BOOSTING PRODUCTIVITY GROWTH BY CREATING EQUAL WORKPLACE OPPORTUNITIES FOR ALL

PAY EQUITY AND WORKER OUTCOMES: EVIDENCE FROM NEW ZEALAND'S SOCIAL WORKER SETTLEMENT

This paper sits within a wider research programme, “Boosting productivity growth through creating equal workplace opportunities for all,” funded by a Ministry of Business, Innovation and Employment Endeavour Grant.

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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Pay Equity and Worker Outcomes: Evidence from New Zealand's Social Worker Settlement

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Abstract

Pay equity settlements seek to correct historically low pay in female-dominated occupations by aligning wages more closely with comparable work. Yet there is limited quasi-experimental evidence on what these settlements actually do to workers' earnings, income, and employment. We study the 2023 extension of New Zealand's social worker pay equity settlement to workers in community and iwi organisations. Using linked Census and administrative data from Stats NZ's Integrated Data Infrastructure, we use a doubly robust difference-in-differences design comparing NGO social workers with non-social workers before and after the settlement, adjusting for observable differences in characteristics. Our estimates show that the settlement increased annual earnings by about $10,100, or 17% of baseline earnings. Total income also increased, but by less than earnings, suggesting partial offset through other income components. Benefit receipt fell, and employment retention increased by 1.8 percentage points. We find little short-run evidence of effects on administrative indicators of health and justice contact, and no evidence of an immediate increase in social work education enrolment. The results show that pay equity settlements can operate as meaningful labour-market interventions, raising realised earnings and strengthening employment attachment in female-dominated care occupations, even when implementation occurs through publicly funded non-government providers rather than direct public-sector wage setting.

JEL: J16; J31; J38; J45; C23
Keywords: pay equity; social work; female-dominated occupations; wage-setting policy

Disclaimer:

Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the authors, not Stats NZ or individual data suppliers. The results in this paper are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI), which is managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated data.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of the limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

This paper sits within a wider research programme, "Boosting productivity growth through creating equal workplace opportunities for all", funded by a Ministry of Business, Innovation and Employment Endeavour Grant.

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1 Introduction

Pay equity settlements aim to address the historically lower pay of work performed in female-dominated occupations relative to comparable work. They differ from equal pay policies (which examine whether women and men are paid the same for the same or substantially similar work) and instead focus on whether work performed mainly by women has been paid less than work requiring comparable skills, responsibility, effort, and working conditions. Pay equity, the right to equal pay for work of equal value, is a fundamental human right. It is protected in many human rights instruments including the Universal Declaration of Human Rights and the Convention on the Elimination of all forms of Discrimination Against Women, which was ratified by New Zealand in 1985.

Despite the policy importance of pay equity, there is limited quasi-experimental evidence on what happens after pay equity settlements are implemented. Much of the existing literature documents wage penalties associated with female-dominated occupations and care work (Barron & West, 2013; Budig & Misra, 2010; Catanzarite, 2003; England, 2017; Folbre et al., 2023; Murphy & Oesch, 2016). A related literature examines the legal, institutional, and political development of pay equity and comparable worth policies (Baker & Fortin, 2004; Charlesworth & Heap, 2020; McGregor & Davies, 2019; Parker & Donnelly, 2020). Prior literature therefore provides a strong rationale for pay equity interventions, but a key knowledge gap is the important empirical question of whether settlements that raise pay in female-dominated occupations translate into realised improvements in workers' labour-market outcomes?

This question matters because the effects of a pay equity settlement are not mechanically determined by the headline pay correction. The 2023 extension was partly a response to the pay gap that emerged after the earlier Oranga Tamariki settlement, covering social workers employed by the government agency responsible for child protection and youth services, raised pay for these state-employed social workers but did not cover social workers employed by non-government organisations. Extending the settlement to the funded sector was intended to align pay more closely across workers doing similar social work roles in different institutional settings. However, realised effects may differ from formal settlement terms. Higher wage rates may raise earnings, but the size of the earnings gain will depend on hours worked, job continuity, and whether funding changes translate into observed pay. Total income may also increase by less than earnings if other income sources fall, including means-tested government assistance. Implementation may depend on how employers classify roles, whether workers are identified as social workers or as doing substantially similar work, and whether workers are employed in roles covered by the settlement. Settlements may also affect employment attachment if higher pay changes the incentive to remain in employment or in the occupation. Evaluating pay equity settlements therefore requires evidence on realised outcomes after implementation, not only settlement terms or pay scales.

This paper studies the NGO social worker pay equity settlement process, focusing on its wider 2023 extension to eligible social workers in community and iwi organisations that receive government funding. For simplicity, we refer to social workers in these organisations as NGO social workers throughout the paper. Social work is a highly female-dominated care occupation with clear public importance. Many social workers, however, are employed outside the core state sector, in organisations that deliver publicly funded social services. This setting allows us to examine whether a government-funded pay equity settlement translated into realised earnings, income, and employment outcomes for workers outside direct public-sector employment. We also examine selected health and justice outcomes to assess whether the settlement affected administratively recorded indicators of wellbeing

and education outcomes to assess potential changes in social-work training and occupational entry.

New Zealand is also a valuable setting because pay equity has been a major policy issue over the past decade. The Terranova aged-care case established that the Equal Pay Act could be used to address the lower pay of work performed in female-dominated occupations relative to comparable work (NZ Government, 2023; Parker & Donnelly, 2020). The Equal Pay Amendment Act 2020 then created a clearer statutory process for raising and settling pay equity claims (NZ Government, 2020). Social work was one of the occupations affected by this modern pay equity framework. This paper focuses on the NGO social worker settlement process, specifically the 2023 extension to eligible social workers in the wider government-funded community and iwi sector.

We combine occupation information from the Census with administrative data on earnings, total income, benefit receipt, employment, education, health, and justice outcomes from Stats NZ's Integrated Data Infrastructure (IDI). Our main analysis uses a doubly robust difference-in-differences (DiD) design comparing NGO social workers with non-social workers before and after the settlement, adjusting for observable differences in demographic and area-level characteristics. We identify treated workers using 2023 Census occupation and Inland Revenue sector information, focusing on social workers employed in private non-profit organisations serving households.[1] We also estimate repeated cross-sectional specifications using the 2018 and 2023 Censuses as a workforce-level check, and examine employment retention and heterogeneity in earnings effects to assess whether the settlement affected attachment to employment and whether gains were concentrated in particular groups.

Our estimates show that the settlement substantially increased earnings. In the main panel specification, annual earnings increased by about $10,100 relative to the comparison group, equivalent to 17% of baseline earnings. Total income also increased, but by less than earnings. This suggests that the settlement raised workers' overall economic resources, while also implying some offset through other income components. Benefit receipt fell by about $420.

We also find evidence of stronger employment attachment. NGO social workers were 1.8 percentage points more likely to remain employed one year after the Census reference point, relative to the comparison group. However, the estimates do not show clear evidence of greater same-employer retention. The employment results therefore suggest continued employment rather than necessarily same-employer job stability.

By contrast, we find limited short-run evidence of effects on the administrative health and justice outcomes available in the IDI. Estimated effects on hospitalisation, ACC claims, substance use disorders, convictions, and police-recorded offending are small and statistically insignificant. The estimates for anxiety and mood disorders and police-recorded victimisation are negative and statistically significant at the 10% level, but should be interpreted cautiously given the short follow-up period and the limited number of outcomes examined. As we are only able to capture administratively recorded events, we cannot measure broader aspects of wellbeing, such as stress, life satisfaction, job satisfaction, or day-to-day working conditions. The absence of statistically significant effects on the measured outcomes should therefore not necessarily be interpreted as evidence that the settlement had no wider wellbeing effects. We also find no evidence of an immediate increase in tertiary enrolment or social work programme enrolment among treated workers. This does not rule out a qualification response, since new entrants may respond with a lag and enrolment is an imperfect proxy for becoming formally registered or registerable.

[1] "Private non-profit organisations serving households" is an institutional-sector classification. In this context, it refers to non-profit organisations outside government and the business sector that provide services to households or communities. It does not mean that workers are employed by private households.

This paper makes three contributions. First, it provides new quasi-experimental evidence on the realised effects of a pay equity settlement in a highly female-dominated care occupation. Second, it contributes to the literature on gendered occupational pay differences by showing how a policy-driven pay correction affects earnings, total income, benefit receipt, and employment attachment. Third, it adds to evidence on wage-setting in publicly funded care and social-service sectors, where workers may be employed outside the state sector even though the services they provide depend heavily on public funding. The results show that pay equity settlements can operate as meaningful labour-market interventions, raising realised earnings and strengthening employment attachment. They also show why these effects cannot be inferred mechanically from settlement terms alone: implementation depends on funding and contracting arrangements, role classification, hours worked, employment continuity, and interactions with other income sources.

2 Institutional background and related literature

2.1 Institutional background

Pay equity in New Zealand sits within a longer history of equal pay and gender equity regulation. The Equal Pay Act 1972 prohibited gender-based discrimination in remuneration, but for many years its practical application focused mainly on equal pay for the same or substantially similar work. The modern pay equity framework developed after the Terranova litigation, a landmark case concerning whether low pay in a female-dominated care occupation reflected gender-based undervaluation. The case established that the Equal Pay Act could be used to address the undervaluation of work performed in female-dominated occupations, rather than only unequal pay between men and women undertaking the same job (NZ Government, 2023; Parker & Donnelly, 2020).

