MINISTRY OF SOCIAL
DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

# Mana in Mahi - Strength in Work

## Impact report

**March 2024**

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# Summary

This report summarises our analysis of the effectiveness of the Mana in Mahi - 'Strength in Work' programme in improving the outcomes of people who had participated in the programme between 2018 and 2023.

## Mana in Mahi

MSD introduced the Mana in Mahi programme in 2018. Mana in Mahi provides a hiring subsidy and other supports to help participants gain a recognised industry qualification and achieve long-term sustainable employment. In its current form, Mana in Mahi can provide support for up to one year and aims to support people at risk of long-term benefit receipt. Mana in Mahi includes a wage subsidy, payment of course fees, additional educational support, and pastoral care for employers and employees. It also offers a training pathway that includes industry training qualifications such as apprenticeships. The employee also receives incentive payments if they remain in employment and continue their training.

## Method

We undertook the analysis of the effectiveness of Mana in Mahi in the Statistics New Zealand's Integrated Data Infrastructure (IDI). The IDI is a secure data warehouse that links anonymised person level administrative, census and survey data. The IDI has the benefit of:

- covering the entire New Zealand population
- containing longitudinal information across a wide range of domains such as income, employment, education, justice, income support receipt, health care, care and protection, migration and travel as well as socio-demographic and geographic characteristics.

We estimated the impact of Mana in Mahi by comparing the quantified outcomes of participants to those of a matched comparison group. We interpret any observed difference in outcomes between the two groups as the causal impact of Mana in Mahi on the outcome.

We selected the comparison group using propensity score matching (PSM). Only groups that achieved a sufficient level of balance[1] were included in the analysis. The IDI was then used to track the impact of Mana in Mahi on a

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[1] Balance is achieved when it is not possible to predict whether a person is a participant or a comparison group member based on their observed characteristics.

range of outcomes from one year before participants started Mana in Mahi and up to two and a half years afterwards.

# Limitations

PSM requires us to assume that, when participants and matched comparison group profiles are balanced, they are also equivalent on any unobserved characteristics as well. What this means is that, in the absence of Mana in Mahi, the participant and comparison group would achieve similar future outcomes. This assumption needs to hold so that any actual difference in outcomes between the two groups can be attributed to the participants having received Mana in Mahi.

We justify this assumption by the inclusion of a diverse range of observed characteristics to evaluate balance and the small number of participants relative to the pool of people who could participate in Mana in Mahi. Nevertheless, we cannot rule out the possibility that differences remain between the two groups. If these unobserved differences do exist, then the results in this report will be biased[2] and will not reflect the true causal impact of Mana in Mahi on participant's outcomes. The best way to resolve this issue is to undertake a more robust study such as a Randomised Control Trial (RCT).

# Findings

The following results examine Mana in Mahi by programme phase. We did this because of the substantial changes in programme design over its life. In particular, during the Expansion phase support was extended from 12 to 24 months.

In the discussion below, Phase 1 refers to people starting Mana in Mahi between August 2018 to June 2019, Phase 2 was from July 2019 to July 2020, the Phase 2 Expansion was from August 2020 to July 2022 and, finally, Phase 2 post Expansion was from August 2022 onward.

## Participants

The participants who started Mana in Mahi during Phase 1 and 2 were primarily:

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[2] Bias occurs because the observed difference in outcomes between the participant and the comparison group are caused by both unobserved prior differences as well as the intervention being evaluated. Moreover, it is not easy to disentangle these two influences on observed outcomes.

- under the age of 30 (85%)

- identified as men (76%)

- received Jobseeker Support Work Ready benefit (58%)

- were of Māori ethnicity (54%).

During the Expansion phase of Mana in Mahi, the profile of participants changed as follows.

- Reduction in the proportion of participants who identify as Māori (from 54% in Phase 1 and 2 to 46% in the Expansion phase)

- Increase in the proportion of people not on main benefit before starting Mana in Mahi (from 34% to 53%)

- Decrease in the proportion **not** in employment before starting Mana in Mahi (from 65% to 51%)

The reduction in Māori participants is likely to be through the expansion of Mana in Mahi from North Island regions in Phase 1 to include South Island regions from Phase 2 onwards. The increase of people not on main benefit was in line with the change in eligibility criteria from Phase 2 onwards to allow people not on main benefit but at risk of long-term benefit receipt to participate in Mana in Mahi.

## Programme cost

During Phase 1 and 2, the average cost for Mana in Mahi for each participant was $10,718 in Phase 1 and $11,499 in Phase 2. With the increased support, the Expansion period saw an increase in the average cost per start to $15,809. In addition to the wage subsidy itself, participating employers and employees could also receive:

- incentive payments of up to $3,000 per year

- up to $2,000 in additional education support

- additional pastoral care.

These additional supports are not included in the above average costs for Mana in Mahi.

## Impact on participant outcomes

At this stage we can only report on the short-term impacts of Mana in Mahi. Analysis of the monthly trend in the impact shows that the programme impacts will continue for several years. Based on earlier wage subsidy programmes, we expect the impact of Mana in Mahi to last for at least five

years from when participants started the programme.[3] For this reason, the results presented here under-represent the full impact of Mana in Mahi.

Over the two years after starting Mana in Mahi in Phase 1 and 2, the programme was effective in increasing:

- the time participants spent in any employment (34.0±4.20 additional weeks)
- income from all sources (an additional $14,881±$3,338)
- time enrolled in education or training (an additional 24.0±3.70 weeks).

We also examined whether Mana in Mahi resulted in better paid employment. Of Mana in Mahi participants in employment, their earnings were higher than those in the comparison group in employment (around $300 a month). However, we cannot rule out the possibility this difference was because of higher levels of full-time work among participants than the comparison group.

### *The Expansion phase saw a fall in effectiveness*

During the Expansion phase there was a decline in the effectiveness of Mana in Mahi.

- Impact on time in employment fell from an additional 34.0±4.20 to 26.0±3.60 weeks.
- Impact on net-income from all sources fell from $14,881±$3,338 to $11,958±$3,294.

The reduction in the effectiveness of Mana in Mahi was not because of lower outcomes by participants, instead it was because the counterfactual outcomes (comparison group) of the Expansion participants were higher than for the Phase 1 and 2 participants. The higher counterfactual levels of employment and income was because of the shift in the profile of participants to being more employable as measured by such things as employment history prior to starting Mana in Mahi.

There was no evidence that extending the support period from 12 to 24 months increased the effectiveness of Mana in Mahi on key outcomes.

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[3] Based on the EA evidence catalogue, Job Plus (1990-2007) increased time in employment for at least 15 years, while Skills Investment (2008-2012) increased time in employment by 12 years. The positive impact on net income was shorter at between three and eight years.

*Impact by subgroup*

In addition to evaluating the overall impact of Mana in Mahi, we also looked at whether there were differences in effectiveness by subgroups of participants.

- **Ethnicity**: Mana in Mahi had higher impacts for Pākehā than for Māori.

- **Gender**: Mana in Mahi had a higher impact for people who identify as female on time in employment and income from employment than men. However, the increase in employment income was offset by loss of income from transfer payments (eg income support and tax credits), resulting in Mana in Mahi having lower impact on overall net-income for women than men.

- **Benefit status**: The impact of Mana in Mahi was higher for people coming from Jobseeker Support Work Ready than those who had not been on main benefit before starting Mana in Mahi. The number of participants on other benefits was too small to estimate impacts for.

- **Benefit duration**: For people on benefit before starting Mana in Mahi, the impact of the programme on employment and earnings increased with benefit duration. However, for net-income the impact by benefit duration decreased. The latter result occurred because, while employment income increased, people with longer benefit durations experienced larger falls in transfer payments than those who had started benefit more recently.

*Mana in Mahi had an impact similar to Flexi-wage*

Comparing Mana in Mahi to other hiring wage subsidy programmes[4] administered by MSD, shows the programme had a similar impact on time in employment and income as Flexi-wage (Flexi-wage was operating at the same time as Mana in Mahi).

## No account is made for non-participant effects

The benefits of wage subsidy programmes to participants are offset by costs to non-participants through effects such as substitution (the person the employer would have hired instead) and displacement (loss of employment among competing firms). We have not accounted for these effects in this report, as they are difficult to estimate. But the international literature reviewed in this report indicates these can be substantial (ie over 90% of the benefits to participants can come at the cost of non-participants).

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[4] Regional Wage Subsidy, Job Plus, Skills Investment and Flexi-wage.

# Introduction

This report is an analysis of the impact of Mana in Mahi on participants' outcomes. The impact analysis covers people who participated in Mana in Mahi between 2018 and 2023. This report does not cover employers participating in Mana in Mahi.

## Report structure

The report has the following sections:

**Intervention description**: describes the Mana in Mahi programme and its objectives. In addition, this section also provides a timeline of design and eligibility changes to the program, trends in the number and profile of participants and programme expenditure.

**Existing evidence**: summarises earlier research on Mana in Mahi and similar New Zealand programs as well as international evidence on subsidised job placement programmes.

**Impact Analysis**: examination of the impact of Mana in Mahi on participant outcomes overall and by subgroups.

**Method**: provides more detail on the methods used in this report, in particular the counterfactual approach to identifying the impact of Mana in Mahi on participant outcomes, before describing the propensity score matching (PSM) methodology and outcome measures.

## Employment Assistance evidence catalogue

The analysis in this report is based on the information available in the Employment Assistance (EA) evidence catalogue (https://ea.analytics.msd.govt.nz/). Please refer to the catalogue if you want more detailed information on interventions referred to in this report. The catalogue covers:

- Intervention information: description, status and timeline of changes
- Participants: trend in participant starts and profile of participants
- Expenditure: overall cost and cost per start
- Impact: impact estimates by selected outcome domains
- References: published reports and papers.

