BOOSTING PRODUCTIVITY GROWTH BY CREATING EQUAL WORKPLACE OPPORTUNITIES FOR ALL

OCCUPATIONAL PERSISTENCE AND MOBILITY ACROSS GENERATIONS IN NEW ZEALAND

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ABOUT THIS RESEARCH PROGRAMME

Workplace diversity significantly impacts productivity and economic growth. Better talent allocation could boost productivity and increase long-term output growth per person. In NZ, labour is highly segregated, with women and ethnic minorities concentrated in lower-paid industries, driving gender and ethnic pay gaps that affect financial, health, and wellbeing outcomes. This programme analyses how workplace diversity affects productivity and equity. Using various data sources, we will estimate NZ’s productivity gains from diversity, assess workplace policies and leadership, and evaluate public policies. A key focus is Māori and Pacific businesses, exploring recruitment, pay transparency, and workplace culture. Māori and Pacific-led research will provide insights into workplace barriers, enablers, and values.

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Occupational Persistence and Mobility Across Generations in New Zealand

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Executive summary

A strong correlation between the occupations of parents and children may indicate inequality of opportunity and misallocation of talent if barriers in the labour market deter children from pursuing the occupation in which they would be most productive, resulting in the suboptimal allocation of workers to jobs. The study of intergenerational persistence of occupations is thus important on both efficiency and equity grounds, yet it has received little research attention in New Zealand in the economics discipline and has largely been dropped as a topic of empirical investigation by New Zealand sociologists. Accordingly, this study uses New Zealand census microdata linked at the individual level over the period 1991 to 2013 containing parent-offspring links to estimate children's propensity to follow their parents into different occupations, estimate how open occupations are to entry by children without a parental connection to the occupation, and identify which sociodemographic groups are more likely to be occupationally persistent and which groups are more likely to be upwardly mobile by moving from a low-skilled occupation in the parent generation to a high-skilled one in the offspring generation.

Comparing the occupations of offspring in the 2013 census when they were aged 25 to 36 years with their parents' occupations in the 1991 census, both coded to the *New Zealand Standard Classification of Occupations 1999*, we find a significant association between the occupations of parents and their offspring, although the relationship is statistically weak. About 18% of offspring were working in the same 1-digit occupation in 2013, and 13% in the same 2-digit occupation, as their higher-ranked parent was in 1991.

Across most occupations, offspring are significantly more likely to pursue the occupation if they had a parent in that occupation. This 'occupational following' is especially strong among agricultural/farming occupations, professionals working in physical, mathematical, and engineering sciences, and 'other' professionals working in the legal profession, accountancy, financial advice, policy analysis, and social science. Entry into these occupations is also relatively 'closed' to children who do not have a parent in the occupation. In contrast, occupational following does not systematically occur in clerical and sales occupations and is low among Life Science and Health Professionals which includes doctors, dentists, nurses, midwives, and pharmacists. Entry into these occupations is relatively open to children of all parental occupational backgrounds.

We find that sons are more likely to be occupationally persistent than daughters and that parents' occupational background exerts a stronger effect on sons' occupational choices. Among children with parents in low-skilled occupations, daughters are more likely than sons to move upwards to the top of the occupational ladder despite having low-skilled parents.

Sons are more likely to follow their fathers than their mothers into most occupations, especially blue collar occupations which are traditionally male-dominated. Daughters are also more likely to follow their fathers (compared to their mothers) into blue collar occupations. Parental transmission of managerial, professional, agricultural, and trades occupations is generally weaker among Māori children compared to their non-Māori counterparts, but in low-skilled occupations, transmission is stronger among Māori families. Among children with parents in low-skilled occupations, children with Asian heritage and those whose mothers have school qualifications are considerably more likely to experience upward mobility into high-skilled occupations compared to non-Asian children and those with unqualified mothers.

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1. Introduction

There is a vast literature documenting the correlation of various economic outcomes across generations, such as income, education, and occupation. This intergenerational persistence is commonly believed to represent a violation of the principles of equality of opportunity and meritocracy – the notion that children's life chances should depend on their own abilities and efforts rather than who their parents were and other circumstances beyond their control (Jäntti & Jenkins, 2015). In addition to concerns about fairness, there are strong economic reasons to be concerned about intergenerational persistence and equality of opportunity if children from socioeconomically disadvantaged families are not able to fully develop their productive potential, the wastage or underutilisation of which can reduce economic efficiency.

With respect to occupational choice, a high degree of persistence of occupations across generations may indicate inequality of opportunity and misallocation of talent if barriers in the labour market (such as when parents use social contacts to get jobs for their children when other candidates are better qualified) result in the suboptimal allocation of workers to jobs. However, occupational persistence may also reflect the genetic transmission of abilities or the transmission of job preferences from parents to children. Thus, the effects of occupational persistence on aggregate economic efficiency and welfare depend on the driving source of the persistence (Lo Bello & Morchio, 2022).

In this study, we examine the persistence of occupations across generations in New Zealand. This has long been a topic of study in sociology and economics and is variously referred to in the literature as 'intergenerational occupational persistence', 'occupational following', and 'occupational inheritance', (the topic is also known by its inverse, occupational mobility or social mobility). We make use of census microdata linked at the individual level over time containing parent-offspring links to examine the degree of occupational persistence between parents and their offspring in New Zealand for different occupations, and how this varies by sociodemographic characteristics.

The occupational composition of employment in New Zealand has changed over the period analysed in this study. Between 1991 and 2013, professional occupations and community and personal service occupations increased their share of employment, while agricultural occupations, trades, machinery operators and drivers, and elementary occupations/labourers saw declining shares (Maré, 2019; Hancock, 2008; 2015). The occupational persistence and mobility documented in this report generally captures both these structural changes in the occupational distribution across generations (offspring experiences of 'structural mobility' relative to their parents as the proportion of lower-skilled occupations shrinks and higher-skilled occupations expands in the economy over time) as well as changes in position or rank across generations (offspring experiences of 'exchange mobility' as offspring

move to a higher or lower position in the evolved occupational structure compared to their parents' rank in the earlier occupational structure), discussed in more detail in section 3.

1.1. Research aims

We have three research aims:

1. To describe the degree of persistence and mobility of occupations across generations in New Zealand.
2. To estimate the extent of 'occupational following' in 23 occupations, defined as offspring working in an occupation in which either of their parents worked, for all offspring and for subgroups defined by sociodemographic characteristics.
3. To identify the demographic and socioeconomic predictors of intergenerational occupational persistence (Aim 3.1) and intergenerational upward mobility in occupations (Aim 3.2), the latter defined as offspring working in a high-skilled occupation despite having parents who worked in low-skilled occupations.

1.2. Literature review

The empirical literature on occupational following documents a disproportionate tendency for children to follow their parents into occupations. What accounts for this tendency? In the first instance, parents may genetically transmit to their children innate abilities or personality traits that are valued within specific occupations in the labour market. Parents may invest in their children's human capital through monetary and non-monetary investments in occupation-specific skills. Parents may also transmit occupations to their children via social connections and other positional advantages, such as using family networks to help their children access jobs, practicing nepotism by directly employing their children, or when children inherit a family business. Empirically, these mechanisms are difficult to disentangle from one another (Mocetti, 2016).

Laband and Lentz (1983a) developed an economic theory of occupational following in which parents make occupation-specific human capital investments in their children, who acquire this human capital at a lower cost than for children who do not have a parent in the occupation. This intergenerational transmission of knowledge and skills gives the child a comparative advantage in the occupation and is especially likely to occur in occupations where there is a strong overlap between the home and the workplace, most notably in farming and where family businesses are inherited. Laband and Lentz have applied their model to the tendency for children of farmers, self-employed proprietors, doctors, and lawyers to be employed in the same occupations as their fathers (Laband & Lentz, 1983b, 1989; Lentz & Laband, 1989, 1992).

Lo Bello and Morchio (2022) develop a model of occupational choice encompassing three channels of intergenerational transmission of occupations (transmission of comparative advantage in abilities, transmission of social contacts or networks, and transmission of preferences) which they calibrate with survey data on the labour market outcomes of son-father pairs in Britain. Their calibrated model shows that parental networks account for the majority of occupational persistence by improving children's chances of employment in their father's occupation (an effect amplified by search frictions), but that this results in labour misallocation which yields productivity losses.

A relatively small empirical literature in economics has used administrative or survey data to quantify occupational following across the full occupational spectrum in Canada (Haeck & Laliberté, 2025), Finland (Solomon, 2026), the US (Greenberg et al., 2024; Solomon, 2026), Britain (Lo Bello & Morchio, 2022), and the Netherlands (Ventura, 2025). These studies differ in the level of granularity at which they define occupations, the particular offspring-parent pairs analysed (often son-father pairs), and the ages and birth cohorts of the offspring and parents analysed. Other studies have focused on specific occupations or professions, such as licensed professions in Italy (Aina & Nicoletti, 2018), pharmacy in Italy (Mocetti, 2016), the military in the US (Greenberg et al., 2024), and medicine in the Netherlands (Ventura, 2025). In general, these studies find that having a parent in a given occupation increases the probability of offspring pursuing that occupation, relative to the rate of entry into the occupation among offspring generally, but that this varies considerably across occupations. Occupational following is generally found to be high in agricultural occupations (Haeck & Laliberte, 2025; Solomon, 2026; Lo Bello & Morchio, 2022; Ventura, 2025) and the legal profession (Haeck & Laliberte, 2025; Solomon, 2026; Greenberg et al., 2024; Aina & Nicoletti, 2018), and is generally found to be low among clerks, sales workers, and managers (Solomon, 2026; Lo Bello & Morchio, 2022). The more granular the level at which occupations are defined, the higher are estimates of occupational following, meaning children tend to follow their parents into specific occupations or professions rather than divert into other related occupations (Haeck & Laliberté, 2025; Lo Bello & Morchio, 2022). Children are also more likely to follow their same-sex parent into occupations, indicating that occupational following is gendered (Solomon, 2026; Ventura, 2025).

In New Zealand, there is little research within the economics discipline on occupational following. The topic has been studied in sociology, although the New Zealand sociological literature is now dated with few studies published since 2010 and data mostly relating to the period spanning the late nineteenth to late twentieth centuries (see Iusitini, 2022). In these studies, parents' and offspring's occupations – typically fathers' and sons' occupations obtained from surveys or marriage certificates – are categorised into social classes or assigned a socioeconomic status score and then compared across generations (Davis, 1979; Pearson, 1980; Pearson & Thorns, 1983, 1986; Hall, Thorns & Willmott, 1983; Jones &

Davis, 1986, 1988; Lauder & Hughes, 1990; Nash, 1993; Gibbons, 2010; Olssen, Griffin & Jones, 2011). These studies have yielded mixed results and divergent conclusions. Pearson, Thorns, and their colleagues concluded that New Zealand society "is clearly stratified and does not have extensive upward or downward mobility" and "possesses broad constraints to individual opportunity", challenging "popularly-held assumptions" of New Zealand as an open and mobile society (Hall et al., 1983, p. 130, 128; Pearson & Thorns, 1986, p. 222). Lauder and Hughes (1990, p. 54, 55) similarly concluded that "social class [background] has a major impact on school performance and subsequent occupational destinations" and "New Zealand is not the open socially mobile society the common myth of everyone getting a 'fair go' suggests", yet "there is enough mobility to provide a material basis for the perpetuation of the equal opportunity myth".

In contrast, on the basis of a comparison of occupational class persistence in New Zealand, Australia, and the US, Davis (1979, p. 53, 54-55) concluded that New Zealand has "the weakest…occupational inheritance" and is "the most 'open' of the three countries", results which are "not consistent with any image of New Zealand as a 'closed' or rigidly stratified society". Similarly, Nash (1993, p. 50) concluded that his results were compatible with "the notion of New Zealand as an 'open' society in which those with talent and a willingness to work can achieve success regardless of their social origins". In relation to the pre-World War II period, Olssen, Griffin and Jones (2011, p. 168, 214) concluded that intergenerational mobility in New Zealand was high, with sons showing "little inclination to follow in their father's footsteps" who "easily struck out on their own in different occupations". Gibbons (2010, 2011) analysed survey data collected in 1996 on respondents' reports of their own occupations and those of their fathers to estimate intergenerational persistence in socioeconomic status, assigning occupations a socioeconomic score based on the *1996 New Zealand Socio-Economic Index*, and found a "modest" degree of intergenerational persistence of socioeconomic status, concluding "intergenerational occupational mobility rates in New Zealand are relatively high" (Gibbons, 2011, p. 58, 59).

We add to this literature by providing a more up-to-date description of the degree of intergenerational persistence of occupations in New Zealand and generating the first New Zealand estimates of 'occupational following', as measured in the economics literature. We quantify the extent to which children follow their parents into occupations, estimate how open occupations are to entry by children without a parental connection to the occupation, and identify the demographic and socioeconomic correlates of both persistence and upward mobility in occupations. To do this, we use census microdata spanning two generations from a more contemporary period than has hitherto been analysed in the literature.

2. Data

2.1. Data source

The New Zealand Longitudinal Census (NZLC) is a dataset created by Statistics New Zealand that links people's records from the New Zealand Census of Population and Dwellings over the eight censuses from 1981 to 2018 (Didham, Nissen, & Dobson, 2014; Kang, 2017). Each census is linked backwards to the previous census, creating seven pairs (2018-2013, 2013-2006, 2006-2001, 2001-1996, 1996-1991, 1991-1986, 1986-1981). Each pair has a common boundary with one or more other pairs, so individuals can be tracked longitudinally over time depending on how many consecutive censuses they filled in.

The methodology used to construct the NZLC links individuals across *consecutive* censuses. If a person is not enumerated at a census – for example, the person did not fill out a census form because they were overseas when the census was conducted – then their linkage will terminate at that census. There is no 'leap-frog' linking across non-consecutive censuses. Thus, a person who was overseas at the time of a census cannot be linked over the period they were away (Didham & Nissen, 2015; Didham et al., 2014). See Appendix A for further details of the linking methodology used to construct the NZLC.

Some groups of people are less likely to be linked across censuses. Analysis by Didham et al. (2014) found that NZLC link rates were lower for males, young adults in their twenties, ethnic minorities (Māori, Pacific, and Asian groups), more recently-born cohorts, people born overseas, people with no formal educational qualifications, people not in employment, people living in more socioeconomically-deprived regions, and people who are residentially mobile (who change addresses frequently). Linkage rates also decline as one moves down the occupational classification, being lowest among elementary labouring occupations, agricultural occupations, and plant and machine operators, and highest among professionals, clerks, and legislators, administrators and managers. In short, there is differential attrition in the NZLC; the characteristics of those who are linked across censuses differ systematically from those who are not linked, termed 'linkage bias'. Such linkage bias has the potential to introduce selection bias into the statistical analyses reported here if groups with lower linkage have different rates of occupational persistence than groups with higher linkage. We explore this issue further in section 6.

2.2. Linking offspring to their parents

For reasons explained in section 2.3 below, our analysis focuses on families with young children enumerated in the 1991 census and we follow these children through to the 2013 census. The 1991 census contains a 'Family ID number' variable (unique to each family) and a 'Role in family' variable (parent, child, etc.), which – together with the 'Sex' variable – enable the linking of sons and daughters

to their fathers and mothers.[1] We then use the year of birth variable to select children from the 1991 census who are of an age such that they will be at least 25 years of age at the 2013 census, and we use the NZLC linkage variable to identify those from this age group who are in fact linked through to the 2013 census with valid occupation data. While the majority of children were linked to both their father and mother, some children could only be linked to one parent. Since parents may have multiple children counted in the 1991 census, the analysis samples include siblings.

2.3. Variables

2.3.1. Occupation variable

All of the censuses within the NZLC included a question about the respondent's occupation, which is only asked of individuals aged 15 years and over who had a job at the time of the census.[2] The question is highly comparable across the 1991 to 2013 censuses, with only minor variations in wording (Errington et al., 2008).

However, responses to the question have been coded differently across censuses. Figure 1 below shows the occupational classifications that were used at each census to code the occupation data. Note that at some censuses, the data were coded to more than one classification (e.g., in 1996 it was coded to three classifications). In the earlier censuses – 1981, 1986, and 1991 – the data were coded to the *New Zealand Standard Classification of Occupations 1968* (NZSCO68). In 1991, the data were additionally coded to a new, extensively revised, and structurally different 1990 version of the classification (NZSCO90) which had minor updates in 1995 (NZSCO95, used at the 1996 census) and 1999 (NZSCO99, used at the 2001, 2006, and 2013 censuses). In 2006 and 2013, the data were coded to NZSCO99 and the *Australian and New Zealand Standard Classification of Occupations* (ANZSCO) and in 2018 the data was only coded to ANZSCO, which is structurally different to both NZSCO68 and NZSCO90.

The shift from NZSCO68 to NZSCO90 (and its 1995 and 1999 updates), and from NZSCO90 to ANZSCO, represent structural 'breaks' because these three sets of classifications have different conceptual bases (Hancock, 2015). For example, whereas NZSCO68 grouped occupations on the basis of similarity of tasks performed, NZSCO90 shifted to grouping occupations on the basis of the skill level and skill specialisation considered necessary to perform the occupation (Department of Statistics, 1992).

[1] The parents need not be birth parents (they could be step-parents or adoptive parents) and likewise the children may be stepchildren or adopted children.
[2] For those with multiple jobs, the occupation question asks about the job they work the most hours in.

Figure 1. Coding of occupation data across censuses in the New Zealand Longitudinal Census.

New Zealand Census year							
1981	1986	1991	1996	2001	2006	2013	2018
NZSCO68	NZSCO68	NZSCO68	NZSCO68				
		NZSCO90 ↓ NZSCO95 ↓ NZSCO99	NZSCO90 NZSCO95	NZSCO99	NZSCO99	NZSCO99	
					ANZSCO	ANZSCO	ANZSCO

Conceptual 'break' between classifications

↓ Concordance

Occupation data used in the analysis

While there are concordances between the three different classifications, they contain numerous one-to-many and many-to-many relationships (that is, one or many occupational codes in one classification map to many codes in the other), which makes harmonising data across these classifications challenging (Dixon et al., 2009). We therefore focus on the 1991 to 2013 period, comparing parents' occupations in 1991 with their offspring's occupations in 2013, since the NZSCO90-coded occupations in 1991 can easily be concorded to NZSCO99 (via the intermediate step of first concording to NZSCO95) for comparison with the NZSCO99-coded occupations in 2013, yielding an 'apples-with-apples' intergenerational comparison. Thus, our study analyses occupation data coded to NZSCO99.

NZSCO99 is a skill-based classification used to classify all occupations and jobs that exist in the New Zealand labour market. It defines an occupation as "a set of jobs which involve the performance of a common set of tasks" and defines a job as "a set of tasks performed or designed to be performed by one individual" (Statistics New Zealand, 2001, p. 10). It uses skill as the underlying basis for classifying occupations, defined as "the level of qualification required to get a job, the amount of training that has been received for the tasks and duties performed, and the amount of time it takes to learn to do a job properly" (Statistics New Zealand, 2001, p. 10). The skill requirement of an occupation is measured by the skill level and the skill specialisation of the tasks and duties performed.[3] Thus, NZSCO99 can broadly be considered a *hierarchical* classification based on skill level (Boonzaier & Heyes, 2002).[4]

[3] Skill level is the amount of formal education or informal training and work experience required for the performance of the occupation's tasks and duties, and skill specialisation differentiates fine-grained occupations with similar tasks based on the knowledge required, tools used, and material produced in the occupation (Statistics New Zealand, 2001).

[4] With the exception of the 'Agriculture and Fishery Workers' category (one of the nine occupational groupings at the most aggregated level) which groups all agriculture and fishery occupations together, due to the difficulty in distinguishing between the skills required to perform the tasks and duties of farmers and fishers and those who work for them (Statistics New Zealand, 2001).

NZSCO99 covers 565 occupations grouped into 259 'unit' groups (4-digit codes), 96 'minor' groups (3-digit codes), 23 'sub-major' groups (2-digit codes), and 9 'major' groups (1-digit codes). The nine major groups, with broad definitions adapted from the NZSCO99 manual (Statistics New Zealand, 2001), are:

1. *Legislators, Administrators and Managers*: occupations in which the main tasks involve the setting of laws, rules and regulations of central or local government or managerial activities concerning the policies and operations of business enterprises.
2. *Professionals*: occupations in which the main tasks involve the practical application of scientific and artistic knowledge and experience in engineering, natural and social sciences, and related fields, to increase the existing stock of knowledge by means of research, creativeness and teaching.
3. *Technicians and Associate Professionals*: occupations in which the main tasks involve the application of the knowledge and experience of principles and practices which provide technical support to professional occupations in engineering, natural and social sciences, and related fields.
4. *Clerks*: occupations in which the main tasks involve the recording, organising, storing and retrieving of information and data, and undertaking client-oriented clerical duties in relation to travel arrangements, money-handling, business information, and appointments.
5. *Service and Sales Workers*: occupations in which the main tasks involve the provision of protective and personal services, and the selling of wholesale and retail goods and services.
6. *Agriculture and Fishery Workers*: occupations in which the main tasks involve the growing and harvesting of crops, the breeding, feeding or hunting of animals, the gathering of fruit and plants, the catching and breeding of fish and other aquatic life, and the cultivation of forests.
7. *Trades Workers*: occupations in which the main tasks include the construction and finishing of buildings, the repairing and servicing of electrical, electronic, and mechanical machinery, the making of precision instruments, printing, and other trades work.
8. *Plant and Machine Operators and Assemblers*: occupations in which the main tasks involve the operating of vehicles and other mobile equipment, the controlling and monitoring of industrial plant and machinery, and the assembling of a variety of products from component parts.
9. *Elementary Occupations*: occupations in which the main tasks involve the use of hand-held tools and physical effort and the knowledge and experience to perform elementary and routine tasks.

Table 1 below lists the nine major 1-digit groups, the 23 sub-major 2-digit groups, and examples of 5-digit occupations commonly held within each group, based on data from the 2013 census. Table 1 also shows three codes used at the most detailed level to code missing responses, namely *Response Unidentifiable* (used for responses such as "Public servant", which is too generic to be accurately coded

Table 1. NZSCO99 occupational classification at the major (1-digit) and sub-major (2-digit) levels, with examples of common 5-digit occupations.

Major group (1-digit)	Sub-major group (2-digit)	Occupation (5-digit) - examples of common occupations in 2013 Census
Legislators, Administrators and Managers	Legislators and Administrators	Chief Executive, Managing Director, Administrator
	Corporate Managers	General Manager, Administration Manager, Retail Manager
Professionals	Physical, Mathematical and Engineering Science Professionals	Computer Applications Engineer, Systems Analyst, Systems Manager
	Life Science and Health Professionals	Registered Nurse, General Practitioner, Resident Medical Officer, Midwife
	Teaching Professionals	Primary School Teacher, Early Childhood Teacher, Secondary School Teacher
	Other Professionals	Accountant, Financial Adviser, Barrister or Solicitor, Librarian, Policy Analyst
Technicians and Associate Professionals	Physical Science and Engineering Associate Professionals	Engineering Technician, Draughting Technician, Safety Inspector
	Life Science and Health Associate Professionals	Physiotherapist, Medical Laboratory Technician, Occupational Therapist
	Other Associate Professionals	Technical Representative, Social Worker, Administration Officer, Teacher Aide
Clerks	Office Clerks	General Clerk, Secretary, Accounts Clerk, Stock Clerk
	Customer Services Clerks	Information Clerk, Checkout Operator, Bank Officer, Cashier
Service and Sales Workers	Personal and Protective Services Workers	Caregiver, Catering Counter Assistant, Chef, Waiter, Police Officer, Hairdresser
	Salespersons, Demonstrators and Models	Sales Assistant, Demonstrator, Forecourt Attendant
Agriculture and Fishery Workers	Market Oriented Agricultural and Fishery Workers	Crop and Livestock Farmer/Worker, Dairy Farmer, Fruit Grower/Worker
Trades Workers	Building Trades Workers	Builder, Carpenter or Joiner, Electrician, Painter, Plumber
	Metal and Machinery Trades Workers	Motor Mechanic, Machinery Mechanic, Fitter and Welder, Sheet-Metal Worker
	Precision Trades Workers	Printing Machinist, Bookbinder, Jeweller, Screen Printer
	Other Craft and Related Trades Workers	Baker, Butcher, Cabinetmaker, Carpet Layer
Plant and Machine Operators and Assemblers	Industrial Plant Operators	Welder and Flame-Cutter, Timber Processing Machine Operator, Quarry/Mine Worker
	Stationary Machine Operators and Assemblers	Slaughterer, Machine Tool Operator, Sewing Machinist, Launderer
	Drivers and Mobile Machinery Operators	Heavy Truck Driver, Passenger Coach Driver, Taxi Driver, Forklift Operator
	Building and Related Workers	Roofer, Drainlayer, Scaffolder, Pipe Fitter
Elementary Occupations	Labourers and Related Elementary Service Workers	General Labourer, Cleaner, Loader and Checker, Courier, Packer
No occupation	*No occupation*	*Response Unidentifiable*
		Response Outside Scope
		Not Stated
9 major occupational groups	23 sub-major occupational groups	565 occupations

Source: Manual for the *New Zealand Standard Classification of Occupations 1999* (Statistics New Zealand, 2001). Occupation examples in the third column taken from the 2013 New Zealand Census.

to a specific category), *Response Outside Scope* (used for responses such as "Housewife" or "Student"), and *Not Stated* (non-response due to the occupation question being left unanswered). We combine these three missing codes together with individuals who were unemployed or not in the labour force under the catch-all category '*No occupation*'.

In this report we analyse occupation data at the 1-digit and 2-digit levels. Offspring's NZSCO99-coded occupation at the 2013 census is our dependent variable and fathers' and mothers' NZSCO99-concorded occupations at the 1991 census are our main independent variables. Some of the Aim 1 and Aim 3 analyses use the parent with the 'higher-ranked' occupation (based on the NZSCO99 classification) as the main independent variable.

2.3.2. Independent variables

Table 2 lists the other independent variables which are used as predictors of occupational persistence and occupational upward mobility in the Aim 3 analyses. Some of these variables are also used to stratify the sample in the Aim 2 analysis that estimates occupational following. Table 2 also presents information on how the variables were coded, the original census variables from which they are derived, and the dataset from which they were sourced. They cover offspring's demographic characteristics (sex, year of birth, place of birth, region of residence) as well as fathers' and mothers' demographic and socioeconomic characteristics (age, place of birth, ethnicity, educational attainment, work and labour force status, and combined parental or 'family' income).

2.4. Sample selection

Figure 2 presents a sample selection flowchart showing how our analysis samples were selected. As previously stated, we compare parents' occupations in 1991 with offspring's occupations in 2013 because these two censuses contain occupation data that can be coded to a consistent classification, yet are separated by a sufficient time span that both generations are observed in adulthood. Thus, our analysis focuses on children aged 3 to 14 years in 1991 who had at least one parent aged 25 to 64 years, of which there were 525,396 enumerated in the 1991 census. These 525,396 offspring denote our target population – the population about whom we are trying to make inferences. We exclude children younger than 3 years so that our sample of offspring are all at least 25 years of age by 2013 and hence most will have finished their education and entered an occupation. Of this target population, 70,584 are linked through to the 2013 census, of whom about 39% lack occupation data for themselves or both their parents (due to being not employed or having missing occupation data).