Following the Terranova case, a Joint Working Group of government, union, and employer representatives developed principles for a bargaining-based pay equity process. These principles were later incorporated into the Equal Pay Amendment Act 2020, which created a statutory process for employees and unions to raise and resolve pay equity claims with employers outside the courts (NZ Government, 2020, 2023). The 2020 framework distinguishes pay equity from equal pay. Equal pay concerns whether women and men receive the same remuneration for the same or substantially similar work. Pay equity, as the term is used in New Zealand's pay equity framework, concerns whether work performed in traditionally female-dominated occupations has been undervalued relative to work requiring comparable skills, responsibility, effort, and working conditions.

Social work was one of the early occupations in which this modern pay equity framework was applied. In 2018, the New Zealand Cabinet agreed to fund a pay equity settlement for Oranga Tamariki social workers, following an agreement in principle between Oranga Tamariki and the Public Service Association (PSA, a major public- and community-sector union). The settlement applied to more than 1,300 Oranga Tamariki social workers and involved an average salary increase of 30.6% over two years (NZ Government, 2018). This settlement recognised the historical undervaluation of statutory social work, which is predominantly performed by women.

However, the Oranga Tamariki settlement did not cover social workers employed by non-government organisations delivering social, health, and education services on behalf of the Crown. This created a pay gap between statutory social workers and community-based social workers, with government advice noting that the difference would make it difficult for NGO employers to attract and retain social work staff (Cabinet, 2022b, 2023).

In August 2019, the PSA raised a pay equity claim in five NGOs for social workers and people doing the same or substantially similar work. The claim covered registered social workers, registered professionals employed in social work roles, professionals undertaking work substantially similar to social work, and registered social workers or other registered professionals leading social work practice (Cabinet, 2022b; Social Service Providers, 2023).

The NGO social worker claim was settled in 2022. Oranga Tamariki social workers were used as a comparator, because their work had already been assessed through a pay equity settlement. The settlement established a new remuneration framework, including pay bands linked to the four categories of work, and also addressed professional support costs such as registration, professional supervision, and professional development (Cabinet, 2022a; Social Service Providers, 2023).

The policy evaluated in this paper is the subsequent extension of that settlement to the wider funded sector. In November 2022, Cabinet agreed to extend the benefits of the settled NGO social worker claim to employees in community and iwi organisations who were doing the same or substantially similar work and whose roles were supported by Crown funding (Cabinet, 2022b; NZ Government, 2022). This was the first extension under the Framework for Oversight and Support of Pay Equity Claims in the Funded Sector. The funded sector refers to organisations outside the public sector that receive government funding to deliver services on behalf of the Crown (Cabinet, 2022b). This is relevant for interpretation because the settlement affected workers outside direct public-sector employment, but in organisations often funded by government to provide social services.

The relevance of the funded-sector extension is also supported by contemporary workforce survey evidence. The 2023 Annual Social Worker Workforce Survey reported that 28% of practising social-worker respondents worked for NGOs, while 8% worked for iwi-based organisations and 23% worked for health employers. The survey also identified recruitment and retention as the most commonly reported challenge facing the profession, and salary as one of the main barriers to entering or re-entering social work. Social workers employed by NGOs, health/hauora and iwi-based organisations were also more likely than Oranga Tamariki social workers to identify pay parity as a challenge for the profession (Social Workers Registration Board, 2023).

Implementation required a sector-wide data collection exercise to identify eligible providers and workers, assign workers to the relevant work categories, and calculate the funding needed to move them onto the new pay scale. The final data collection identified 5,008 eligible employees, equivalent to 4,503.6 full-time equivalent workers (Cabinet, 2023). In June 2023, Cabinet agreed to appropriate $435.58 million over four years to funding agencies to implement the extension for these workers. The extension took effect from 1 July 2023 and was implemented through variations or updates to funding contracts, requiring agencies to fund providers to implement the new pay equity rates and relevant terms and conditions as a minimum. Government advice estimated that the extension would deliver an average pay correction of 27.1% (Cabinet, 2023).

This setting has several features that make it useful for studying the labour-market effects of pay equity. First, the settlement was large enough to produce a meaningful change in earnings for affected workers. Second, it applied to a highly female-dominated occupation where the policy rationale was explicitly the correction of gender-based undervaluation. Third, the settlement applied to workers outside direct public-sector employment, so implementation depended on funding and contracting arrangements with community and iwi organisations rather than a straightforward change to a government pay scale. This makes it useful for examining whether pay equity funding translated into realised earnings gains for workers in the government-funded non-profit sector. Fourth, the extension

had a clear formal start date, taking effect from 1 July 2023. We therefore treat July 2023 as the start of the post-treatment period in the main analysis, while allowing that realised earnings effects may have appeared with some delay as the settlement was implemented through funding and contracting arrangements.

The statutory framework has continued to change since the settlement studied here. In 2025, amendments to the Equal Pay Act changed the process for raising and resolving pay equity claims, discontinued current claims, and made review clauses in existing settlements unenforceable (NZ Government, 2025). These changes occurred after the settlement and after the main post-treatment period in this study. They are therefore part of the wider policy context, but they occur after the treatment period analysed in this paper.

2.2 Related literature

This paper relates to three strands of literature. The first concerns the undervaluation of work performed in female-dominated occupations, especially care and social-service occupations. The second examines institutional responses to that undervaluation, including pay equity, comparable worth, and equal remuneration mechanisms. The third, much smaller strand examines the realised labour-market effects of wage revaluation policies. Overall, these strands suggest a clear gap: while there is substantial evidence on occupational undervaluation and on the legal and institutional frameworks designed to address it, there is much less causal evidence on what happens to workers after specific pay equity settlements are implemented.

A large body of research documents wage penalties associated with female-dominated occupations including care work. Foundational work on occupational devaluation argues that work associated with women is paid less than otherwise comparable work, providing an important conceptual basis for pay equity claims (England, 1992). Empirically, Murphy and Oesch (2016) show that movement into more female-dominated occupations is associated with sizeable wage penalties, although the magnitude of these penalties varies across institutional settings. Catanzarite (2003) similarly finds that the gender composition of occupations affects wages, rather than merely reflecting pre-existing wage differences across occupations. Related evidence shows that care work is often penalised, though the size of the penalty depends on institutions such as union strength, public-sector employment, wage inequality, and the structure of care provision (Barron & West, 2013; Budig & Misra, 2010; Folbre et al., 2023). This literature supports the interpretation of pay equity as a response to structural undervaluation, rather than only to unequal pay within the same job.

A related occupation-specific literature suggests that social work is a plausible setting in which undervaluation may be economically meaningful. Studies of social work pay document persistent salary inequities within the profession, as well as relatively low earnings compared with workers with similar education and skills in other occupations (Lane & Flowers, 2015; Lewis, 2018). These studies do not evaluate pay equity directly, but they suggest that wage-setting in social work may matter for recruitment, retention, and workforce composition. This is especially relevant in New Zealand, where social work is a highly female-dominated occupation and where many social workers are employed in community and iwi organisations that deliver essential public services outside the core state sector, but often with government funding.

Broader New Zealand evidence on occupational sorting and the gender pay gap also motivates the relevance of pay equity. Meehan et al. (2025) show that occupational segregation between women and men remains substantial in New Zealand, even though it has fallen over time, and that women

remain concentrated in lower-paid occupational groups and comparatively lower-paid professional fields. Iusitini et al. (2024) show that the explained component of the gender pay gap is small, and even negative, once observed characteristics are taken into account, while industry remains one of the few positive contributors because women are more concentrated in lower-paid industries. These findings do not evaluate pay equity settlements, but they show that occupational and industry sorting, and the valuation of female-dominated work, remain important features of the New Zealand labour market.

The second strand of literature focuses on institutional responses to lower pay in female-dominated work. In New Zealand, Parker and Donnelly (2020) provide a detailed account of the regulatory history of modern pay equity and the Terranova aged-care case, while McGregor and Davies (2019) examine the mobilisation and institutional conditions that led to the 2017 aged-care settlement. Charlesworth and Heap (2020) emphasise the long-term union-community coalitions and institutional conditions that enabled the settlement. Post-settlement qualitative evidence from Douglas and Ravenswood (2019) shows that care and support workers and managers generally supported the wage increases, but also identified implementation challenges, including funding pressures for providers, reductions in hours for some workers, increased workloads and duties, tensions around qualification equivalence and pay relativities, and concerns about service quality. This literature is central to understanding how pay equity claims became actionable in New Zealand and how settlements were experienced in practice. However, it does not provide quantitative estimates of effects on individual workers' earnings, total income, benefit receipt, or employment attachment.

The Australian literature provides a closely related institutional comparison. Research on equal remuneration and gender-based undervaluation in social, community, and care services examines how legal and industrial-relations systems recognise and respond to undervaluation (Bailey et al., 2014; Charlesworth & MacDonald, 2015; Connolly et al., 2012; Healy & Kidd, 2013; Mikelsons, 2020). This work shows that the maintenance of wage gains depends on the institutional environment in which settlements or decisions are embedded. It also highlights the difficulty of using standard wage-setting mechanisms to correct undervaluation in female-dominated work. However, like much of the New Zealand literature, it focuses mainly on institutional processes rather than the realised labour-market outcomes of affected workers after implementation.