Note that the EA evidence catalogue is updated on an annual basis so may not match exactly the figures shown in this report.

# Intervention description

This section provides more detail on the design and operation of Mana in Mahi as well as changes made since its inception. In addition, we look at participation trends, participant profile and the cost of Mana in Mahi.

## Summary

Mana in Mahi - Strength in Work aims to support job seekers who need extra support to gain a recognised industry qualification and achieve long-term sustainable employment. The programme can provide support for up to one year to employers who are willing to hire a person at risk of long-term benefit receipt. Mana in Mahi includes a wage subsidy, funding for course fees, education support and pastoral-care for employers and employees. It also offers a training pathway that includes an industry training qualification, including apprenticeships. Finally, the employee also receives incentive payments if they remain in employment and continue their training.

The wage subsidy is up to $16,000 (excluding GST). Wage subsidy payments are conditional on the employee enrolling, commencing and then remaining in employment and training. The employee also receives incentive payments totalling $3,000 if they remain in employment and continue their training. The employer can receive up to $8,000 to cover industry training course fees not covered by Fees Free or the Targeted Training and Apprenticeship Fund (TTAF). Mana in Mahi also offers Additional Educational Support funding of up to $2,000, as well as free counselling, coaching and mentoring services (such as Whītiki Tauā) to both employers and employees.

### Mana in Mahi phases

Because of the changes over the life of the programme, the analysis splits Mana in Mahi into four phases.

**Phase 1 (August 2018-June 2019)**: had a target of 150 participants and operated as a 12-month programme. The target population were 18 to 24 years old (although open to people outside this age group) in continuous receipt of a main income support benefit for three months or more.

**Phase 2 (July 2019-July 2020)**: increased the size of the programme to 1,850 places across four years. Eligibility expanded to young people 'at risk' of long-term benefit receipt, including some people not on a main benefit. Other changes included:

- the wage subsidy was decreased to $9,580 (GST exclusive) to better reflect the annual adjustment to the Jobseeker Support benefit rate

- incentive payments changed to better support participants to stay in work and progress towards completing an apprenticeship or industry training qualification

- a more intensive menu of support services to provide pastoral care for both participants and employers

- allow employers to offer part-time contracts to young people who are unable to work full-time.

**Phase 2 Expansion (August 2020-July 2022)**: expansion involved the following changes:

- increasing the wage subsidy to employers from $9,580 to $16,000 in the first year and up to $8,000 in the second year

- extending the time Mana in Mahi participants could be supported (from 12 months to 24 months)

- pay for course fees where participants are not eligible for other government support (up to $16,000 over two years)

- providing additional educational support up to $2,000 per year

- removing the programme target to young people aged 18 to 24.

**Phase 2 Post-expansion (August 2022- current)**: The support period for Mana in Mahi was reduced back to 12 months.

## Eligibility and targeting

During Phase 1 Mana in Mahi was open to people in continuous receipt of a main income support benefit for three months or more. The programme was targeted to people aged 18 to 24 but was open to other age groups. Excluded were those eligible for NZ superannuation. In July 2019, eligibility criteria were extended to people 'at risk' of long-term benefit receipt including those not currently receiving a main benefit. Whether a person meets the criteria of 'at risk' was left to the judgement of case managers making the referral based on general guidance on factors that increase someone's chances of being on benefit long term.

# Timeline of changes

Table 1 summarises the main policy and design changes to Mana in Mahi since its inception.

**Table 1**: Timeline of policy and design changes to Mana in Mahi

| Date | Event Type | Description |
|---|---|---|
| 01 July 2018 | Start | Mana in Mahi Phase One (the Prototype) was implemented from August 2018 with a target of 150 participants into Mana in Mahi opportunities by 30 June 2019. It was a 12-month programme and the eligible population were 18 to 24 year olds (although open to people outside this age group, except those eligible for NZ superannuation) in continuous receipt of a main income support benefit for three months. |
| 01 July 2019 | Eligibility | Budget 2019 extended the Mana in Mahi programme to 1,850 places (across four years) as Mana in Mahi Phase Two. Eligibility was changed to encompass people 'at risk' of long-term benefit receipt but who were not necessarily receiving a benefit at the point of referral. The programme remained targeted to young people, although it was still open to people of all age groups. |
| 01 July 2019 | Design | Changes included: (i) the wage subsidy decreased to $9,580 (GST exclusive) to better reflect the forecasted annual Jobseeker Support rate in the coming years, (ii) incentive payments were improved to better support participants to stay in work and progress towards completing an apprenticeship or industry training qualification, (iii) a more intensive menu of support services were offered to provide pastoral care for both participants and employers, (iv) Mana in Mahi was made available for some employers who offer part-time contracts to young people who are unable to work full-time. (Cabinet, 2019) |
| 01 February 2020 | Design | Introduced Whītiki Tauā which was a virtual mentoring service that provided additional support for Mana in Mahi participants. The service aimed to help participants maintain motivation and engagement in Mana in Mahi and achieve long term, sustainable work outcomes. |
| 05 August 2020 | Design | Mana in Mahi expansion involved the following changes: increasing the wage subsidy to employers from $9,580 to $16,000 in the first year and up to $8,000 in the second year; extending the time Mana in Mahi participants could be supported (from 12 months to 24 months); paying for course fees where the Mana in Mahi employees are not eligible for other government support (up to $16,000 over two years); providing additional educational support up to $2,000 per year. (MSD, 2020) |
| 05 August 2020 | Eligibility | Mana in Mahi expansion removed the target to youth, meaning all people at risk of long-term benefit receipt were targeted. (MSD, 2020) |
| 21 March 2022 | Expansion | The virtual mentoring service for Mana in Mahi - Whītiki Tauā - was expanded to be available in the South Island. |
| 04 August 2022 | Design | The support period for Mana in Mahi was reduced to 12 months. |
| 19 September 2022 | Design | From Monday 19 September, people interested in information about Mana in Mahi can fill out a form on the Work and Income website that will go to the regions' Mana |

| Date | Event Type | Description |
|---|---|---|
| | | in Mahi S2P queue (once submitted) for Work Brokers to access directly and cut down additional handling. |

# Mana in Mahi participants

Figure 1 shows the number of people starting Mana in Mahi in each month. Note that starts are not a unique count of individuals as one person may participate in Mana in Mahi more than once.[5] From the commencement of Mana in Mahi there have been an average of 112 people starting the programme each month.

**Figure 1**: Monthly participation starts in Mana in Mahi
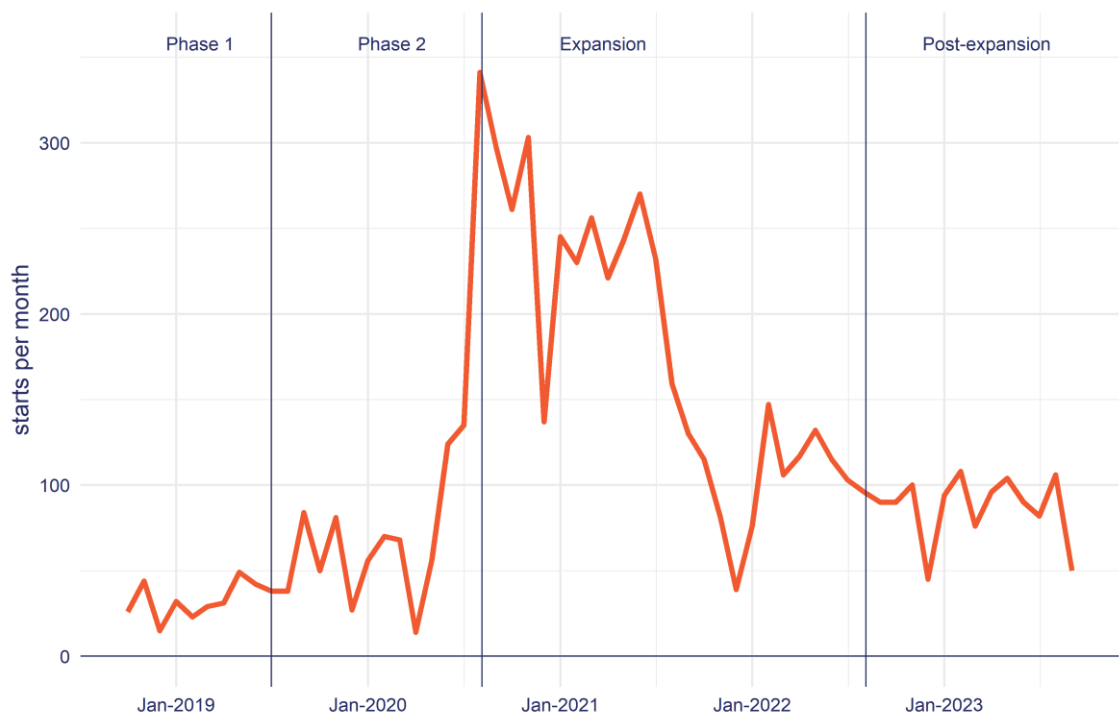


a. In the administrative data, especially during the Expansion phase, the second year of Mana in Mahi was recorded as a separate participation spell. In this chart, if a participant was recorded as starting another Mana in Mahi programme within 370 days from the previous Mana in Mahi end date then the second participation spell was excluded.

**Source**: Ministry of Social Development, October 2023.

Figure 1 shows a substantial increase in the number of participants starting Mana in Mahi after its Expansion. However, there is a noticeable downward

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[5] At October 2023, there had been a total of 5,985 individual participants in Mana in Mahi.

trend in starts from 2022, that may be linked to the expectation of the recession later in the year, reducing employer hiring activity.