Table 2. Independent variables used in Aim 2 and Aim 3 analyses

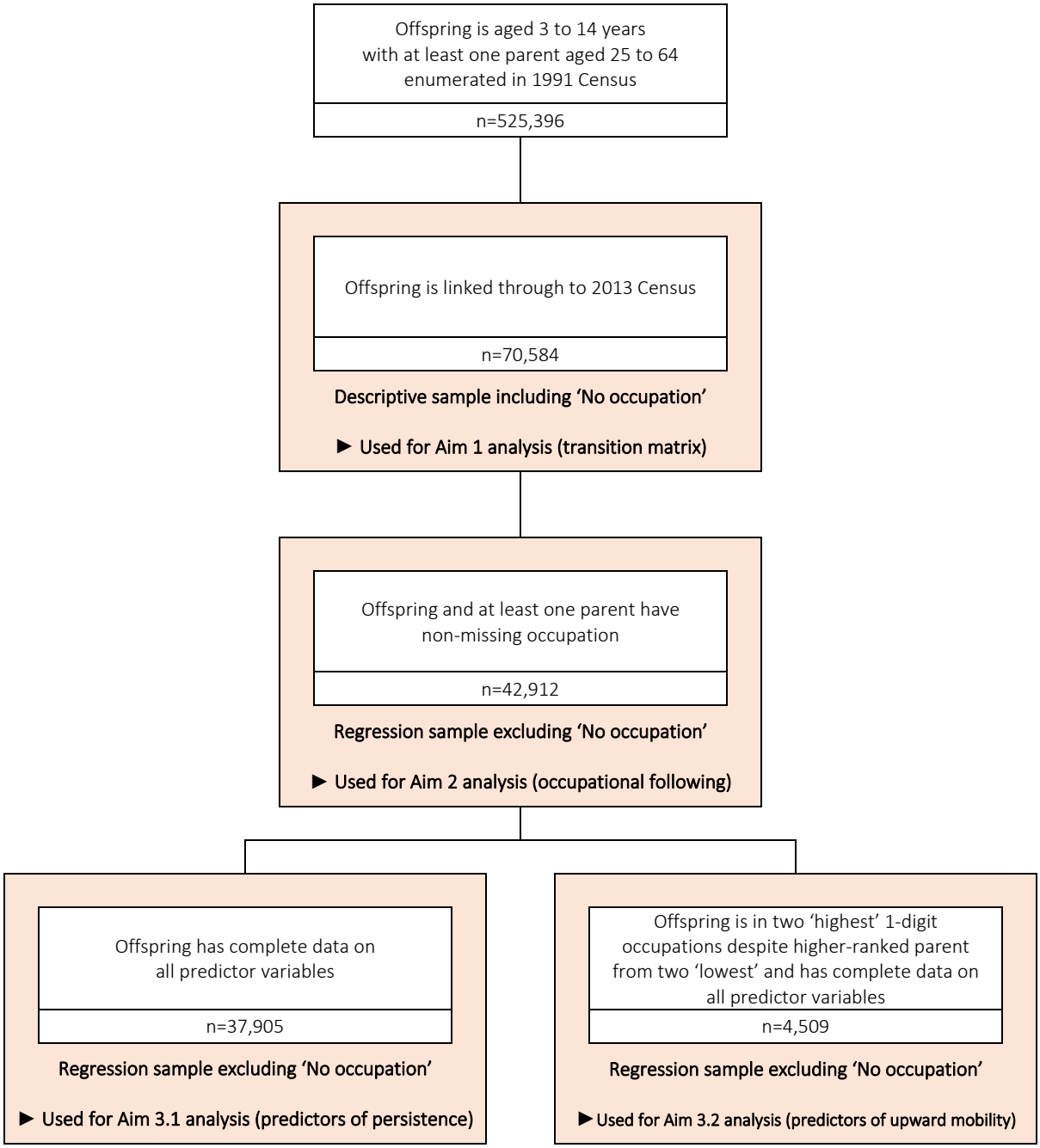
Variable	Coding	Data source and variable name
Offspring's sex	1=Male, 2=Female	Variable Sex_all from NZLC spine dataset
Offspring's birth cohort	Year of birth ranging from 1976 to 1988	Variable Year_of_birth_all from NZLC spine dataset
Offspring's place of birth	0=Overseas-born, 1=New Zealand-born	Derived from variable birthplace_91 from 1991 census
Offspring's region of residence in 1991	1=Auckland, 2=Waikato, 3=Wellington, 4=Rest of North Island, 5=Canterbury, 6=Otago, 7=Rest of South Island	Derived from variable URRegC06 (2006 Regional Council boundaries) from NZLC geographic dataset
Father's age in 1991	1=16 to 29 years, 2=30 to 39 years, 3= 40 to 49 years, 4=50 years or older	Derived from variable age_91 from 1991 census
Mother's age in 1991	1=16 to 29 years, 2=30 to 39 years, 3= 40 to 49 years, 4=50 years or older	Derived from variable age_91 from 1991 census
Father's place of birth	0=Overseas-born, 1=New Zealand-born	Derived from variable birthplace_91 from 1991 census
Mother's place of birth	0=Overseas-born, 1=New Zealand-born	Derived from variable birthplace_91 from 1991 census
European ethnicity	0=Does not have a parent of European ethnicity, 1=Has a parent of European ethnicity	Derived from variable Eur06_91 from NZLC ethnicity information dataset
Māori ethnicity	0=Does not have a parent of Māori ethnicity, 1=Has a parent of Māori ethnicity	Derived from variable Mao06_91 from NZLC ethnicity information dataset
Pacific ethnicity	0=Does not have a parent of Pacific ethnicity, 1=Has a parent of Pacific ethnicity	Derived from variable Pac06_91 from NZLC ethnicity information dataset
Asian ethnicity	0=Does not have a parent of Asian ethnicity, 1=Has a parent of Asian ethnicity	Derived from variable Asian06_91 from NZLC ethnicity information dataset
Father's highest qualification in 1991[1]	0=No qualifications, 1=School qualifications, 2=Post-school qualifications, 3=University degree	Derived from variables highest_school_qual_91 and tertiary_qual_groupA_91 through tertiary_qual_groupD_91 from 1991 census
Mother's highest qualification in 1991[1]	0=No qualifications, 1=School qualifications, 2=Post-school qualifications, 3=University degree	Derived from variables highest_school_qual_91 and tertiary_qual_groupA_91 through tertiary_qual_groupD_91 from 1991 census
Father's work and labour force status in 1991	1=Full-time work, 2=Part-time work, 3=Unemployed, 4=Not in the labour force	Derived from variable work_status_91_91 from 1991 census
Mother's work and labour force status in 1991	1=Full-time work, 2=Part-time work, 3=Unemployed, 4=Not in the labour force	Derived from variable work_status_91_91 from 1991 census
Family income quintile in 1991[2]	1=Lowest quintile, 2=Low, 3=Middle, 4=High, 5=Highest quintile	Derived from variables total_income_91, family_code_91, and live_with_spouse_91 from 1991 census

Notes:

[1] Data from variable Highest_Qual_Gained_96 from the 1996 census was used if 1991 data was missing.

[2] Variables family_code_91 and live_with_spouse_91 are used to determine the number of parents in the family over which to sum parental income. Quintiles calculated from the *full* population of families enumerated in the 1991 census.

Figure 2. *Flowchart showing selection of samples for each research aim.*



Source: Data from the New Zealand Longitudinal Census.

For our Aim 1 analysis describing intergenerational persistence, we use this sample of 70,584 offspring including those with 'No occupation'.

For our Aim 2 analysis estimating occupational following, we exclude those offspring who have no occupation or whose parents both have no occupation, leaving 42,912 offspring who had an occupation in 2013 and had *at least one parent* with an occupation in 1991. The Aim 2 sample therefore includes those offspring who had only one parent employed in an occupation in 1991 and the other parent not employed (unemployed or not in the labour force).

Our Aim 3 analysis has two sub-aims. For the Aim 3.1 analysis of the predictors of intergenerational occupational persistence, we analyse only those offspring from the Aim 2 sample who have complete data on all independent predictor variables, yielding a sample size of 37,905 offspring. For the Aim 3.2 analysis of the predictors of intergenerational upward mobility, we focus solely on those offspring whose higher-ranked parent was in one of the two 'lowest-ranked' 1-digit occupations in 1991 based on the NZSCO99 skill-based hierarchy (that is, the higher-ranked parent was employed as a *Plant and Machine Operator or Assembler* or in an *Elementary Occupation*) with complete data on the independent variables that we use to predict upward mobility (defined as offspring being in one of the two 'highest-ranked' occupations in 2013, namely *Legislators, Administrators and Managers* or *Professionals*, despite having parents from low-skilled occupations), yielding a sample size of 4,509 offspring. Since the Aim 3.2 sample focuses specifically on offspring with parents in low-skilled occupations, its composition differs from that of all other samples, being skewed towards families with non-European parents who have low levels of education. As with the Aim 2 sample, the Aim 3 samples include those offspring who have only one parent employed in an occupation and the other not employed.

3. Method

3.1. Method for Aim 1

To investigate Aim 1, we construct a transition matrix that cross-tabulates offspring's 1-digit occupation in 2013 against their parent's 1-digit occupation in 1991, for all offspring matched to their parent with the 'higher-ranked' occupation as well as for son-father and daughter-mother pairs. As explained in section 2.4, the Aim 1 sample includes offspring and parents who have 'No occupation'. These transition matrices describe the persistence of occupations across generations (cells along the main diagonal of the matrix) as well as intergenerational mobility in occupations (the off-diagonal cells). We present these transition matrices in graphical format to aid interpretation. We use Pearson's chi-squared test of independence to test for a significant difference in the distribution of offspring's occupation across parental occupation categories, and Cramér's V to quantify the strength of the association (which ranges

between 0 and 1, where values near zero represent a weak association and values near 1 represent a strong association).

3.2. Method for Aim 2

To investigate Aim 2, we use the sample that excludes those with 'No occupation' to estimate 'occupational following', which quantifies the extent to which children are more likely to pursue a given occupation if their parent held that occupation or a similar one. To do this, we employ the linear probability model of occupational following used by Haeck and Laliberté (2025) shown in equation (1):

$$Occupation_{io} = \alpha^o + \beta_1^o(Same\ occupation) + \beta_2^o(Related\ occupation) + \mathrm{C}_i^o + \varepsilon_{io}^o \qquad (1)$$

where the dependent variable, $Occupation_{io}$, is a dummy variable equal to 1 if offspring i works in 2-digit occupation o and zero otherwise, $Same\ occupation$ is a dummy variable equal to 1 if *either parent* of offspring i worked in 2-digit occupation o (in the parent-specific dyads, this becomes 'father worked in occupation o' and 'mother worked in occupation o'), $Related\ occupation$ is a dummy variable equal to 1 if either parent worked in an occupation (other than o) in the same 1-digit group but not the same 2-digit occupation as offspring i, C_i^o is a vector of birth cohort fixed effects which control for changes over cohorts in the baseline probability of entering occupation o, and ε_{io}^o is an error term. Standard errors are clustered at the family level to account for the presence of siblings in the sample.

The parameters of interest are β_1^o, the change in the probability of entering occupation o associated with having a parent in that occupation, and β_2^o, the change in the probability of entering occupation o associated with having a parent in a related occupation (but not occupation o itself). For the most part, these coefficients tell us how much *more likely* a child is to enter an occupation if they had a parent in that occupation, but a negative coefficient means children are *less likely* to enter the occupation if they had a parent in that occupation. We collapse the results down to the occupation level, plotting the average coefficients for each of the 23 occupations at the 2-digit level.

Note that the 1-digit occupations 'Agricultural and Fishery Workers' and 'Elementary Occupations' contain only *one* 2-digit occupation within them ('Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', respectively). This means that for these 2-digit occupations, $Related\ occupation$ is mechanically equal to zero, so the estimation of equation (1) reduces to exact occupational following only.

The β_1^o and β_2^o coefficients tell us about the change in probability of pursuing an occupation if a child had a parent in that occupation or a related one compared to if they did not have a parent in the occupation. But the same change in probability could mean something quite different depending on

how relatively common or relatively rare the occupation is (in terms of workforce size or employment shares). For example, assume β_1^o equals six percentage points for both Occupation A (which employs 1% of the workforce) and Occupation B (which employs 20% of the workforce). For Occupation A, the six percentage point increase in the probability of choosing that occupation due to parental following is large relative to its actual prevalence, but for Occupation B it is relatively smaller compared to its actual prevalence. For this reason, Haeck and Laliberté (2025) construct an 'occupational fluidity index' which *normalises occupational following by the rate of entry into different occupations*, thereby taking into account variation in the prevalence of occupations. It quantifies how common occupation o is among people with no parental connection to the occupation, *relative to how common occupation* o *is overall*, calculated with equation (2):

$$Fluidity_o = \frac{Baseline\ probability_o}{Actual\ probability_o} \times 100 \tag{2}$$

$Baseline\ probability_o$ refers to the predicted probability of choosing occupation o conditional on *not* having a parent in that occupation or a similar one (in other words, the probability that an 'outsider' — a child with no parental links to the occupation — chooses the occupation), calculated as the fitted probability from the linear prediction model in equation (1) stripped of the occupational following effects (but retaining the birth cohort fixed effects which control for changes over cohorts in the entry rate into occupation o). $Actual\ probability_o$ is the unconditional probability of choosing occupation o, that is, the actual share of offspring in that occupation observed in the sample.

$Fluidity_o$ is an index that ranges from zero to 100, where 100 means 'outsiders' are just as likely to choose the occupation as 'insiders' (i.e., offspring with parents in the occupation or a related one). In other words, a fluidity score of 100 means parental occupation is irrelevant to children's pursuit of that occupation and intergenerational persistence in the occupation is low. Conversely, a fluidity index of zero means the occupation is only ever chosen by insiders and is completely closed to outsiders, or in other words, pursuit of that occupation is driven entirely by parental following and intergenerational persistence is high. Note that an occupation's fluidity index can exceed 100 if occupational following as measured by the β_1^o and/or β_2^o coefficients is *negative* (that is, if offspring are *less* likely to pursue an occupation if they had a parent in that occupation or a related one compared to if they did not have a parent in the occupation).

It is important to note that while the fluidity index controls for variation across offspring birth cohorts in the rate of entry into each occupation and normalises occupational following by how common each occupation is, it does not fully abstract from changes in the occupational structure over generations (differences in the marginal distribution of occupation between parent and offspring generations). The

occupational structure in the offspring generation remains implicit in the $Actual\ probability_o$ denominator and any deviations from the parental occupational structure are not purged from the index.

3.3. Method for Aim 3

To investigate Aim 3, we use linear probability regression models to ascertain which sociodemographic groups are more likely to enter the same occupation as their parents (Aim 3.1) or be upwardly mobile in occupation (Aim 3.2), *across the occupational structure as a whole* (that is, the models are individual-level models examining all occupations pooled together; results are not collapsed to the occupation level as in Aim 2). Standard errors are again clustered at the family level.

For the Aim 3.1 analyses, we estimate the following linear probability model:

$$Persistence_i = \alpha + \beta \mathrm{X}_i + \lambda_{c(i)} + \gamma_{f(i)} + \delta_{m(i)} + \varepsilon_i \quad (3)$$

where $Persistence_i$ is a dummy variable indicating whether offspring i works in the same 2-digit occupation in 2013 as either of their parents in 1991 (provided the parent was aged 25 to 64 years), X_i is a vector of the demographic and socioeconomic characteristics of offspring i and their mother and father (listed in Table 2) and β is the corresponding vector of coefficients, $\lambda_{c(i)}$ is a vector of offspring birth cohort fixed effects, and $\gamma_{f(i)}$ and $\delta_{m(i)}$ are vectors of father and mother occupation fixed effects, respectively. The latter are included so that results hold within occupations (i.e., controlling for parental occupation fixed effects means we are comparing offspring who had parents in a given occupation but who may or may not work in that occupation themselves).

For the Aim 3.2 analyses, we estimate the following linear probability model:

$$Upwardly\ mobile_i = \alpha + \beta \mathrm{X}_i + \lambda_{c(i)} + \varepsilon_i \quad (4)$$

where $Upwardly\ mobile_i$ is a dummy variable indicating whether offspring i works in one of the two 'highest-ranked' 1-digit occupations in 2013 (*Legislators, Administrators and Managers* or *Professionals*) despite their higher-ranked parent being in one of the two 'lowest-ranked' occupations in 1991 (*Plant and Machine Operators and Assemblers* or *Elementary Occupations*). The analysis is thus focused on 'long range' intergenerational mobility from a lower-skilled occupation in the parent generation to a higher-skilled occupation in the offspring generation. X_i is the set of characteristics listed in Table 2 and $\lambda_{c(i)}$ is a vector of offspring birth cohort fixed effects. Since the sample is restricted to offspring of parents in specific (low-skilled) occupations, we do not include parental occupation fixed effects in the prediction of upward mobility.

4. Results

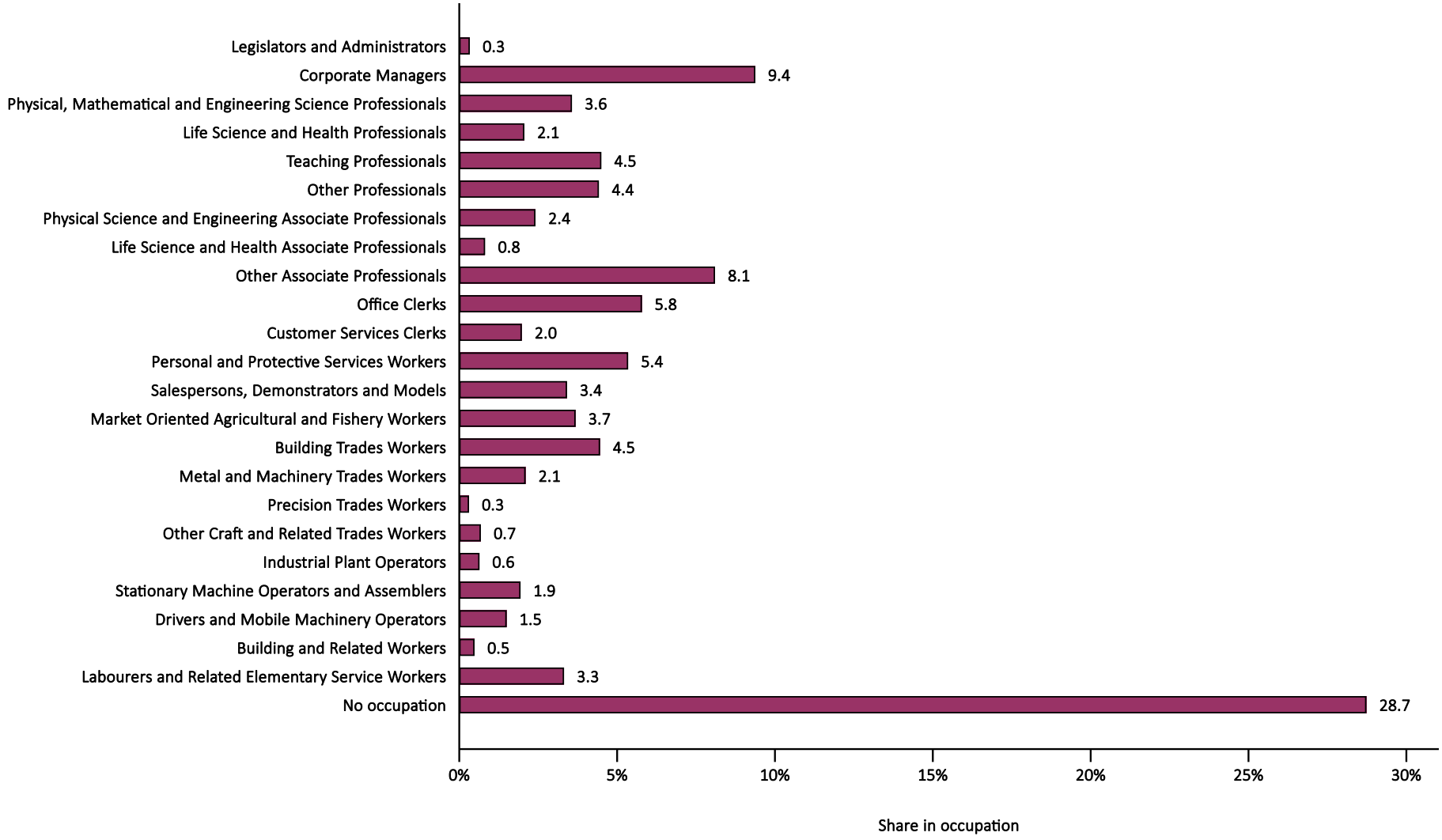
4.1. Descriptive statistics

We begin by describing the distribution of occupations among offspring and parents included in the Aim 1 sample (which includes those with 'No occupation'). Figure 3 plots the distribution of offspring's 2-digit occupations in 2013. Among offspring with an occupation, the most common at the 2-digit level is Corporate Manager (9.4%), which includes a range of general and specialised managers such as General Manager, Finance and Administration Manager, Human Resources Manager, and Sales and Marketing Manager. The next most common occupation is Other Associate Professional (8.1%), which includes Sales Representatives, Technical Representatives, Social Workers, Teacher Aides, and Real Estate Agents. The least common 2-digit occupations are Precision Trades Workers (0.3%), which includes Instrument Makers, Printing Trades workers, Binding Trades workers, Locksmiths, and Jewellers, and Legislators and Administrators (0.3%), which includes Legislators and Chief Executives within central and local government, Senior Business Administrators, and Diplomats.

Figure 4 plots the 1-digit occupations of sons in 2013 and those of their fathers in 1991 and Figure 5 plots the 1-digit occupations of daughters in 2013 and those of their mothers in 1991. Generational differences in occupational distribution are apparent, driven in part by shifts in the occupational structure of the labour market over time. Compared to fathers, sons have slightly larger shares of Professionals, Technicians and Associate Professionals, and Service and Sales Workers, and lower shares of Agriculture and Fishery Workers, Plant and Machine Operators and Drivers, and Elementary Occupations, consistent with the shift in the occupational composition of employment in New Zealand since the mid-1970s towards higher-skilled occupations (Maré, 2019). However, sons have a lower share of Legislators, Administrators and Managers and a much higher share with no occupation, which may reflect the younger age of sons (all aged between 25 and 36 years in 2013) compared to their fathers who were mostly aged in their thirties and forties in 1991.

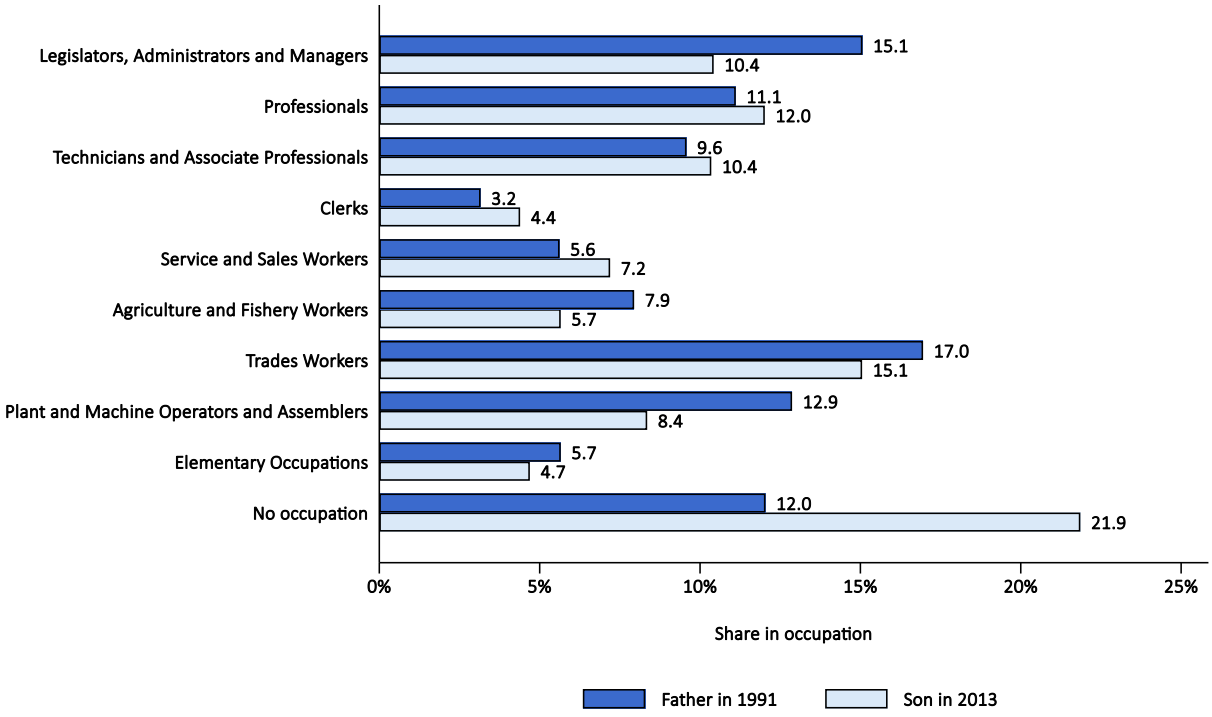
Compared to mothers, daughters have much larger shares of Professionals, Technicians and Associate Professionals, and Legislators, Administrators and Managers, and smaller shares of Clerks, Agriculture and Fishery Workers, Elementary Occupations, and those with no occupation, reflecting increases in women's labour force participation over time and their expansion into the professions.