The third strand is the older comparable worth literature, which comes closest to evaluating wage revaluation policies. This literature examines whether female-dominated occupations are paid less than comparable male-dominated occupations, and what might happen if wages in female-dominated jobs were raised by policy (Ehrenberg, 1988; Ehrenberg & Smith, 1987; Johnson & Solon, 1984). Much of this work either estimates pay differences between male- and female-dominated jobs, or uses simulation-based approaches to assess potential employment effects, rather than estimating realised post-intervention effects. Baker and Fortin (2004) provide the closest empirical analogue to the present paper, using Ontario's pay equity legislation as a natural experiment. They find substantial implementation and compliance problems, especially among smaller firms, and only modest positive wage effects for women in female-dominated jobs in sectors where compliance was relatively strict. Their most consistent wage results are negative effects for women in male-dominated jobs and men in female-dominated jobs. Their study is therefore important because it examines a real policy change, but it evaluates a broad statutory regime rather than a specific negotiated settlement, and relies on survey data rather than linked administrative records. It also highlights the importance of the implementation process and compliance, since the effects of pay equity legislation may differ across firms and

sectors depending on whether the policy meaningfully changes realised pay.

Adjacent evidence from care-sector wage policies also supports examining outcomes beyond pay. Studies of wage increases in home care and long-term care show that wage policy can affect retention, employment stability, and job conditions, not only hourly wages (Baughman & Smith, 2010; Howes, 2005; Vadean & Allan, 2021). For example, evidence from home care links higher wages and benefits to improved worker retention, while evidence from long-term care suggests that wage floors may affect employment conditions even when aggregate employment effects are difficult to detect. These studies are not pay equity evaluations, but they are useful methodological and substantive analogues because they examine wage interventions in care-intensive, publicly funded, and female-dominated sectors.

This paper also relates more broadly to the large economics literature on minimum wages and wage regulation (e.g. Card & Krueger, 1994; Cengiz et al., 2019; Dube, 2019). This literature is relevant because it examines how wage-setting policies affect earnings, employment, and worker retention. However, pay equity settlements differ from minimum-wage policies in important ways. They are not general wage floors applying to low-wage workers across the labour market. Instead, they are targeted interventions intended to correct the undervaluation of specific female-dominated occupations, often through occupational pay scales, progression structures, role classifications, and related employment conditions. For this reason, evidence from minimum-wage research provides useful background on wage-policy effects, but does not directly answer whether pay equity settlements translate into realised gains for workers in covered occupations.

Closest to our setting, Research NZ evaluate the original five-employer NGO social-worker pay equity settlement based on surveys of workers and employers (Research New Zealand, n.d.). The findings show substantial improvements in perceived fair pay, disposable income, motivation, self-esteem, and mental wellbeing after the settlement. While these findings are based on survey responses and therefore capture perceived outcomes among respondents, they suggest that pay equity settlements may have effects beyond earnings and retention, including on broader wellbeing. Recent New Zealand evidence on social-worker wellbeing reinforces this point. Pascoe and Stanley-Clarke (2025) examine survey data on social-worker wellbeing and workforce conditions, focusing on collegiality, workloads, and management support. Their findings suggest that wellbeing is shaped by organisational and workplace conditions, not only by pay. The SWRB workforce survey similarly identifies burnout, high workloads, poor pay, workplace morale, professional support, and work–life balance as relevant to workforce sustainability (Pascoe & Stanley-Clarke, 2025; Social Workers Registration Board, 2023). This survey evidence motivates examining outcomes beyond earnings, while also highlighting that administrative health and justice data capture only a narrow subset of worker wellbeing.

Against this background, the present paper addresses a specific empirical gap. There is substantial research on the existence of lower pay in female-dominated work, and on the institutional development of pay equity frameworks. There is also some qualitative and survey-based evidence on specific New Zealand settlements. There is much less quasi-experimental evidence on the realised labour-market effects of implemented settlements. To our knowledge, there is no published quantitative post-settlement evaluation of a New Zealand pay equity claim that follows affected workers' earnings, employment attachment, benefit receipt, total income, and related outcomes using linked administrative microdata. By estimating the effects of the NGO social worker pay equity settlement process and its wider extension, this paper provides new evidence on the realised consequences of pay equity in a highly female-dominated care occupation.

3 Data, sample, and empirical strategy

3.1 Data sources and outcomes

Our analysis uses linked administrative and Census data from Stats NZ's Integrated Data Infrastructure (IDI). We use the 2018 and 2023 Censuses to identify workers' occupation, and Inland Revenue (IR) data to measure earnings, employment, benefit receipt, and sector of employment. The 2023 Census is central to the main analysis because it provides an occupation measure in March 2023, shortly before the pay equity extension took effect on 1 July 2023.

Our main labour-market outcomes are earnings, benefit receipt, and employment attachment, sourced from IR tax records. Earnings include salaries and wages from paid employment. Benefit receipt captures taxable income support payments recorded in the tax data. Employment attachment is measured from observed employment in the tax records and captures whether a person remains in paid employment, not whether they remain in the same sector, occupation, or employer. For the transition analysis, we also use employer information to distinguish between remaining with the same employer, moving to a different employer, and having no observed employment one year later. However, occupation is observed in the Census rather than in the tax records, so we cannot determine whether workers who remain employed one year later are still employed as social workers. We also analyse hourly wages for individuals with available information on paid hours from Inland Revenue payday-filing records. These hourly wage estimates should be interpreted cautiously because paid-hours information is optional for employers and is missing for many employment records (Stats NZ, 2026). We also estimate effects on total income using the IDI total income module (Stats NZ, 2024), which is designed to capture income from all sources observable in the administrative data, including non-taxable income support, ACC payments, and self-employment income.

We provide descriptive analysis of selected variables at a quarterly frequency using Employment Information-Employee (EI-E) records. These are payroll-based administrative earnings records from IR that include employment spell start and end dates, which we use to attribute earnings to quarters. This avoids relying on pay dates and reduces mechanical quarter-to-quarter fluctuations that can arise from differences in the number and timing of pay dates across quarters. Most of the analysis aggregates outcomes to an annual level. All income measures are adjusted for inflation.

We also examine selected health and justice outcomes. Following Social Investment Agency (2019), we use two indicators of mental health and addiction conditions constructed from health administrative data, including Programme for the Integration of Mental Health Data (PRIMHD), publicly funded hospital discharge records, and pharmaceutical dispensing data. The first identifies anxiety and mood disorders, including depression and related mood conditions. The second identifies substance use disorders, including alcohol- and drug-related conditions captured through treatment, service use, or medication records. We also examine hospitalisation and ACC claims. From the justice sector, we use data on convictions, police-recorded offending, and police-recorded victimisation.

Where relevant, we examine education outcomes as secondary outcomes. We identify enrolment in social work programmes using NZSCED code 090501. These outcomes allow us to assess whether the settlement affected social work training enrolment, but they do not directly measure entry into social work employment. This distinction is important because the treated group consists of workers already observed as social workers in the 2023 Census. For these workers, social work programme enrolment may reflect ongoing study, qualification completion, registration-related requirements, or career progression. For comparison workers, enrolment may be more closely related to a potential

pathway into social work. We therefore interpret the education estimates cautiously and do not treat them as direct evidence of occupational entry.

3.2 Treatment and comparison groups

The policy evaluated in this paper is the 2023 extension of the social worker pay equity settlement to eligible workers in community and iwi organisations. In the administrative data, we identify treated workers by combining Census occupation information with IR information on sector of employment. The treated group consists of people who reported social work as their occupation in the 2023 Census and who were employed in the private non-profit organisations serving households sector at the time of the Census.

This treatment definition is a data-based proxy for workers covered by the settlement. It is intentionally specific: it aims to identify people observed in the data as social workers in the non-government, community-based part of the sector. It is therefore narrower than the administrative eligibility count used to implement the settlement. That count was based on a sector-wide implementation process that identified eligible workers, including some workers doing the same or substantially similar work under different professional titles. We do not observe that eligibility assessment directly in the IDI, nor do we observe the detailed role classifications used to assign workers to settlement categories. Instead, our treatment definition requires a Census occupation of social worker and employment in the relevant IR sector. The analysis sample also depends on Census participation, residence in New Zealand in the relevant periods, and linkage to administrative records. We therefore interpret the estimates as effects for the identifiable group of NGO social workers, rather than for every worker eligible under the settlement.

The comparison group in the main analysis is all non-social workers. This broad comparison group provides a large set of workers exposed to the same macroeconomic environment but not directly affected by the social worker pay equity settlement. In the descriptive analysis, we also show outcomes for primary school teachers and for occupations used as comparators in the Oranga Tamariki social worker pay equity claim, namely police officers, detectives, civil engineers, and air traffic controllers. These groups are not the main control group in the DiD analysis. They are included to place the pay and workforce profile of NGO social workers in context.

3.3 Timing and estimation

The pay equity extension took effect on 1 July 2023. We therefore define July 2023 to June 2024 as the main post-treatment period. For the main analysis, we use July 2021 to June 2022 as the pre-treatment period. This period predates the sequence of government decisions in late 2022 and early 2023 that led to the extension of the settlement, including the decision to extend the settlement beyond the five original NGOs and the subsequent data collection used to identify the eligible workforce.

A complication is that the 2023 extension followed an earlier NGO social worker settlement. The earlier settlement applied to the five NGOs involved in the original claim and had an effective date of 1 July 2022, while the wider funded-sector extension took effect from 1 July 2023. Our main pre-treatment period, July 2021 to June 2022, predates both implementation dates. However, because our treatment group is identified using occupation and sector information rather than direct settlement coverage, it may include workers in the five original NGOs as well as workers covered only by the later extension. The estimates should therefore be interpreted as the effect of the NGO social worker pay

equity settlement process and its wider extension for the identifiable NGO social worker workforce, rather than as a clean estimate of the 2023 extension alone.