## Participant profile

Here we compare the participant profile of Mana in Mahi by programme phase.

### *Age group*

Table 2 shows the age profile of Mana in Mahi participants. The change in age distribution of participants is consistent with the change in policy intent. Initially, participants were under the age of 25 (80% in Phase 1 and 2). In the Expansion phase, this proportion fell to 60%.

**Table 2**: Age profile of Mana in Mahi participants

|  | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Age** | | | |
| Total | 1,137 | 4,329 | 1,026 |
| Under 18 years | 6% | 10% | 15% |
| 18 to 19 years | 28% | 20% | 21% |
| 20 to 24 years | 46% | 30% | 27% |
| 25 to 29 years | 11% | 16% | 12% |
| 30 to 34 years | 3% | 10% | 11% |
| Over 34 years | 5% | 14% | 12% |

a. Due to rounding and suppression, columns may not add up to 100%, 's' indicates the cell value has been supressed for confidentiality.
b. Phase 1: August 2018 to June 2019, Phase 2: July 2019 to July 2020, Expansion: August 2020 to July 2022, Post-expansion: August 2022 onwards.

**Source**: Integrated Data Infrastructure, Statistics New Zealand, October 2023.

### *Ethnicity*

Table 3 shows participants by ethnicity. Because people can have more than one ethnic identity, the proportions in this table will exceed 100%. From the Expansion of Mana in Mahi, there has been a reduction in the proportion of participants who identify as Māori. On the other hand, the proportion of people identifying as Pacific, Asian or Middle East Latin America or Africa had increased over the Expansion period.

**Table 3**: Ethnic profile of Mana in Mahi participants

|  | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Ethnicity** | | | |
| Māori | 54% | 46% | 44% |
| Pacific | 14% | 17% | 18% |
| Asian | 3% | 6% | 4% |
| MELAA | s | 2% | s |
| European | 62% | 61% | 64% |
| Other | s | 1% | 2% |
| Total | 1,137 | 4,329 | 1,026 |

a. Ethnicity is total response (ie a person can select more than one ethnic identity) and therefore the percentage values can exceed 100%.
b. Due to rounding and suppression, columns may not add up to 100%, 's' indicates the cell value has been supressed for confidentiality.
c. Phase 1: August 2018 to June 2019, Phase 2: July 2019 to July 2020, Expansion: August 2020 to July 2022, Post-expansion: August 2022 onwards.
d. MELAA: Middle East, Latin America and Africa.

**Source**: Integrated Data Infrastructure, Statistics New Zealand, October 2023.

## *Gender*

Table 4 shows the profile of participants by gender. It is clear from the table, that the majority of Mana in Mahi participants identify as male and this proportion had not changed until phase 2 post expansion. In the post-expansion period the proportion of women had increased from 24% to 29%.

**Table 4**: Gender profile of Mana in Mahi participants

|  | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Gender** | | | |
| Female | 24% | 24% | 29% |
| Male | 76% | 76% | 71% |
| Total | 1,137 | 4,329 | 1,026 |

a. Due to rounding and suppression, columns may not add up to 100%, 's' indicates the cell value has been supressed for confidentiality.
b. Phase 1: August 2018 to June 2019, Phase 2: July 2019 to July 2020, Expansion: August 2020 to July 2022, Post-expansion: August 2022 onwards.
c. Category for people who identify as gender diverse is not currently available in the IDI.

**Source**: Integrated Data Infrastructure, Statistics New Zealand, October 2023.

### Benefit

Table 5 shows the profile of participants by what main benefit they were on just before starting Mana in Mahi. In Phase 1 when eligibility required participants to have been on main benefit for at least three months, most participants had been on Jobseeker Support Work Ready. In line with the changes in eligibility criteria to allow people not on main benefit to participate, there was a substantial increase in this group of participants, from 34% to 53% by the Expansion phase and increasing further to 61% in the Post-expansion period.

**Table 5**: Benefit profile of Mana in Mahi participants

|  | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Current main benefit type** | | | |
| Jobseeker Support Work Ready | 58% | 38% | 29% |
| Sole Parent Support | 2% | 4% | 6% |
| Jobseeker Support HCD | 3% | 5% | 4% |
| Supported Living Payment | s | 1% | s |
| Not on main benefit | 34% | 53% | 61% |
| Total | 1,137 | 4,329 | 1,026 |
| **Duration on current benefit** | | | |
| Not on main benefit | 34% | 53% | 61% |
| Under 3 months | 28% | 15% | 15% |
| 3 to under 6 months | 17% | 11% | 8% |
| 6 to under 12 months | 12% | 11% | 7% |
| 1 to under 2 years | 6% | 7% | 5% |
| 2 to under 6 years | 2% | 3% | 4% |
| Total | 1,137 | 4,329 | 1,026 |

a. Due to rounding and suppression, columns may not add up to 100%, 's' indicates the cell value has been supressed for confidentiality.
b. Phase 1: August 2018 to June 2019, Phase 2: July 2019 to July 2020, Expansion: August 2020 to July 2022, Post-expansion: August 2022 onwards.
c. Benefit status is based on the last day of the month prior to starting Mana in Mahi. Because of difference in the income support data supplied to the IDI and used for official reporting, the results in the above table may not match results from non-IDI sources.

**Source**: Integrated Data Infrastructure, Statistics New Zealand, October 2023.

Looking at participants by benefit duration, we see a reduction in people on main benefit for less than six months (from 45% in Phase 2 to 26% during the Expansion). There was no change in the proportion of participants with benefit durations over six months (from 20% to 21%).

### *Employment history*

Table 6 summarises the time participants were in employment in the month before starting Mana in Mahi as well as the proportion of their working life (16-64) spent in employment.[6]

**Table 6**: Employment history of Mana in Mahi participants

| | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Duration of current employment** | | | |
| Not employed | 65% | 51% | 43% |
| Under 3 months | 14% | 14% | 14% |
| 3 to under 6 months | 6% | 8% | 8% |
| 6 to under 12 months | 6% | 9% | 11% |
| 1 to under 2 years | 5% | 7% | 11% |
| 2 to under 6 years | 4% | 8% | 11% |
| Over 6 years | s | 2% | s |
| Total | 1,137 | 4,329 | 1,026 |
| **Proportion of adult life in New Zealand in employment** | | | |
| 0% | 8% | 6% | 6% |
| 1 to 9% | 10% | 6% | 5% |
| 10 to 19% | 12% | 8% | 7% |
| 20 to 29% | 12% | 9% | 9% |
| 30 to 39% | 11% | 10% | 10% |
| 40 to 59% | 21% | 22% | 22% |
| 60 to 79% | 17% | 22% | 22% |
| 80 to 89% | 5% | 8% | 8% |
| 90% plus | 4% | 10% | 12% |
| Total | 1,137 | 4,329 | 1,026 |

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[6] This measure excludes any periods of time spent overseas.

Looking at recent employment, there has been a decrease in the proportion of participants **not** in employment before starting Mana in Mahi, from 65% in Phase 1 and 2 to 51% in the Expansion phase, with a further decrease in Post-expansion to 43%. Note, we have not examined whether prior employment was with the same employer as for the Mana in Mahi placement.

Looking at working life in employment, the distribution shows that in Phase 1 and 2 most participants had spent less than half their working life in employment. Over the Expansion period, this had reversed with 39% of participants being employed for more than 60% of their adult life. However, because the Phase 1 and 2 participants were mainly under the age of 24 years, this may reflect more time that those under the age of 24 years have spent in education or training.

## *Region*

Table 7 shows the region of participants based on their last known address. During Phase 1 and 2, Mana in Mahi participants were concentrated in a small number of regions, but as the programme expanded more regions were covered.

**Table 7**: Region of Mana in Mahi participants

|  | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| **Region of current address** |  |  |  |
| Northland | 7% | 5% | 6% |
| Auckland | 15% | 23% | 23% |
| Waikato | 16% | 13% | 15% |
| Bay of Plenty | 7% | 6% | 4% |
| Gisborne | 3% | 4% | 4% |
| Hawke's Bay | 6% | 8% | 6% |
| Taranaki | 7% | 3% | 3% |
| Manawatu-Whanganui | 11% | 9% | 8% |
| Wellington | 13% | 11% | 9% |

| | Phase 1 and 2 | Expansion | Post-expansion |
|---|---|---|---|
| Marlborough | s | 2% | s |
| Nelson | 2% | 1% | 2% |
| Tasman | s | 1% | s |
| West Coast | 2% | 4% | 6% |
| Canterbury | 4% | 7% | 7% |
| Otago | 3% | 2% | s |
| Southland | s | 1% | s |
| Overseas | s | 1% | s |
| Unknown | s | 1% | s |
| Total | 1,137 | 4,329 | 1,026 |

a. Due to rounding and suppression, columns may not add up to 100%, 's' indicates the cell value has been supressed for confidentiality.
b. Phase 1: August 2018 to June 2019, Phase 2: July 2019 to July 2020, Expansion: August 2020 to July 2022, Post-expansion: August 2022 onwards.

**Source**: Integrated Data Infrastructure, Statistics New Zealand, October 2023.

For a small number of participants, their last known location was outside of New Zealand (Overseas). These may be people starting the programme after returning to New Zealand or may be errors in the IDI data (ie an incorrect link between participant record to the New Zealand arrivals and departures table).

# Cost of Mana in Mahi

MSD maintains an individualised Cost Allocation Model (iCAM) that estimates the individual participant cost of participating in its employment programmes and services. See the method section later in the report for an outline of how the iCAM operates.