Figure 3. *Distribution of offspring's 2-digit occupations in 2013*



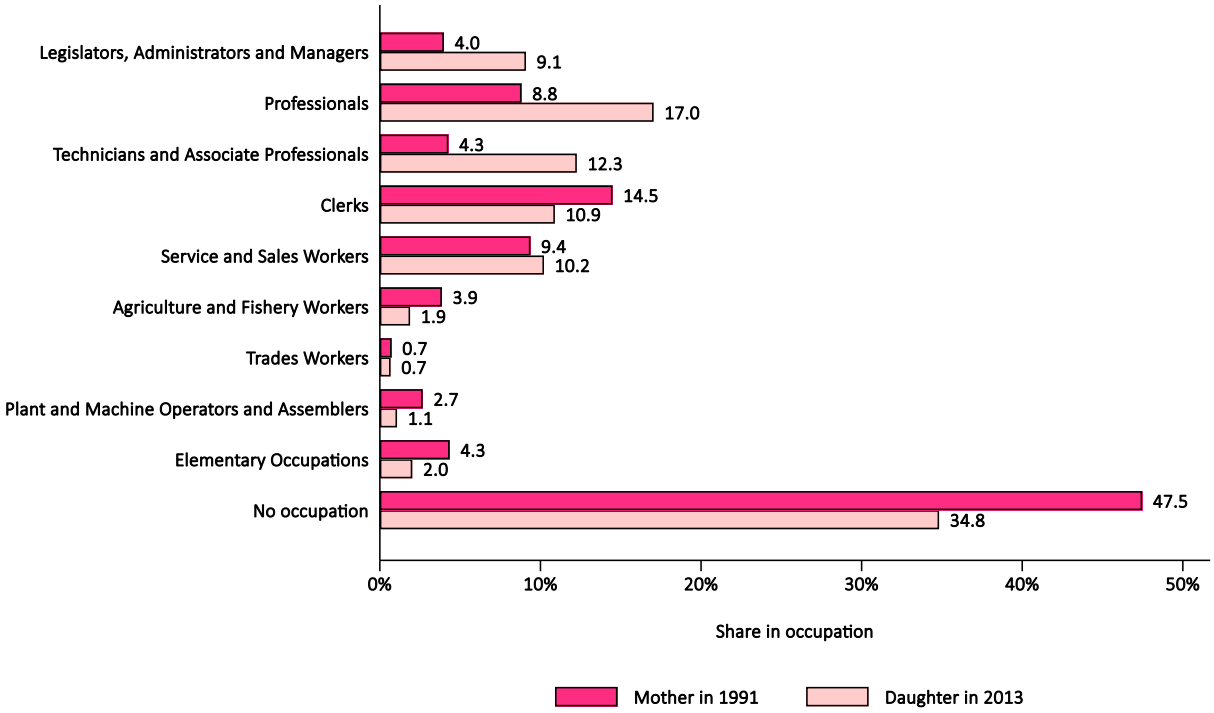
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 4. Distribution of fathers' and sons' 1-digit occupations



Notes: Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999.*
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 5. Distribution of mothers' and daughters' 1-digit occupations



Notes: Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999.*
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Turning to other descriptive statistics of the offspring and parents, Table 3 displays, for each research aim, the sociodemographic characteristics of the offspring and their fathers and mothers in the corresponding analysis sample, alongside a comparison with the relevant population including a chi-squared test which indicates whether there is a statistically significant difference in the distribution of each variable between the sample and the population. For Aim 1, Aim 2, and Aim 3.1, the population is the 525,396 offspring shown in the top box of the sample selection flowchart in Figure 2. For Aim 3.2, which focuses solely on children of parents in low-skilled occupations, the population is the subset (n=46,467) of the aforementioned full population of offspring whose higher-ranked parent was either a Plant and Machine Operator or Assembler or had an Elementary Occupation (the sample having been drawn only from this narrower population of families).

Across all four samples, about 95% of offspring were born in New Zealand, there are approximately equal shares of sons and daughters, and there is a weighting towards more recently-born cohorts. At least 94% of offspring across samples had a mother who was counted in the 1991 census, but the share with enumerated fathers was lower (between 79% and 95%). Approximately half of fathers were aged 30 to 39 years in 1991 and about 30% were aged 40 to 49 years, while mothers were slightly younger, with about 60% to 66% aged 30 to 39 and about 20% aged 40 to 49. Approximately 80% of mothers were born in New Zealand, but the share of New Zealand-born fathers varied between 69% and 82% across the samples.

In the first three samples, between 85% and 91% of offspring have a European parent, but this drops to 76% in the Aim 3.2 sample which is focused on the offspring of parents in low-skilled occupations. The reverse is the case for Māori and Pacific ethnicity: in the first three samples, between 9% and 12% of offspring have a Māori parent and about 6% have a Pacific parent, but these increase to 19% and 15%, respectively, in the Aim 3.2 sample. About 4% of offspring have an Asian parent across all four samples.

Across the first three samples, about one-quarter of fathers and one-third of mothers have no qualifications and about 10% of fathers and 6% of mothers have a university degree, but again this differs in the Aim 3.2 sample, where about half of fathers and mothers have no qualifications and only 1% have a university degree.

About 90% of fathers were in full-time work, except for the Aim 1 sample where it was 73%, due to the Aim 1 sample including parents with 'No occupation', hence its higher shares of fathers who were unemployed (4% versus 1% to 2% in the other samples), not in the labour force (5% versus 2% to 3% in the other samples), or with missing occupation data (15% compared to at most 6% in the other samples). Across the first three samples, about 40% of mothers were not in the labour force and about

one-quarter were in full-time work, but in the Aim 3.2 sample the corresponding figures are 62% not in the labour force and 17% in full-time work.

With respect to family income in 1991, the share of offspring in the lowest quintile of the national family income distribution is higher in the Aim 1 sample (13%) than in the other samples (between 2% and 5%), again, likely due to the inclusion in the Aim 1 sample of parents with 'No occupation' and their exclusion from the other samples. The share in the highest quintile is somewhat lower in the Aim 1 and Aim 3.2 samples (about 28%, reflecting each sample's specific inclusion criteria) compared to the Aim 2 and Aim 3.1 samples (about one-third).

The Aim 1 sample is broadly representative of the population of New Zealand families with young children in 1991. Across all variables, differences between the sample share and the population share average just two percentage points and never exceed nine percentage points (despite the chi-squared test indicating significant differences in all variables, which is to be expected given that the test detects even small differences in large samples of the size analysed here). To the extent there are prominent differences compared to the population, the Aim 1 sample has a larger share of families with a father present (86% with fathers counted versus 80% in the population) and consequently has smaller shares in the 'missing' category for many father-related variables. The Aim 1 sample also has a larger share of fathers in full-time work (73% versus 65% in the population), a larger share of offspring with a European parent (85% versus 78% in the population), and a smaller share in the lowest quintile of family income (13% versus 19% in the population).

The Aim 2 and Aim 3.1 samples deviate from the population to a greater extent than the Aim 1 sample and in similar ways, which is expected given that both these samples exclude those with 'No occupation' which means they drop families in which neither parent is employed or where the offspring has no occupation. For these two samples, differences between the sample share and the population share across all variable categories average four to five percentage points. Like the Aim 1 sample, the Aim 2 and Aim 3.1 samples capture more families with enumerated fathers and thus have smaller shares in the 'missing' category across many father-related variables. They also have larger shares of fathers who: are aged 30 to 39 (about 54% in both samples compared to 41% in the population), were born in New Zealand (about 80% in both samples compared to 64% in the population), have post-school qualifications (about 35% compared to 25% in the population), and were employed full-time (about 90% in both samples compared to 64% in the population).

The Aim 2 and Aim 3.1 samples also have larger shares of offspring with a European parent (about 90% in both samples compared to 78% in the population), larger shares of mothers with school qualifications

Table 3. Sociodemographic characteristics of offspring and their fathers and mothers in each sample, by research aim

Variable	Category	Aim 1 sample			Aim 2 sample			Aim 3.1 sample			Aim 3.2 sample		
		Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test
Offspring's sex	Male	51.5	47.8	<0.001	50.8	52.8	<0.001	50.8	53.0	<0.001	51.1	50.9	0.834
	Female	48.5	52.2		49.2	47.2		49.2	47.0		48.9	49.1	
Offspring's year of birth	1976	7.6	5.7	<0.001	7.5	5.9	<0.001	7.5	5.5	<0.001	7.5	4.9	<0.001
	1977	8.9	6.5		8.8	6.5		8.8	6.4		8.6	6.3	
	1978	8.7	6.7		8.6	6.6		8.6	6.4		8.7	6.7	
	1979	8.9	7.3		8.8	7.5		8.8	7.3		8.8	7.2	
	1980	9.1	7.3		9.0	7.2		9.0	7.1		8.9	6.4	
	1981	9.0	7.3		8.8	7.4		8.8	7.2		8.6	7.3	
	1982	8.9	7.7		8.8	7.6		8.8	7.5		8.5	7.5	
	1983	8.9	8.4		8.9	8.3		8.9	8.3		8.7	8.6	
	1984	8.8	9.2		8.8	9.1		8.8	9.2		8.7	8.7	
	1985	8.8	9.8		8.9	9.7		8.9	10.0		9.3	9.9	
	1986	6.1	10.6		6.3	10.5		6.3	10.8		6.5	11.1	
	1987	5.4	11.5		5.7	11.5		5.7	12.1		6.1	12.6	
	1988	0.9	2.2		1.0	2.2		1.0	2.3		1.1	2.8	
Offspring's place of birth	Overseas-born	6.5	5.5	<0.001	6.5	5.1	<0.001	6.5	4.6	<0.001	6.6	4.6	<0.001
	New Zealand-born	93.5	94.5		93.5	94.9		93.5	95.4		93.4	95.4	
Offspring's region of residence in 1991	Auckland	25.9	28.6	<0.001	26.1	28.4	<0.001	26.1	28.4	<0.001	27.5	25.6	<0.001
	Waikato	11.0	9.3		10.9	9.2		10.9	9.3		11.5	9.9	
	Wellington	10.9	13.5		11.1	13.7		11.1	13.7		8.5	9.6	
	Rest of North Island	27.9	23.4		27.8	22.0		27.7	21.7		27.8	23.5	
	Canterbury	11.9	13.0		11.9	13.7		11.9	13.9		11.3	14.8	
	Otago	4.9	4.8		4.9	5.0		4.9	5.1		4.8	5.7	
	Rest of South Island	7.4	7.5		7.4	7.9		7.4	8.0		8.6	10.9	
	Missing	0.0	0.0		0.0	S		0.0	S		0.0	S	
Father enumerated in 1991 census	No	20.0	14.0	<0.001	20.4	5.4	<0.001	20.7	S	S	8.6	S	S
	Yes	80.0	86.0		79.6	94.6		79.3	100.0		91.4	100.0	
Mother enumerated in 1991 census	No	4.0	2.1	<0.001	4.0	1.5	<0.001	4.1	S	S	5.6	S	S
	Yes	96.0	97.9		96.0	98.5		95.9	100.0		94.4	100.0	
Father's age in 1991	16 to 29 years	5.1	5.0	<0.001	5.1	4.8	<0.001	5.1	5.2	<0.001	10.2	9.8	<0.001
	30 to 39 years	41.5	47.1		41.3	52.6		41.2	55.9		49.6	56.4	
	40 to 49 years	28.3	29.2		28.1	32.8		28.0	34.5		25.2	27.9	
	50 years or older	5.0	4.6		5.0	4.4		5.0	4.5		6.5	5.9	
	Missing	20.0	14.0		20.4	5.4		20.7	S		8.6	S	

Table 3 continued. *Sociodemographic characteristics of offspring and their fathers and mothers in each sample, by research aim*

Variable	Category	Aim 1 sample			Aim 2 sample			Aim 3.1 sample			Aim 3.2 sample		
		Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test
Mother's age in 1991	16 to 29 years	13.2	13.1	<0.001	13.4	11.2	<0.001	13.3	11.7	<0.001	18.8	20.4	<0.001
	30 to 39 years	59.2	62.4		59.2	64.6		59.1	65.9		56.0	60.1	
	40 to 49 years	21.3	20.8		21.2	21.6		21.2	21.3		16.8	18.0	
	50 years or older	2.3	1.6		2.3	1.1		2.3	1.1		2.8	1.7	
	Missing	4.0	2.1		4.0	1.5		4.1	S		5.6	S	
Father's place of birth	Overseas-born	15.6	17.2	<0.001	15.6	17.8	<0.001	15.6	18.4	<0.001	22.2	23.9	<0.001
	New Zealand-born	64.4	68.8		63.9	76.8		63.7	81.6		69.3	76.1	
	Missing	20.0	14.0		20.4	5.4		20.7	S		8.6	S	
Mother's place of birth	Overseas-born	16.9	17.9	<0.001	17.0	17.3	<0.001	17.0	17.2	<0.001	20.6	21.2	<0.001
	New Zealand-born	79.1	80.0		79.0	81.2		78.9	82.8		73.8	78.9	
	Missing	4.0	2.1		4.0	1.5		4.1	S		5.6	S	
European ethnicity	Does not have a European parent	21.9	14.7	<0.001	21.9	10.0	<0.001	21.9	8.9	<0.001	36.9	24.2	<0.001
	Has a European parent	78.1	85.3		78.1	90.0		78.1	91.1		63.1	75.8	
Māori ethnicity	Does not have a Māori parent	83.0	87.9	<0.001	83.0	90.9	<0.001	83.0	90.9	<0.001	71.1	80.7	<0.001
	Has a Māori parent	17.1	12.1		17.0	9.2		17.0	9.1		28.9	19.2	
Pacific ethnicity	Does not have a Pacific parent	93.8	93.5	0.007	93.6	95.0	<0.001	93.6	95.2	<0.001	84.3	85.0	0.192
	Has a Pacific parent	6.2	6.5		6.4	5.0		6.4	4.8		15.7	15.0	
Asian ethnicity	Does not have an Asian parent	97.3	95.8	<0.001	97.2	95.7	<0.001	97.2	95.9	<0.001	97.2	95.6	<0.001
	Has an Asian parent	2.7	4.2		2.8	4.3		2.8	4.1		2.8	4.4	
Father's highest educational qualification in 1991	No qualifications	24.5	23.6	<0.001	24.5	23.1	<0.001	24.3	24.6	<0.001	52.1	55.6	<0.001
	School qualifications	19.3	21.5		19.2	24.2		19.1	25.8		17.6	20.7	
	Post-school qualifications	25.0	29.1		24.8	33.7		24.7	36.1		16.2	20.0	
	University degree	8.2	8.9		8.1	10.6		8.0	11.4		0.5	0.7	
	Missing	23.1	17.0		23.5	8.4		23.8	2.1		13.6	3.1	
Mother's highest educational qualification in 1991	No qualifications	32.9	30.4	<0.001	33.2	26.1	<0.001	33.0	26.8	<0.001	53.2	51.4	<0.001
	School qualifications	34.4	38.7		34.4	41.0		34.4	42.1		28.8	36.4	
	Post-school qualifications	20.3	20.7		20.1	23.0		20.1	23.5		8.0	10.0	
	University degree	5.0	5.4		4.9	6.1		4.9	6.2		0.5	0.7	
	Missing	7.4	4.8		7.3	3.9		7.5	1.4		9.5	1.5	
Father's work and labour force status in 1991	Full-time work	64.5	73.3	<0.001	63.7	88.3	<0.001	63.5	94.3	<0.001	79.2	90.2	<0.001
	Part-time work	2.4	2.3		2.4	2.6		2.4	2.7		5.0	4.4	
	Unemployed	5.0	4.3		5.3	1.2		5.2	1.3		2.5	2.3	
	Not in the labour force	6.9	5.1		7.1	1.6		7.1	1.7		3.5	3.1	
	Missing	21.1	14.9		21.5	6.3		21.9	S		9.8	S	

Table 3 continued. *Sociodemographic characteristics of offspring and their fathers and mothers in each sample, by research aim*

Variable	Category	Aim 1 sample			Aim 2 sample			Aim 3.1 sample			Aim 3.2 sample		
		Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test	Population share (%)	Sample share (%)	*p*-value χ^2 test
Mother's work and labour force status in 1991	Full-time work	25.6	22.8	<0.001	25.0	27.2	<0.001	25.0	27.0	<0.001	21.3	16.8	<0.001
	Part-time work	24.2	27.3		23.8	33.2		23.9	33.8		17.1	14.5	
	Unemployed	5.7	4.6		5.8	3.0		5.7	3.3		6.5	6.8	
	Not in the labour force	38.0	40.9		38.9	32.6		38.6	36.0		48.2	61.9	
	Missing	6.5	4.3		6.4	4.1		6.7	S		7.0	S	
Family income quintile in 1991	Lowest quintile	19.4	13.1	<0.001	19.8	4.6	<0.001	19.8	2.2	<0.001	11.6	3.6	<0.001
	Low	15.4	16.1		15.5	15.4		15.5	15.1		25.7	28.5	
	Middle	17.0	19.4		16.9	22.1		16.9	23.3		23.4	26.8	
	High	16.2	18.7		16.0	22.4		16.0	24.3		11.3	13.9	
	Highest quintile	27.5	28.8		27.3	32.7		27.1	35.1		24.2	27.1	
	Missing	4.4	3.9		4.5	2.8		4.7	S		3.9	S	
Father's occupation in 1991	Legislators, Admin., and Managers	11.6	13.1	<0.001	11.4	15.9	<0.001	11.4	17.0	<0.001	0.0	S	<0.001
	Professionals	8.7	9.8		8.6	11.9		8.6	12.9		S	S	
	Technicians and Associate Profess.	6.6	8.4		6.6	10.2		6.5	11.0		S	S	
	Clerks	2.0	2.7		2.0	3.3		2.0	3.6		S	S	
	Service and Sales Workers	4.1	4.7		4.0	5.6		4.0	6.0		0.0	S	
	Agriculture and Fishery Workers	9.5	7.3		9.2	9.0		9.2	8.9		0.0	S	
	Trades Workers	11.1	14.6		11.1	17.9		11.0	19.0		0.0	S	
	Plant/Machine Operators, Assemb.	9.5	10.7		9.4	12.4		9.4	13.1		58.2	65.2	
	Elementary Occupations	4.1	4.6		4.0	5.2		4.0	5.5		26.5	28.9	
	No occupation	12.7	10.1		13.2	3.1		13.1	3.2		6.7	5.7	
	No father	20.0	14.0		20.4	5.4		20.7	S		8.6	S	
Mother's occupation in 1991	Legislators, Admin., and Managers	4.1	3.9	<0.001	4.0	4.7	<0.001	4.0	4.5	<0.001	0.0	S	<0.001
	Professionals	9.3	8.8		9.1	10.7		9.2	10.7		0.1	S	
	Technicians and Associate Profess.	4.3	4.2		4.2	4.9		4.2	4.8		0.0	S	
	Clerks	12.8	14.3		12.6	17.4		12.6	17.0		0.1	0.1	
	Service and Sales Workers	8.6	9.0		8.5	10.8		8.6	10.4		0.2	0.2	
	Agriculture and Fishery Workers	5.3	4.1		5.1	5.2		5.1	4.7		0.0	S	
	Trades Workers	0.6	0.7		0.6	0.8		0.6	0.8		S	S	
	Plant/Machine Operators, Assemb.	2.5	2.5		2.4	3.0		2.5	2.9		15.2	11.9	
	Elementary Occupations	3.8	4.1		3.8	4.7		3.8	4.6		22.8	18.3	
	No occupation	44.7	46.3		45.7	36.2		45.3	39.7		56.1	69.5	
	No mother	4.0	2.1		4.0	1.5		4.1	S		5.6	S	
Total number of observations		454,812	70,584		482,484	42,912		487,494	37,905		46,467	4,509	

Symbols:
S denotes 'Suppressed'

(about 41% in both samples compared to 34% in the population), larger shares of mothers employed in part-time work (about 33% in both samples compared to 24% in the population), smaller shares of offspring with a Māori parent (about 9% in both samples compared to 17% in the population), and — as expected — smaller shares of fathers and mothers with no occupation (about 3% of fathers in both samples compared to 13% in the population and between 36% and 40% of mothers compared to 45% in the population). The samples also have smaller shares in the lowest quintile of family income, likely due to their exclusion of families in which neither parent is working (at least one parent must be employed in an occupation, so the Aim 2 and Aim 3.1 samples exclude families whose only source of income is government benefits, for example).

Turning to the Aim 3.2 sample, which is focused on the children of low-skilled parents, it is overwhelmingly comprised of families where the father has the higher-ranked occupation (92% of the sample) and the mother has no occupation (70%). Consequently, even more so than the other samples, it has a larger share of families with fathers present compared to the population, and hence smaller shares in the 'missing' category across many father-related variables. Beyond that, the sample has larger shares of fathers who: were born in New Zealand (76% compared to 69% in the population); were employed full-time (90% versus 79% in the population); and were employed as Plant and Machine Operators or Assemblers (65% versus 58% in the population). The Aim 3.2 sample also has larger shares of mothers born in New Zealand (79% versus 74% in the population) with school qualifications (36% versus 29% in the population) who were not in the labour force (62% versus 48% in the population). In addition, the sample has a larger share of offspring with a European parent (76% versus 63% in the population), a smaller share of offspring with a Māori parent (19% versus 29% in the population), and a smaller share in the lowest quintile of family income (4% versus 12% in the population, again likely due to the sample excluding families where neither parent is working).

Overall, the samples generally under-represent families that are fatherless, on the very lowest incomes, with Māori parents, and with overseas-born parents, and generally over-represent families with full-time-employed fathers and with European and New Zealand-born parents.

4.2. Results for Aim 1

Figure 6 cross-tabulates the 1-digit occupations of offspring in 2013 with the occupations of their 'higher-ranked' parent in 1991 (including the 'No occupation' category). We repeat the transition matrix for son-father pairs (Figure 7) and daughter-mother pairs (Figure 8).

We find that 18% of offspring are in the same 1-digit occupation as their higher-ranked parent (or have no occupation like their higher-ranked parent). There is a statistically significant association between

offspring's and parent's occupations (Pearson's chi-squared test *p*-value<0.001), but the association is weak (Cramér's V=0.097). When the 'No occupation' category is excluded, the share of persistent offspring remains at 18% but Cramér's V increases marginally to 0.117. At the 2-digit level (results not shown), we find 13% of offspring are in the same 2-digit occupation as their higher-ranked parent (Cramér's V=0.066) and when the 'No occupation' category is excluded, the share of persistent offspring decreases to 11% and Cramér's V increases to 0.079.

We find that 19% of sons are in the same 1-digit occupation as their father and 25% of daughters are in the same 1-digit occupation as their mother. These associations are both statistically significant, but the strength of the association is about twice as strong among son-father pairs (Cramér's V=0.131) compared to mother-daughter pairs (Cramér's V=0.061). For both son-father and mother-daughter pairs, the strength of the association increases modestly when the 'No occupation' category is excluded and decreases modestly when occupations are defined at the 2-digit level.

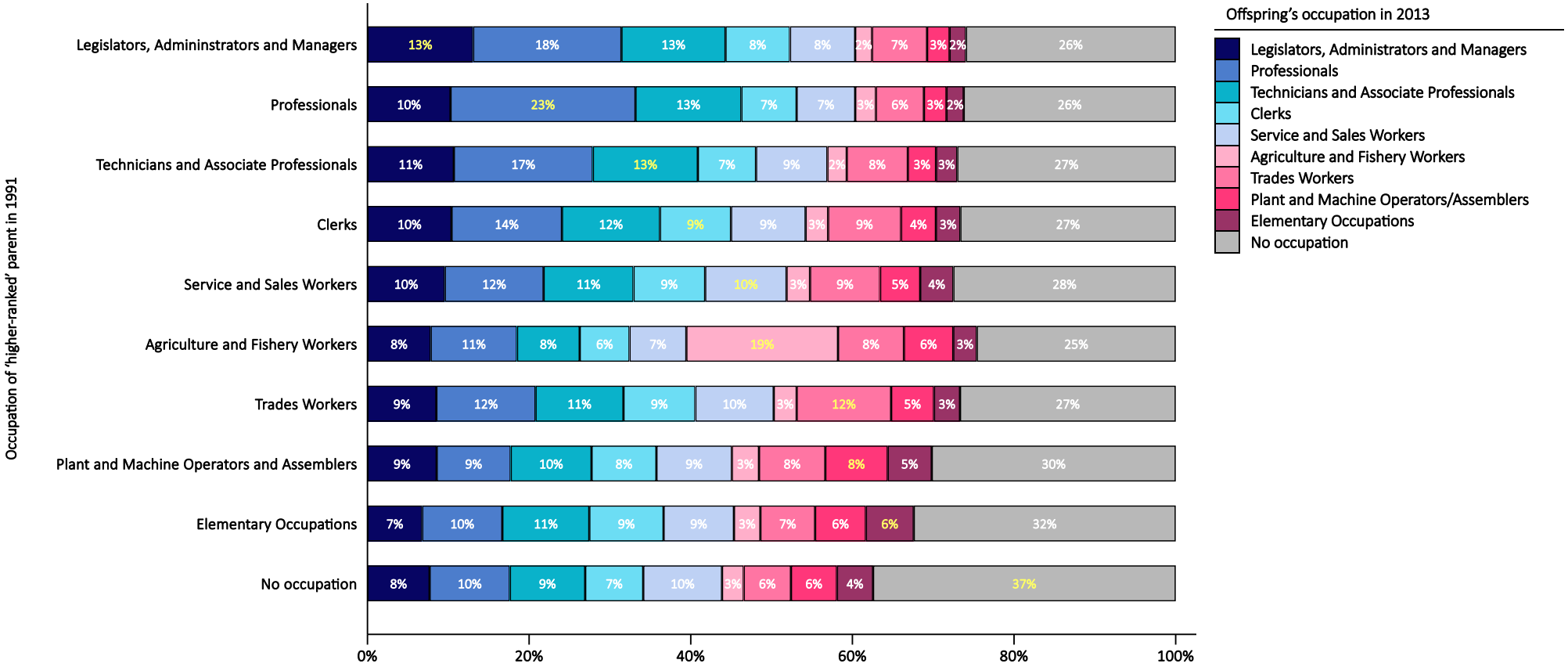
We find that intergenerational persistence varies considerably across 1-digit occupations. It is particularly high among Agriculture and Fishery Workers. Among offspring whose higher-ranked parent was in this occupation, 19% end up working in agricultural or fishery occupations themselves, despite the occupation only employing 6% of sons and 2% of daughters overall (see Figure 4 and Figure 5). The transition matrices for the same-sex dyads indicate that intergenerational transmission of agricultural and fishery occupations is especially strong among son-father pairs (persistence of 28%).

Intergenerational persistence is also relatively strong among Professionals. Among offspring with a Professional higher-ranked parent, 23% end up as Professionals themselves, despite the occupation employing 12% of sons and 17% of daughters overall. The transmission of professions is stronger from fathers to sons than from mothers to daughters.

Trades Workers also exhibit a relatively high degree of intergenerational persistence. Among sons whose father was a Trades Worker, 24% end up as Trades Workers themselves, despite trades occupations employing 15% of sons overall. Among daughters whose mother was a Trades Worker, 3% end up as Trades Workers themselves, despite trades employing 1% of daughters overall.