For outcomes measured over tax years in the IDI total income module, we use April 2021 to March 2022 as the pre-treatment period and April 2023 to March 2024 as the post-treatment period. For education outcomes, which are measured over calendar years, we use 2022 as the pre-treatment period and 2024 as the post-treatment period.

Our main analysis uses a panel difference-in-differences design that follows the same individuals before and after the settlement. The sample includes people who participated in the 2023 Census, reported an occupation, and were resident in New Zealand in both the pre- and post-treatment outcome periods according to the Administrative Population Census (Stats NZ, 2022). Outcomes are then measured over annual pre- and post-treatment windows, and may include periods with no recorded earnings or employment.

We estimate treatment effects using the doubly robust DiD estimator proposed by Sant'Anna and Zhao (2020). This estimator combines outcome regression and inverse probability weighting, and is consistent if either the propensity score model or the outcome regression model is correctly specified. The covariates used in both models are age, sex, prioritised ethnicity, region, and the NZ Deprivation Score. Prioritised ethnicity distinguishes European, Māori, Pacific peoples, Asian, and Other ethnicities.

The key identifying assumption is a conditional parallel trends assumption: in the absence of the pay equity settlement, outcomes for NGO social workers would have changed in the same way as outcomes for the comparison group, after adjusting for observed differences in age, sex, ethnicity, region, and area-level deprivation. This assumption is not directly testable because we do not observe the counterfactual outcomes that NGO social workers would have had without the settlement. However, pre-treatment descriptive trends provide a useful check on whether earnings, wages, and hours were already moving differently for NGO social workers before implementation.

There are two main threats to this interpretation. First, NGO social workers may have had different underlying trends from other workers even in the absence of the settlement. For example, demand for social work services, funding conditions, or broader labour-market pressures in the non-profit social services sector may have changed differently from the wider labour market. Second, treatment status is defined using 2023 Census occupation and sector information, shortly before the wider extension took effect. If workers moved into or out of NGO social work in anticipation of the settlement, the treated group may partly reflect pre-implementation sorting rather than only workers exposed to the settlement. We therefore interpret the panel estimates alongside several supporting analyses, including descriptive trends, employment-retention outcomes, repeated cross-sectional estimates, and heterogeneity by occupational continuity.

We estimate a repeated cross-sectional specification as one of our supplementary analyses. Unlike the main panel analysis, it does not follow the same individuals over time. Instead, the baseline treated group is defined using occupation and sector information from the 2018 Census, while the post-treatment treated group is defined using occupation and sector information from the 2023 Census. This allows the composition of the workforce to differ across Census years and provides a broader workforce-level comparison. It should not be interpreted as a long-term effect of the settlement on the same individuals. Instead, it is a supplementary analysis of changes in the treated occupation and sector relative to other workers.

3.4 Employment retention and job stability

We examine employment retention and job stability using transition outcomes. These outcomes measure whether individuals remain employed, remain with the same employer, move to a different employer, or have no recorded employment one year after a reference point. For the post-treatment period, we measure transitions from March 2023 to March 2024. For the pre-treatment comparison period, we measure transitions from March 2018 to March 2019. In each case, occupation is measured in the most recent Census, and the same DiD framework is used to compare NGO social workers with non-social workers. These outcomes measure employment attachment and employer (i.e. organisation) attachment, rather than occupational retention. Because occupation is measured in the Census and is not observed again at the one-year follow-up point, we cannot directly assess whether workers remained employed as social workers.

These transition outcomes test whether the settlement affected workforce attachment, not only pay. This distinction is important because pay equity settlements may influence retention, job mobility, and employment continuity even when effects on hours or employment levels are less clear.

4 Descriptive evidence

We compare NGO social workers with all non-social workers. For descriptive context, we also report characteristics and time trends for two additional groups. First, we include primary school teachers (ANZSCO 241213), another highly female-dominated professional occupation with substantial public funding. Primary teachers had lump-sum payments and salary-scale increases through the 2023 Primary Teachers' Collective Agreement, and were also covered by a pay equity claim initiated in 2020, although that claim was later discontinued following the 2025 amendments to the Equal Pay Act. This provides a useful reference point for interpreting the earnings profile of NGO social workers relative to a broadly comparable female-dominated workforce. Second, we include a set of comparator occupations used in the Oranga Tamariki social worker pay equity claim, namely police constables, detectives, civil engineers, and air traffic controllers.[2] These occupations were used in the pay equity process to assess the value of social work relative to work in more male-dominated occupations requiring comparable skills, responsibility, effort, and working conditions. These groups are included only to place NGO social workers in context; they are not the main comparison group used in the difference-in-differences analysis.

4.1 Individual characteristics

Table 1 shows that NGO social workers differ from the broader workforce in several important ways. They are older on average than other employees, with a mean age of 45.3 compared with 42.3. The workforce is also strongly female-dominated: 84.0% of NGO social workers are women, compared with 48.0% of other employees. This is similar to primary school teachers, where 86.2% are women, but very different from the comparator occupations, where only 23.4% are women. This difference is expected, given that these occupations were used as comparators in the pay equity process to assess the value of female-dominated social work against work in more male-dominated occupations.

The ethnic composition of NGO social workers also differs from the broader workforce. NGO social workers are less likely to be European than other employees, and more likely to be Māori or

[2]The comparator occupations named in the claim were police constables, detectives, air traffic controllers, and engineers employed in local government. We map these to the closest corresponding occupations in ANZSCO.

Pacific peoples. Around one-third of NGO social workers are Māori, compared with 14.7% of other employees, and 14.5% are Pacific peoples, compared with 7.1% of other employees. NGO social workers are also less likely to be Asian than other employees. NGO social workers live in areas with higher average NZDep2023 scores than the other groups, suggesting greater average area-level socioeconomic deprivation.

There are also differences in regional distribution. Compared with other employees, NGO social workers are less concentrated in Auckland, where 27.3% of NGO social workers are located compared with 33.5% of other employees. They are relatively more concentrated in several regions outside Auckland, including Northland, Bay of Plenty, Gisborne, Manawatū-Whanganui, Canterbury, and Nelson.

These differences are important for interpreting the descriptive comparisons. In the main analysis, we therefore use a doubly robust difference-in-differences estimator that adjusts for age, sex, ethnicity, region, and area-level deprivation.

Table 1: Worker characteristics

	Social workers	Other employees		
		All	Teacher	Comparator
Age	45.3	42.3	45.5	41.4
Female (%)	84.0	48.0	86.2	23.4
Ethnicity (%)				
European	61.5	68.6	84.8	76.5
Māori	33.4	14.7	13.7	11.2
Pacific People	14.5	7.1	4.3	5.4
Asian	8.0	18.1	6.3	14.8
Other	3.6	3.2	1.7	3.2
NZ Deprivation Score	1025.7	991.9	975.3	967.3
Region (%)				
Northland Region	4.1	3.4	4.0	3.3
Auckland	27.3	33.5	31.4	35.1
Waikato Region	10.1	9.7	10.6	9.6
Bay of Plenty Region	8.0	6.3	7.0	6.6
Gisborne Region	1.5	0.9	1.2	1.1
Hawke's Bay Region	3.4	3.4	3.7	3.1
Taranaki Region	2.6	2.4	2.9	2.1
Manawatu-Whanganui Region	6.7	4.7	5.2	4.4
Wellington Region	9.6	11.2	10.2	11.1
West Coast Region	1.0	0.6	0.6	0.6
Canterbury Region	14.5	13.5	13.5	13.6
Otago Region	4.7	5.0	4.5	4.7
Southland Region	2.4	2.1	2.1	1.6
Tasman Region	1.0	1.2	1.2	1.0
Nelson Region	2.2	1.0	0.9	1.1
Marlborough Region	1.0	1.0	0.9	1.0
Area Outside Region		0.0		
N	2,406	2,614,200	30,090	18,414

Notes: This table reports characteristics of NGO social workers, all non-social workers, primary school teachers, and people in comparator occupations. Occupation is measured as at the 2023 Census. Time-varying characteristics are measured at the time of the 2023 Census, in March 2023. NZDep2023 score is a continuous area-level deprivation score scaled to have mean 1000 and standard deviation 100. Higher values indicate higher area-level socioeconomic deprivation.

4.2 Earnings and wages

Figure 1 shows mean and median quarterly earnings for NGO social workers, all non-social workers, primary school teachers, and the comparator occupations. The figure uses quarterly Employment Information-Employee (EI-E) data, with earnings attributed to quarters using employment spell start and end dates as described above. The quarterly figures should still be interpreted as descriptive evidence; the main difference-in-differences estimates use annual outcome windows.

The quarterly series show a clear increase in earnings for NGO social workers after the settlement formally took effect on 1 July 2023. The largest increase appears between the third and fourth quarters of 2023, with earnings peaking in the first quarter of 2024. This pattern is consistent with the settlement having a clear formal start date, but translating into realised earnings with a short implementation delay as funding agencies varied contracts and employers moved workers onto the new pay scales.

The primary school teacher series also shows a noticeable temporary spike around 2023q3. This likely reflects the 2023 Primary Teachers' Collective Agreement settlement rather than a broader labour-market trend. That agreement was ratified in June 2023 and included lump-sum payments, with Education Payroll scheduled to implement the lump-sum payments by 26 July 2023 and the rest of the settlement by 6 September 2023 (Ministry of Education, 2023). This timing aligns with the temporary increase shown for primary school teachers in 2023q3. By contrast, the quarterly earnings for all other employees and the comparator occupations are relatively stable over 2023. This suggests that the increase for NGO social workers in late 2023 is unlikely to reflect a broad economy-wide earnings shock or a common seasonal pattern affecting all groups.