## Breakdown of Mana in Mahi expenditure by component

Table 8 breaks the total cost of Mana in Mahi into the main cost components by financial year. For Mana in Mahi the bulk of the cost is from the wage subsidy payments themselves. The second highest direct cost is from setting up the placement with the employer (Placement Opportunity). Indirect costs cover unallocated front-line staff time as well as support staff costs, property, IT and depreciation. Excluded from this analysis are

education supports/funding, contracted pastoral care and incentive payments.

**Table 8**: Breakdown of total cost (,000s) by component for Mana in Mahi by financial year

| Component | 2018/2019 | 2019/2020 | 2020/2021 | 2021/2022 | 2022/2023 |
|---|---|---|---|---|---|
| Subsidy | $2,619 | $6,248 | $26,009 | $29,060 | $17,306 |
| Subsidy Administration | | $9 | $175 | $145 | $74 |
| Placement Opportunity | $176 | $425 | $1,398 | $747 | $660 |
| Referral | $2 | $13 | $116 | $169 | $101 |
| Case management | $5 | $59 | $611 | $810 | $496 |
| Indirect Costs | $373 | $977 | $3,808 | $2,752 | $2,234 |
| **Total** | **$3,174** | **$7,730** | **$32,117** | **$33,683** | **$20,871** |

a. Showing the 5 most recent years of expenditure.
b. Expenditure is in ,000s and in nominal values (ie not adjusted for inflation).
c. Subsidy: subsidy payments, Subsidy Administration: administration of subsidy payments, Placement Opportunity: setting up of the placement with the employer, Referral: staff costs involved in referring people to Flexi-wage, Case management: staff costs in case managing participants while on Mana in Mahi, Indirect Costs: non-work frontline staff costs (eg leave), support staff, property, ICT and other general MSD costs.

**Source**: individual Cost Allocation Model (iCAM), Ministry of Social Development, October 2023.

## Average cost per participant start

Table 9 shows the cost for each participant start by financial year. These results differ from Table 8 which shows the expenditure that occurred within each financial year and align with published financial accounts. Table 9 on the other hand, allocates participant costs that fall across financial years to the year the participant started Mana in Mahi.

**Table 9**: Average cost per participant start for Mana in Mahi by financial year

| Phase | Total expenditure | Participant starts | Cost per start |
|---|---|---|---|
| Phase 1 | $3,119 | 291 | $10,718 |
| Phase 2 | $13,592 | 1,182 | $11,499 |
| Expansion | $64,990 | 4,111 | $15,809 |

a. Total expenditure is in ,000s and in nominal values (ie not adjusted for inflation).
b. Excludes participants who started after January 2023.

**Source**: individual Cost Allocation Model (iCAM), Ministry of Social Development, October 2023.

Combining individual participant costs over financial years is important for programmes such as Mana in Mahi since participants can spend up to two years on the programme. For this reason, dividing the starts by expenditure in any one financial year does not provide an accurate picture of the average cost for each participant starting Mana in Mahi.

Finally, because costs are spread over the duration of the participation spell, the results for the most recent years are an underestimate as many of these participants have not yet completed Mana in Mahi.

# Existing evidence

This section provides a short summary of the international and New Zealand evidence on hiring wage subsidies.

## International evidence on the effectiveness of wage subsidy programmes

Within meta-analysis of Active Labour Market Programmes (ALMPs) effectiveness, hiring wage subsidy programmes are defined as 'Employment Incentives' which combines a range of programmes. Aside from subsidised employment, this category also includes wage subsidy, bonuses, job rotation and sharing, and other incentives targeting employers and job seekers. Because of the diversity of interventions this evidence on effectiveness tends to be contradictory (ETF, 2022).

Other meta-analyses that have assessed wage-subsidy programmes in isolation have been able to identify factors associated with more effective subsidies. Specifically:

- subsidies targeted to private sector employers (Card, Kluve & Weber, 2010)
- long-term unemployed (indicator for labour market disadvantage) benefit more from human capital development (including private sector employment subsidy) than work first programmes (ie job search) (Card, Kluve & Weber, 2017).

Analysis of United States wage subsidy programmes shows positive impacts on earnings and employment (Dutta-Gupta et al, 2016). Dutta-Gupta et al found that of the seven programmes with a Cost Benefit Analysis (CBA), all seven showed a net-benefit at one or more implementation site, with four showing positive net benefits overall.

## New Zealand evidence on the effectiveness of wage subsidy programmes

Crichton & Maré (2013) examined the effectiveness and employer use of MSD funded hiring subsidy programmes between 2003 and 2007 using the IDI. Over a 72-month follow-up period, they found participants in subsidy programmes had higher employment and income than those in the matched comparison group. These impacts were larger over the short term and diminished over time. Crichton & Maré (2013) also found:

- higher impacts for participants who had been on benefit for over 4 years compared to people on benefit for less than 6 months
- job seekers aged 45–64 experience greater benefits than those aged under 45
- subsidies were effective for those receiving Domestic Purposes (now called Sole Parent Support), Sickness (Jobseeker Support Health Condition or Disability), or Invalid's benefits (Supported Living Payment).

# Evaluations of Mana in Mahi

In addition to this analysis of the effectiveness of Mana in Mahi, there have been three additional evaluations of the programme.

**2020 Formative process evaluation**

A formative process evaluation of Mana in Mahi was completed in 2020 (Aikman *et al*, 2020). The evaluation recommended:

- Ensure that marketing and communication strategies promote Mana in Mahi to as many industries as possible to attract a wide range of employers.

- Ensure that communications pathways and key information is available and understood by regional staff and stakeholders.

- Establish a Working Group for future codesign.

- Ensure that wage subsidy and incentive payment information is clearly targeted, structured, and communicated.

- Provide information to employers about working with youth from a range of cultural backgrounds. Conduct debt recovery sensitively on a case-by-case basis. Streamline paperwork and compliance requirements for employers to facilitate and sustain employer engagement.

- Ensure pre-employment training has flexible content which can be tailored to industry and clients.

- Ensure recruitment is aligned to both employer needs and client interests.

- Ensure that MSD In-Work Support is available at times which meet clients' needs. Ensure that clients have information about, and access to, funding pathways for drivers' licences.

- Encourage employers to support on-the-job training through pastoral care and other measures.

- Establish and embed expectations regarding qualifications and career pathways in documentation.

- Ensure pastoral care is flexible and fit for purpose. Ensure clients have appropriate support for on-the-job-training.

- Develop a mobile device application (app) to facilitate the training pathway component.

## 2023 Mixed methods evaluation of Phase 2 and the Phase 2 Expansion

The evaluation examined employee, staff and employer perceptions and experiences of Mana in Mahi (Carter *et al*, 2024). The evaluation made the following suggestions:

- Retain key policy settings. The wage subsidy for employers, incentive payments for employees, ability to work part-time, and education support payments for equipment are important enablers for participants to join and remain in the programme.

- Ensure that MSD frontline staff are well informed (through training or communication) about eligibility criteria, employer responsibilities, and pastoral care, and that they communicate this to participants. This will ensure employers and employees are given accurate information on both their obligations and supports available.

- Clarify where frontline and regional office staff should seek support and advice on Mana in Mahi when needed.

- Encourage MSD frontline staff to offer additional support to small employers to enable them to navigate the administrative requirements of the programme and identify relevant training and qualifications for their employees.

- Enhance the promotion of pastoral care support services. This may include direct promotion of Te Heke Mai to Mana in Mahi participants, and additional proactive reach outs to employee participants at set times to promote Whītiki Tauā and Puāwaitanga.

- Consider the evaluation findings about the value of the second year alongside concurrent IDI analysis, to confirm the impact and value of the current one-year policy settings compared to the previous two-year settings.

**2023 kaupapa Māori evaluation**

A kaupapa Māori evaluation was undertaken to examine whether Mana in Mahi was creating positive and sustainable outcomes for Māori (Davies et al, 2023).

The evaluation reported that many employees found the initial transition from benefit to work challenging, and many were not aware of MSD entitlements generally or the support through Mana in Mahi available to help them. Challenges included transport, childcare, relationship/custody, and court issues. Limited use was made of virtual support services, instead some regions provided face to face support, and this was valued by participants. Many found the study requirements challenging particularly finding time outside of work. Nevertheless, many Māori employees reported gaining work experience and industry qualifications through Mana in Mahi. Māori participants spoke about the positive impacts that being in skilled employment had on their tamariki and wider whānau. They were excited by the increased likelihood greater economic security that being in skilled employment created for their whānau. These benefits were especially strong for wāhine and participants who had previously been on the benefit for more than two years.

Māori employers actively sought out Māori employees, and Māori employees in turn valued the culture of Māori workplaces. Employers welcomed the subsidy in helping to offset the lower levels of productivity and other costs for employees in the early months of their placement. However, employers (especially smaller firms) were challenged by the volume and range of pastoral care needs of employees, particularly in the first few months. A high proportion of Māori exited the programme early. Employer reasons included unrealistic expectations and lack of work ethic. Participants, on the other hand, reported issues such as their employer going out of business, employer not following through on commitments (such as enrolling them in apprenticeships or reviewing their pay levels) or unfair treatment. Because many did not have the confidence or skills to resolve these issues, they saw leaving as their only option.

*Recommendations*

The evaluation drew on Te Pae Tata, MSD's Māori Strategy and Action Plan developed in 2019 to underpin Te Pae Tawhiti (2018), MSD's organisational strategy. Both strategies identify the same three high-level 'key shifts' for the future direction of the organisation:

- *Mana Manaaki* – engaging with MSD and accessing our services is to be a positive experience.