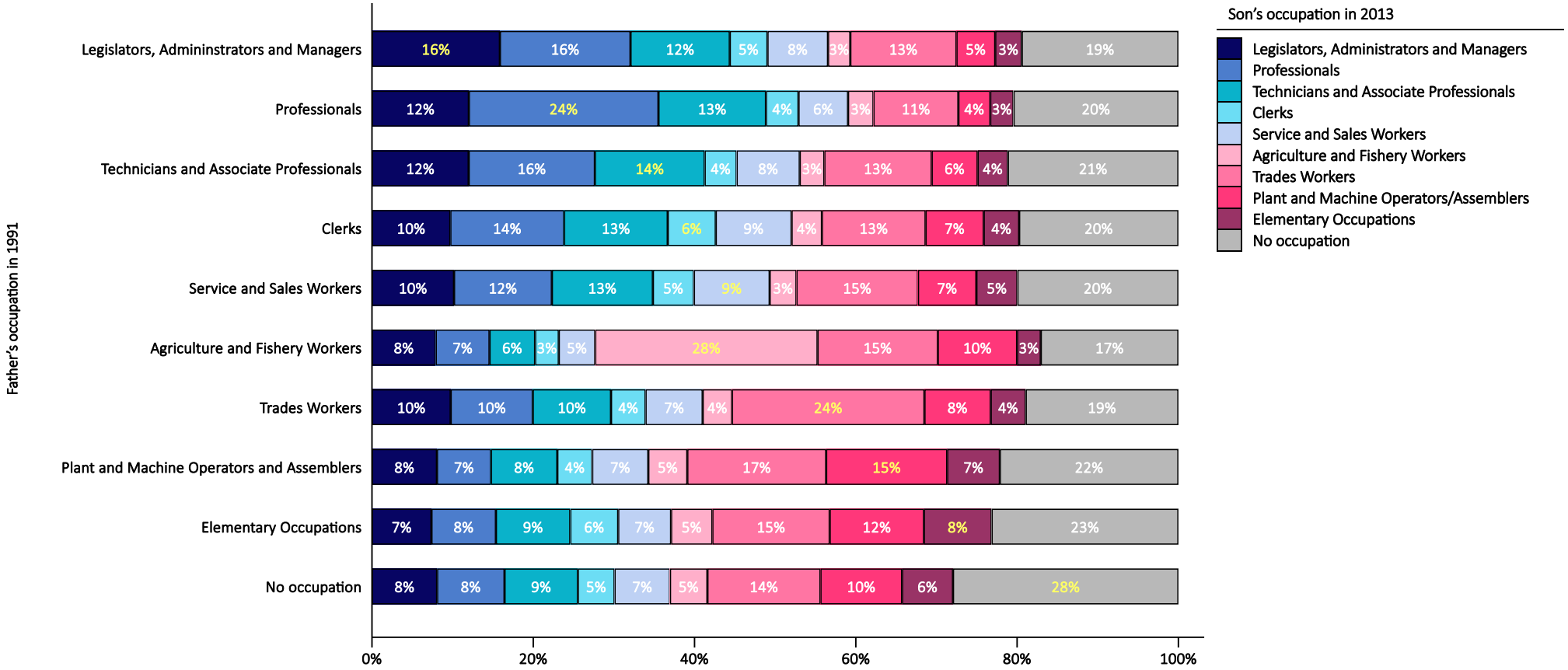
Persistence is relatively weak among Service and Sales Workers. The occupation employs 7% of sons and 10% of daughters, and a similar share of offspring with a higher-ranked parent in this occupation (9%) end up as Service and Sales Workers themselves.

Figure 6. Chart of intergenerational transition matrix of offspring's occupations in 2013 by the occupations of their 'higher-ranked' parent in 1991



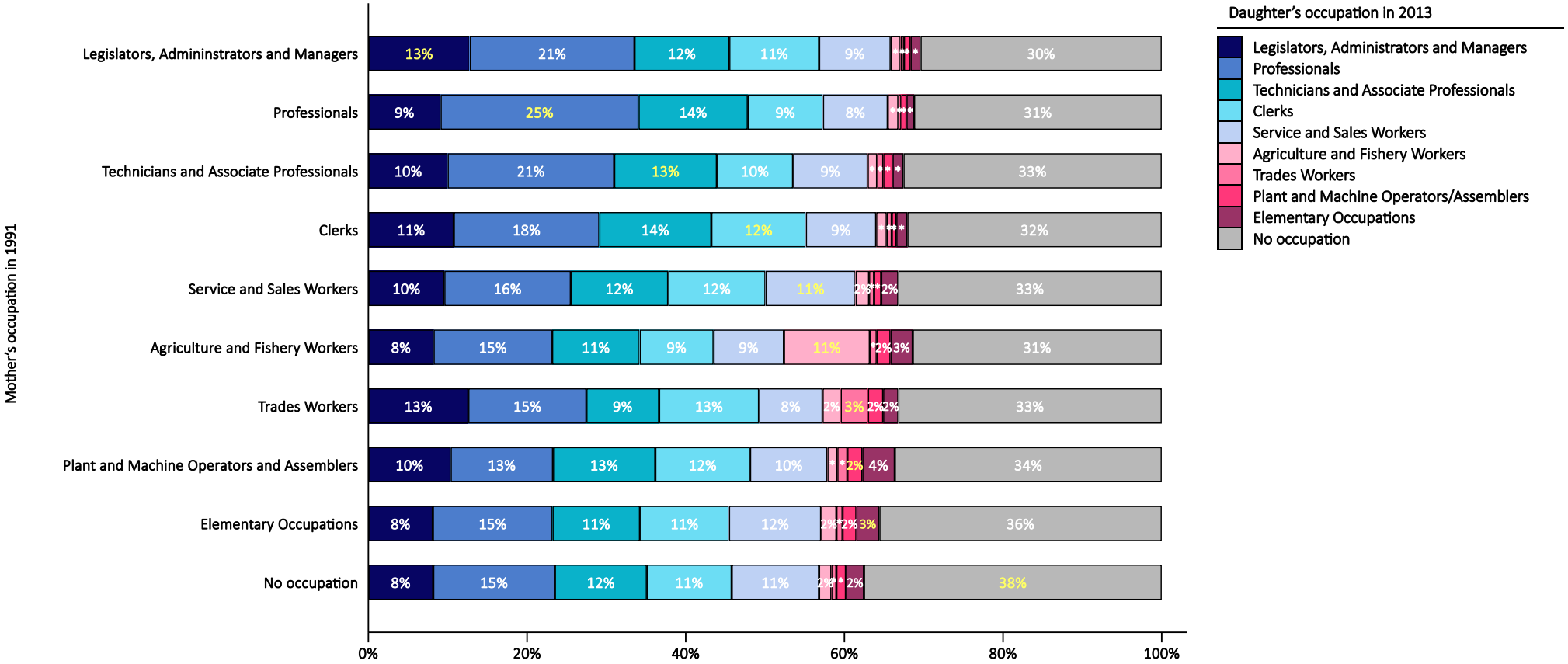
Notes: Chi-squared test *p*-value<0.001, Cramér's V=0.097. Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Figures in yellow represent intergenerational persistence in 1-digit occupations.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 7. Chart of intergenerational transition matrix of sons' occupations in 2013 by their fathers' occupations in 1991



Notes: Chi-squared test *p*-value<0.001, Cramér's V=0.131. Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Figures in yellow represent intergenerational persistence in 1-digit occupations.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 8. Chart of intergenerational transition matrix of daughters' occupations in 2013 by their mothers' occupations in 1991



Notes: Chi-squared test *p*-value<0.001, Cramér's V=0.061. Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Figures in yellow represent intergenerational persistence in 1-digit occupations. Occupations with asterisks (*) have proportions of one percent or less.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Despite the intergenerational persistence observed in trades, children of Trades Workers also appear to be particularly upwardly mobile. For example, among children of Trades Workers, 9% rise to become Legislators, Administrators or Managers, which is similar to the 10% of children of Professionals who achieve the same upward mobility (but who start from a 'higher rung' on the parental occupational ladder). Indeed, among daughters whose mothers were Trades Workers, 13% rise to become Legislators, Administrators or Managers, which is higher than the 9% of daughters of Professional mothers who achieve the same upward mobility.

4.3. Results for Aim 2

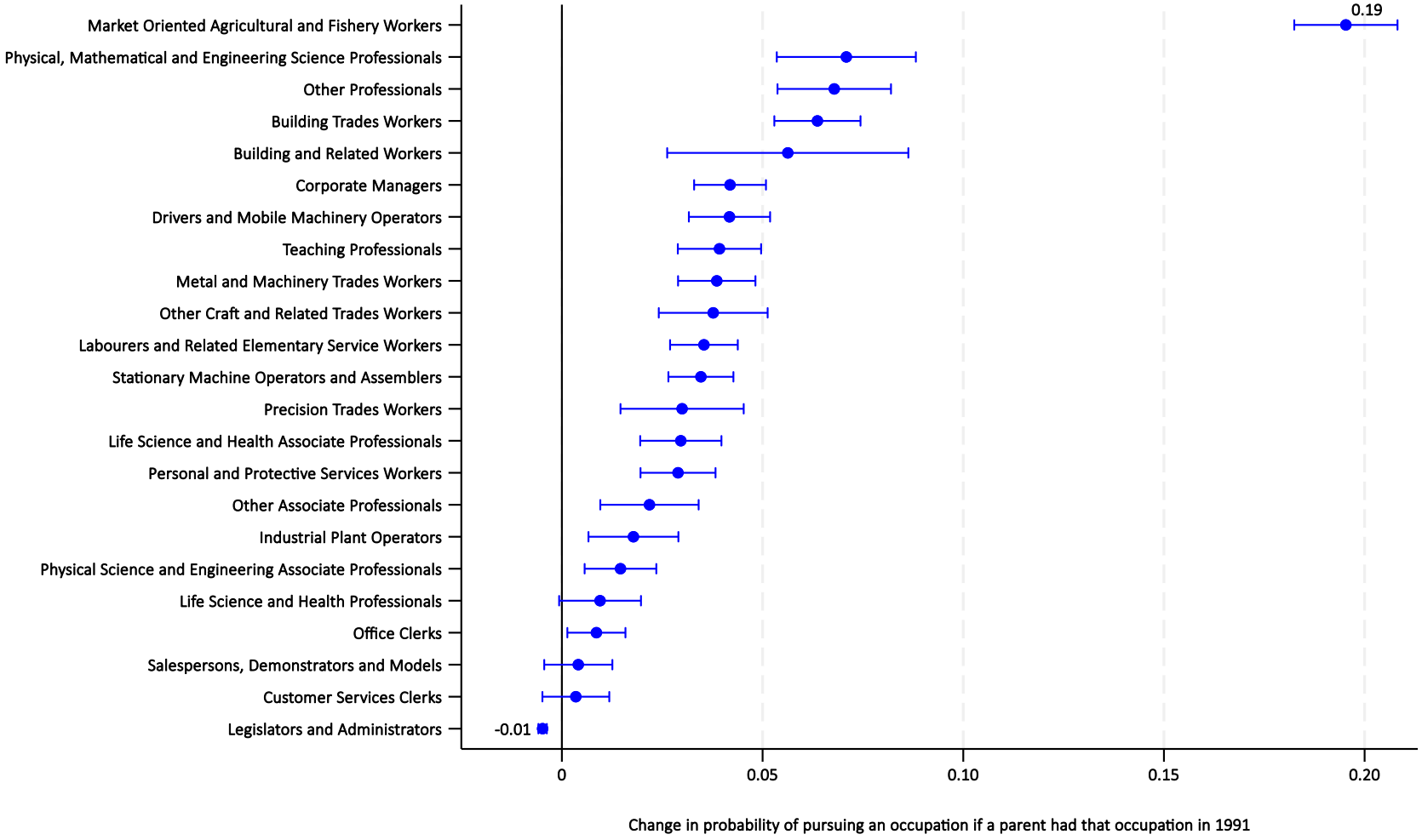
4.3.1. Main results

Turning to the results from our Aim 2 analysis estimating occupational following, Figure 9 plots the β_1^o coefficients which quantify children's propensity to follow their parents into the same 2-digit occupation (see Appendix B for a table of the full regression results). Occupations are ordered from highest degree of occupational following at the top to lowest degree at the bottom. We find that in all occupations but one, the β_1^o point estimates are positive, indicating that having a parent in the occupation *increases* the chances of children choosing that occupation. The exception is Legislators and Administrators, in which a child is one percentage point *less likely* to be employed if they had a parent in this occupation. Some occupations have coefficients that are not significantly different from zero (Customer Service Clerks, Salespersons, Demonstrators and Models, and Life Science and Health Professionals) or close to zero (Office Clerks), indicating that intergenerational persistence does not systematically occur in these occupations.

In contrast, a child is 19 percentage points more likely to be a Market Oriented Agricultural or Fishery Worker if either of their parents was an Agricultural or Fishery Worker, compared to not having a parent in that occupation. Occupational following is also relatively high among Physical, Mathematical and Engineering Science Professionals (e.g., Computer Applications Engineer, Systems Analyst, Mathematician, Physicist, Chemist, Architect, Engineer), Other Professionals (e.g., Accountants, Financial Advisers, Barristers and Solicitors, Policy Analysts, Psychologists) and Building Trades (e.g., Builder, Carpenter, Electrician, Plumber).

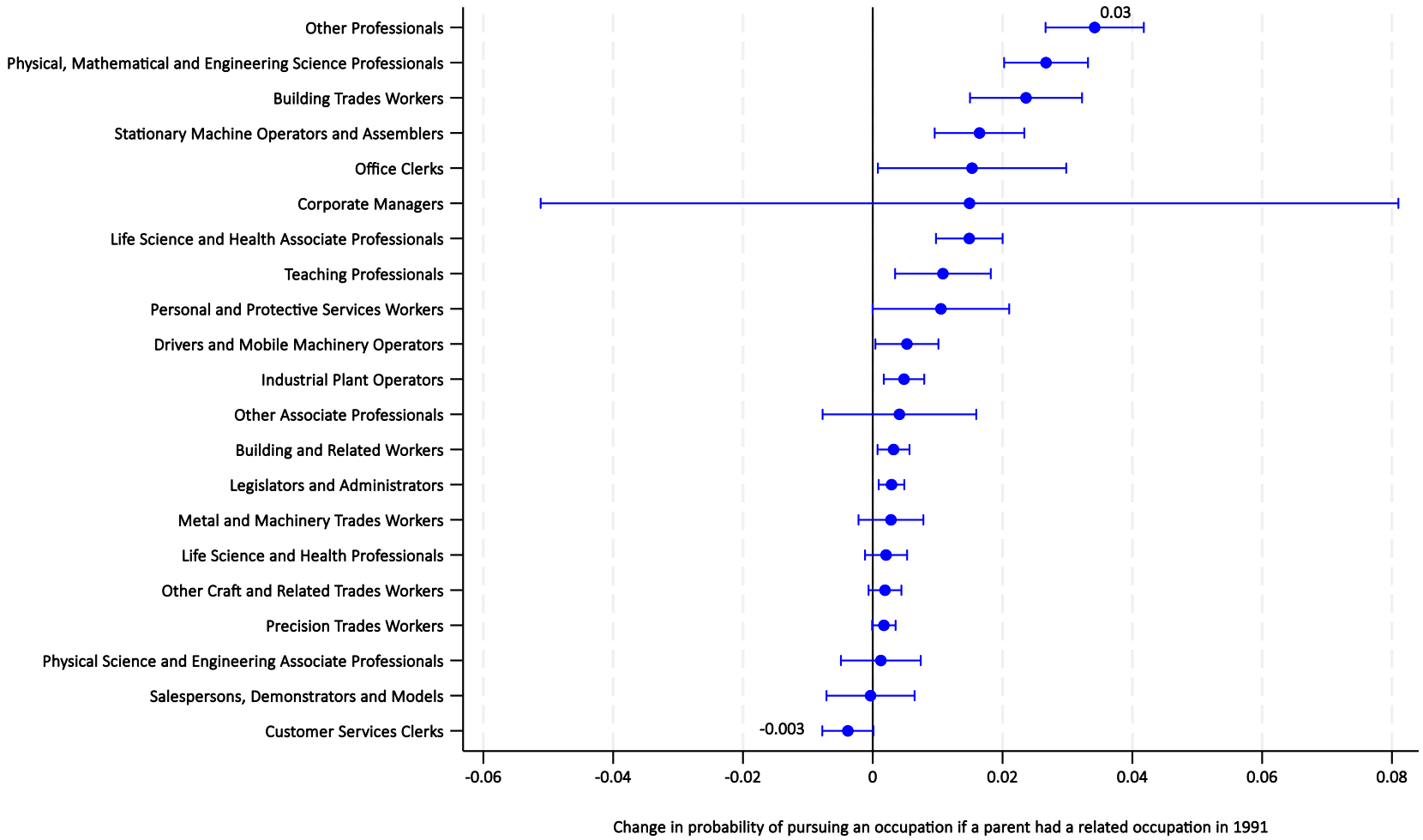
Figure 10 plots the β_2^o coefficients which quantify children's propensity to pursue a *related* occupation to their parents' occupations (i.e., a different 2-digit occupation from the same 1-digit group). For a full set of results, see Appendix B. Many of the β_2^o coefficients are small and/or not significantly different from zero. Related occupational following is highest in the Other Professional group, where a child is three percentage points more likely to be an 'Other professional' if either of their parents was *another*

Figure 9. Occupational following β_1^o coefficients for offspring pursuing 'same occupation' in 2013 as either parent did in 1991



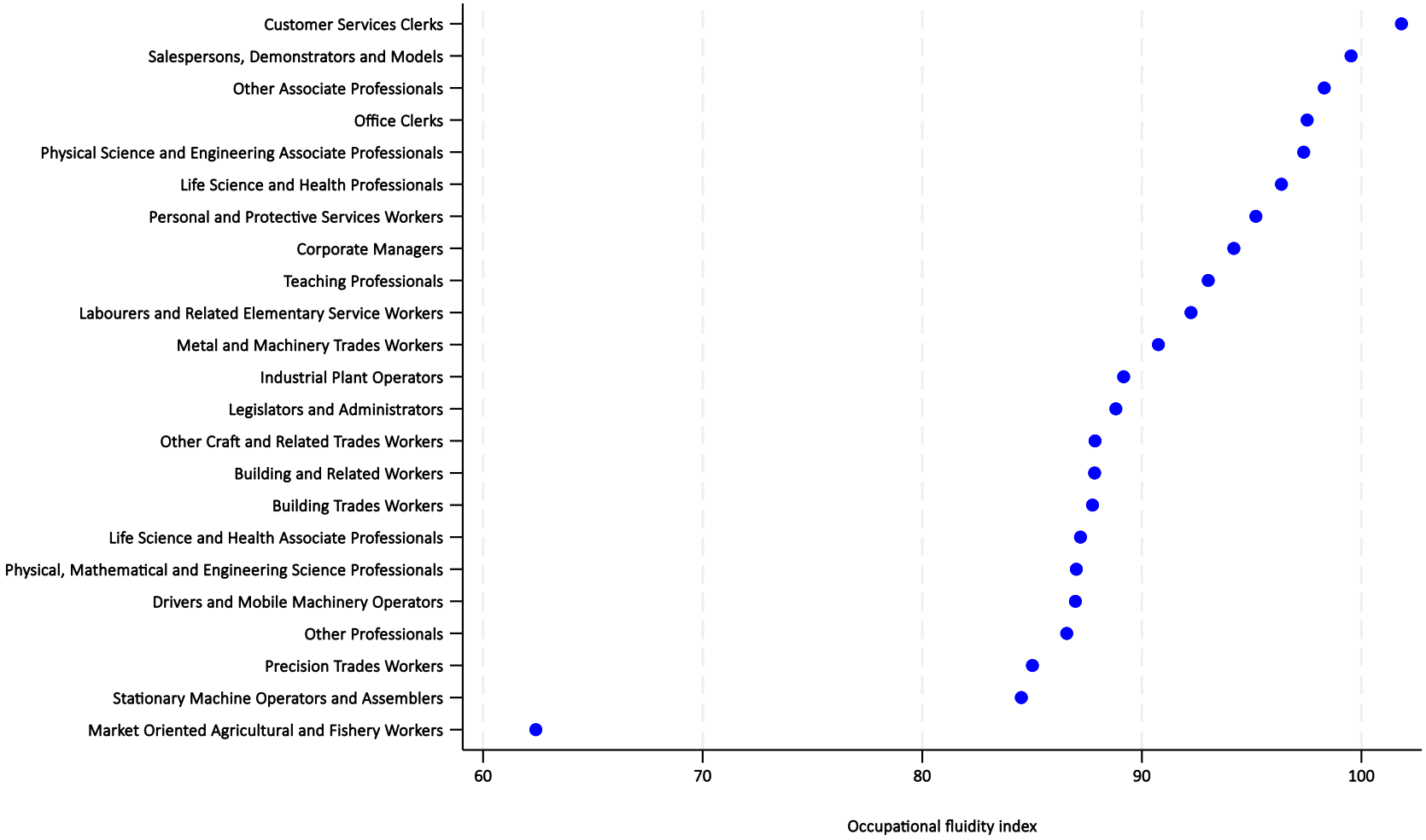
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 10. *Occupational following β_2^o coefficients for offspring pursuing 'related occupation' in 2013 to either parents' occupations in 1991*



Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. The occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers' are not shown as they are the sole 2-digit occupation within their respective 1-digit major groups.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 11. Occupational fluidity index based on comparison of offspring's occupations in 2013 with parents' occupations in 1991



Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

kind of professional (from the 1-digit group 'Professionals'). The β_2^o coefficients are considerably smaller in size than the β_1^o coefficients, which suggests that occupational following is primarily 'local', meaning that occupations are transmitted from parents to children largely within the more narrowly defined 2-digit occupations, rather than transmitted more broadly across the wider 1-digit occupational categories.

Figure 11 plots the occupational fluidity index which quantifies the degree to which occupations are 'open' to children of all parental occupational backgrounds, with full results in Appendix B. Consistent with the earlier results for occupational following, occupational fluidity is lowest among Agricultural and Fishery Workers. It is also low among Other Professionals, Stationary Machine Operators and Assemblers, Drivers and Mobile Machinery Operators, Precision Trades Workers, and Physical, Mathematical and Engineering Science Professionals. In these occupations, having a parent who was employed in the occupation has a relatively strong influence on children's choice to pursue them.

Fluidity is highest in sales and clerical occupations and among Other Associate Professionals which includes occupations such as Technical Representative, Social Worker, and Teacher Aide. Perhaps surprisingly, fluidity is also relatively high among Life Science and Health Professionals, which includes doctors, nurses, midwives, and pharmacists. In these occupations, having a parent who was employed in the occupation has little to no bearing on children's choice to pursue the occupation.

Although beyond the aims of this report, it is interesting to consider the link between an occupation's degree of fluidity and the extent to which it is regulated (subject to registration, certification, or licensing). Using data from New Zealand's 2013 census, Greenwood and Menclova (2018) find that the ANZSCO 1-digit occupations with the highest share of regulated workers are Machinery Operators and Drivers (82%), followed by Professionals (61%) and Technicians and Trades Workers (45%), while the occupations with the lowest shares of regulated workers are Labourers (1%), Clerical and Administrative Workers (2%), and Sales Workers (5%). Figure 10 shows that the NZSCO99 2-digit occupations of Stationery Machine Operators and Assemblers and Drivers and Mobile Machinery Operators – which correspond to the ANZSCO occupation of Machinery Operators and Drivers – are among the least-fluid occupations. It also shows that the NZSCO99 occupations of Customer Service Clerks, Office Clerks, and Salespersons, Demonstrators and Models – which correspond to the ANZSCO occupations of Clerical and Administrative Workers and Sales Workers – are among the most-fluid occupations. These examples suggest a correlation between degree of occupational regulation and degree of occupational following. However, other occupations run counter to this tendency. For example, Figure 10 shows that Labourers have a middling degree of fluidity despite being the occupation with the lowest share of regulated workers and, as earlier noted, Life Science and Health Professions are a relatively fluid occupation yet

have a widely regulated workforce. We leave this potential connection between occupational persistence and occupational regulation to future research.

4.3.2. Subgroup results

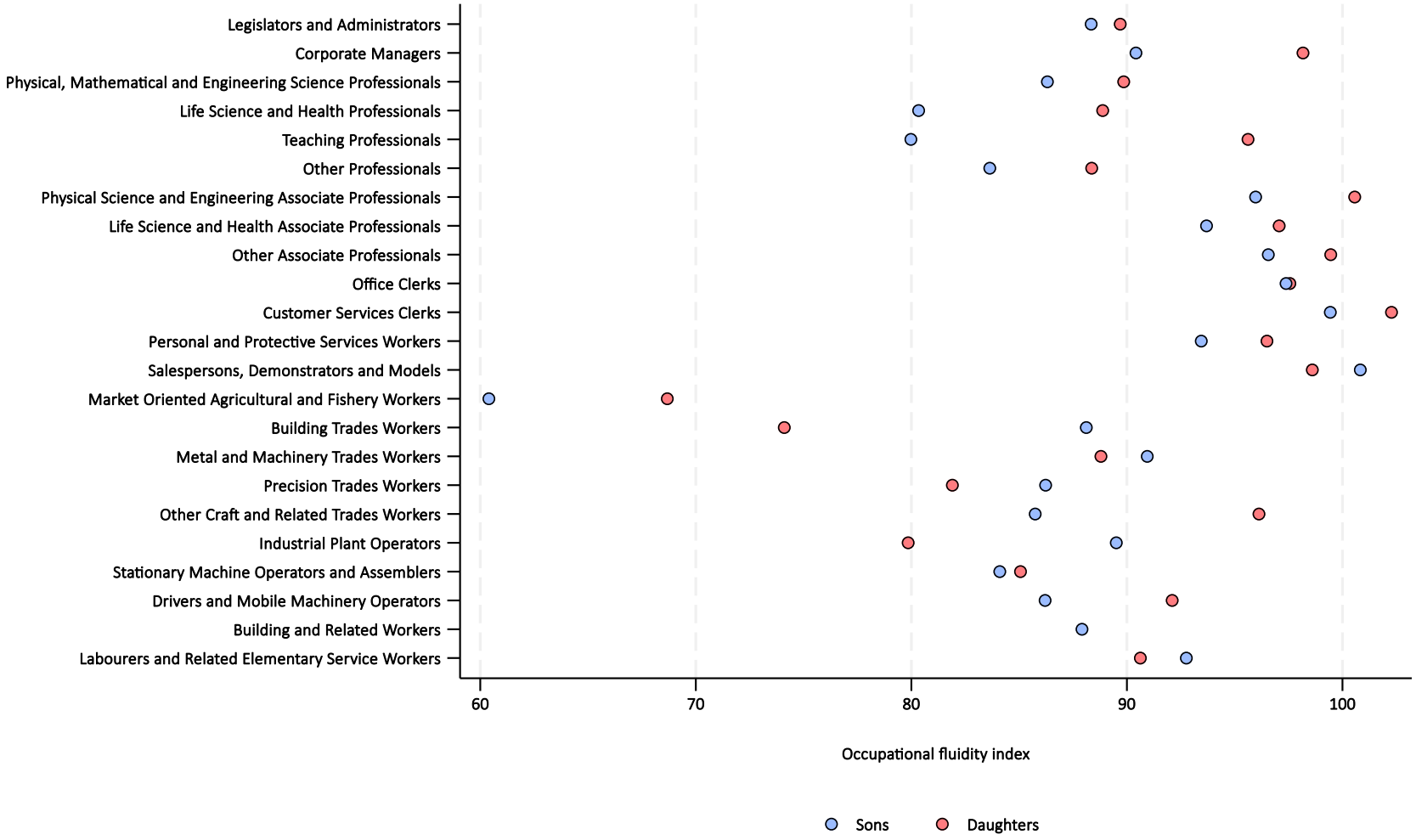
We now turn to the results on heterogeneity in occupational fluidity across subgroups of offspring defined by selected sociodemographic characteristics. Appendix C contains the full set of regression results for both occupational following and occupational fluidity among the subgroups. In this section, we focus on the occupational fluidity index over the occupational following regression coefficients because the former accounts for differences between groups in their entry rates into occupations (for example, differences between ethnic groups in their occupational distributions) and thus is a better basis for comparing occupational persistence across groups.