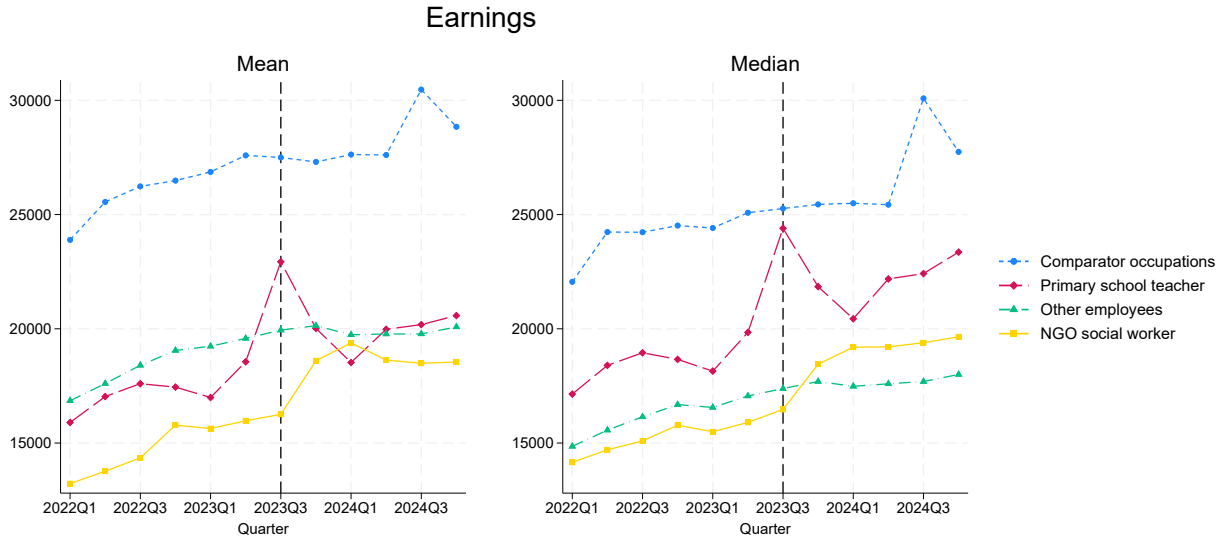

Figure 1: Quarterly earnings

Notes: Mean earnings are shown on the left and median earnings on the right. The vertical line marks the third quarter of 2023, the quarter in which the settlement took effect.

Figure 2 shows hourly wages and hours worked for workers with information on hours. The figure focuses on NGO social workers, other employees, and the comparator occupations.

Hourly wages for NGO social workers rise after implementation, with noticeable increases in the last quarter of 2023 and the first quarter of 2024, similar to the pattern for earnings. Hours worked change much less. This pattern is consistent with the settlement operating primarily through higher wage rates, rather than through a large increase in hours worked. However, the hours-based results

should be interpreted cautiously because paid hours are not observed for all workers.

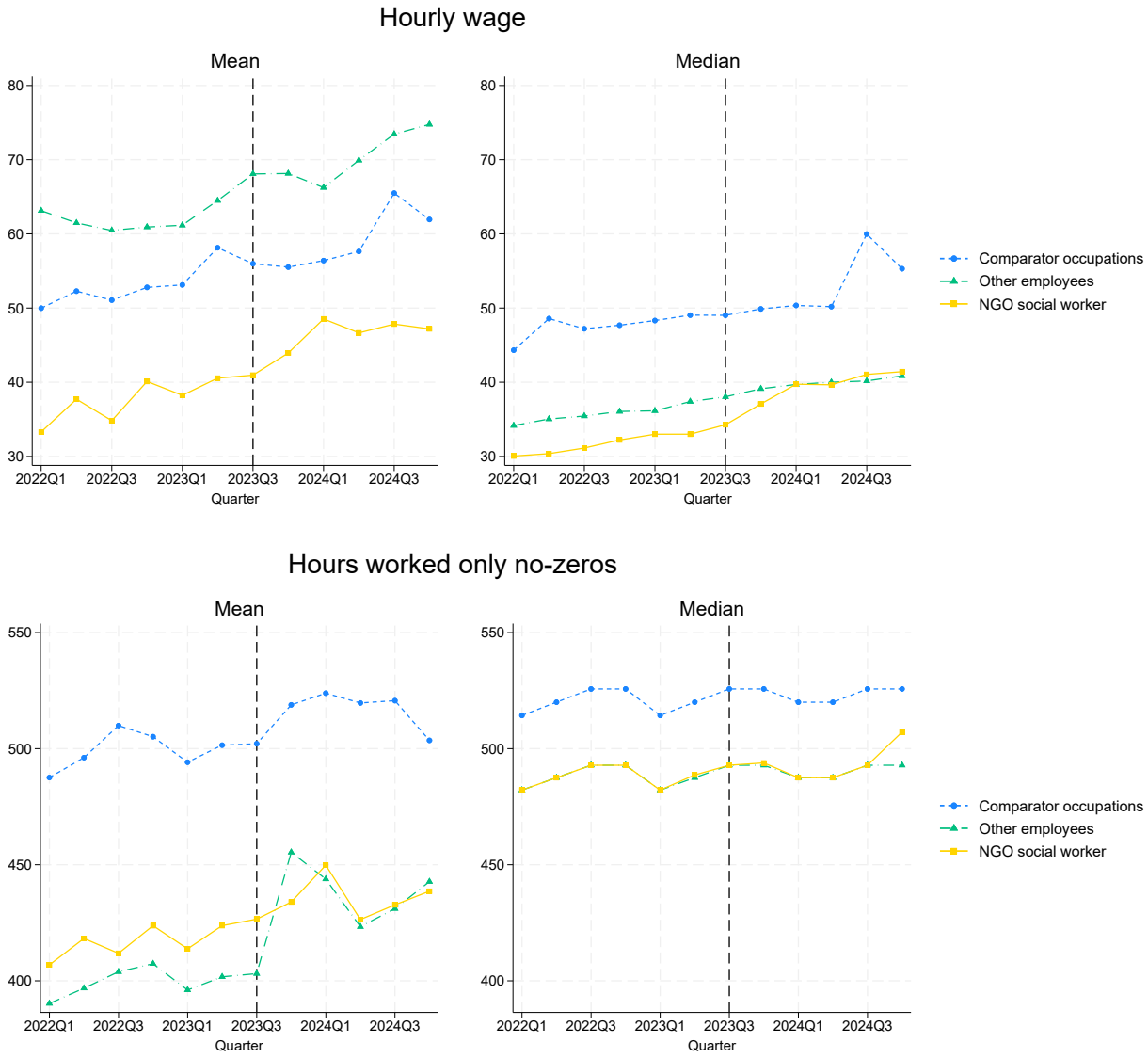

Figure 2: Hourly wages and hours per quarter

Notes: The upper panel shows hourly wages and the lower panel shows hours worked. In both panels, means are shown on the left and medians on the right. The vertical line marks the third quarter of 2023, the quarter in which the settlement took effect. Primary school teachers are excluded because paid-hours information for this group is not recorded on a directly comparable basis in the payday-filing data.

Annual earnings figures are reported in Appendix Figure A.1. These provide a supplementary check using the same year-ending-June aggregation as the main earnings outcome.

5 Main results

5.1 Main panel estimates

Table 2 reports the main panel difference-in-differences estimates. Columns 1 and 2 show the pre-treatment mean and the pre-post change for treated NGO social workers. Columns 3 and 4 report the DiD estimate and standard error, comparing changes for NGO social workers with changes for non-social workers.

The settlement substantially increased earnings. Average annual earnings for treated social workers

were $58,805 in the pre-treatment period and increased by $13,940 between the pre- and post-treatment periods. The DiD estimate is $10,133, or 17.2% of the baseline mean. This indicates that most of the observed increase in earnings was above the change experienced by the comparison group over the same period. The estimate is similar when the outcome is restricted to people with positive earnings, with an estimated effect of $9,494.

We also examine whether higher earnings translated into higher total income. Because total income is measured over tax years, the timing differs from the main annual earnings and benefit outcomes. The post-treatment year includes April to June 2023, before the settlement took effect, so the year-ending-March earnings effect is expected to be smaller than the corresponding year-ending-June estimate. For the year-ending-March, the estimated effect on earnings is $7,930, while the estimated effect on total income is $6,071. This suggests that the settlement increased workers' overall resources, but by less than the increase in earnings. This is consistent with some offset through changes in other income sources. This may reflect reductions in other entitlements, such as Working for Families or the Accommodation Supplement. Annual benefit payments also fell by $420.

We find little evidence of short-run effects on most health and justice outcomes. The estimated effects on hospitalisation, ACC claims, substance use disorders, convictions, and police-recorded offending are small and statistically insignificant. The estimates for anxiety and mood disorders and police-recorded victimisation are negative and statistically significant at the 10% level. These weakly significant results should be put in the context of the short follow-up period. Further, as explained earlier, these indicators are also limited measures of wellbeing. They capture administratively recorded health and justice events, rather than broader aspects of workers' lives such as stress, job satisfaction, life satisfaction, workload, or day-to-day working conditions. The absence of strong effects on these outcomes should therefore not be interpreted as evidence that the settlement had limited wider wellbeing effects.