- *Kotahitanga* – having genuine and credible partnerships with Māori to support Māori leadership in service design and delivery.
- *Kia Takatū Tātou* - supporting Māori aspirations and initiatives for long-term social and economic development inclusive of sustainable employment.

The evaluation recommendations for Mana in Mahi were mapped to Te Pae Tata, to show how some existing design features of Mana in Mahi benefitted Māori, and where potential operational improvements could strengthen MSD's response to the three key shifts.

*Strategic:*

Assess the reasons for the decline in Māori representation on the programme and increase the duration of the programme back to 2-years for beneficiaries and participants with complex pastoral care needs.

*Operational:*

- *Mana Manaaki*: review process for website enquiries, increasing awareness of and access to entitlements, increasing effectiveness of pastoral care support, and reduce the number of early exits.
- *Kotahitanga*: MSD partner with Māori to review the design of the programme and better understand Māori aspirations for the Māori workforce.
- *Kia Takatū Tātou*: promote participation by wāhine and people who have been on the benefit more than two years and increasing partnerships with Māori as employers and work brokers and pastoral care providers.

## Non-participant effects of wage subsidy programmes

Alongside the impact on participants, we need to also consider the likely impact of these interventions on non-participants (Borland, 2016). In the literature there are three effects to consider.

- **Substitution**: employers hiring the subsidised participant instead of another job seeker. As a result, the substituted job seeker will take longer to find employment.
- **Displacement**: employer taking on subsidised workers can undercut competing firms that result in lower employment among those firms.
- **Dead weight**: the employer would have hired the subsidised participant without the subsidy. High dead weight would increase the risk of displacement or employers taking the subsidy as profit.

It is difficult to reliably estimate the size of these effects and the extent to which they offset any gains in employment and income for the programme participants. A number of studies have indicated likely ranges of the negative impacts on non-participants relative to the positive impacts on participants:

- Martin and Grubb (2001): 40 to 90%

- Neumark (2013): 67 to 96%

- Brown and Koettl (2015): Sweden 65-70%, Ireland and the UK 20%, Belgium 36% and the Netherlands 50%.

New Zealand analysis of employer use of wage subsidies (Crichton & Maré, 2013) found most firms took on one or two subsidised employees at a time, that firms increased the total number of employees when the participants started, indicating these were not replacing existing workers. Their analysis also found limited evidence for employers letting participants go at the end of the subsidy period.

# Impact analysis

In this section of the report, we examine the impact of Mana in Mahi on participants' subsequent outcomes.

## Interval impacts

In this section we examine the impact of Mana in Mahi in each month before and after participants start the programme.

### Mana in Mahi has a positive impact on time in employment

Our analysis begins by looking at people who started Mana in Mahi between 2019 and 2020.[7] Figure 2 shows the proportion of participants who are in any employment in each month from 1 year before the participants started Mana in Mahi to 2.5 years afterwards. Alongside the participants, the chart also shows the same outcome for the matched comparison group.

Showing interval outcomes is a useful way of understanding how outcomes change in the period before and after starting Mana in Mahi. In the pre-participation period, the proportion of participants in any employment averages 48%. For Mana in Mahi, we can see Ashenfelter's dip[8] as the proportion of participants in employment falls in the six months before starting the programme.

As expected, the proportion of participants in employment is at its highest in the month after starting Mana in Mahi (96±1.0%). However, there is a steady decline in the proportion in employment over the following six months to 82±2.0%. From this point the decline in the proportion of participants in employment is less steep but continues until the end of the observation period. This fall in employment over the first year indicates that not all participants complete their Mana in Mahi placement.

For the comparison group, the proportion in any employment also increases in the following year from 42±2.0% to 56±2.0%, after which it continues to increase at a slower rate. Despite this increase, the proportion of the comparison group in employment remains below that of the participants.

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[7] MSD's propensity score matching process splits programme participants into standard year cohorts. For this reason, this analysis does not include those who started Mana in Mahi in 2018 as there were too few participants in that year to construct a suitable comparison group.

[8] Ashenfelter's dip is the observation that for many ALMPs, participants experience a fall in employment and labour market earnings in the period before to starting a programme. This downward trend (the dip) in earnings needs to be accounted for when selecting a comparison group who have experienced a similar dip in employment.

**Figure 2**: Interval outcomes of Mana in Mahi participants and comparison group on time in any employment
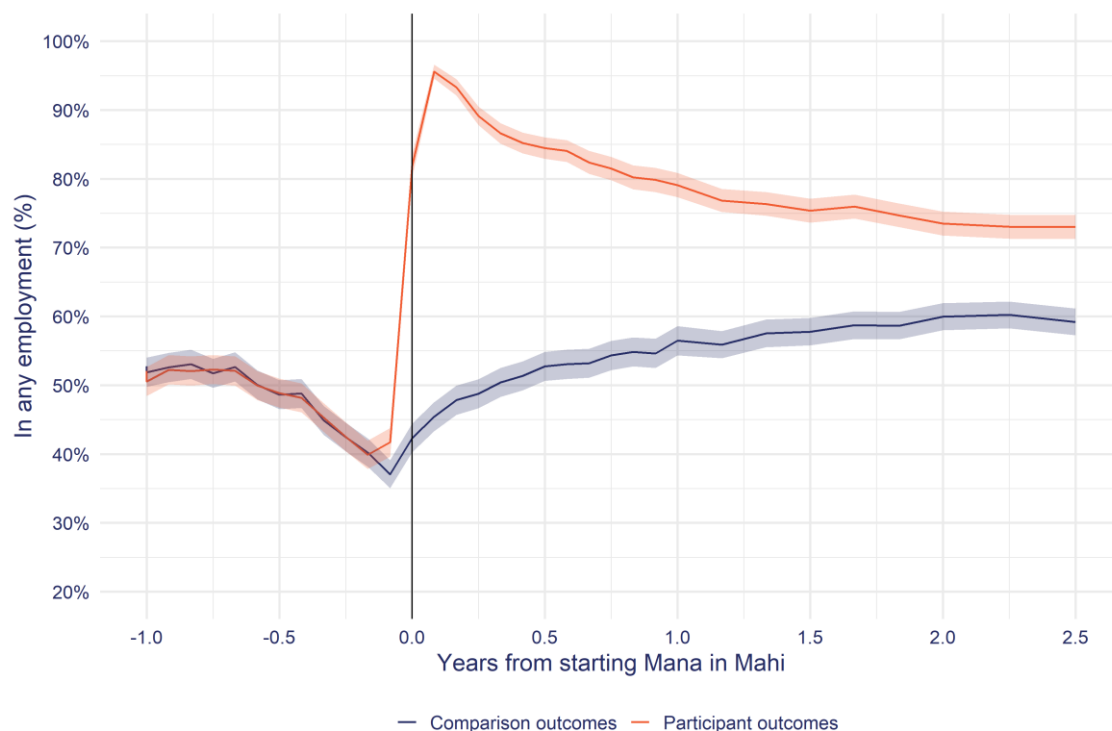


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

Figure 3 shows the impact of Mana in Mahi on employment. Here impact is measured as the difference in outcomes between the participants and matched comparison group as shown in Figure 2. For example, at one month after starting Mana in Mahi had an impact of 50±2.0 ppt[9] (ie 96±1.0% minus 45±2.0%). The impact of Mana in Mahi falls to 23±3.0 ppt after one year and 13±3.0 ppt after two years. This impact trend is typical for job placement programmes.

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[9] ppt: percentage point

**Figure 3**: Interval impact of Mana in Mahi on time in employment
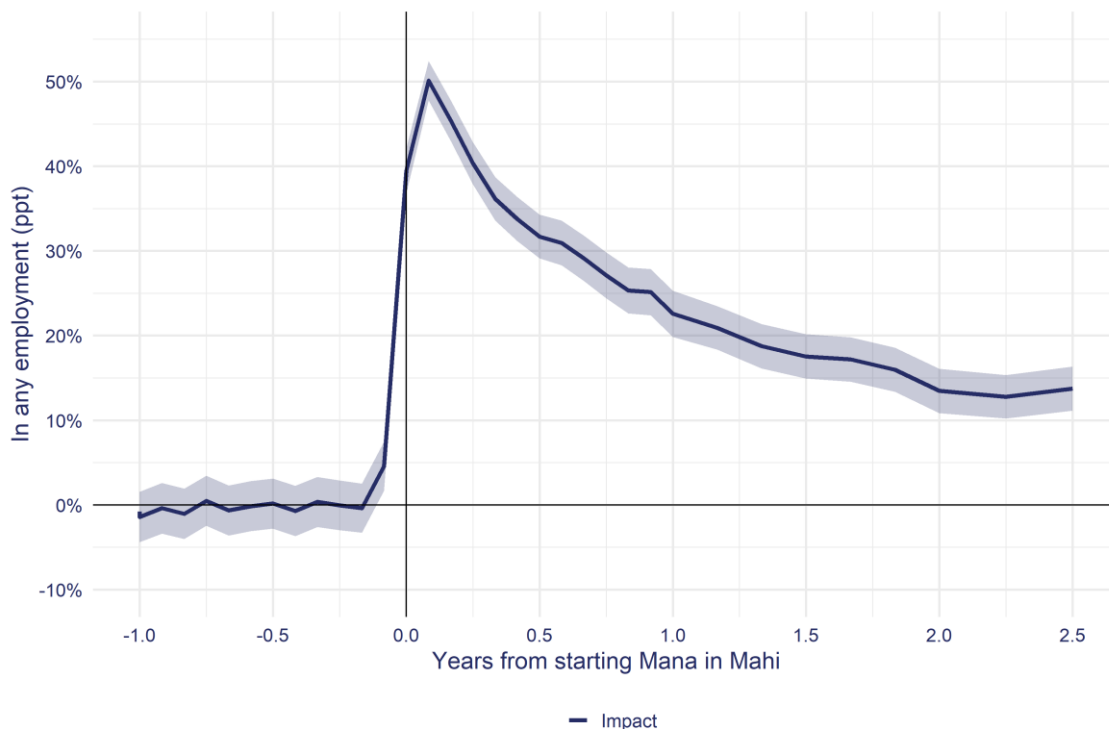


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

At the end of the follow-up period in Figure 3 we can see a positive impact on participants' employment outcomes. This means there are additional future impacts that have not yet been observed. For this reason, the impacts reported later in this analysis are an **under-estimate** of the full impact of Mana in Mahi on participants' employment outcomes.

