(0.044)	(0.017)	(0.03)	(0.014)	(0.011)	(0.042)
10	0.019	0.007	0.012	-0.004	0.046***	0.045	-0.001	0.001	-0.001	-0.007	-0.004	-0.019
	(0.032)	(0.013)	(0.023)	(0.014)	(0.017)	(0.049)	(0.044)	(0.017)	(0.03)	(0.013)	(0.011)	(0.042)
N	4404						3681					

Notes: The table reports the results of the gender of the child on various labor market indicators and the probability of marriage differentiated by ethnic group. Each coefficient corresponds to a separate regression. Column (1) shows the sum of monthly income from wages and salaries (log transformed). Column (2) shows the mean monthly income from wages and salaries (log transformed). Column (3) shows the number of employed months receiving income from wages and salaries (log transformed). Column (4) shows the binary indicator on having received benefits at all. Column (5) shows the binary indicator on being married. Column (6) shows the number of months receiving benefits (log transformed). OLS regressions with robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table A.11: Labour market effects of child gender, marginal effects (serious conviction before birth)

Years to birth	NZ European						Māori					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
1	0.038	0.002	0.036	-0.018	-0.045	-0.046	-0.083	-0.065	-0.017	0.001	-0.083	-0.015
	(0.097)	(0.051)	(0.056)	(0.036)	(0.047)	(0.068)	(0.107)	(0.054)	(0.063)	(0.034)	(0.057)	(0.067)
2	0.08	0.018	0.063	-0.024	0.004	-0.11	-0.055	-0.031	-0.023	-0.019	0.004	-0.031
	(0.101)	(0.048)	(0.062)	(0.033)	(0.023)	(0.074)	(0.105)	(0.049)	(0.067)	(0.031)	(0.019)	(0.066)
3	0.175*	0.068	0.107*	-0.025	-0.009	-0.144*	0.024	-0.001	0.025	-0.04	0.029*	-0.061
	(0.101)	(0.044)	(0.064)	(0.03)	(0.025)	(0.075)	(0.11)	(0.048)	(0.071)	(0.028)	(0.016)	(0.067)
4	0.256**	0.103**	0.153**	-0.015	0.008	-0.166**	0.029	0.005	0.024	-0.027	0.031**	-0.049
	(0.108)	(0.045)	(0.071)	(0.027)	(0.019)	(0.079)	(0.113)	(0.046)	(0.076)	(0.025)	(0.014)	(0.067)
5	0.287**	0.1**	0.187**	-0.002	0.006	-0.161**	0.025	0.008	0.017	-0.012	0.031**	-0.019
	(0.113)	(0.046)	(0.075)	(0.025)	(0.016)	(0.079)	(0.111)	(0.044)	(0.076)	(0.023)	(0.014)	(0.064)
6	0.322***	0.105**	0.217***	-0.006	0.012	-0.166**	0.028	0.007	0.021	-0.01	0.021	-0.006
	(0.113)	(0.045)	(0.075)	(0.025)	(0.018)	(0.08)	(0.113)	(0.044)	(0.078)	(0.021)	(0.014)	(0.064)
7	0.308***	0.1**	0.208***	-0.004	0.008	-0.193**	-0.013	-0.016	0.002	0.01	0.017	-0.04
	(0.112)	(0.043)	(0.075)	(0.024)	(0.02)	(0.082)	(0.114)	(0.044)	(0.079)	(0.02)	(0.015)	(0.066)
8	0.337***	0.11**	0.227***	-0.004	0.019	-0.199**	-0.014	-0.02	0.006	0.003	0.015	-0.049
	(0.115)	(0.044)	(0.078)	(0.024)	(0.022)	(0.083)	(0.115)	(0.044)	(0.08)	(0.019)	(0.016)	(0.065)
9	0.316***	0.102**	0.214***	-0.015	0.037	-0.168**	0.001	-0.013	0.014	0.004	0.01	-0.051
	(0.114)	(0.043)	(0.077)	(0.023)	(0.026)	(0.085)	(0.112)	(0.042)	(0.079)	(0.018)	(0.015)	(0.066)
10	0.261**	0.083**	0.178**	-0.016	0.026	-0.179**	0.026	-0.005	0.031	-0.003	0.013	-0.035
	(0.113)	(0.042)	(0.077)	(0.023)	(0.028)	(0.085)	(0.114)	(0.041)	(0.08)	(0.017)	(0.016)	(0.069)
N	717						807					

Notes: The table reports the results of the gender of the child on various labor market indicators and the probability of marriage differentiated by ethnic group. Each coefficient corresponds to a separate regression. All regressions are based on individuals with at least one serious conviction before birth. Column (1) shows the sum of monthly income from wages and salaries (log transformed). Column (2) shows the mean monthly income from wages and salaries (log transformed). Column (3) shows the number of employed months receiving income from wages and salaries (log transformed). Column (4) shows the binary indicator on having received benefits at all. Column (5) shows the binary indicator on being married. Column (6) shows the number of months receiving benefits (log transformed). OLS regressions with robust standard errors in parentheses, significance level: *** p<0.01, ** p<0.05, * p<0.1.

B Disclaimer

The results in this paper are not official statistics, they have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand. The opinions, findings, recommendations, and conclusions expressed in this paper are those of the authors, not Statistics NZ.

The results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data must be used only for statistical purposes, and no individual information may be published or disclosed in any other form, or provided to Inland Revenue for administrative or regulatory purposes. Any person who has had access to the unit record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Access to the anonymised data used in this study was provided by Statistics NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation, and the results in this paper have been confidentialised to protect these groups from identification. Careful consideration has been given to the privacy, security, and confidentiality issues associated with using administrative and survey data in the IDI.

Further detail can be found in the Privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.