The education enrolment estimates - in the last panel of Table 2 - are best interpreted cautiously. The settlement may have increased the incentive to obtain recognised social work qualifications because formal registration, or being register-able as a social worker, could affect whether workers were covered by the higher-paid social worker categories in the settlement. However, the short-run panel estimates show a decline in tertiary enrolment and social work programme enrolment among treated social workers relative to the comparison group. This does not necessarily imply that the settlement reduced interest in becoming formally qualified or registered. The education outcomes are measured over calendar years, and the panel sample consists of workers already observed as social workers in the 2023 Census. Changes in enrolment may therefore reflect existing workers completing qualifications, ageing out of study, or timing differences, rather than the response of new entrants or workers seeking to become eligible for settlement-covered roles. Appendix Figure B.1 provides descriptive evidence on social work tertiary enrolment over time.

Table 2: Effects of the pay equity settlement 2022 to 2024

	(1) Baseline mean	(2) Difference	(3) DiD Estimate	(4) Standard Error	(5) N
Labour market					
Earnings	58804.9	13939.7	10133.0***	(521.6)	3529866
Earnings only no-zeros	60523.0	12980.4	9494.4***	(495.0)	3280197
Benefits	983.3	−533.1	−420.1***	(85.7)	3529866
Earnings (year ending March)	57464.9	12879.0	7929.6***	(512.3)	3529866
Total income (year ending March)	66113.6	13227.4	6070.5***	(469.8)	3529866
Health outcomes					
Hospitalization	0.139	0.026	0.009	(0.010)	3529866
ACC Claim	0.288	0.026	−0.002	(0.012)	3529866
Anxiety and mood disorders	0.156	−0.004	−0.011*	(0.006)	3529866
Substance use disorders	0.006	0.000	−0.000	(0.002)	3529866
Justice sector					
Conviction	0.003		−0.001	(0.001)	3529866
Police recorded offence	0.005	−0.001	−0.003	(0.002)	3529866
Police recorded victimisation	0.045	−0.009	−0.011*	(0.006)	3529866
Educational enrolment					
Enrolment in tertiary education	0.134	−0.058	−0.050***	(0.008)	3529866
Enrolment in social work programme	0.068	−0.044	−0.044***	(0.006)	3529866

Notes: Columns 1 and 2 show the pre-treatment mean and the difference between pre and post-treatment period for social workers. Columns 3 to 5 show the DiD estimate, standard error, and number of observations. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.2 Employment retention and job stability

Table 3 examines whether the settlement affected employment retention and job stability. These outcomes use a different structure from the annual outcomes in Table 2. Rather than measuring total earnings or income over a year, they measure whether workers are still employed one year after the relevant Census reference point. For the pre-treatment period, we measure employment transitions from the 2018 Census to March 2019. For the post-treatment period, we measure transitions from the 2023 Census to March 2024. We distinguish between remaining employed with the same employer, remaining employed with a different employer, and having no recorded employment.

The results suggest that the settlement increased attachment to employment. The baseline probability of remaining employed was 91.5% for NGO social workers. This increased by 0.9 percentage points between the pre- and post-treatment periods, while the DiD estimate shows an increase of 1.8 percentage points relative to the comparison group. The corresponding estimate for having no recorded employment is mechanically the same in magnitude but negative, indicating a reduction in exits from employment.

The estimates for staying with the same employer and moving to a different employer are both positive but statistically insignificant. The point estimate for different-employer employment is larger than the point estimate for same-employer employment, which is consistent with some of the increase in employment attachment occurring through moves to other employers. However, the evidence is not strong enough to distinguish these margins clearly. Moreover, because occupation is from the Census data, it is not observed at the one-year follow-up point. Thus, we cannot tell whether individuals who remained employed, including those who moved to a different employer, remained employed as social workers. Overall, the results provide some evidence that the settlement strengthened employment attachment among NGO social workers, but not direct evidence that it increased retention in social

work per se.

Table 3: Effects of the pay equity on employment and job stability

	(1) Baseline mean	(2) Difference	(3) DiD Estimate	(4) Standard Error	(5) N
Still employed	0.915	0.009	0.018**	(0.008)	3644943
Same employer	0.751	0.003	0.004	(0.012)	3644943
Different employer	0.163	0.007	0.014	(0.011)	3644943
No longer in employment	0.085	−0.008	−0.018**	(0.008)	3644943

Notes: Columns 1 and 2 show the pre-treatment mean and the difference between pre and post-treatment period for social workers. Columns 3 to 5 show the DiD estimate, standard error, and number of observations. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.3 Repeated cross-sectional results

Table 4 reports a supplementary repeated cross-sectional analysis. Unlike the main panel analysis, this specification does not follow the same individuals over time. Instead, it compares workers observed in the relevant occupation and sector in the 2018 Census with workers observed in the relevant occupation and sector in the 2023 Census. The baseline outcomes are measured before the settlement period, while the post-treatment outcomes are measured after the 2023 extension took effect.

This analysis is useful for three reasons. First, it provides a workforce-level check on the main panel results. The panel estimates focus on people observed in the 2023 Census and therefore describe changes for workers who were in the workforce shortly before implementation. The repeated cross-sectional estimates allow the composition of the occupation to differ between the baseline and post-treatment periods. Second, it helps assess whether the main earnings results are visible when the treated group is defined using the Census closest to each period, rather than only the 2023 Census. Third, the earlier baseline period, July 2017 to June 2018, predates the Oranga Tamariki social-worker settlement and is therefore less likely to be affected by subsequent pay-equity-related changes in social-worker pay setting.

The repeated cross-sectional estimates are similar to the main panel estimates for the key labour-market outcomes. The estimated effect on annual earnings is $10,254, compared with $10,133 in the main panel specification. The estimate remains positive and statistically significant when restricted to people with positive earnings. The estimated effect on year-ending-March earnings is $8,341, and the estimated effect on total income is $7,053. As in the panel estimates, this suggests that the settlement increased overall income, although the total income gain is smaller than the earnings gain. Benefit receipt also falls, with an estimated reduction of $258.

The repeated cross-sectional results show no statistically significant effects on health and justice outcomes. This covers the estimates for hospitalisation, ACC claims, anxiety and mood disorders, substance use disorders, police-recorded offending, and police-recorded victimisation. Convictions are too rare in this sample to provide informative estimates, hence the lack of a baseline mean and difference for this indicator in Table 4. The education enrolment estimates are negative, as in the main panel analysis, and should be interpreted with the same caution.

Overall, the repeated cross-sectional results support the main conclusion that the settlement produced a large increase in earnings and a smaller, but still substantial, increase in total income. As explained earlier, they should be interpreted as supplementary evidence and not as an indicator of

longer-term effects of the settlement on the same workers. This is because they may combine treatment effects with changes in the composition of the social work workforce between the 2018 and 2023 Censuses.

Table 4: Effects of the pay equity using repeated cross sections 2018 and 2024

	(1) Baseline mean	(2) Difference	(3) DiD Estimate	(4) Standard Error	(5) N
Labour market					
Earnings	57235.1	15497.1	10254.3***	(700.2)	3370131
Earnings only no-zeros	57235.1	16251.8	8930.6***	(686.1)	3316092
Benefits	315.7	132.1	−258.1***	(67.1)	3370131
Earnings (year ending March)	55208.2	15121.8	8340.7***	(680.0)	3370131
Total income (year ending March)	61932.7	17367.6	7053.4***	(655.0)	3370131
Health outcomes					
Hospitalization	0.133	0.031	0.015	(0.010)	3370131
ACC Claim	0.306	0.006	0.008	(0.013)	3370131
Anxiety and mood disorders	0.135	0.018	0.002	(0.010)	3370131
Substance use disorders	0.009	−0.002	−0.001	(0.002)	3370131
Justice sector					
Conviction			0.0	(0.0)	3370131
Police recorded offence	0.006	−0.002	−0.001	(0.002)	3370131
Police recorded victimisation	0.031	0.005	−0.001	(0.005)	3370131
Educational enrolment					
Enrolment in tertiary education	0.093	−0.016	−0.018**	(0.008)	3370131
Enrolment in social work programme	0.038	−0.014	−0.013***	(0.005)	3370131

Notes: Columns 1 and 2 show the pre-treatment mean and the difference between pre and post-treatment period for social workers. Columns 3 to 5 show the DiD estimate, standard error, and number of observations. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.4 Heterogeneity

Figure 3 examines heterogeneity in the estimated earnings effect across subgroups. We estimate separate effects by gender, ethnicity, baseline earnings, and occupational continuity between the 2018 and 2023 Censuses. Workers are classified as having low or high baseline earnings according to whether their baseline earnings are below or above the median for the analysis sample. These estimates are intended to show whether the main earnings effect is concentrated in particular groups, rather than to test a large number of subgroup hypotheses.

The earnings effects are positive across all reported subgroups. Estimated effects are larger for women than for men, although the confidence interval is wider for men, reflecting the smaller number of male NGO social workers. Estimated effects are also positive for European, Māori, and Pacific workers.[3] The point estimates vary across ethnicity groups, but the confidence intervals overlap, so we do not interpret these differences as strong evidence of differential treatment effects.

The largest differences appear by occupational continuity. Workers observed as NGO social workers in both the 2018 and 2023 Censuses have larger estimated earnings gains than workers not observed in social work in both Censuses. This pattern is consistent with the settlement having its strongest effects among workers with sustained attachment to social work. Estimated effects are also positive for workers with both lower and higher baseline earnings, suggesting that the earnings gains were not

[3] Asian workers are not reported separately because the number of Asian NGO social workers in the treated group is relatively small. However, we are exploring options for reporting estimates for this group.

confined to one part of the pre-settlement earnings distribution.