## Impact by intervention phase

Here we examine if the impact of Mana in Mahi changed between the different phases of the programme. Figure 4 tests this by comparing the impact trends for participants by the phase they started Mana in Mahi. This allows us to compare the short-term trend for newer phases to previous phases to assess how similar their impact trends are.

**Figure 4**: Interval impact of Mana in Mahi on time in any employment by programme phase
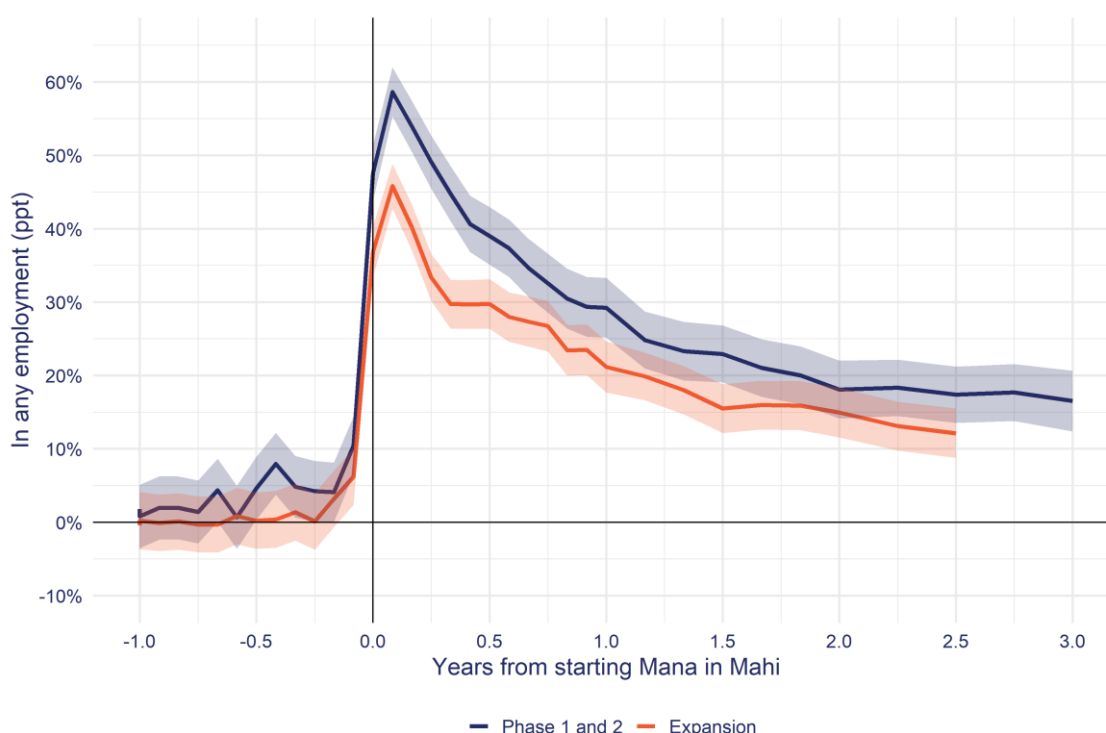


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

Figure 4 shows the trend for those who started Mana in Mahi in Phase 1 and 2 and the Expansion period. Because of the small number of participants in Phase 1 we had to combine it with Phase 2 in this analysis. It is too soon to report on the impact of Mana in Mahi for the Post-expansion phase.

What Figure 4 shows is that the impact trend for those who started in the Expansion phase was lower than that for the participants who started in Phase 1 and 2. This difference is larger in the initial year after starting Mana in Mahi.

We think there are two factors influencing the difference in impact between Phase 1 and 2 and the Expansion. The first is the shift in the profile of participants and the second is the extension of the subsidy period from 12 to 24 months. Looking at each in turn.

### Shift to more employable participants

There was a shift in the profile of Mana in Mahi participants during the Expansion phase towards people with higher levels of prior employment (see Table 6). The effect of the change in prior employment is shown in Figure 5 by plotting the outcomes of each of the participant and comparison groups by phase.

**Figure 5**: Interval employment outcomes for participant and comparison group for Mana in Mahi by programme phase
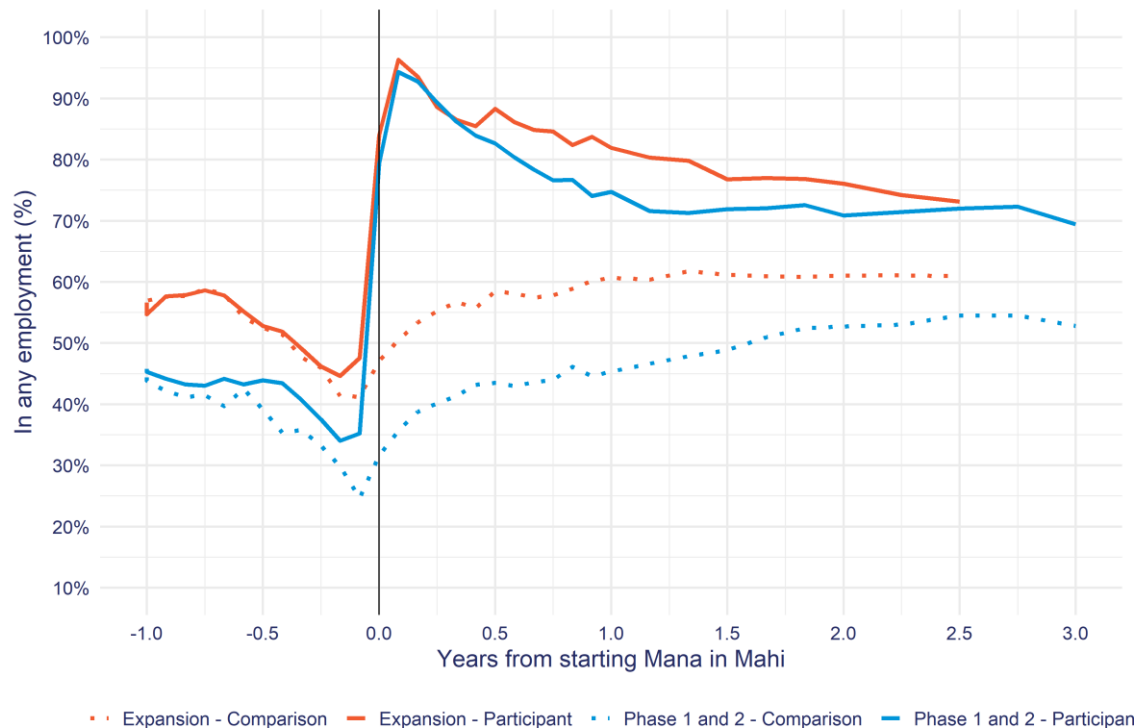


a. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

There was a noticeable difference in outcomes between the Phase 1 and 2 comparison group and that of the Expansion. Here a lower proportion of the Phase 1 and 2 comparison group are in employment both before and after the start of Mana in Mahi than the comparison group for the Expansion phase. Because the counterfactual outcomes (as represented by the comparison group) of the Expansion group are higher, the impact of the programme is correspondingly lower for participants who started during the Expansion period.

*Extension of support from 12 to 24 months*

The second, and countervailing factor, was the increase in the duration of support from 12 to 24 months. Looking at the participants' outcomes in Figure 5 we can see that Expansion phase participants (Expansion - Participant) experience higher employment six months after starting Mana in Mahi than the participants who had started in Phase 1 and 2 (Phase 1 and 2 - Participant).

There are two possible interpretations of this difference in outcome by Mana in Mahi participants between the two periods. The first is that the higher employment between six and 24 months for the Expansion phase participants is from the extended support over this period. The second is that the difference is because the Expansion phase participants are more employable than the Phase 1 and 2 participants and this difference translates into higher level of employment during the expansion phase.

To get a better understanding of the effect of extending the support of Mana in Mahi from 12 to 24 months, Figure 4 splits participants by:

- whether they started when the programme support period was 12 or 24 months in duration
- whether they were on main benefit before starting Mana in Mahi.

For example, the line labelled '12 months support and on benefit at start' in Figure 4 are participants who started during phase 1 and 2 (12 months of support) and had been on main benefit when they started Mana in Mahi).

We are most interested in the difference in impact for the people who had been on main benefit (ie 12 months support and on benefit at start vs 24 months support and on benefit at start). What the chart indicates is that the extension of assistance from 12 to 24 months did not result in a higher impact on employment for participants who were on main benefit when starting Mana in Mahi. The expectation would have been that those less work ready (ie on main benefit) would have benefited most from the addition support in the 1-to-2-year period after starting Mana in Mahi.