Figure 12 plots the occupational fluidity index by offspring's sex. Among white collar occupations (broadly, the top half of the graph) and in agricultural occupations, there is a tendency for daughters to have higher fluidity (less intergenerational persistence) than sons. Among blue collar occupations (broadly, the bottom half of the graph), the picture is more mixed, with sometimes sons, sometimes daughters, having higher fluidity. The largest sex differences occur among Teaching Professionals, where sons have much higher intergenerational persistence than daughters (despite it being a female-dominated occupation) and in Building Trades, where daughters have much higher persistence than sons (despite it being a male-dominated occupation).

Figure 13 plots the occupational fluidity index for sons only, paired to their fathers and mothers. In nearly all occupations, transmission from mothers to sons is weaker (fluidity is higher) than transmission from fathers to sons (fluidity is lower). The general pattern is one of higher persistence in relation to fathers and lower persistence in relation to mothers. This is especially the case in blue collar occupations, where there are large gaps between son-father and son-mother pairs, indicating that fathers transmit blue collar occupations to sons more strongly than mothers.

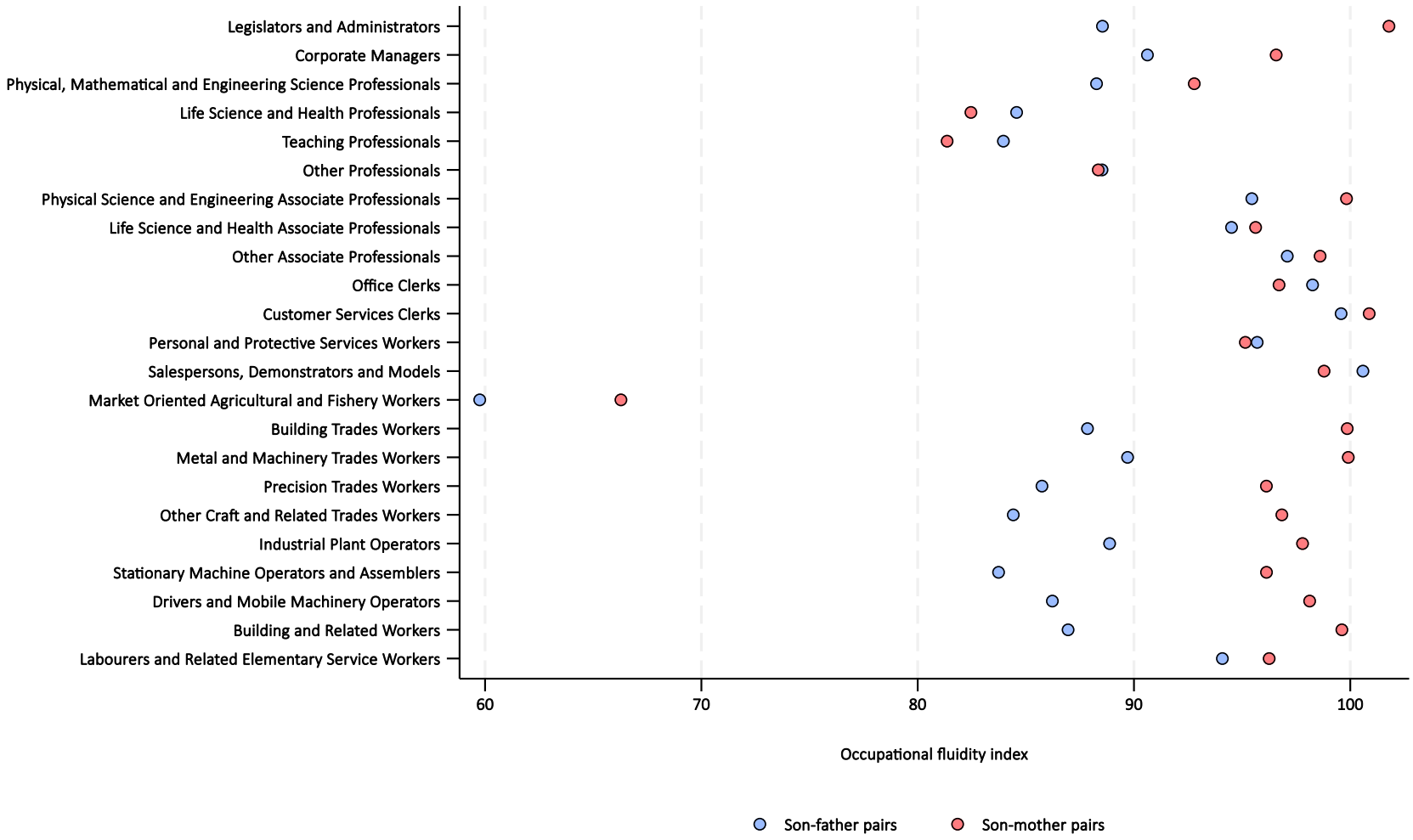
Figure 14 plots the occupational fluidity index for daughters only, paired to their fathers and mothers. Large differences are apparent among blue collar occupations, where – as with sons – transmission from fathers is stronger than transmission from mothers, especially among Building Trades and Industrial Plant Operators. Thus, fathers in blue collar occupations have a stronger influence on the career choices of both their sons and their daughters compared to blue collar mothers.

Figure 12. Occupational fluidity index by offspring's sex



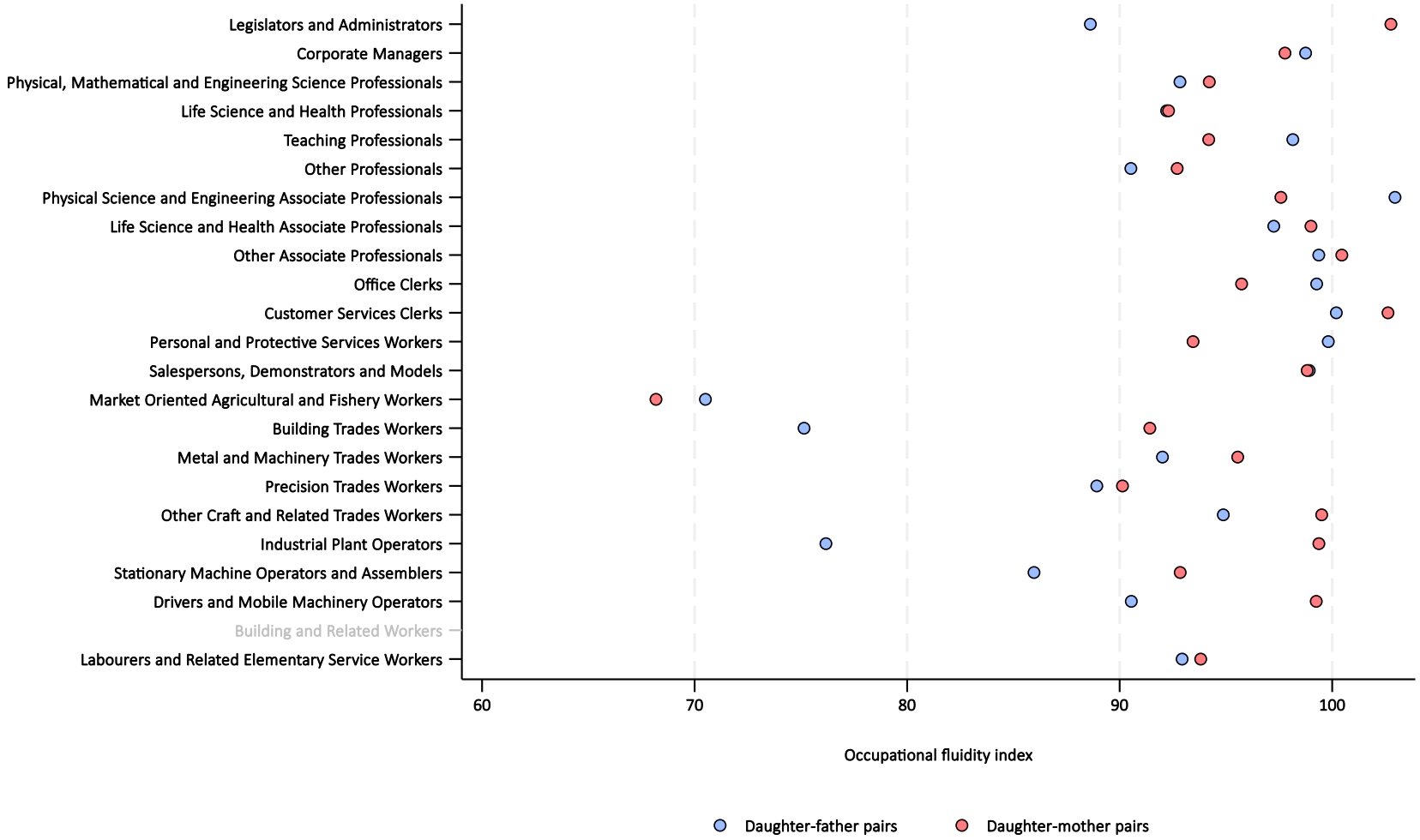
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Note that there is no data point for daughters in the 'Building and Related Workers' occupation due to a small count in this occupation which has been suppressed for confidentiality reasons.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 13. Occupational fluidity index among son-father and son-mother pairs



Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 14. Occupational fluidity index among daughter-mother and daughter-father pairs



Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Note that there are no data points for the 'Building and Related Workers' occupation due to small counts in this occupation which have been suppressed for confidentiality reasons.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C tabulates the occupational fluidity results for other selected population subgroups defined by: parental education (measured with an indicator variable for whether the offspring has at least one parent with a university degree); parental European ethnicity (an indicator for whether the offspring has at least one European parent); parental Māori ethnicity (an indicator for whether the offspring has at least one Māori parent); parental Pacific ethnicity (an indicator for whether the offspring has at least one Pacific parent); parental migrant status (an indicator for whether the offspring has at least one overseas-born parent), and; parental family income (an indicator for family income in 1991 being in the top quintile of the national distribution).

These results show that among agricultural and blue collar occupations, occupational fluidity is lower (persistence is stronger) among offspring without a degree-qualified parent and conversely, fluidity is higher (persistence is weaker) among offspring with a degree-qualified parent. The difference is particularly stark among Agricultural and Fishery Workers, where having a parent with a university degree increases fluidity. In other words, children with a parent in an agricultural occupation *who also have a parent with a university degree* are more inclined to branch out into other occupations than their counterparts without a degree-qualified parent, so having a university-educated parent weakens intergenerational persistence in agriculture.

Among offspring with a European parent, the results are mixed, but there is strong transmission of Agricultural and Fishery occupations, Precision Trades, and 'Building and Related occupations' (roofers, drainlayers, scaffolders, pipe fitters, etc., but not building trades) compared to non-European families.

Among Māori families, there is higher fluidity (weaker transmission) in most managerial and professional occupations compared to non-Māori families. Given these constitute the higher-skilled occupations on the NZSCO99 classification, this weaker transmission from parent to child may indicate a greater degree of downward mobility into lower-skilled occupations among Māori children. A similar pattern of higher fluidity among Māori is found in trades and agricultural occupations. In contrast, among the lower-skilled occupations of Industrial Plant Operators, Stationary Machine Operators and Assemblers, and Labourers, intergenerational transmission is stronger among Māori families. Among Pacific families, caution is required in interpreting results due to small counts in many occupations, but transmission appears weaker across the board, with offspring with a Pacific parent having higher fluidity in 16 out of 23 occupations.

When analysed by parental migrant status, the results are again mixed with no clear pattern, but the largest differences are in Agricultural and Fishery occupations and among Drivers and Mobile Machinery Operators where fluidity is noticeably higher among offspring with an overseas-born parent. Among

children from the top quintile of family income, transmission is noticeably stronger among Life Science and Health Professionals and Industrial Plant Operators, and noticeably weaker (fluidity higher) among Legislators and Administrators.

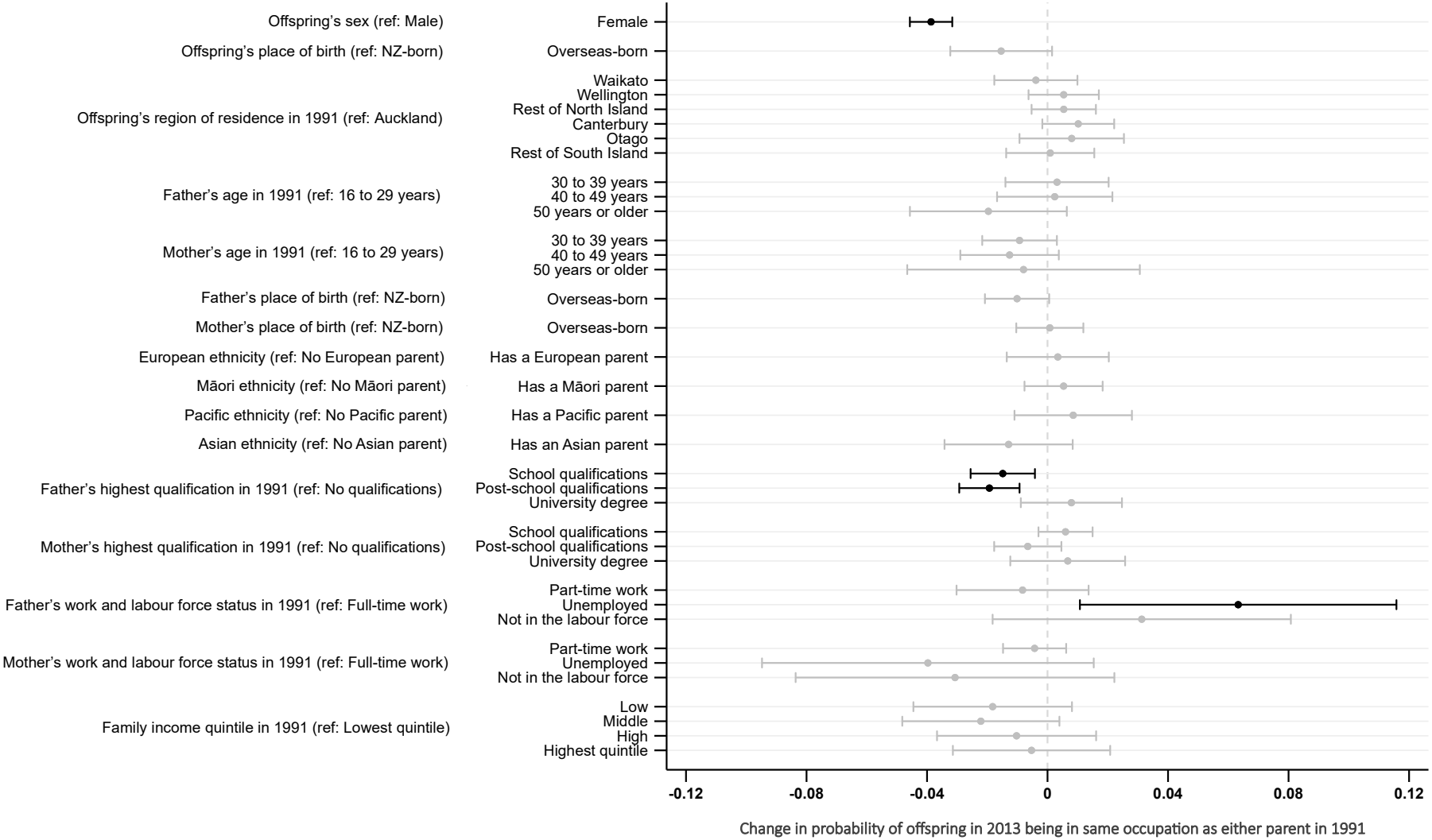
4.4. Results for Aim 3

We now turn to the results from the Aim 3 analyses identifying the predictors of intergenerational persistence and mobility in occupations. Figure 15 plots the results from the linear probability regression model predicting intergenerational occupational persistence (offspring being in the same 2-digit occupation as either of their parents) as a function of demographic and socioeconomic characteristics of the offspring, their father, and their mother, controlling for offspring birth cohort fixed effects and parental occupation fixed effects (these fixed effects are not shown in the figure to improve readability). Full regression results are available in Appendix D.

We find female offspring are four percentage points less likely to be intergenerationally persistent compared to males, meaning sons are more likely to be occupationally persistent than daughters. Compared to offspring of fathers with no qualifications, offspring of fathers with school qualifications or post-school qualifications (but not offspring of degree-qualified fathers) are about two percentage points less likely to be occupationally persistent, suggesting fathers at both the top and the bottom of the educational distribution are more likely to pass on their occupations to their children. We find that occupational persistence is six percentage points more likely among offspring whose father was unemployed in 1991 compared to offspring whose father was employed full-time, meaning these offspring have followed in their mothers' occupational footsteps (since offspring with an unemployed father in 1991 must have had a mother with an occupation in 1991 to be included in the sample). No other predictor variables are significantly associated with occupational persistence.

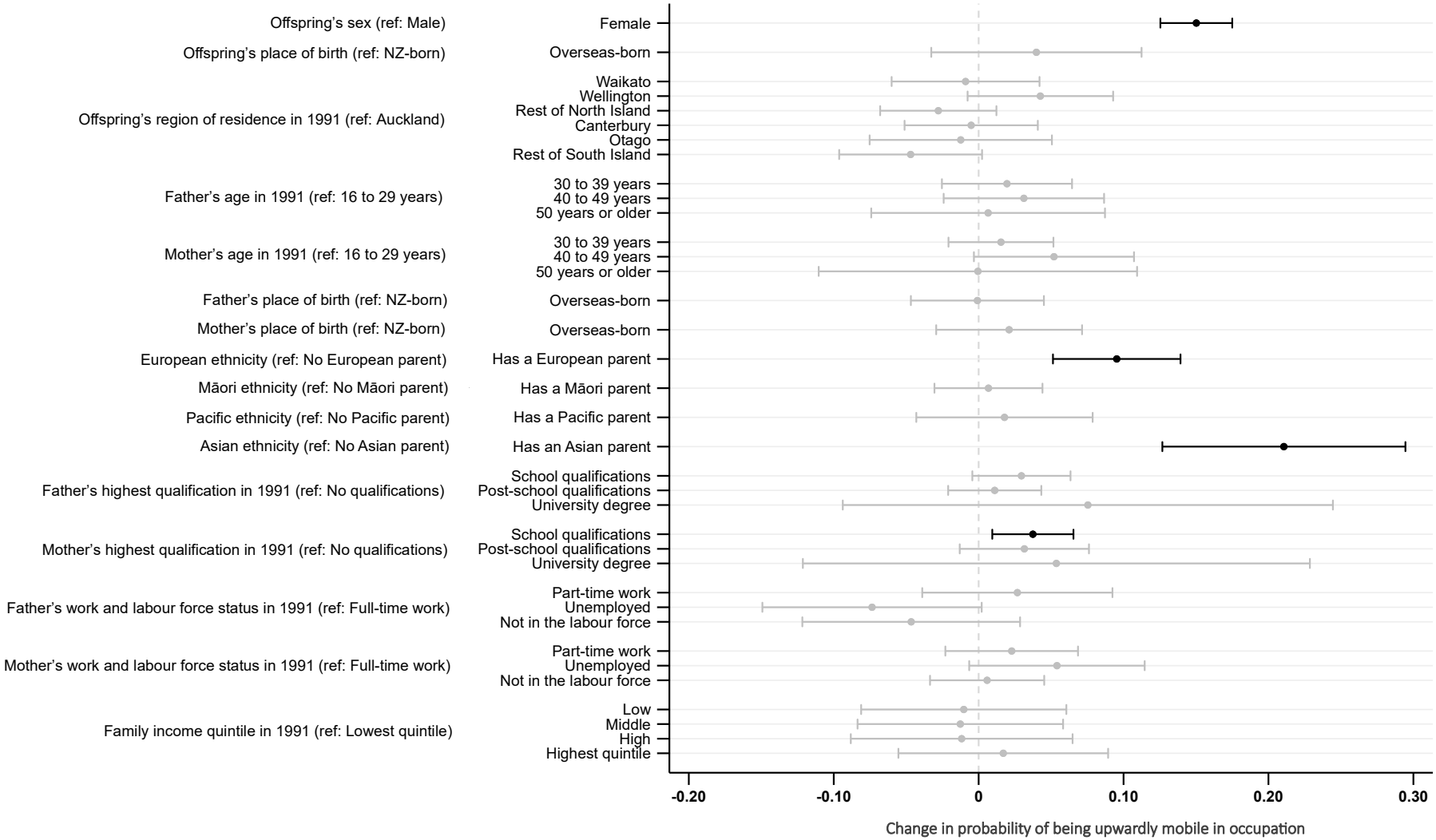
Figure 16 plots the linear probability regression results predicting upward mobility in occupations (offspring birth cohort fixed effects are not shown) with full results in Appendix E. We find that daughters are 15 percentage points more likely to be upwardly mobile compared to sons, mirroring the result from the previous analysis of persistence. We also find that offspring with a European parent or Asian parent are 10 percentage points and 21 percentage points more likely to be upwardly mobile, respectively, than their non-European and non-Asian counterparts. Finally, offspring of mothers with school qualifications are four percentage points more likely to be upwardly mobile compared to offspring of mothers with no qualifications.

Figure 15. Plot of linear probability regression results of intergenerational occupational persistence



Notes: Occupational persistence is defined as offspring being in the same 2-digit occupation in 2013 as either of their parents in 1991. Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Parental occupation fixed effects, offspring birth cohort fixed effects, and constant not shown. Sample size is n=37,905.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Figure 16. Plot of linear probability regression results of intergenerational upward mobility in occupations



Notes: Upward mobility in occupations is defined as offspring being in one of the two 'highest-ranked' 1-digit occupations in 2013 despite their higher-ranked parent being in one of the two 'lowest-ranked' occupations in 1991, based on the skill-based ranking of the *New Zealand Standard Classification of Occupations 1999*. Results for offspring's year of birth not shown. Sample size is n=4,509.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

5. Discussion

We find a significant association between the occupations of parents and their offspring in New Zealand, although the relationship is statistically weak. In 2013, about 18% of offspring were working in the same 1-digit occupation, and 13% in the same 2-digit occupation, as their higher-ranked parent was in 1991.

We generally find that offspring are more likely to pursue an occupation if their parent held that occupation, but the magnitude varies across 2-digit occupations. Occupational following is mostly 'local', meaning that occupations are transmitted from parents to children largely within the more specific 2-digit occupations, rather than more broadly across the wider 1-digit occupational categories. This is consistent with findings from both Britain (Lo Bello & Morchio, 2022) and Canada (Haeck & Laliberté, 2025) where occupational following is found to be stronger at the more detailed level of occupations.

Occupational following is markedly high, and occupational fluidity markedly low, in agricultural and fishery occupations. It is particularly strong among children with European and New Zealand-born parents, and considerably weaker among children with a Māori parent, a degree-qualified parent, or an overseas-born parent. These findings are not unexpected given that entry into farming in New Zealand has traditionally been through family succession (Keating & Little, 1997) and farms in New Zealand are commonly held in family ownership with farmland transferred from one generation to the next (Nuthall & Old, 2017). However, there is some evidence that this is changing, with many farmers reporting that none of their children have a serious interest in farming, those who do have an interest facing financial challenges to entering the occupation given increasing land values, and a concomitant rise in the corporatisation of farms (Nuthall & Old, 2014; Rabobank, 2025). An analysis of social class inheritance among son-father pairs in New Zealand by Jones and Davis (1986) found that, of all social classes, the 'farming class' (comprised of all farming occupations) exhibited the highest persistence across generations. A high degree of occupational following in agricultural occupations has also been found in Canada (Haeck & Laliberté, 2025), Britain (Lo Bello & Morchio, 2022), Finland (Solomon, 2026), and the Netherlands (Ventura, 2025).

We also find a high degree of occupational following and low degree of fluidity among Physical, Mathematical and Engineering Science Professionals, which includes a range of high-skilled, knowledge-intensive, STEM-related occupations including computing professionals, mathematicians and statisticians, physicists and chemists, and architects and engineers. This profession had the second-highest 'same occupation' regression coefficient and a relatively low fluidity score. Consistent with this, Ventura's (2025) analysis of Dutch administrative data on parents' and offspring's field of study of their highest educational qualification (used as a proxy for their occupations) found a high degree of occupational persistence in the natural sciences. Aina and Nicoletti's (2018) analysis of Italian survey

and administrative data on the occupations of university graduates and their fathers found that children have 8.5 times the odds of being an architect if their father was an architect, and 5.8 times the odds of being an engineer if their father was an engineer, compared to if their father was not an architect or engineer.

We also find a high degree of occupational following and low degree of occupational fluidity among the Other Professional group which includes Accountants, Barristers and Solicitors, and Judges. This group had the third-highest 'same occupation' coefficient and the fourth-lowest fluidity score. High rates of occupational following in the legal profession have been documented in Canada (Haeck & Laliberté, 2025), the US (Greenberg et al., 2024), and Finland (Solomon, 2026), while in Italy, a high degree of occupational following has been documented among both accountants and lawyers (Aina & Nicoletti, 2018).

In contrast, we find that occupational following does not systematically occur in clerical and sales occupations, a result also found in Finland (Solomon, 2026) and Britain (Lo Bello & Morchio, 2022). These occupations are also highly fluid, with Customer Services Clerks, Office Clerks, and Salespersons, Demonstrators and Models all being in the top four most-fluid occupations, indicating that they are very 'open' to children who have no parental background in the occupation. Occupational following is also low, and fluidity high, among Life Science and Health Professionals (at least at the 2-digit level), which includes doctors, dentists, nurses, midwives, and pharmacists. A low degree of occupational following among this group may be masking heterogeneity given the high rates of occupational following documented among doctors in the US (Greenberg et al., 2024; Lentz & Laband, 1989) and pharmacists in Italy (Aina & Nicoletti, 2018; Mocetti, 2016), or it could reflect lower barriers to entry in the medical and pharmacy professions in New Zealand.[5] However, our result is consistent with findings on son-father occupational following in Britain from Lo Bello and Morchio (2022), who estimate 2-digit occupational following among 'Health Professionals' to be *zero*, even becoming *negative* when controls are added for son's age, education level, region, marital status, ethnicity, and smoking behaviour.