Overall, the heterogeneity results support the main interpretation that the settlement produced broad-based earnings gains among NGO social workers. As evident in Figure 3, most estimates have large confidence intervals. This is likely due to the heterogeneity results being based on small subsamples, hence why the estimates are correspondingly imprecise. Appendix Figures C.1 and C.2 report accompanying subgroup estimates for anxiety and mood disorders and police-recorded victimisation.

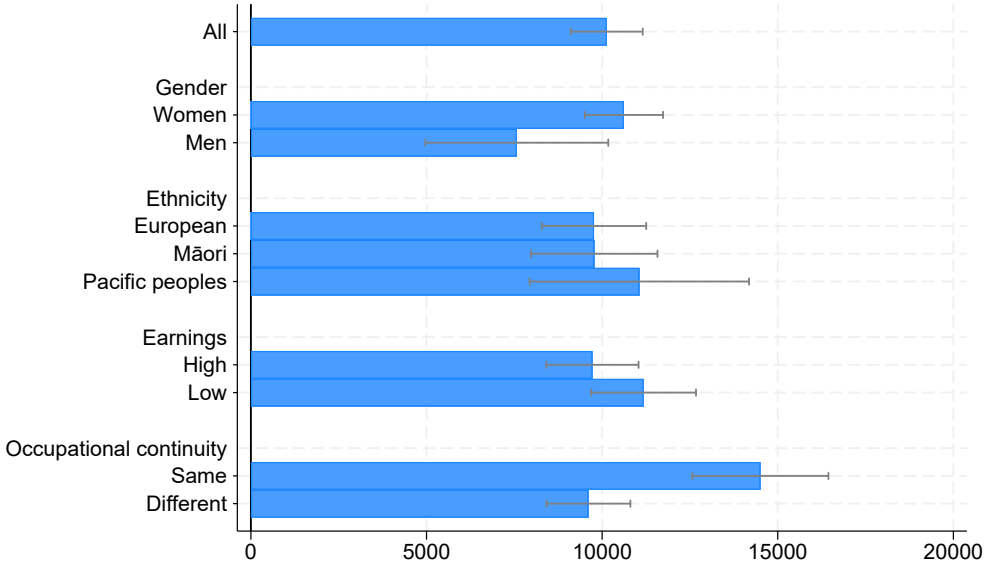

Figure 3: Estimated effects of the pay equity settlement on earnings by subgroup.

Notes: Bars indicate difference-in-differences point estimates; capped lines indicate 95 % confidence intervals. Workers are classified as having low or high baseline earnings according to whether their baseline earnings are below or above the median for the analysis sample.

6 Discussion and conclusion

This paper provides new evidence on the realised effects of a pay equity settlement in a female-dominated care occupation. We study the 2023 extension of New Zealand's social worker pay equity settlement to workers in community and iwi organisations. This setting is important because the affected workers were employed outside the core state sector, but often in organisations delivering publicly funded services. The settlement therefore provides evidence on whether pay equity can operate as a meaningful labour-market intervention beyond direct public-sector wage setting.

The main finding is that the settlement produced large earnings gains. In the main panel estimates, annual earnings increased by about $10,100 relative to the comparison group, equivalent to 17% of baseline earnings. This suggests that the settlement materially changed realised pay, not only formal pay scales. The effect is also visible in the repeated cross-sectional estimates and in the descriptive earnings patterns. This is important because the affected workers were employed outside direct public-sector wage setting, meaning that the settlement had to translate through Crown funding, provider contracts, employer implementation, and workers' observed employment and hours before appearing in administrative earnings records.

The settlement also increased total income, but by less than earnings. This distinction is important. It suggests that the settlement improved workers' overall economic resources, but that some of the earnings gain was offset by changes in other income components. Benefit receipt fell, consistent with

higher earnings reducing reliance on income support. More work would be needed to identify the precise offsetting channels, including possible changes in tax credits, benefit entitlements, or other transfers, and to assess whether these income effects persist over a longer follow-up period.

We also find evidence of stronger employment attachment. NGO social workers were more likely to remain employed one year after the settlement, relative to the comparison group. The point estimates are consistent with some of the increase reflecting moves to different employers, but the estimates are too imprecise to distinguish same-employer from different-employer employment. Because occupation is not observed at the one-year follow-up point, we cannot tell whether workers who remained employed were still working as social workers. The employment results should therefore be interpreted as evidence of improved attachment to employment, rather than direct evidence of greater retention in social work or greater stability with the same employer.

By contrast, we find little short-run evidence of effects on several administrative indicators of health and justice outcomes. These measures include hospitalisation, ACC claims, mental health and addiction indicators, convictions, police-recorded offending, and police-recorded victimisation. They do not capture broader dimensions of wellbeing, such as stress, job satisfaction, life satisfaction, workload, professional support, workplace safety, or day-to-day working conditions. This distinction is important because recent New Zealand survey evidence suggests that social-worker wellbeing is closely tied to workplace conditions, including collegial support, workload demands, management support, burnout, workplace morale, and work–life balance (Pascoe & Stanley-Clarke, 2025; Social Workers Registration Board, 2023). The absence of strong and statistically significant effects on these administrative outcomes should therefore not necessarily be interpreted as evidence that the settlement had no wider wellbeing effects. It instead suggests that any effects on these administrative indicators are either small (and weakly significant), slow to emerge, or difficult to detect over the short follow-up period.

The education results are also best interpreted cautiously. The settlement may have increased the incentive to obtain formal social work qualifications, particularly where registration or registerable status affects access to higher-paid settlement categories. However, we find no evidence of an immediate increase in tertiary enrolment or social work programme enrolment among treated workers. This does not rule out a qualification response. New entrants may respond with a lag, existing workers may already have been studying before the settlement, and enrolment is an imperfect proxy for becoming formally qualified or registered.

The findings are also relevant to the changing policy environment. In 2025, New Zealand amended the Equal Pay Act, changing the process for pay equity claims, discontinuing existing unsettled claims, and making review clauses in existing pay equity settlements unenforceable (NZ Government, 2025). These changes occurred after the settlement and after the main post-treatment period studied here, so they do not affect the outcomes measured in our main analysis. However, they make evidence on realised settlement effects especially important. As future claims become more difficult, understanding what previous settlements achieved becomes central to assessing the trade-offs of this policy change.

Several limitations remain. First, our treatment definition is based on Census occupation and Inland Revenue sector information. It identifies NGO social workers in the data, but may not capture every worker formally eligible under the settlement, including some workers doing the same or substantially similar work under other occupational titles. Future work could strengthen this definition by drawing on registration data from the Social Workers Registration Board, which would provide an alternative way of identifying workers affected by the settlement. Second, the main follow-up period

covers only the first year after implementation. Longer-run effects on workforce composition, qualifications, registration, retention, and wellbeing may take more time to emerge. Third, while the doubly robust difference-in-differences design adjusts for observed differences between treated and comparison workers, the estimates rely on the assumption that outcomes for NGO social workers would have followed similar trends to those for the comparison group in the absence of the settlement.

Overall, the results show that pay equity settlements can produce large realised earnings gains and strengthen employment attachment in female-dominated care occupations. They also show why evaluation should go beyond headline pay corrections. In this case, the settlement increased earnings, raised total income by a smaller amount, reduced benefit receipt, and improved employment retention. These outcomes demonstrate the practical realisation of the rights to pay equity and to just and favourable conditions of work, as recognised in the International Covenant on Economic, Social and Cultural Rights.[4] Broader wellbeing and workforce-composition effects remain less clear in the short run, and should be a priority for future research as more post-settlement data become available.

[4]The relevant provision is Article 7 of the International Covenant on Economic, Social and Cultural Rights. New Zealand ratified the Covenant in December 1978.

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A Additional descriptive evidence

A.1 Annual earnings

Figure A.1 shows earnings aggregated by year ending June, so that 2024 covers pay dates from July 2023 to June 2024. The first panel includes workers who may have zero earnings in some years, while the second panel is restricted to workers with positive earnings in the relevant year. The annual series provide a supplementary check using the same year-ending-June aggregation as the main earnings outcome.

The figure shows a sharp increase in annual earnings for NGO social workers in the year ending June 2024. This pattern is consistent with the smoothed quarterly earnings series in the main text, and suggests that the increase is not driven only by short-run quarterly fluctuations.