**Figure 6**: Interval employment impacts for participant and comparison group for Mana in Mahi by programme phase and benefit status
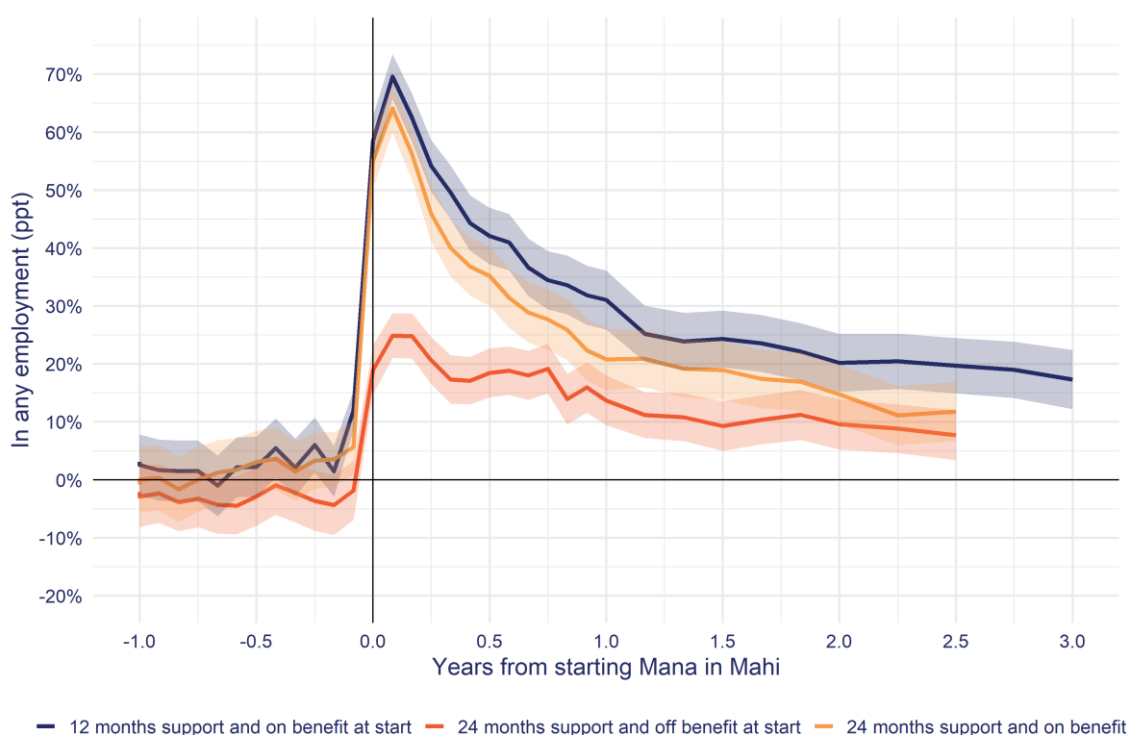


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

## Income from employment

The objective of Mana in Mahi was to move participants into higher paid employment through the achievement of industry qualifications. To examine whether this was achieved, Figure 7 plots the average monthly earnings for those in the participant and comparison group who are in employment. For example, one year after starting Mana in Mahi, 75% of participants were in employment (see Figure 2). Of those participants in any employment, their average monthly earnings were $3,113. For the comparison group in any employment at 12 months, their monthly earnings were $2,963.

**Figure 7**: Monthly earnings for Mana in Mahi participants and comparison group
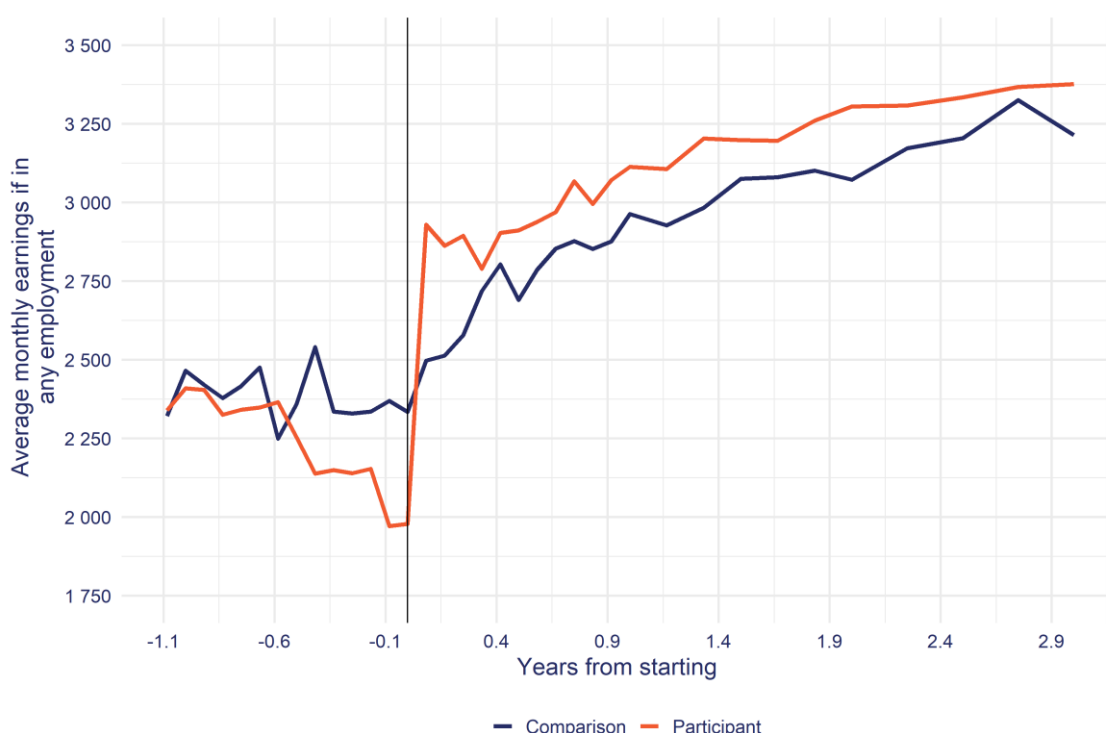


a.  Income from employment for people who are in employment.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

Figure 7 shows that participants have higher average earnings from work than the comparison group. This difference begins from when participants started Mana in Mahi, and the difference remains constant over the follow up period. However, because we do not have information on the number of hours worked, we cannot control for the effect of part-time work. It may be that the higher earnings of Mana in Mahi participants were because they are more likely to be in full time employment rather than having a higher hourly wage.

## Enrolled in education or training

The other outcome that we look at is enrolment in study (Figure 8). In line with the design of Mana in Mahi, there is a steady increase in the proportion of participants enrolled in study, peaking at just under 50 percent at six months from starting Mana in Mahi. However, of concern is the decline in the proportion enrolled after six months. This either indicates very short term training courses or people are not completing their courses and therefore not gaining a benefit from undertaking study. At this time we do

not have information on whether people successfully completed the courses they had enrolled in.

**Figure 8**: Interval outcomes of Mana in Mahi participants and comparison group on time in study
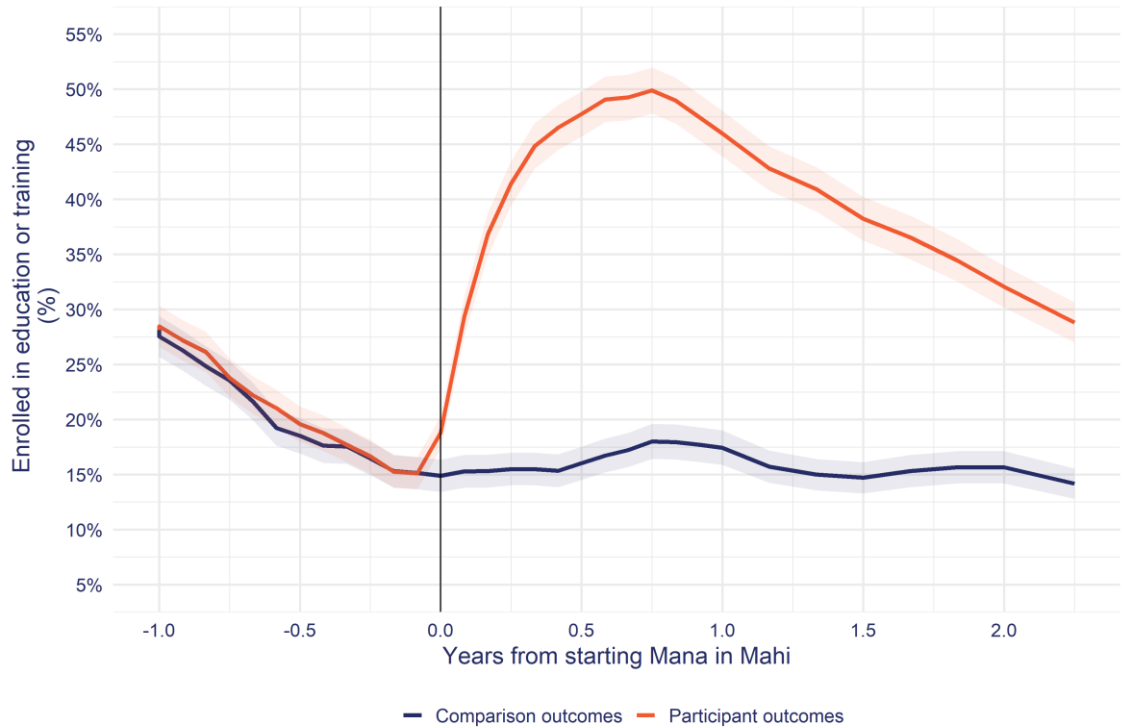


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. Enrolled in education or training: Education and training includes school, tertiary institutions and private training organisations. Enrolled does not always mean the person is attending.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

# Cumulative impacts

So far, we have looked at how impacts changed in each month before and after starting Mana in Mahi. Such interval impact charts are useful for understanding how the effect of the program changes over time but do not provide an assessment of the overall impact of Mana in Mahi. For such an assessment, we need to measure the cumulative impact of Mana in Mahi from when participants started the service as shown in Table 10.