We find occupational fluidity tends to be higher among daughters compared to sons, especially in the professions. Consistent with this, our Aim 3 regression analyses find that, after controlling for other sociodemographic characteristics and holding parental occupations constant, daughters are significantly less likely to be occupationally persistent compared to sons. In addition, among children with low-skilled parents, daughters are 15 percentage points more likely than sons to move upwards to the top of the

[5] Disaggregating the Health Professionals group into specific occupations such as 'doctor' and 'nurse' would require estimating occupational following at at least level 4 of NZSCO99 (which has, for example, a level 4 code for 'Medical Doctors') and in some cases level 5 (for example, nurses and midwives are combined at level 4 – 'Nursing and Midwifery Professionals' – and are only distinguished at level 5). However, analyses using NZLC data at these levels of granularity will result in small counts in many occupations, making such analyses infeasible.

occupational ladder. Solomon's (2026) analysis of Finnish administrative data on the occupations of 1.1 million sons and daughters and those of their fathers and mothers also found that occupations tend to be transmitted more strongly to sons than daughters. In New Zealand, analyses of intergenerational persistence of income and socioeconomic status by Gibbons (2010) and of persistence of income rank by Brown (2022) both found lower point estimates of persistence among daughters compared to sons, however the differences were not statistically significant in either study.[6]

We find that sons are more likely to follow their fathers than their mothers into most occupations. This is consistent with results on gender-specific occupational following in Finland by Solomon (2026), who found that offspring are particularly likely to enter an occupation held by their same-sex parent. For example, on average, Finnish sons enter occupations held by their father at rates that are 222% higher than the entry rate into the occupation among sons generally, whereas sons follow their mothers into occupations at 104% of the general entry rate. Similarly, Ventura (2025) found occupational following in the Netherlands is strongest among son-father pairs and weakest among son-mother pairs.

We find that sons are especially likely to follow their fathers (compared to their mothers) into traditionally male-dominated blue collar occupations. This finding is consistent with evidence that suggests children learn sex roles from their parents which have a gendered influence on their occupational preferences. Polavieja and Platt (2014) used British panel survey data collected over 1994 to 2008 to examine the role of parental socialisation and children's personality traits on boys' and girls' sex-typical occupational aspirations, and found that having a father in a traditionally male occupation significantly increases the probability of sons aspiring to a sex-typical occupation.[7] Relatedly, Solomon (2026) found that gender-specific occupational following accounts for up to 7% of gender segregation in occupational choice in Finland.[8]

We find that daughters, too, are more likely to follow their fathers (compared to their mothers) into blue collar occupations, which could reflect both labour market and family dynamics. Using US survey data pooled over 1973 to 2002 on the occupations of White daughters, their fathers, and their fathers-in-law, Hellerstein and Morrill (2011) found that, across birth cohorts, daughters have increasingly been entering their father's occupations due to the secular rise in women's labour force participation into

[6] In contrast, Alimi and Maré (2026) find higher persistence of earnings rank among daughters compared to sons in New Zealand.
[7] Polavieja and Platt (2014) also find that having parents who adhere to a traditional domestic division of housework – one where mothers shoulder an unequal burden – also increases sex-typical occupational aspirations among sons (but not daughters). Furthermore, in contrast to their finding about sons, they find that find that having a mother in a traditionally male (sex-atypical) occupation significantly decreases the likelihood of daughters aspiring to a traditionally female (sex-typical) occupation.
[8] See also Zhu and Grusky (2022) who analysed US survey data pooled over 1972 to 2018 on the occupations of sons and daughters and those of their fathers and mothers and found that in the 2010 to 2018 period, fathers in the US began to pass on male-typed occupations disproportionately to their sons, whereas mothers were gender-neutral in their transmission of occupations, which has contributed to a resurgence in gender segregation of occupations in the US.

traditionally male occupations but also to increases over time in the intergenerational transmission of occupation-specific human capital from fathers to daughters.

In high-skilled managerial and professional occupations, and in agriculture and trades, we find fluidity to be higher among Māori children compared to their non-Māori counterparts. But in low-skilled occupations, fluidity is lower among Māori. These results suggest that for Māori children, their parents' occupation has a weaker influence on their occupational choices compared to their non-Māori counterparts (although other family background effects may be stronger among Māori), except at the bottom of the occupational ladder where transmission is stronger, entrenching the perpetuation of human capital disadvantage across generations. It is interesting to compare this finding with results from Alimi and Maré (2026) who used linked administrative and survey data to estimate ethnic differences in intergenerational persistence of earnings rank in New Zealand. They found that, of the six main ('level 1') ethnic groups, Māori children exhibited the strongest persistence of earnings rank. The two results are not necessarily incongruent since generally weaker occupational persistence does not guarantee a change in earnings rank. Together, these results suggest Māori have a weaker parent-child resemblance in most occupations compared to non-Māori, but this has not translated into a weaker link in their earnings, which remain more tightly connected across generations than among other ethnic groups.

Among families with parents in lower-skilled occupations, we find that children with Asian heritage are considerably more likely to experience upward mobility into higher-skilled occupations compared to non-Asian children. This is consistent with findings from Alimi and Maré (2026) who found that, of the six level 1 ethnic groups in New Zealand, Asian children exhibited the weakest persistence and the strongest upward mobility in earnings rank. The latter refers to their finding that, among children with parents at the 25th percentile of the national earnings distribution, Asian children can expect to reach the 55th percentile on average, compared to the 46th percentile for European children and the 36th percentile for Māori children. Our finding is also consistent with results from Iusitini et al. (2024) whose analysis of data from the longitudinal Growing Up in New Zealand study found that among children of lower-educated mothers, those with Asian mothers had significantly better chances than other children of developing strong cognitive skills in middle childhood despite having a low-educated mother, meaning Asian children were more likely to 'break the intergenerational cycle' of transmission of low human capital across generations. Moreover, there is some evidence that the effects of socioeconomic background on educational achievement in New Zealand are weaker among Asian students compared to other students (Hernandez, 2019; Meehan et al., 2019). Taken together, these results suggest Asian parents are better able to mitigate or indeed overcome the impacts of socioeconomic disadvantage on their children's educational and economic outcomes compared to other parents.

Finally, parental education seems to matter for occupational persistence and mobility. We find that offspring are less likely to follow their parents into occupations if their father has school or post-school qualifications (compared to offspring whose fathers have no qualifications), and that among children of parents in low-skilled occupations, those with mothers who have school qualifications are more likely to attain high-skilled occupations as adults (compared to children of mothers with no qualifications). This is consistent with studies showing that higher maternal education boosts children's cognitive skills (e.g., Carneiro, Meghir & Parey, 2013) and is linked to children's attainment of professional and managerial occupations (e.g., Lampard, 2007).

6. Limitations

There are a number of limitations to this study. First, our results are descriptive and correlational and therefore do not imply cause-and-effect relationships between children's background characteristics including their parents' occupations and their own occupational outcomes in adulthood.

Second, linkage rates in the NZLC are lower for people born overseas and of lower socioeconomic status, which is reflected in the under-representation of overseas-born parents and low-income families in our samples. While linkage rates are also lower among lower-skilled occupations, our samples tend to accurately represent, or over-represent, fathers and mothers from lower-skilled occupations. It is unclear in what direction our estimates of occupational following may be biased by these tendencies in our samples. With respect to emigrants, there is evidence from the longitudinal Dunedin Study that intergenerational persistence of income is *higher* among New Zealanders who emigrate overseas compared to those who stay in New Zealand (Gibbons, 2010). To the extent this finding also applies to occupational persistence, we would expect our estimates of occupational following to be biased downwards by the NZLC's exclusion of long-term emigrants (by virtue of the way it is constructed), rendering our estimates conservative.

Third, in our sample we observe offspring's occupations only up to the relatively young age of 36 years, which might understate persistence in some occupations. When Lo Bello and Morchio (2022) estimate son-father occupational persistence in Britain by son's age group, they find that there is no marked age gradient overall, but in managerial and professional occupations the estimates of persistence are higher among sons aged 30 years and older compared to sons aged 25 to 29 years. Accordingly, our own estimates of occupational following within the Legislators, Administrators and Managers and Professional categories may be conservative given our sample excludes offspring over the age of 36.

Fourth, because the NZLC currently extends only to the 2018 census, and because that census did not code occupation data to NZSCO99, our analysis period terminates at the NZLC's next-latest census in

2013, which means our data are somewhat dated. Other New Zealand data sources may permit analyses of occupational persistence over a more contemporary period. The Integrated Data Infrastructure is a population-wide research database managed by Stats NZ that contains administrative and survey data linked at the individual level across various government agencies and non-governmental organisations. At the time of writing, the IDI included the 2013, 2018, and 2023 censuses. Thus, it would be possible to estimate occupational persistence with occupation data from these three more-recent censuses based on parent-child links which can be established in the IDI through birth registration records and other administrative sources. However, the gap between the IDI's earliest census (2013) and most recent census (2023) is only 10 years, compared to 22 years in the current analysis, so differences in age-of-observation between parents and offspring would be smaller and in most cases parents' occupations will only be observed when their offspring are adults. This could be problematic if, on theoretical grounds, it is important to observe parents' occupations during the offspring's childhood when their occupational aspirations are being formed and decisions about their career choices are being made, prior to their entry into the labour market. However, such an IDI analysis could provide a useful check on the results of the current analysis, given that the current analysis faces the opposite issue of parents generally being observed at older ages compared to the relatively young ages at which their offspring are observed.

References

Aina, C., & Nicoletti, C. (2018). The intergenerational transmission of liberal professions. *Labour Economics*, *51*, 108-120. https://doi.org/10.1016/j.labeco.2017.12.003

Alimi, O. B., & Maré, D. (2026). *Intergenerational Earnings Persistence Across Ethnicities* (IZA Discussion Paper No. 18422). IZA Network at LISER. https://www.iza.org/publications/dp/18422/intergenerational-earnings-persistence-across-ethnicities

Boonzaier, A., & Heyes, R. (2002). Occupational Trends in New Zealand: 1991-2001. *Labour, Employment and Work in New Zealand*, 140-147. https://doi.org/10.26686/lew.v0i0.1225

Carneiro, P., Meghir, C., & Parey, M. (2013). Maternal Education, Home Environments, and the Development of Children and Adolescents. *Journal of the European Economic Association, 11*(S1), 123-160. https://doi.org/10.1111/j.1542-4774.2012.01096.x

Davis, P. (1979). Social Mobility in New Zealand: Preliminary Results from a National Survey. *Journal of Sociology*, *15*(1), 50-56. https://doi.org/10.1177/144078337901500107

Department of Statistics. (1992). *New Zealand Standard Classification of Occupations 1990*. Department of Statistics.

Didham, R., & Nissen, K. (2015). Occupational Transitions: A Cohort Analysis of Transitions between Occupation Classes 1981 to 2006. *Labour, Employment and Work in New Zealand*. https://doi.org/10.26686/lew.v0i0.2201

Didham, R., Nissen, K., & Dobson, W. (2014). *Linking censuses: New Zealand longitudinal census 1981–2006*. Statistics New Zealand. https://www.stats.govt.nz/methods/linking-censuses-new-zealand-longitudinal-census-19812006

Dixon, S., Liang, Y., Maré, D., Morten, M., Sin, I., Timmins, J., & Warburton, D. (2009). *Motu SNZ Census Unit Record Database Documentation*. Motu Economic and Public Policy Research Trust. https://motu.nz/our-work/population-and-labour/individual-and-group-outcomes/population-census-documentation/

Errington, C., Cotterell, G., von Randow, M., & Milligan, S. (2008). *A guide to using data from the New Zealand Census: 1981–2006*. Statistics New Zealand. https://statsnz.contentdm.oclc.org/digital/collection/p20045coll1/id/2820/

Gibbons, M. (2010). *Income and Occupational Intergenerational Mobility in New Zealand*. New Zealand Treasury. http://www.treasury.govt.nz/publications/research-policy/wp/2010/10-06

Gibbons, M. (2011). Intergenerational Economic Mobility in New Zealand. *Policy Quarterly, 7*(2), 53-60. https://doi.org/10.26686/pq.v7i2.4383

Greenberg, K., Gudgeon, M., Isen, A., Miller, C. L., & Patterson, R. W. (2024). *Intergenerational Transmission of Occupation: Lessons from the United States Army*. National Bureau of Economic Research. https://www.nber.org/papers/w33009

Greenwood, S. J., & Menclova, A. K. (2018). Analysing the extent and effects of occupational regulation in New Zealand. *New Zealand Economic Papers*, *52*(1), 21-39. https://doi.org/10.1080/00779954.2016.1247291

Haeck, C., & Laliberté, J.-W. (2025). Careers and Intergenerational Income Mobility. *American Economic Journal: Applied Economics*, *17*(1), 431–458. https://doi.org/10.1257/app.20230403

Hall, B., Thorns, D., & Willmott, B. (1983). *Community Formation and Change: A Study of Rural and Urban Localities in New Zealand*. University of Canterbury.

Hancock, A. (2008). Australian and New Zealand Standard Classification of Occupations (ANZSCO): The Impact of a Trans-Tasman Classification on Labour Market Data. *Labour, Employment and Work in New Zealand*, 399-406. https://doi.org/10.26686/lew.v0i0.1654

Hancock, A. (2015). Where Have They Gone? Changes in Occupations Using 1991-2013 New Zealand Census Data. *Labour, Employment and Work in New Zealand*. https://doi.org/10.26686/lew.v0i0.2217

Hellerstein, J. K., & Morrill, M. S. (2011). Dads and Daughters: The Changing Impact of Fathers on Women's Occupational Choices. *Journal of Human Resources*, *46*(2), 333-372. https://doi.org/10.3368/jhr.46.2.333

Hernandez, J. (2019). *In Fairness to Our Schools: Better measures for better outcomes*. The New Zealand Initiative. https://nzinitiative.org.nz/reports-and-media/reports/in-fairness-to-our-schools/

Iusitini, L. (2022). *Intergenerational Income Mobility in New Zealand* [PhD thesis]. Auckland: Auckland University of Technology. https://hdl.handle.net/10292/15170

Jäntti, M., & Jenkins, S. P. (2015). Income Mobility. In A. B. Atkinson & F. Bourguignon (Eds.), *Handbook of Income Distribution* (Vol. 2A, pp. 807-935). Elsevier. https://doi.org/10.1016/B978-0-444-59428-0.00011-4

Jones, F. L., & Davis, P. (1986). *Models of Society: Class, Stratification and Gender in Australia and New Zealand*. Croom Helm.

Jones, F. L., & Davis, P. (1988). Class Structuration and Patterns of Social Closure in Australia and New Zealand. *Sociology*, *22*(2), 271-291. https://doi.org/10.1177/0038038588022002007

Kang, I. (2017). New Zealand Longitudinal Census development. *International Population Data Linkage Network Conference, 1*(1). http://dx.doi.org/10.23889/ijpds.v1i1.252

Keating, N. C., & Little, H. M. (1997). Choosing the Successor in New Zealand Family Farms. *Family Business Review*, *10*(2), 157-171. https://doi.org/10.1111/j.1741-6248.1997.00157.x

Laband, D. N., & Lentz, B. F. (1983a). Like Father, like Son: Toward an Economic Theory of Occupational Following. *Southern Economic Journal*, *50*(2), 474-493. https://doi.org/10.2307/1058220

Laband, D. N., & Lentz, B. F. (1983b). Occupational Inheritance in Agriculture. *American Journal of Agricultural Economics*, *65*(2), 311-314. https://doi.org/10.2307/1240880

Laband, D. N., & Lentz, B. F. (1992). Self-Recruitment in the Legal Profession. *Journal of Labor Economics*, *10*(2), 182-201. https://doi.org/10.1086/298284

Lampard, R. (2007). Is Social Mobility an Echo of Educational Mobility? Parents' Educations and Occupations and Their Children's Occupational Attainment. *Sociological Research Online, 12*(5), 44-66. https://doi.org/10.5153/sro.1588

Lauder, H., & Hughes, D. (1990). Social Inequalities and Differences in School Outcomes. *New Zealand Journal of Educational Studies*, *25*(1), 37-60.

Lentz, B. F., & Laband, D. N. (1989). Why So Many Children of Doctors Become Doctors: Nepotism vs. Human Capital Transfers. *The Journal of Human Resources*, *24*(3), 396-413. https://doi.org/10.2307/145820

Lentz, B. F., & Laband, D. N. (1990). Entrepreneurial Success and Occupational Inheritance among Proprietors. *The Canadian Journal of Economics*, *23*(3), 563-579. https://doi.org/10.2307/135648

Lo Bello, S., & Morchio, I. (2022). Like father, like son: Occupational choice, intergenerational persistence and misallocation. *Quantitative Economics*, *13*(2). https://doi.org/10.3982/QE1375

Maré, D. (2019). *Occupational drift in New Zealand: 1976-2018*. Motu Economic and Public Policy Research. https://www.motu.nz/our-research/population-and-labour/individual-and-group-outcomes/occupational-drift-in-new-zealand-1976-2018/

Meehan, L., Pacheco, G., & Pushon, Z. (2019). Explaining ethnic disparities in bachelor's degree participation: evidence from NZ. *Studies in Higher Education*, *44*(7), 1130-1152. https://doi.org/10.1080/03075079.2017.1419340

Mocetti, S. (2016). Dynasties in professions and the role of rents and regulation: Evidence from Italian pharmacies. *Journal of Public Economics*, *133*, 1-10. https://doi.org/10.1016/j.jpubeco.2015.11.001

Nash, R. (1993). *Succeeding Generations: Family Resources and Access to Education in New Zealand*. Oxford University Press.

Nuthall, P. L., & Old, K. M. (2014). *Report on a Succession and Governance Survey of a Random Stratified Sample of NZ Farmers*. Lincoln University. https://researcharchive.lincoln.ac.nz/server/api/core/bitstreams/855e4320-50b5-4fdf-82fc-4002f58e7d59/content

Nuthall, P. L., & Old, K. M. (2017). Farm owners' reluctance to embrace family succession and the implications for extension: the case of family farms in New Zealand. *The Journal of Agricultural Education and Extension*, *23*(1), 39-60. https://doi.org/10.1080/1389224X.2016.1200992

Olssen, E., Griffen, C., & Jones, F. (2011). *An Accidental Utopia? Social mobility & the foundations of an egalitarian society, 1880-1940*. Otago University Press.

Pearson, D. G. (1980). *Johnsonville: Continuity and Change in a New Zealand Township*. George Allen & Unwin.

Pearson, D. G., & Thorns, D. C. (1983). *Eclipse of Equality: Social Stratification in New Zealand*. George Allen & Unwin.

Pearson, D. G., & Thorns, D. C. (1986). A Tale of Two Cities: Marriage and Mobility in New Zealand. *The Australian and New Zealand Journal of Sociology*, *22*(2), 208-224. https://doi.org/10.1177/144078338602200203

Polavieja, J. G., & Platt, L. (2014). Nurse or Mechanic? The Role of Parental Socialization and Children's Personality in the Formation of Sex-Typed Occupational Aspirations. *Social Forces*, *93*(1), 31-61. https://doi.org/10.1093/sf/sou051

Rabobank. (2025). *Changing of the guard: Stepping up the succession conversation in New Zealand farming*. Rabobank New Zealand Limited. https://www.rabobank.co.nz/knowledge/succession-stories

Solomon, S. M. (2026). Gender-Specific Occupational Following and Gender Differences in Occupational Choice. *AEA Papers and Proceedings*, *116*, 236–240. https://doi.org/10.1257/pandp.20261001

Statistics New Zealand. (2001). *New Zealand Standard Classification of Occupations 1999*. Statistics New Zealand.

Ventura, M. (2025). *Following in the family footsteps: Incidence and returns of occupational persistence*. Centre for Economic Performance at the London School of Economic and Political Science. https://cep.lse.ac.uk/_NEW/PUBLICATIONS/abstract.asp?index=11741

Zhu, L., & Grusky, D. B. (2022). The intergenerational sources of the U-turn in gender segregation. *Proceedings of the National Academy of Sciences*, *119*(32), e2121439119. https://doi.org/doi:10.1073/pnas.2121439119

Appendix A: Construction of the New Zealand Longitudinal Census

The New Zealand Longitudinal Census (NZLC) links people's census records through time. Each census is linked backwards to the previous census, creating seven pairs (2018-2013, 2013-2006, 2006-2001, 2001-1996, 1996-1991, 1991-1986, 1986-1981). The census is usually conducted every five years, however there is a gap of seven years between the 2006 and 2013 censuses due to a major earthquake in Christchurch in 2011 which resulted in the scheduled 2011 census being cancelled. Individuals can be tracked longitudinally over across these pairs depending on how many consecutive censuses they filled in.

In each census there is a subset of the usually resident population who are eligible for linking to the prior census, known as the 'theoretical population', made up of those individuals who, at the previous census, had been born and had filled out a census form and resided in New Zealand. All individuals who meet these criteria should, in theory, be linkable to the previous census. Whether or not they are in fact linked will depend upon whether they were counted in the previous census. They will not be linked if they did not complete a census form at the earlier census (failed to fill out a census or were overseas at the time) or they *did* complete a census form but provided incomplete or erroneous information on key variables used to match records and thus could not be successfully linked.

A two-stage linking process was applied to the theoretical population: deterministic linking, followed by probabilistic linking of records that were not linked deterministically. Names and exact addresses were not available for the linking of records. Deterministically linked records are records that had consistent information over time (an exact and unique match) for the following 'blocking variables': sex, exact date of birth, and area unit of usual residence (country of birth and Māori descent were also used). In probabilistic linking, records with the same year of birth and area unit of usual residence were compared on how close they were on day of birth, month of birth, and sex, and links were deemed to be true matches if the probability they were a match exceeded a certain cut-off weight. Didham et al. (2014, p. 11) note that there is "no absolute certainty that the links [both deterministic and probabilistic] refer to the same person since…neither names nor exact addresses [were] available to use for linking of historic census records". Thus, while the majority of the linked record pairs are expected to be true matches, it is also expected that a small portion of links will not be true matches (Didham et al., 2014).

Across the six census pairs between 1981 and 2013, the average 'link rate' (the percentage of the theoretical population at any given census linked to the previous census) was 70.1 percent, comprised approximately of deterministic linkage of 69 percent plus an additional three percent of probabilistic linkage (Broman, 2021; Didham, Nissen, & Dobson, 2014). The link rate falls as the timespan increases. For example, moving from pairs of censuses to any three consecutive censuses, the average link rate

drops to 57 percent. Looking at the records linked from 2006 back to 1981 (prior to the addition of the 2013 Census to the NZLC), the link rate is 32 percent; that is, about one-third of the theoretical population at the 2006 census are linked all the way back to 1981 (Didham et al., 2014). In the current analysis, we make use of unweighted linked records from the NZLC, meaning that any biases due to the linking process are not accounted for.

Appendix B: Aim 2 Occupational following regression results

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Legislators and Administrators	0.004	-0.005	***	0.001	0.003	**	0.001	88.8	0.001	201
Corporate Managers	0.126	0.042	***	0.005	0.015		0.049	94.2	0.008	5,745
Physical, Mathematical and Engineering Science Professionals	0.046	0.071	***	0.009	0.027	***	0.003	87.0	0.005	2,271
Life Science and Health Professionals	0.026	0.030	***	0.005	0.015	***	0.003	87.2	0.003	1,266
Teaching Professionals	0.060	0.039	***	0.005	0.011	**	0.004	93.0	0.003	2,763
Other Professionals	0.057	0.068	***	0.007	0.034	***	0.004	86.6	0.007	2,802
Physical Science and Engineering Associate Professionals	0.034	0.015	**	0.005	0.001		0.003	97.4	0.001	1,503
Life Science and Health Associate Professionals	0.011	0.010		0.005	0.002		0.002	96.4	0.001	510
Other Associate Professionals	0.112	0.022	***	0.006	0.004		0.006	98.3	0.001	4,884
Office Clerks	0.079	0.009	*	0.004	0.015	*	0.007	97.5	0.001	3,480
Customer Services Clerks	0.027	0.003		0.004	-0.004		0.002	101.8	0.001	1,155
Personal and Protective Services Workers	0.067	0.029	***	0.005	0.010		0.005	95.2	0.002	3,042
Salespersons, Demonstrators and Models	0.046	0.004		0.004	0.000		0.003	99.5	0.001	1,995
Market Oriented Agricultural and Fishery Workers	0.033	0.195	***	0.007	0.000			62.4	0.070	2,286
Building Trades Workers	0.056	0.064	***	0.005	0.024	***	0.004	87.8	0.008	2,760
Metal and Machinery Trades Workers	0.027	0.039	***	0.005	0.003		0.003	90.8	0.004	1,287
Precision Trades Workers	0.004	0.030	***	0.008	0.002		0.001	85.0	0.003	189
Other Craft and Related Trades Workers	0.008	0.038	***	0.007	0.002		0.001	87.9	0.004	402
Industrial Plant Operators	0.008	0.018	*	0.006	0.005	**	0.002	89.2	0.001	372
Stationary Machine Operators and Assemblers	0.021	0.035	***	0.004	0.016	***	0.004	84.5	0.004	1,053
Drivers and Mobile Machinery Operators	0.017	0.042	***	0.005	0.005	*	0.002	87.0	0.005	861
Building and Related Workers	0.006	0.056	***	0.015	0.003	*	0.001	87.9	0.004	270
Labourers and Related Elementary Service Workers	0.039	0.035	***	0.004	0.000			92.2	0.003	1,815

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C: Aim 2 Occupational following regression results for sociodemographic subgroups

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring is male										
Legislators and Administrators	0.005	-0.006	***	0.001	0.004	*	0.002	88.3	0.002	129
Corporate Managers	0.118	0.067	***	0.006	0.029		0.067	90.4	0.015	2,958
Physical, Mathematical and Engineering Science Professionals	0.068	0.108	***	0.014	0.042	***	0.005	86.3	0.009	1,794
Life Science and Health Professionals	0.009	0.020	***	0.005	0.009	***	0.002	80.3	0.003	270
Teaching Professionals	0.017	0.031	***	0.005	0.014	***	0.003	80.0	0.006	480
Other Professionals	0.041	0.062	***	0.009	0.030	***	0.005	83.6	0.007	1,101
Physical Science and Engineering Associate Professionals	0.045	0.028	***	0.008	0.004		0.005	96.0	0.001	1,062
Life Science and Health Associate Professionals	0.004	0.008		0.006	0.001		0.001	93.7	0.001	105
Other Associate Professionals	0.081	0.031	***	0.008	0.007		0.007	96.6	0.001	1,893
Office Clerks	0.043	0.003		0.004	0.016		0.008	97.4	0.001	993
Customer Services Clerks	0.011	0.001		0.004	0.000		0.002	99.4	0.001	243
Personal and Protective Services Workers	0.047	0.025	***	0.006	0.017	*	0.007	93.5	0.002	1,137
Salespersons, Demonstrators and Models	0.040	-0.001		0.005	-0.003		0.004	100.8	0.001	897
Market Oriented Agricultural and Fishery Workers	0.045	0.266	***	0.010	0.000			60.4	0.102	1,677
Building Trades Workers	0.105	0.114	***	0.010	0.042	***	0.008	88.1	0.014	2,712
Metal and Machinery Trades Workers	0.050	0.069	***	0.009	0.005		0.005	90.9	0.006	1,257
Precision Trades Workers	0.006	0.047	***	0.013	0.002		0.001	86.2	0.005	147
Other Craft and Related Trades Workers	0.012	0.067	***	0.012	0.003		0.002	85.7	0.008	315
Industrial Plant Operators	0.014	0.026	**	0.010	0.009	**	0.003	89.5	0.002	348
Stationary Machine Operators and Assemblers	0.031	0.057	***	0.007	0.024	***	0.006	84.1	0.007	831
Drivers and Mobile Machinery Operators	0.031	0.078	***	0.009	0.011	*	0.005	86.2	0.009	810
Building and Related Workers	0.010	0.103	***	0.028	0.006	**	0.002	87.9	0.006	267
Labourers and Related Elementary Service Workers	0.051	0.045	***	0.007	0.000			92.8	0.004	1,248