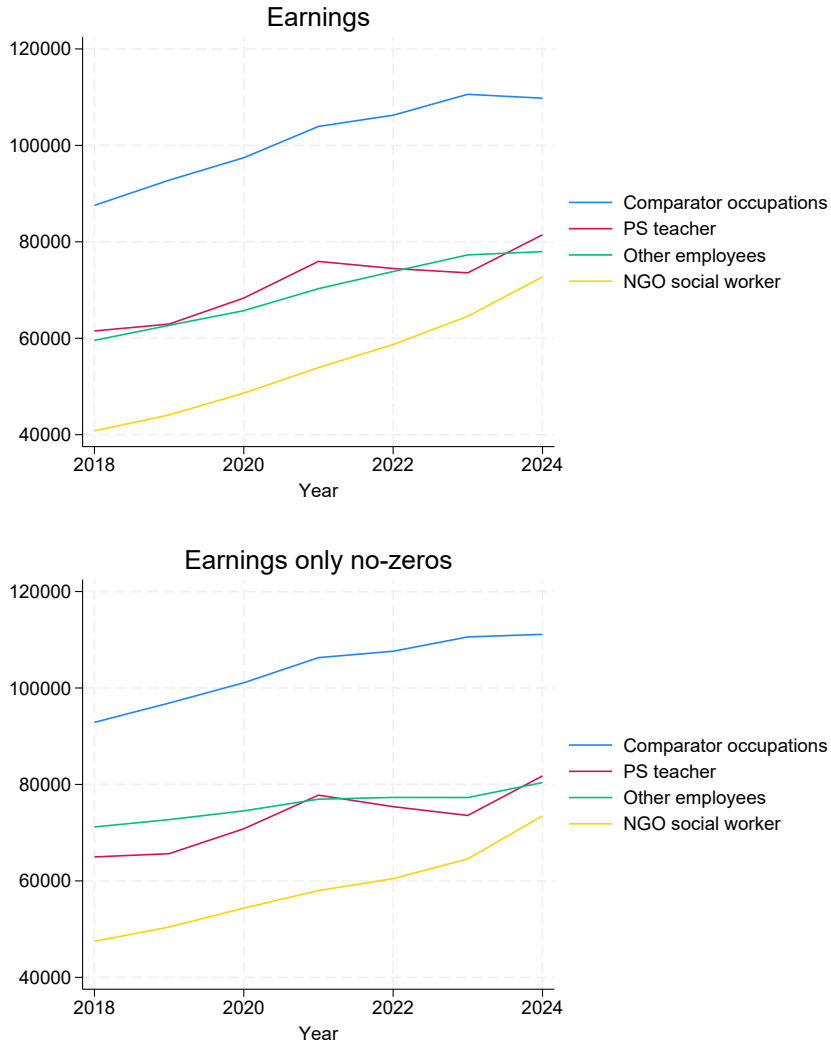

Figure A.1: Annual earnings

A.2 Annual earnings by occupational continuity

Figure A.2 provides a further descriptive check by focusing on workers whose occupation is observed consistently across the 2018 and 2023 Censuses. The figure compares people who were NGO social workers in both Censuses with people who were in other occupations in both Censuses. This compar-

ison helps assess whether the earnings increase is visible among workers with sustained attachment to social work, rather than being driven only by changes in the composition of workers entering or leaving the occupation between Census years.

The figure shows a clear increase in annual earnings for workers observed as NGO social workers in both 2018 and 2023. This pattern is consistent with the main descriptive evidence and suggests that the post-settlement earnings increase is not only a compositional feature of the 2023 social worker workforce.

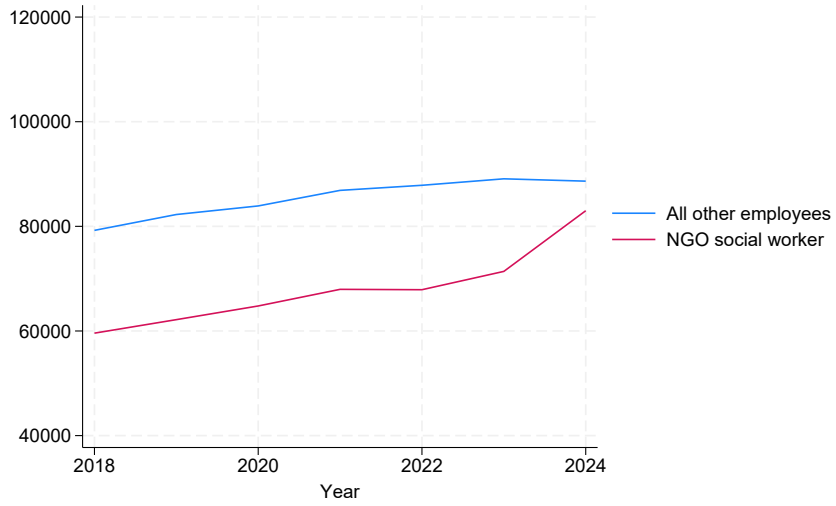

Figure A.2: Annual earnings by occupational continuity

B Social work tertiary enrolment

The pay equity settlement may have changed incentives to obtain formal social work qualifications. This is because the new pay framework distinguishes between registered or registerable social workers, other registered professionals in social work roles, and non-registered professionals undertaking work substantially similar to social work. Higher pay for registered or registerable social work roles could therefore increase the return to completing a recognised social work qualification.

Figure B.1 shows enrolment in tertiary social work programmes over time, measured using NZSCED code 090501. The left panel shows the number of people enrolled in social work programmes in each calendar year. The right panel shows social work enrolments as a share of all tertiary programme enrolments. In both panels, separate lines show Bachelor's programmes only and Bachelor's and Master's programmes combined.

The figure does not show a clear short-run increase in social work enrolment around the settlement period. This does not rule out an education response. New entrants may respond with a lag, and existing workers may already have been enrolled before the settlement or may complete qualifications after the observed period. Enrolment is also an imperfect proxy for becoming formally qualified or registered. For these reasons, we treat the education enrolment evidence as descriptive and supplementary.

Figure B.1: Social work tertiary education by year.

Notes: The left panel shows the number of people enrolled in social work programmes; the right panel shows their share among all programmes. In both panels, separate lines show Bachelor's and Master's programmes combined and Bachelor's programmes only.

C Heterogeneity in secondary outcomes

Figures C.1 and C.2 report subgroup estimates for anxiety and mood disorders and police-recorded victimisation. These outcomes are included because the main estimates in Table 2 are negative and statistically significant at the 10% level. The figures are exploratory and should be interpreted cautiously, given the short follow-up period, the number of outcomes examined, and the smaller sample sizes for some subgroups.

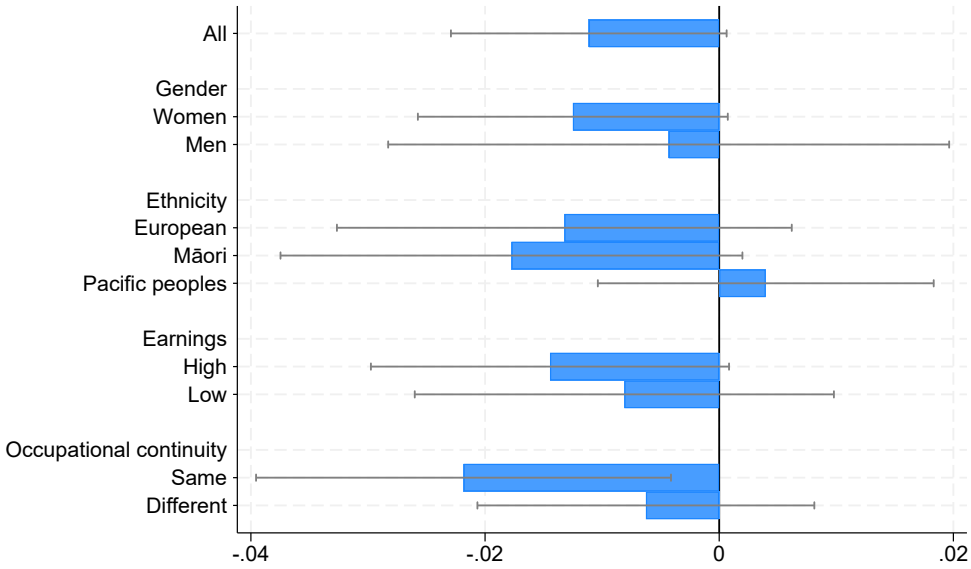

Figure C.1: Estimated effects of the pay equity settlement on anxiety and mood disorders by subgroup.

Notes: Bars indicate difference-in-differences point estimates; capped lines indicate 95 % confidence intervals.

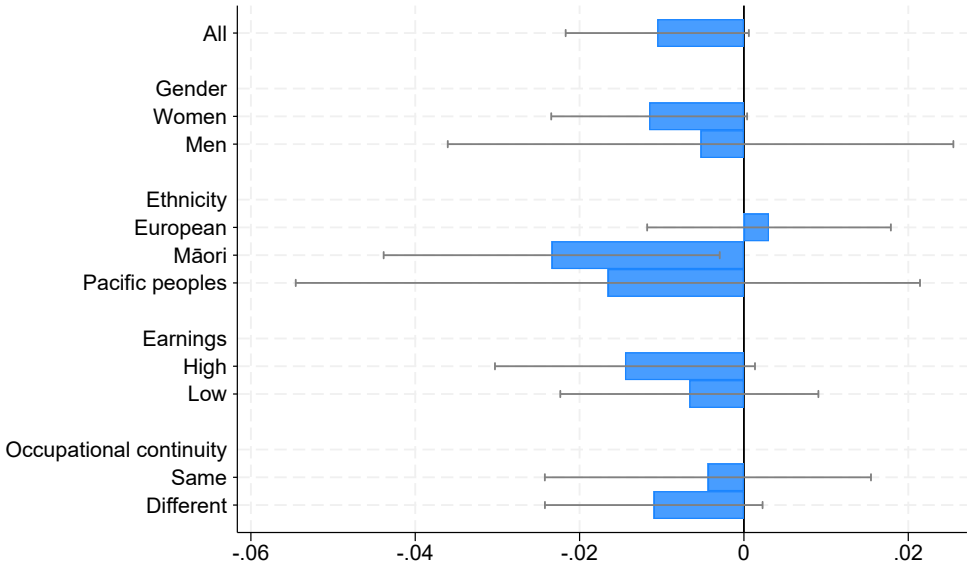

Figure C.2: Estimated effects of the pay equity settlement on victimisation by subgroup.

Notes: Bars indicate difference-in-differences point estimates; capped lines indicate 95 % confidence intervals.