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring is female										
Legislators and Administrators	0.003	-0.003	***	0.001	0.002		0.001	89.691	0.001	72
Corporate Managers	0.135	0.014	*	0.006	-0.005		0.071	98.170	0.004	2,787
Physical, Mathematical and Engineering Science Professionals	0.021	0.028	**	0.009	0.009	**	0.003	89.852	0.002	480
Life Science and Health Professionals	0.044	0.041	***	0.009	0.023	***	0.005	88.879	0.004	1,002
Teaching Professionals	0.108	0.048	***	0.009	0.009		0.007	95.619	0.002	2,283
Other Professionals	0.074	0.076	***	0.012	0.039	***	0.006	88.368	0.007	1,701
Physical Science and Engineering Associate Professionals	0.022	0.000		0.005	-0.001		0.003	100.571	0.001	441
Life Science and Health Associate Professionals	0.019	0.011		0.009	0.003		0.003	97.064	0.002	405
Other Associate Professionals	0.147	0.011		0.010	0.000		0.010	99.457	0.001	2,991
Office Clerks	0.120	0.015	*	0.007	0.012		0.012	97.563	0.003	2,484
Customer Services Clerks	0.046	0.005		0.008	-0.008	*	0.004	102.278	0.002	912
Personal and Protective Services Workers	0.091	0.031	***	0.008	0.002		0.008	96.498	0.004	1,902
Salespersons, Demonstrators and Models	0.053	0.009		0.007	0.002		0.005	98.603	0.002	1,098
Market Oriented Agricultural and Fishery Workers	0.021	0.101	***	0.008	0.000		0.000	68.677	0.030	609
Building Trades Workers	0.002	0.006	**	0.002	0.001		0.001	74.105	0.002	48
Metal and Machinery Trades Workers	0.001	0.003		0.002	0.000		0.001	88.795	0.001	27
Precision Trades Workers	0.002	0.010		0.007	0.002		0.001	81.905	0.001	45
Other Craft and Related Trades Workers	0.004	0.005		0.005	0.000		0.001	96.128	0.001	84
Industrial Plant Operators	0.001	0.009		0.005	0.001		0.001	79.852	0.002	27
Stationary Machine Operators and Assemblers	0.009	0.013	**	0.004	0.008	*	0.003	85.066	0.003	222
Drivers and Mobile Machinery Operators	0.002	0.001		0.002	0.002		0.001	92.102	0.001	48
Building and Related Workers	S	S		S	S		S	S	S	S
Labourers and Related Elementary Service Workers	0.025	0.027	***	0.005	0.000		0.000	90.626	0.003	567

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error. S = Suppressed.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Sons paired with fathers										
Legislators and Administrators	0.005	-0.007	***	0.001	0.004	*	0.002	88.5	0.002	123
Corporate Managers	0.117	0.069	***	0.007	0.037		0.087	90.6	0.015	2,706
Physical, Mathematical and Engineering Science Professionals	0.070	0.111	***	0.014	0.057	***	0.008	88.3	0.010	1,659
Life Science and Health Professionals	0.010	0.043	***	0.012	0.010	**	0.003	84.6	0.004	249
Teaching Professionals	0.018	0.046	***	0.009	0.019	***	0.004	84.0	0.005	438
Other Professionals	0.043	0.073	***	0.010	0.027	***	0.006	88.5	0.006	1,023
Physical Science and Engineering Associate Professionals	0.044	0.028	**	0.008	0.012		0.007	95.4	0.001	975
Life Science and Health Associate Professionals	0.004	0.016		0.014	0.002		0.002	94.5	0.001	93
Other Associate Professionals	0.081	0.034	***	0.010	0.009		0.009	97.1	0.002	1,734
Office Clerks	0.043	0.017		0.009	0.043		0.028	98.3	0.001	915
Customer Services Clerks	0.011	0.008		0.014	0.000		0.004	99.6	0.001	222
Personal and Protective Services Workers	0.047	0.047	***	0.011	0.018		0.011	95.7	0.002	1,020
Salespersons, Demonstrators and Models	0.039	0.004		0.009	-0.009		0.006	100.6	0.001	816
Market Oriented Agricultural and Fishery Workers	0.045	0.287	***	0.010	0.000		0.000	59.8	0.113	1,572
Building Trades Workers	0.108	0.114	***	0.010	0.041	***	0.008	87.9	0.014	2,562
Metal and Machinery Trades Workers	0.050	0.071	***	0.009	0.007		0.005	89.7	0.007	1,152
Precision Trades Workers	0.005	0.054	***	0.015	0.001		0.001	85.7	0.006	129
Other Craft and Related Trades Workers	0.011	0.075	***	0.013	0.003		0.002	84.4	0.009	285
Industrial Plant Operators	0.013	0.029	**	0.010	0.010	**	0.003	88.9	0.002	315
Stationary Machine Operators and Assemblers	0.031	0.070	***	0.009	0.027	***	0.006	83.7	0.009	765
Drivers and Mobile Machinery Operators	0.031	0.078	***	0.010	0.010	*	0.005	86.2	0.010	753
Building and Related Workers	0.010	0.103	***	0.028	0.007	**	0.003	87.0	0.007	246
Labourers and Related Elementary Service Workers	0.051	0.059	***	0.010	0.000		0.000	94.1	0.004	1,137

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Sons paired with mothers								
Legislators and Administrators	0.006	-0.005 ***	0.001	-0.001	0.002	101.8	0.002	84
Corporate Managers	0.129	0.061 ***	0.013	0.043	0.107	96.6	0.011	1,851
Physical, Mathematical and Engineering Science Professionals	0.074	0.177 *	0.080	0.031 ***	0.007	92.8	0.004	1,107
Life Science and Health Professionals	0.010	0.012 *	0.005	0.012 **	0.004	82.5	0.003	162
Teaching Professionals	0.018	0.031 ***	0.006	0.015 **	0.005	81.4	0.006	300
Other Professionals	0.042	0.040 *	0.016	0.031 ***	0.006	88.4	0.004	666
Physical Science and Engineering Associate Professionals	0.046	0.029	0.018	-0.006	0.007	99.8	0.001	642
Life Science and Health Associate Professionals	0.004	0.006	0.006	0.001	0.003	95.6	0.001	57
Other Associate Professionals	0.084	0.026	0.014	0.004	0.013	98.6	0.001	1,176
Office Clerks	0.041	0.003	0.004	0.015	0.008	96.7	0.001	582
Customer Services Clerks	0.011	0.000	0.004	0.000	0.002	100.9	0.001	150
Personal and Protective Services Workers	0.050	0.015 *	0.007	0.015	0.008	95.1	0.002	729
Salespersons, Demonstrators and Models	0.036	0.003	0.007	0.002	0.005	98.8	0.001	513
Market Oriented Agricultural and Fishery Workers	0.051	0.284 ***	0.014	0.000	0.000	66.3	0.095	1,059
Building Trades Workers	0.117	-0.009	0.057	0.016	0.026	99.9	0.004	1,620
Metal and Machinery Trades Workers	0.059	0.040	0.068	0.000	0.020	99.9	0.002	816
Precision Trades Workers	0.007	0.025	0.022	0.016	0.013	96.1	0.001	96
Other Craft and Related Trades Workers	0.012	0.050	0.027	0.015	0.015	96.8	0.002	180
Industrial Plant Operators	0.014	-0.014 ***	0.001	0.008	0.006	97.8	0.001	192
Stationary Machine Operators and Assemblers	0.034	0.036 **	0.011	-0.009	0.018	96.1	0.003	495
Drivers and Mobile Machinery Operators	0.035	0.077	0.041	0.009	0.009	98.1	0.002	489
Building and Related Workers	0.011	-0.008 **	0.003	0.001	0.004	99.6	0.002	147
Labourers and Related Elementary Service Workers	0.053	0.028 **	0.009	0.000	0.000	96.3	0.002	759

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Daughters paired with fathers								
Legislators and Administrators	0.003	-0.003 ***	0.001	0.002	0.001	88.6	0.001	69
Corporate Managers	0.134	0.010	0.007	-0.008	0.083	98.7	0.004	2,487
Physical, Mathematical and Engineering Science Professionals	0.023	0.029 **	0.009	0.008	0.004	92.8	0.002	447
Life Science and Health Professionals	0.046	0.054 **	0.018	0.027 ***	0.006	92.2	0.003	915
Teaching Professionals	0.111	0.045 **	0.015	0.006	0.008	98.1	0.002	2,076
Other Professionals	0.077	0.092 ***	0.013	0.048 ***	0.009	90.5	0.008	1,563
Physical Science and Engineering Associate Professionals	0.023	0.001	0.005	-0.011 **	0.003	103.0	0.001	408
Life Science and Health Associate Professionals	0.019	0.000	0.013	0.005	0.004	97.3	0.002	366
Other Associate Professionals	0.147	0.012	0.012	0.005	0.012	99.4	0.001	2,703
Office Clerks	0.121	0.023	0.015	0.033	0.034	99.3	0.003	2,241
Customer Services Clerks	0.045	-0.002	0.019	-0.002	0.009	100.2	0.002	825
Personal and Protective Services Workers	0.093	0.005	0.011	-0.001	0.014	99.8	0.003	1,710
Salespersons, Demonstrators and Models	0.053	0.018	0.012	0.004	0.009	98.9	0.002	978
Market Oriented Agricultural and Fishery Workers	0.022	0.101 ***	0.008	0.000	0.000	70.5	0.029	573
Building Trades Workers	0.002	0.006 **	0.002	0.000	0.001	75.1	0.003	42
Metal and Machinery Trades Workers	0.001	0.002	0.002	0.000	0.001	92.0	0.001	27
Precision Trades Workers	0.002	0.007	0.007	0.001	0.001	88.9	0.001	42
Other Craft and Related Trades Workers	0.004	0.004	0.005	0.001	0.001	94.9	0.001	72
Industrial Plant Operators	0.001	0.010	0.006	0.001	0.001	76.2	0.002	24
Stationary Machine Operators and Assemblers	0.009	0.014 **	0.005	0.009 *	0.004	86.0	0.003	201
Drivers and Mobile Machinery Operators	0.002	0.001	0.002	0.002	0.002	90.5	0.001	39
Building and Related Workers	S	S	S	S	S	S	S	S
Labourers and Related Elementary Service Workers	0.025	0.032 ***	0.007	0.000	0.000	92.9	0.004	501

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error. S = Suppressed.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Daughters paired with mothers										
Legislators and Administrators	0.005	-0.005	***	0.001	-0.002		0.002	102.8	0.001	57
Corporate Managers	0.139	0.041	**	0.013	-0.007		0.120	97.8	0.005	1,812
Physical, Mathematical and Engineering Science Professionals	0.022	-0.021	***	0.003	0.008	*	0.004	94.2	0.002	297
Life Science and Health Professionals	0.047	0.039	***	0.010	0.014	*	0.007	92.3	0.003	642
Teaching Professionals	0.106	0.055	***	0.011	0.020		0.011	94.2	0.004	1,431
Other Professionals	0.082	0.052	*	0.021	0.036	***	0.008	92.7	0.004	1,128
Physical Science and Engineering Associate Professionals	0.022	-0.004		0.009	0.010		0.006	97.6	0.001	288
Life Science and Health Associate Professionals	0.020	0.014		0.011	-0.002		0.005	99.0	0.002	252
Other Associate Professionals	0.149	-0.003		0.015	-0.014		0.016	100.5	0.002	1,881
Office Clerks	0.117	0.019	*	0.007	0.020		0.013	95.7	0.003	1,557
Customer Services Clerks	0.043	0.008		0.008	-0.007		0.004	102.6	0.002	531
Personal and Protective Services Workers	0.083	0.049	***	0.010	0.009		0.010	93.5	0.005	1,137
Salespersons, Demonstrators and Models	0.051	0.007		0.008	0.001		0.006	98.8	0.002	651
Market Oriented Agricultural and Fishery Workers	0.022	0.137	***	0.012	0.000		0.000	68.2	0.042	408
Building Trades Workers	0.002	0.025		0.027	0.013		0.011	91.4	0.002	30
Metal and Machinery Trades Workers	0.001	0.066		0.064	-0.001	***	0.000	95.6	0.004	18
Precision Trades Workers	0.002	0.023		0.025	0.013		0.011	90.1	0.002	27
Other Craft and Related Trades Workers	0.004	0.008		0.013	-0.004	***	0.001	99.5	0.001	57
Industrial Plant Operators	0.001	-0.002	**	0.000	0.000		0.002	99.4	0.001	18
Stationary Machine Operators and Assemblers	0.009	0.015	*	0.007	0.006		0.016	92.8	0.002	129
Drivers and Mobile Machinery Operators	0.003	-0.003	***	0.001	0.001		0.002	99.2	0.001	36
Building and Related Workers	S	S		S	S		S	S	S	S
Labourers and Related Elementary Service Workers	0.025	0.021	**	0.007	0.000		0.000	93.8	0.002	336

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error. S = Suppressed.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Offspring with a parent with a university degree in 1991								
Legislators and Administrators	0.007	-0.007 ***	0.002	0.004	0.003	89.5	0.004	45
Corporate Managers	0.133	0.040 ***	0.012	-0.006	0.069	93.5	0.012	816
Physical, Mathematical and Engineering Science Professionals	0.094	0.053 ***	0.015	-0.004	0.008	95.9	0.005	558
Life Science and Health Professionals	0.042	0.036 **	0.011	0.002	0.006	87.8	0.003	276
Teaching Professionals	0.067	0.036 ***	0.009	0.001	0.007	86.9	0.006	444
Other Professionals	0.114	0.055 ***	0.013	0.003	0.009	89.9	0.006	723
Physical Science and Engineering Associate Professionals	0.041	-0.016	0.010	0.013	0.009	98.3	0.003	237
Life Science and Health Associate Professionals	0.014	0.008	0.012	0.003	0.005	96.3	0.002	87
Other Associate Professionals	0.133	0.019	0.016	0.006	0.018	98.3	0.003	774
Office Clerks	0.063	0.000	0.010	0.017	0.026	99.5	0.002	357
Customer Services Clerks	0.022	-0.013	0.009	0.000	0.006	101.0	0.001	126
Personal and Protective Services Workers	0.056	0.030	0.019	-0.006	0.017	98.4	0.005	330
Salespersons, Demonstrators and Models	0.031	0.018	0.017	-0.007	0.011	99.2	0.003	177
Market Oriented Agricultural and Fishery Workers	0.027	0.169 ***	0.026	0.000	0.000	78.0	0.039	198
Building Trades Workers	0.037	0.050	0.027	0.028	0.024	96.2	0.004	219
Metal and Machinery Trades Workers	0.008	0.025	0.024	0.018	0.013	91.9	0.004	51
Precision Trades Workers	0.003	-0.003 **	0.001	0.008	0.008	92.5	0.003	18
Other Craft and Related Trades Workers	0.003	0.098	0.064	0.002	0.005	87.3	0.012	18
Industrial Plant Operators	0.004	-0.006 **	0.002	0.006	0.010	98.1	0.003	24
Stationary Machine Operators and Assemblers	0.009	0.053	0.030	-0.011 ***	0.002	95.0	0.008	57
Drivers and Mobile Machinery Operators	0.007	0.026	0.031	0.017	0.017	94.5	0.003	42
Building and Related Workers	0.002	-0.002	0.001	0.016	0.013	88.2	0.003	15
Labourers and Related Elementary Service Workers	0.022	0.016	0.021	0.000	0.000	99.0	0.004	126

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring without a parent with a university degree in 1991										
Legislators and Administrators	0.004	-0.005	***	0.001	0.002	*	0.001	90.0	0.001	138
Corporate Managers	0.123	0.040	***	0.005	0.043		0.074	94.3	0.008	4,212
Physical, Mathematical and Engineering Science Professionals	0.043	0.054	***	0.011	0.018	***	0.004	93.2	0.002	1,500
Life Science and Health Professionals	0.024	0.017	**	0.006	0.013	***	0.004	92.7	0.001	855
Teaching Professionals	0.059	0.038	***	0.008	0.013	*	0.005	95.2	0.002	2,013
Other Professionals	0.053	0.036	***	0.009	0.021	***	0.005	94.2	0.002	1,827
Physical Science and Engineering Associate Professionals	0.033	0.018	***	0.005	0.000		0.004	96.9	0.001	1,104
Life Science and Health Associate Professionals	0.011	0.011		0.006	0.003		0.002	95.4	0.001	366
Other Associate Professionals	0.108	0.024	**	0.007	0.002		0.007	98.2	0.001	3,555
Office Clerks	0.082	0.007		0.004	0.014		0.008	97.9	0.002	2,727
Customer Services Clerks	0.028	0.002		0.005	-0.004		0.002	102.0	0.001	882
Personal and Protective Services Workers	0.068	0.027	***	0.005	0.008		0.006	95.5	0.002	2,322
Salespersons, Demonstrators and Models	0.049	0.001		0.005	-0.004		0.004	100.7	0.001	1,584
Market Oriented Agricultural and Fishery Workers	0.034	0.198	***	0.007	0.000		0.000	59.6	0.075	1,863
Building Trades Workers	0.062	0.060	***	0.006	0.017	***	0.005	88.3	0.008	2,277
Metal and Machinery Trades Workers	0.032	0.035	***	0.005	-0.001		0.003	92.8	0.003	1,107
Precision Trades Workers	0.004	0.033	***	0.009	0.001		0.001	83.2	0.003	150
Other Craft and Related Trades Workers	0.009	0.035	***	0.007	0.001		0.001	89.2	0.004	330
Industrial Plant Operators	0.008	0.020	**	0.006	0.005	**	0.002	87.3	0.002	312
Stationary Machine Operators and Assemblers	0.023	0.033	***	0.004	0.016	***	0.004	84.3	0.004	876
Drivers and Mobile Machinery Operators	0.019	0.041	***	0.005	0.003		0.003	87.4	0.005	708
Building and Related Workers	0.006	0.054	**	0.016	0.003	*	0.001	88.3	0.004	231
Labourers and Related Elementary Service Workers	0.041	0.034	***	0.005	0.000		0.000	92.0	0.003	1,446

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring with a European parent										
Legislators and Administrators	0.004	-0.005	***	0.001	0.003	*	0.001	89.5	0.001	189
Corporate Managers	0.127	0.043	***	0.005	0.007		0.051	93.9	0.009	5,229
Physical, Mathematical and Engineering Science Professionals	0.046	0.070	***	0.009	0.027	***	0.003	86.4	0.006	2,052
Life Science and Health Professionals	0.026	0.029	***	0.005	0.014	***	0.003	87.1	0.003	1,143
Teaching Professionals	0.060	0.038	***	0.005	0.012	**	0.004	92.8	0.002	2,505
Other Professionals	0.054	0.065	***	0.007	0.036	***	0.004	85.4	0.007	2,454
Physical Science and Engineering Associate Professionals	0.035	0.015	**	0.005	0.002		0.003	97.1	0.001	1,377
Life Science and Health Associate Professionals	0.012	0.008		0.005	0.002		0.002	96.5	0.001	462
Other Associate Professionals	0.107	0.022	***	0.006	0.007		0.006	97.9	0.001	4,239
Office Clerks	0.075	0.011	**	0.004	0.016	*	0.008	96.8	0.001	2,985
Customer Services Clerks	0.027	0.006		0.005	-0.003		0.002	101.1	0.001	1,026
Personal and Protective Services Workers	0.068	0.028	***	0.005	0.011		0.006	95.4	0.002	2,763
Salespersons, Demonstrators and Models	0.047	0.003		0.005	0.001		0.004	99.3	0.001	1,842
Market Oriented Agricultural and Fishery Workers	0.035	0.200	***	0.007	0.000		0.000	61.6	0.073	2,184
Building Trades Workers	0.060	0.065	***	0.006	0.024	***	0.005	87.7	0.008	2,628
Metal and Machinery Trades Workers	0.028	0.039	***	0.005	0.002		0.003	91.1	0.004	1,203
Precision Trades Workers	0.004	0.032	***	0.008	0.002		0.001	83.5	0.003	171
Other Craft and Related Trades Workers	0.008	0.041	***	0.008	0.002		0.001	88.0	0.004	369
Industrial Plant Operators	0.008	0.018	**	0.006	0.005	**	0.002	90.4	0.001	336
Stationary Machine Operators and Assemblers	0.020	0.034	***	0.005	0.017	***	0.004	86.0	0.004	906
Drivers and Mobile Machinery Operators	0.018	0.044	***	0.006	0.006	*	0.003	87.0	0.005	783
Building and Related Workers	0.005	0.062	***	0.017	0.004	**	0.001	86.0	0.005	243
Labourers and Related Elementary Service Workers	0.038	0.031	***	0.005	0.000		0.000	93.9	0.002	1,548

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Offspring without a European parent								
Legislators and Administrators	0.003	-0.003	0.002	0.005	0.004	83.4	0.006	15
Corporate Managers	0.118	0.023	0.015	0.088	0.175	97.5	0.010	519
Physical, Mathematical and Engineering Science Professionals	0.047	0.092 *	0.045	0.023	0.012	92.4	0.007	219
Life Science and Health Professionals	0.026	0.043	0.023	0.024 *	0.012	87.7	0.007	126
Teaching Professionals	0.057	0.054 *	0.022	-0.002	0.013	95.8	0.008	258
Other Professionals	0.075	0.109 **	0.033	0.024	0.016	92.5	0.009	348
Physical Science and Engineering Associate Professionals	0.030	0.002	0.015	-0.008	0.010	101.4	0.002	126
Life Science and Health Associate Professionals	0.010	0.036	0.031	0.002	0.006	95.5	0.004	48
Other Associate Professionals	0.149	0.045	0.029	-0.015	0.026	99.0	0.003	648
Office Clerks	0.115	-0.005	0.015	0.020	0.028	100.0	0.002	492
Customer Services Clerks	0.032	-0.017	0.010	-0.011	0.007	106.3	0.004	129
Personal and Protective Services Workers	0.060	0.037 **	0.013	0.002	0.018	92.8	0.007	276
Salespersons, Demonstrators and Models	0.037	0.012	0.015	-0.011	0.008	102.2	0.005	153
Market Oriented Agricultural and Fishery Workers	0.020	0.080 ***	0.021	0.000	0.000	83.0	0.016	105
Building Trades Workers	0.030	0.004	0.014	0.015	0.011	95.7	0.004	135
Metal and Machinery Trades Workers	0.017	0.024	0.015	0.010	0.009	90.3	0.003	84
Precision Trades Workers	0.005	0.016	0.019	0.000	0.003	96.7	0.003	21
Other Craft and Related Trades Workers	0.006	0.015	0.014	0.005	0.005	87.9	0.004	30
Industrial Plant Operators	0.007	0.018	0.013	0.006	0.004	75.9	0.005	36
Stationary Machine Operators and Assemblers	0.027	0.032 ***	0.009	0.013	0.010	78.8	0.008	150
Drivers and Mobile Machinery Operators	0.016	0.025 *	0.012	0.004	0.005	85.7	0.010	78
Building and Related Workers	0.007	-0.007 **	0.002	-0.002	0.003	109.1	0.003	27
Labourers and Related Elementary Service Workers	0.054	0.042 ***	0.011	0.000	0.000	86.1	0.008	267

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Offspring with a Māori parent								
Legislators and Administrators	0.003	-0.003	0.002	0.002	0.003	94.8	0.004	15
Corporate Managers	0.116	0.028	0.018	-0.105 ***	0.012	97.7	0.007	468
Physical, Mathematical and Engineering Science Professionals	0.030	0.036	0.039	0.016	0.010	92.7	0.004	126
Life Science and Health Professionals	0.020	0.008	0.016	0.004	0.008	97.0	0.002	78
Teaching Professionals	0.068	0.041 *	0.020	-0.016	0.015	97.5	0.007	276
Other Professionals	0.038	0.053 *	0.026	0.017	0.012	91.8	0.006	165
Physical Science and Engineering Associate Professionals	0.021	0.024	0.016	-0.002	0.008	95.7	0.005	87
Life Science and Health Associate Professionals	0.007	0.012	0.019	-0.007 ***	0.001	108.9	0.008	27
Other Associate Professionals	0.121	0.027	0.024	0.014	0.024	98.0	0.002	483
Office Clerks	0.085	0.010	0.013	0.066 *	0.032	95.7	0.004	348
Customer Services Clerks	0.027	0.004	0.015	-0.003	0.007	101.2	0.003	105
Personal and Protective Services Workers	0.084	0.036 *	0.015	0.032	0.024	93.3	0.007	354
Salespersons, Demonstrators and Models	0.042	-0.005	0.014	-0.004	0.009	101.8	0.002	162
Market Oriented Agricultural and Fishery Workers	0.043	0.124 ***	0.020	0.000	0.000	79.9	0.027	213
Building Trades Workers	0.049	0.066 **	0.021	0.004	0.013	90.9	0.013	213
Metal and Machinery Trades Workers	0.027	0.011	0.013	0.001	0.009	97.2	0.005	108
Precision Trades Workers	0.003	0.030	0.033	-0.001	0.002	97.7	0.005	12
Other Craft and Related Trades Workers	0.010	0.051	0.026	0.001	0.005	88.8	0.008	42
Industrial Plant Operators	0.012	0.017	0.015	0.009	0.005	80.7	0.006	57
Stationary Machine Operators and Assemblers	0.039	0.050 ***	0.013	0.007	0.010	83.3	0.010	186
Drivers and Mobile Machinery Operators	0.021	0.032 **	0.011	-0.001	0.006	87.3	0.012	96
Building and Related Workers	0.012	0.047	0.040	-0.006	0.003	110.9	0.006	42
Labourers and Related Elementary Service Workers	0.061	0.042 **	0.012	0.000	0.000	88.7	0.009	270

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring without a Māori parent										
Legislators and Administrators	0.004	-0.005	***	0.001	0.003	**	0.001	88.6	0.001	189
Corporate Managers	0.127	0.042	***	0.005	0.030		0.055	94.0	0.009	5,277
Physical, Mathematical and Engineering Science Professionals	0.048	0.071	***	0.009	0.027	***	0.003	87.0	0.005	2,148
Life Science and Health Professionals	0.026	0.030	***	0.005	0.015	***	0.003	86.8	0.003	1,188
Teaching Professionals	0.059	0.039	***	0.005	0.013	**	0.004	92.4	0.003	2,490
Other Professionals	0.059	0.068	***	0.007	0.035	***	0.004	86.5	0.007	2,637
Physical Science and Engineering Associate Professionals	0.035	0.014	**	0.005	0.001		0.003	97.6	0.001	1,416
Life Science and Health Associate Professionals	0.012	0.009		0.005	0.003		0.002	95.7	0.001	480
Other Associate Professionals	0.111	0.022	**	0.006	0.004		0.006	98.3	0.001	4,398
Office Clerks	0.079	0.008	*	0.004	0.011		0.008	97.7	0.001	3,132
Customer Services Clerks	0.027	0.003		0.004	-0.004		0.002	101.9	0.001	1,053
Personal and Protective Services Workers	0.066	0.027	***	0.005	0.009		0.005	95.5	0.002	2,688
Salespersons, Demonstrators and Models	0.047	0.005		0.005	0.000		0.004	99.3	0.001	1,833
Market Oriented Agricultural and Fishery Workers	0.032	0.201	***	0.007	0.000		0.000	60.6	0.076	2,073
Building Trades Workers	0.057	0.063	***	0.006	0.025	***	0.005	87.5	0.008	2,550
Metal and Machinery Trades Workers	0.027	0.041	***	0.005	0.003		0.003	90.1	0.004	1,179
Precision Trades Workers	0.004	0.030	***	0.008	0.002		0.001	84.3	0.003	180
Other Craft and Related Trades Workers	0.008	0.036	***	0.007	0.002		0.001	87.8	0.003	357
Industrial Plant Operators	0.007	0.017	**	0.006	0.003	*	0.002	91.5	0.001	315
Stationary Machine Operators and Assemblers	0.019	0.029	***	0.004	0.016	***	0.004	86.2	0.003	870
Drivers and Mobile Machinery Operators	0.017	0.044	***	0.006	0.006	*	0.003	87.2	0.005	765
Building and Related Workers	0.005	0.057	**	0.017	0.004	**	0.001	85.5	0.004	228
Labourers and Related Elementary Service Workers	0.037	0.031	***	0.005	0.000		0.000	93.5	0.002	1,545

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*		*Related occupation*		Occupation fluidity index	R^2	Count
		β_1^o coefficient	S.E.	β_2^o coefficient	S.E.			
Offspring with a Pacific parent								
Legislators and Administrators	0.002	-0.003	0.005	0.014	0.011	69.6	0.007	6
Corporate Managers	0.114	-0.008	0.028	-0.103 ***	0.018	100.5	0.007	246
Physical, Mathematical and Engineering Science Professionals	0.022	0.084	0.073	0.044 *	0.017	81.5	0.013	57
Life Science and Health Professionals	0.016	0.001	0.017	0.008	0.012	95.8	0.004	36
Teaching Professionals	0.067	0.013	0.028	-0.023	0.019	101.2	0.007	141
Other Professionals	0.047	0.057	0.040	0.045 *	0.022	90.2	0.012	114
Physical Science and Engineering Associate Professionals	0.026	0.055	0.034	-0.019 *	0.009	97.9	0.013	57
Life Science and Health Associate Professionals	0.010	0.033	0.042	0.004	0.009	94.0	0.005	21
Other Associate Professionals	0.181	0.018	0.043	-0.052	0.037	100.7	0.005	387
Office Clerks	0.142	-0.036	0.020	0.072	0.045	101.7	0.008	300
Customer Services Clerks	0.040	0.024	0.027	-0.020 *	0.009	105.0	0.005	81
Personal and Protective Services Workers	0.068	0.039 *	0.019	0.012	0.036	92.3	0.009	159
Salespersons, Demonstrators and Models	0.038	0.012	0.028	-0.023 **	0.008	107.9	0.009	75
Market Oriented Agricultural and Fishery Workers	0.012	0.096 *	0.045	0.000	0.000	85.0	0.017	30
Building Trades Workers	0.035	0.029	0.024	0.023	0.016	89.4	0.012	81
Metal and Machinery Trades Workers	0.020	0.017	0.016	-0.020 ***	0.003	104.8	0.008	39
Precision Trades Workers	0.007	0.044	0.035	0.000	0.005	89.6	0.012	15
Other Craft and Related Trades Workers	0.008	0.025	0.021	-0.008 ***	0.002	103.6	0.008	18
Industrial Plant Operators	0.006	0.028	0.017	0.000	0.004	81.4	0.009	18
Stationary Machine Operators and Assemblers	0.022	0.027 *	0.011	0.011	0.012	74.6	0.008	63
Drivers and Mobile Machinery Operators	0.018	-0.005	0.010	-0.001	0.006	104.2	0.007	36
Building and Related Workers	0.009	-0.010 **	0.004	-0.006	0.003	130.5	0.003	15
Labourers and Related Elementary Service Workers	0.061	0.036 **	0.014	0.000	0.000	85.9	0.011	150

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring without a Pacific parent										
Legislators and Administrators	0.004	-0.005	***	0.001	0.003	*	0.001	89.8	0.001	195
Corporate Managers	0.127	0.042	***	0.005	0.020		0.051	94.0	0.009	5,502
Physical, Mathematical and Engineering Science Professionals	0.047	0.070	***	0.009	0.026	***	0.003	87.4	0.005	2,214
Life Science and Health Professionals	0.026	0.030	***	0.005	0.015	***	0.003	87.2	0.003	1,233
Teaching Professionals	0.059	0.040	***	0.005	0.012	**	0.004	92.5	0.003	2,622
Other Professionals	0.057	0.068	***	0.007	0.034	***	0.004	86.5	0.007	2,691
Physical Science and Engineering Associate Professionals	0.035	0.013	**	0.005	0.002		0.003	97.4	0.001	1,446
Life Science and Health Associate Professionals	0.012	0.009		0.005	0.002		0.002	96.5	0.001	486
Other Associate Professionals	0.108	0.024	***	0.006	0.008		0.006	97.9	0.001	4,497
Office Clerks	0.076	0.011	**	0.004	0.013		0.007	97.0	0.001	3,180
Customer Services Clerks	0.027	0.003		0.004	-0.003		0.002	101.5	0.001	1,074
Personal and Protective Services Workers	0.067	0.028	***	0.005	0.010		0.005	95.4	0.002	2,883
Salespersons, Demonstrators and Models	0.047	0.004		0.004	0.002		0.004	99.2	0.001	1,920
Market Oriented Agricultural and Fishery Workers	0.034	0.195	***	0.007	0.000		0.000	62.3	0.070	2,256
Building Trades Workers	0.058	0.064	***	0.006	0.024	***	0.005	87.8	0.008	2,679
Metal and Machinery Trades Workers	0.028	0.040	***	0.005	0.004		0.003	90.3	0.004	1,248
Precision Trades Workers	0.004	0.029	***	0.008	0.002		0.001	84.5	0.003	174
Other Craft and Related Trades Workers	0.008	0.039	***	0.007	0.002		0.001	87.2	0.004	384
Industrial Plant Operators	0.008	0.016	**	0.006	0.005	**	0.002	89.5	0.001	357
Stationary Machine Operators and Assemblers	0.021	0.036	***	0.005	0.017	***	0.004	85.2	0.004	990
Drivers and Mobile Machinery Operators	0.017	0.045	***	0.005	0.006	*	0.003	86.2	0.005	822
Building and Related Workers	0.005	0.063	***	0.017	0.004	**	0.001	86.0	0.004	255
Labourers and Related Elementary Service Workers	0.038	0.032	***	0.005	0.000		0.000	93.4	0.002	1,665

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring with a migrant parent										
Legislators and Administrators	0.005	-0.005	***	0.001	0.004		0.002	86.6	0.002	60
Corporate Managers	0.130	0.028	**	0.008	-0.013		0.086	96.1	0.008	1,521
Physical, Mathematical and Engineering Science Professionals	0.059	0.073	***	0.016	0.015	*	0.006	91.0	0.005	729
Life Science and Health Professionals	0.027	0.032	**	0.009	0.020	***	0.005	83.6	0.004	369
Teaching Professionals	0.060	0.039	***	0.010	0.007		0.007	92.9	0.004	729
Other Professionals	0.075	0.059	***	0.014	0.023	**	0.007	90.9	0.005	927
Physical Science and Engineering Associate Professionals	0.038	0.012		0.009	0.004		0.007	97.2	0.002	441
Life Science and Health Associate Professionals	0.012	0.008		0.010	0.005		0.003	94.0	0.001	144
Other Associate Professionals	0.131	0.009		0.012	-0.003		0.012	99.6	0.001	1,485
Office Clerks	0.090	-0.002		0.007	0.020		0.016	99.5	0.002	1,023
Customer Services Clerks	0.028	0.010		0.009	-0.007		0.004	102.8	0.002	309
Personal and Protective Services Workers	0.065	0.034	***	0.009	0.011		0.011	93.9	0.003	774
Salespersons, Demonstrators and Models	0.042	0.009		0.009	-0.011	*	0.006	101.5	0.002	465
Market Oriented Agricultural and Fishery Workers	0.022	0.168	***	0.017	0.000		0.000	70.6	0.049	357
Building Trades Workers	0.046	0.049	***	0.010	0.021	**	0.008	88.9	0.008	582
Metal and Machinery Trades Workers	0.021	0.026	**	0.008	0.017	**	0.006	85.6	0.004	276
Precision Trades Workers	0.005	0.021		0.012	0.003		0.002	85.2	0.002	63
Other Craft and Related Trades Workers	0.006	0.029	*	0.014	0.004		0.003	84.1	0.004	81
Industrial Plant Operators	0.005	0.018		0.009	0.001		0.002	91.1	0.002	66
Stationary Machine Operators and Assemblers	0.014	0.023	***	0.006	0.016	*	0.007	82.2	0.005	195
Drivers and Mobile Machinery Operators	0.012	0.014		0.008	-0.002		0.003	97.8	0.002	141
Building and Related Workers	0.005	0.110	*	0.044	0.000		0.002	90.9	0.011	63
Labourers and Related Elementary Service Workers	0.038	0.036	***	0.008	0.000		0.000	91.1	0.006	468

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring without a migrant parent										
Legislators and Administrators	0.004	-0.005	***	0.001	0.002		0.001	91.3	0.001	132
Corporate Managers	0.123	0.048	***	0.006	0.052		0.067	93.0	0.010	3,864
Physical, Mathematical and Engineering Science Professionals	0.042	0.069	***	0.011	0.030	***	0.004	85.8	0.006	1,437
Life Science and Health Professionals	0.025	0.026	***	0.006	0.012	***	0.003	89.2	0.002	828
Teaching Professionals	0.060	0.039	***	0.007	0.012	*	0.005	93.2	0.003	1,875
Other Professionals	0.050	0.071	***	0.009	0.038	***	0.005	84.5	0.008	1,725
Physical Science and Engineering Associate Professionals	0.033	0.015	**	0.005	0.001		0.004	97.2	0.001	987
Life Science and Health Associate Professionals	0.011	0.012		0.007	0.001		0.002	96.8	0.001	339
Other Associate Professionals	0.105	0.027	***	0.008	0.006		0.007	97.7	0.001	3,132
Office Clerks	0.076	0.011	*	0.004	0.014		0.009	97.0	0.002	2,280
Customer Services Clerks	0.027	0.000		0.005	-0.001		0.003	100.7	0.001	780
Personal and Protective Services Workers	0.068	0.026	***	0.006	0.008		0.006	96.0	0.003	2,076
Salespersons, Demonstrators and Models	0.048	0.001		0.005	0.003		0.004	99.3	0.001	1,401
Market Oriented Agricultural and Fishery Workers	0.037	0.199	***	0.007	0.000		0.000	60.0	0.075	1,824
Building Trades Workers	0.062	0.066	***	0.006	0.024	***	0.005	87.5	0.009	2,070
Metal and Machinery Trades Workers	0.029	0.043	***	0.006	-0.003		0.003	92.0	0.005	933
Precision Trades Workers	0.003	0.035	**	0.011	0.001		0.001	83.1	0.004	114
Other Craft and Related Trades Workers	0.009	0.040	***	0.008	0.001		0.001	89.0	0.004	288
Industrial Plant Operators	0.009	0.019	*	0.007	0.006	**	0.002	87.7	0.001	288
Stationary Machine Operators and Assemblers	0.023	0.041	***	0.005	0.016	***	0.004	84.4	0.005	807
Drivers and Mobile Machinery Operators	0.019	0.047	***	0.006	0.007	*	0.003	84.8	0.006	666
Building and Related Workers	0.006	0.037	*	0.015	0.005	**	0.002	86.6	0.003	198
Labourers and Related Elementary Service Workers	0.039	0.034	***	0.005	0.000		0.000	92.6	0.003	1,233

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring in highest quintile of family income in 1991										
Legislators and Administrators	0.005	-0.007	***	0.001	0.002		0.002	89.7	0.002	81
Corporate Managers	0.137	0.040	***	0.007	-0.019		0.064	92.9	0.010	2,064
Physical, Mathematical and Engineering Science Professionals	0.054	0.075	***	0.013	0.019	***	0.005	86.1	0.007	876
Life Science and Health Professionals	0.029	0.033	***	0.008	0.015	***	0.004	83.3	0.004	492
Teaching Professionals	0.058	0.043	***	0.008	0.008		0.005	90.6	0.005	906
Other Professionals	0.068	0.083	***	0.011	0.032	***	0.006	82.6	0.010	1,161
Physical Science and Engineering Associate Professionals	0.034	0.018	*	0.008	0.007		0.006	94.8	0.002	498
Life Science and Health Associate Professionals	0.011	0.004		0.008	0.002		0.003	96.7	0.002	165
Other Associate Professionals	0.123	0.021	*	0.011	-0.005		0.010	98.8	0.001	1,746
Office Clerks	0.076	0.014	*	0.007	0.013		0.014	96.8	0.001	1,095
Customer Services Clerks	0.026	0.000		0.007	0.000		0.004	99.9	0.002	363
Personal and Protective Services Workers	0.063	0.018		0.010	0.031	*	0.013	96.5	0.003	912
Salespersons, Demonstrators and Models	0.040	-0.001		0.008	-0.002		0.007	100.3	0.001	558
Market Oriented Agricultural and Fishery Workers	0.029	0.217	***	0.013	0.000		0.000	61.6	0.080	660
Building Trades Workers	0.053	0.065	***	0.011	0.030	**	0.009	89.0	0.010	834
Metal and Machinery Trades Workers	0.022	0.033	***	0.009	0.004		0.005	91.9	0.003	339
Precision Trades Workers	0.003	0.015		0.011	0.003		0.002	85.2	0.001	57
Other Craft and Related Trades Workers	0.006	0.039	**	0.015	0.002		0.002	87.7	0.005	93
Industrial Plant Operators	0.006	0.029	*	0.012	0.005		0.003	87.0	0.003	102
Stationary Machine Operators and Assemblers	0.014	0.046	***	0.010	0.018	**	0.006	82.5	0.007	243
Drivers and Mobile Machinery Operators	0.014	0.041	***	0.010	0.002		0.004	89.1	0.005	228
Building and Related Workers	0.005	0.096	**	0.036	0.003		0.002	86.5	0.009	81
Labourers and Related Elementary Service Workers	0.032	0.045	***	0.010	0.000		0.000	93.6	0.004	474

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix C continued

Offspring's occupation in 2013	Baseline probability	*Same occupation*			*Related occupation*			Occupation fluidity index	R^2	Count
		β_1^o coefficient		S.E.	β_2^o coefficient		S.E.			
Offspring not in highest quintile of family income in 1991										
Legislators and Administrators	0.004	-0.004	***	0.001	0.002		0.001	92.9	0.001	114
Corporate Managers	0.120	0.039	***	0.006	0.050		0.074	95.4	0.008	3,489
Physical, Mathematical and Engineering Science Professionals	0.043	0.061	***	0.012	0.029	***	0.005	89.0	0.004	1,338
Life Science and Health Professionals	0.024	0.023	**	0.007	0.012	**	0.003	91.5	0.002	735
Teaching Professionals	0.061	0.035	***	0.007	0.012	*	0.006	94.7	0.002	1,776
Other Professionals	0.051	0.040	***	0.010	0.030	***	0.005	91.1	0.004	1,551
Physical Science and Engineering Associate Professionals	0.034	0.011	*	0.006	-0.002		0.004	98.8	0.001	966
Life Science and Health Associate Professionals	0.011	0.013		0.007	0.002		0.002	95.9	0.001	330
Other Associate Professionals	0.106	0.021	**	0.008	0.007		0.007	98.2	0.001	3,003
Office Clerks	0.081	0.006		0.004	0.013		0.009	98.2	0.002	2,295
Customer Services Clerks	0.028	0.004		0.005	-0.005	*	0.002	102.6	0.001	765
Personal and Protective Services Workers	0.070	0.031	***	0.006	0.004		0.006	94.9	0.003	2,043
Salespersons, Demonstrators and Models	0.050	0.002		0.005	-0.002		0.004	100.1	0.001	1,383
Market Oriented Agricultural and Fishery Workers	0.035	0.187	***	0.008	0.000		0.000	62.2	0.067	1,575
Building Trades Workers	0.059	0.060	***	0.006	0.020	***	0.005	87.8	0.008	1,872
Metal and Machinery Trades Workers	0.030	0.039	***	0.006	0.001		0.003	90.9	0.004	918
Precision Trades Workers	0.004	0.034	**	0.010	0.001		0.001	86.5	0.004	129
Other Craft and Related Trades Workers	0.010	0.037	***	0.008	0.001		0.002	89.2	0.004	300
Industrial Plant Operators	0.008	0.013	*	0.006	0.005	*	0.002	89.8	0.001	261
Stationary Machine Operators and Assemblers	0.025	0.031	***	0.005	0.015	**	0.004	85.8	0.004	792
Drivers and Mobile Machinery Operators	0.019	0.040	***	0.006	0.005		0.003	87.3	0.004	612
Building and Related Workers	0.006	0.035	*	0.015	0.003	*	0.001	89.2	0.002	186
Labourers and Related Elementary Service Workers	0.043	0.030	***	0.005	0.000		0.000	92.4	0.003	1,281

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. In the occupations 'Market Oriented Agricultural and Fishery Workers' and 'Labourers and Related Elementary Service Workers', the β_2^o coefficients are mechanically equal to zero as they are the sole 2-digit occupation within their respective 1-digit major groups. Counts are randomly rounded to base 3.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix D: Aim 3 Occupational persistence regression results

Variable	Coefficient	S.E.
Offspring's sex (ref. Male)		
Female	-0.039 ***	0.004
Offspring's place of birth (ref. New Zealand-born)		
Overseas-born	-0.015	0.009
Offspring's region of residence in 1991 (ref. Auckland)		
Waikato	-0.004	0.007
Wellington	0.005	0.006
Rest of North Island	0.005	0.005
Canterbury	0.010	0.006
Otago	0.008	0.009
Rest of South Island	0.001	0.007
Father's age in 1991 (ref. 16 to 29 years)		
30 to 39 years	0.003	0.009
40 to 49 years	0.002	0.010
50 years or older	-0.020	0.013
Mother's age in 1991 (ref. 16 to 29 years)		
30 to 39 years	-0.009	0.006
40 to 49 years	-0.013	0.008
50 years or older	-0.008	0.020
Father's place of birth (ref. New Zealand-born)		
Overseas-born	-0.010	0.005
Mother's place of birth (ref. New Zealand-born)		
Overseas-born	0.001	0.006
European ethnicity (ref. No European parent)		
Has a European parent	0.003	0.009
Māori ethnicity (ref. No Māori parent)		
Has a Māori parent	0.005	0.007
Pacific ethnicity (ref. No Pacific parent)		
Has a Pacific parent	0.009	0.010
Asian ethnicity (ref. No Asian parent)		
Has an Asian parent	-0.013	0.011
Father's highest qualification in 1991 (ref. No qualifications)		
School qualifications	-0.015 **	0.005
Post-school qualifications	-0.019 ***	0.005
University degree	0.008	0.009
Mother's highest qualification in 1991 (ref. No qualifications)		
School qualifications	0.006	0.005
Post-school qualifications	-0.007	0.006
University degree	0.007	0.010
Father's work and labour force status in 1991 (ref. Full-time work)		
Part-time work	-0.008	0.011
Unemployed	0.063 *	0.027
Not in the labour force	0.031	0.025
Mother's work and labour force status in 1991 (ref. Full-time work)		
Part-time work	-0.004	0.005
Unemployed	-0.040	0.028
Not in the labour force	-0.031	0.027
Family income quintile in 1991 (ref. Lowest quintile)		
Low	-0.018	0.013
Middle	-0.022	0.013
High	-0.010	0.013
Highest quintile	-0.005	0.013

Appendix D continued

Variable	Coefficient		S.E.
Offspring's year of birth (ref. 1976)			
1977	-0.007		0.011
1978	-0.020		0.011
1979	-0.019		0.011
1980	-0.012		0.011
1981	-0.025	*	0.011
1982	-0.009		0.011
1983	-0.022	*	0.011
1984	-0.033	**	0.010
1985	-0.020		0.010
1986	-0.037	***	0.010
1987	-0.039	***	0.010
1988	-0.044	**	0.014
Father's occupation in 1991 (ref. Legislators and Administrators)			
Corporate Managers	0.132	**	0.046
Physical, Mathematical and Engineering Science Professionals	0.105	*	0.047
Life Science and Health Professionals	0.025		0.048
Teaching Professionals	0.061		0.047
Other Professionals	0.112	*	0.047
Physical Science and Engineering Associate Professionals	0.039		0.046
Life Science and Health Associate Professionals	0.005		0.049
Other Associate Professionals	0.117	*	0.046
Office Clerks	0.062		0.047
Customer Services Clerks	0.013		0.049
Personal and Protective Services Workers	0.064		0.046
Salespersons, Demonstrators and Models	0.037		0.047
Market Oriented Agricultural and Fishery Workers	0.163	***	0.047
Building Trades Workers	0.106	*	0.046
Metal and Machinery Trades Workers	0.043		0.046
Precision Trades Workers	0.008		0.047
Other Craft and Related Trades Workers	0.033		0.047
Industrial Plant Operators	0.011		0.047
Stationary Machine Operators and Assemblers	0.047		0.046
Drivers and Mobile Machinery Operators	0.031		0.046
Building and Related Workers	0.040		0.050
Labourers and Related Elementary Service Workers	0.051		0.046
No occupation	-0.044		0.051
Mother's occupation in 1991 (ref. Legislators and Administrators)			
Corporate Managers	0.021		0.106
Physical, Mathematical and Engineering Science Professionals	0.087		0.129
Life Science and Health Professionals	-0.020		0.106
Teaching Professionals	0.003		0.106
Other Professionals	0.003		0.107
Physical Science and Engineering Associate Professionals	-0.069		0.107
Life Science and Health Associate Professionals	-0.057		0.107
Other Associate Professionals	0.010		0.107
Office Clerks	0.007		0.106
Customer Services Clerks	-0.063		0.106
Personal and Protective Services Workers	-0.004		0.106
Salespersons, Demonstrators and Models	-0.042		0.106
Market Oriented Agricultural and Fishery Workers	0.024		0.107
Building Trades Workers	-0.083		0.114

Appendix D continued

Variable	Coefficient	S.E.
Metal and Machinery Trades Workers	-0.027	0.123
Precision Trades Workers	-0.055	0.111
Other Craft and Related Trades Workers	-0.068	0.109
Industrial Plant Operators	0.021	0.123
Stationary Machine Operators and Assemblers	-0.054	0.106
Drivers and Mobile Machinery Operators	0.004	0.112
Labourers and Related Elementary Service Workers	-0.039	0.106
No occupation	-0.047	0.109
Constant	0.171	0.113

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: The table presents results from a linear probability regression model predicting intergenerational occupational persistence, defined as offspring working in the same 2-digit occupation in 2013 as either of their parents in 1991. Occupations are defined at the sub-major (2-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Sample size is n=37,905 and $R^2 = 0.04$.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.

Appendix E: Aim 3 Occupational upward mobility regression results

Variable	Coefficient		S.E.
Offspring's sex (ref. Male)			
Female	0.150	***	0.013
Offspring's place of birth (ref. New Zealand-born)			
Overseas-born	0.040		0.037
Offspring's region of residence in 1991 (ref. Auckland)			
Waikato	-0.009		0.026
Wellington	0.043		0.026
Rest of North Island	-0.028		0.020
Canterbury	-0.005		0.023
Otago	-0.012		0.032
Rest of South Island	-0.047		0.025
Father's age in 1991 (ref. 16 to 29 years)			
30 to 39 years	0.020		0.023
40 to 49 years	0.031		0.028
50 years or older	0.007		0.041
Mother's age in 1991 (ref. 16 to 29 years)			
30 to 39 years	0.015		0.018
40 to 49 years	0.052		0.028
50 years or older	-0.001		0.056
Father's place of birth (ref. New Zealand-born)			
Overseas-born	-0.001		0.023
Mother's place of birth (ref. New Zealand-born)			
Overseas-born	0.021		0.026
European ethnicity (ref. No European parent)			
Has a European parent	0.095	***	0.022
Māori ethnicity (ref. No Māori parent)			
Has a Māori parent	0.007		0.019
Pacific ethnicity (ref. No Pacific parent)			
Has a Pacific parent	0.018		0.031
Asian ethnicity (ref. No Asian parent)			
Has an Asian parent	0.211	***	0.043
Father's highest qualification in 1991 (ref. No qualifications)			
School qualifications	0.030		0.017
Post-school qualifications	0.011		0.016
University degree	0.075		0.086
Mother's highest qualification in 1991 (ref. No qualifications)			
School qualifications	0.037	**	0.014
Post-school qualifications	0.032		0.023
University degree	0.054		0.089
Father's work and labour force status in 1991 (ref. Full-time work)			
Part-time work	0.027		0.033
Unemployed	-0.074		0.039
Not in the labour force	-0.047		0.038
Mother's work and labour force status in 1991 (ref. Full-time work)			
Part-time work	0.023		0.023
Unemployed	0.054		0.031
Not in the labour force	0.006		0.020
Family income quintile in 1991 (ref. Lowest quintile)			
Low	-0.010		0.036
Middle	-0.013		0.036
High	-0.012		0.039
Highest quintile	0.017		0.037

Appendix E continued

Variable	Coefficient	S.E.
Offspring's year of birth (ref. 1976)		
1977	-0.007	0.040
1978	0.042	0.040
1979	0.023	0.039
1980	0.004	0.039
1981	-0.041	0.038
1982	0.023	0.038
1983	-0.005	0.037
1984	-0.056	0.037
1985	-0.052	0.036
1986	-0.024	0.036
1987	-0.018	0.036
1988	-0.055	0.048
Constant	0.038	0.059

Symbols: * $p<0.05$ ** $p<0.01$ *** $p<0.001$. S.E. = Standard error.
Notes: The table presents results from a linear probability regression model predicting intergenerational upward mobility in occupations, defined as offspring working in one of the two 'highest ranked' 1-digit occupations in 2013 despite their higher-ranked parent working in one of the two 'lowest ranked' occupations in 1991. Occupations are defined at the major (1-digit) level of the *New Zealand Standard Classification of Occupations 1999*. Sample size is n=4,509 and $R^2 = 0.06$.
Source: Authors' calculations based on data from the New Zealand Longitudinal Census.