## Impact by Mana in Mahi phase

Table 10 shows the cumulative impact across all participants on total income, highest qualification achieved, time in study, time in any employment and earnings and splits impacts by programme phase. The columns of the table show the cumulative impact of the programme at selected years after starting Mana in Mahi. For example, for participants who started Mana in Mahi during Phase 1 and 2, we estimate that after two years, participants spent 34.0±4.20 more weeks in employment than the comparison group and their total income was an additional $14,881±$3,338.

**Table 10**: Cumulative impact of Mana in Mahi on selected outcomes

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Phase | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| Phase 1 and 2 | $9,652* | $15,919* | $20,969* | $25,337* | $29,364* |
| Expansion | $7,905* | $13,465* | $17,519* | $21,187* | $24,155* |
| **Impact on net income from all sources** | | | | | |
| Phase 1 and 2 | $5,693* | $9,346* | $12,419* | $14,881* | $17,154* |
| Expansion | $4,283* | $7,494* | $9,808* | $11,958* | $13,517* |
| **Impact on the highest NZQF level achieved** | | | | | |
| Phase 1 and 2 | 0.06 | 0.02 | | | |
| Expansion | 0.05 | 0.02 | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |
| Phase 1 and 2 | 5.60* | 13.0* | 19.0* | 24.0* | 29.0* |
| Expansion | 7.90* | 17.0* | 24.0* | 30.0* | 34.0* |
| **Impact on time in employment (weeks)** | | | | | |
| Phase 1 and 2 | 14.0* | 23.0* | 29.0* | 34.0* | 38.0* |
| Expansion | 10.0* | 17.0* | 22.0* | 26.0* | 29.0* |

*: the 95% confidence interval of the impact estimate excludes zero.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

Consistent with the earlier analysis of impact trends, Table 10 shows the cumulative impacts on income and employment were lower during the Expansion phase than for those who started during Phase 1 and 2. For time enrolled in education or training, the Expansion phase had a higher impact,

but this increase has not translated through to highest qualification gained. However, because of lags in the supply of qualifications information to the IDI, it may take longer before we see the effect of increased time enrolled in education and training on highest qualification held.

# Impact by sub-group

In addition to the impact of Mana in Mahi on all participants, we also analysed the impact of Mana in Mahi on a number of participant sub-groups. While indicative, it is important to remember that any observed differences in sub-group impacts may be correlations only. It is possible that other factors related to the sub-group variable may be the underlying reason for these differences in impact.

For the sub-group analysis, participant starts are grouped into four-year periods to enable comparison between large and small subgroups over the same analysis period. However, even using a four-year participation window it is not always possible to have enough participants of a particular sub-group to estimate the impact of Mana in Mahi on their outcomes.

## Ethnicity

Table 11 shows the cumulative impact by ethnicity. Overall, the impact of Mana in Mahi is higher for Pākehā than for Māori.

**Table 11**: Cumulative impact of Mana in Mahi on selected outcomes by ethnicity

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Ethnicity | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| Māori | $7,625* | $12,837* | $16,287* | $19,666* | $22,889* |
| Pākehā | $9,694* | $16,394* | $21,662* | $26,390* | $30,603* |
| **Impact on net income from all sources** | | | | | |
| Māori | $4,073* | $7,116* | $9,270* | $11,329* | $13,277* |
| Pākehā | $6,023* | $10,382* | $13,811* | $16,673* | $19,159* |
| **Impact on the highest NZQF level achieved** | | | | | |
| Māori | 0.07 | | | | |
| Pākehā | -0.02 | | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |

| Ethnicity | Years from participation start | | | | |
|---|---|---|---|---|---|
| | 0.5 | 1 | 1.5 | 2 | 2.5 |
| Māori | 6.50* | 14.0* | 21.0* | 26.0* | |
| Pākehā | 7.40* | 16.0* | 24.0* | 30.0* | |
| **Impact on time in employment (weeks)** | | | | | |
| Māori | 11.0* | 18.0* | 22.0* | 26.0* | 30.0* |
| Pākehā | 13.0* | 21.0* | 27.0* | 33.0* | 37.0* |

\*: the 95% confidence interval of the impact estimate excludes zero.
 Impacts are for participants who started between 2018 and 2020 inclusive.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

## Age

Because the analysis covered only Phase 1 and 2 (ie those who participated between 2017-2020),[10] we currently have limited information on the effectiveness of Mana in Mahi for older participants (Table 12).

**Table 12**: Cumulative impact of Mana in Mahi on employment by age group

| Age | Years from participation start | | | | |
|---|---|---|---|---|---|
| | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| 20-24 | $8,485* | $13,504* | $17,259* | $20,305* | $23,011* |
| **Impact on net income from all sources** | | | | | |
| 20-24 | $4,162* | $6,560* | $8,358* | $9,581* | $10,753* |
| **Impact on the highest NZQF level achieved** | | | | | |
| 20-24 | -0.08 | | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |
| 20-24 | 6.70* | 15.0* | 21.0* | 27.0* | |
| **Impact on time in employment (weeks)** | | | | | |
| 20-24 | 12.0* | 18.0* | 22.0* | 26.0* | 29.0* |

\*: the 95% confidence interval of the impact estimate excludes zero.
 Impacts are for participants who started between 2018 and 2020 inclusive.

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[10] The standardised periods means that the range may be earlier or later than the period participants started in the programme. In this case the 2017-2020 range only includes Mana in Mahi participants who started from 2018 onwards.

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Age | 0.5 | 1 | 1.5 | 2 | 2.5 |

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

## Gender

Currently we can only report on male and female gender identities. This occurs because the number of people who identify as non-binary is too small to estimate the effectiveness of Mana in Mahi for.

By gender, Mana in Mahi had a higher impact on employment income for those who identify as female. However, female participants have a lower gain in net-income. This result means that female participants experience a larger reduction in transfer payments than male participants when moving into employment. Such an effect may be related to female participants being more likely to have come off Sole Parent benefit which is paid at a higher rate than Job Seeker Support.

**Table 13**: Cumulative impact of Mana in Mahi on employment by gender

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Gender | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| Female | $8,991* | $15,600* | $20,261* | $24,544* | $27,408* |
| Male | $9,131* | $15,015* | $19,392* | $23,463* | $26,845* |
| **Impact on net income from all sources** | | | | | |
| Female | $4,605* | $7,873* | $9,889* | $11,729* | $12,522* |
| Male | $5,552* | $9,416* | $12,367* | $15,023* | $17,252* |
| **Impact on the highest NZQF level achieved** | | | | | |
| Female | 0.02 | | | | |
| Male | 0.09 | | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |
| Female | 7.70* | 16.0* | 22.0* | 26.0* | |
| Male | 6.80* | 15.0* | 22.0* | 28.0* | |
| **Impact on time in employment (weeks)** | | | | | |
| Female | 12.0* | 20.0* | 25.0* | 30.0* | 33.0* |
| Male | 13.0* | 20.0* | 25.0* | 29.0* | 33.0* |

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Gender | 0.5 | 1 | 1.5 | 2 | 2.5 |

*: the 95% confidence interval of the impact estimate excludes zero.
 Impacts are for participants who started between 2018 and 2020 inclusive.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

## Benefit type

Table 14 shows the benefit status of participants before they started Mana in Mahi. At present we can only compare those leaving Jobseeker Support Work Ready and people not on main benefit when starting Mana in Mahi. For employment and earnings from work, Mana in Mahi had substantially lower impacts for people not on main benefit before starting Mana in Mahi than those coming from Jobseeker Support Work Ready. For net income the difference is smaller because of the reduction in transfer payments by people leaving main benefit. For education, there is little difference in enrolments or highest qualification held.

**Table 14**: Cumulative impact of Mana in Mahi on employment by benefit type

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Benefit | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| Jobseeker Support Work Ready | $10,862* | $17,361* | $22,750* | $27,360* | $31,258* |
| No Benefit | $5,805* | $10,127* | $13,229* | $16,172* | $18,542* |
| **Impact on net income from all sources** | | | | | |
| Jobseeker Support Work Ready | $5,604* | $9,373* | $12,656* | $15,328* | $17,542* |
| No Benefit | $4,625* | $7,838* | $10,227* | $12,457* | $14,196* |
| **Impact on the highest NZQF level achieved** | | | | | |
| Jobseeker Support Work Ready | -0.16* | | | | |
| No Benefit | -0.11 | | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |
| Jobseeker Support Work Ready | 7.30* | 15.0* | 22.0* | 27.0* | |
| No Benefit | 7.00* | 15.0* | 22.0* | 28.0* | |

| Benefit | Years from participation start | | | | |
|---|---|---|---|---|---|
| | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on time in employment (weeks)** | | | | | |
| Jobseeker Support Work Ready | 15.0* | 23.0* | 30.0* | 35.0* | 39.0* |
| No Benefit | 7.30* | 12.0* | 15.0* | 18.0* | 20.0* |

*: the 95% confidence interval of the impact estimate excludes zero.
 Impacts are for participants who started between 2018 and 2020 inclusive.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

We expect the difference in impact by benefit type to increase with longer follow up period. As Figure 9 shows the interval impact of Mana in Mahi is higher for those coming from Jobseeker Support Work Ready than those not on main benefit immediately before starting Mana in Mahi. What this means is that past the 2.5 year follow up period shown in Table 14 the positive impact of Mana in Mahi will persist for longer for Jobseeker Support Work Ready participants than the not on benefit group.

**Figure 9**: Interval impact of Mana in Mahi on time in any employment by benefit type
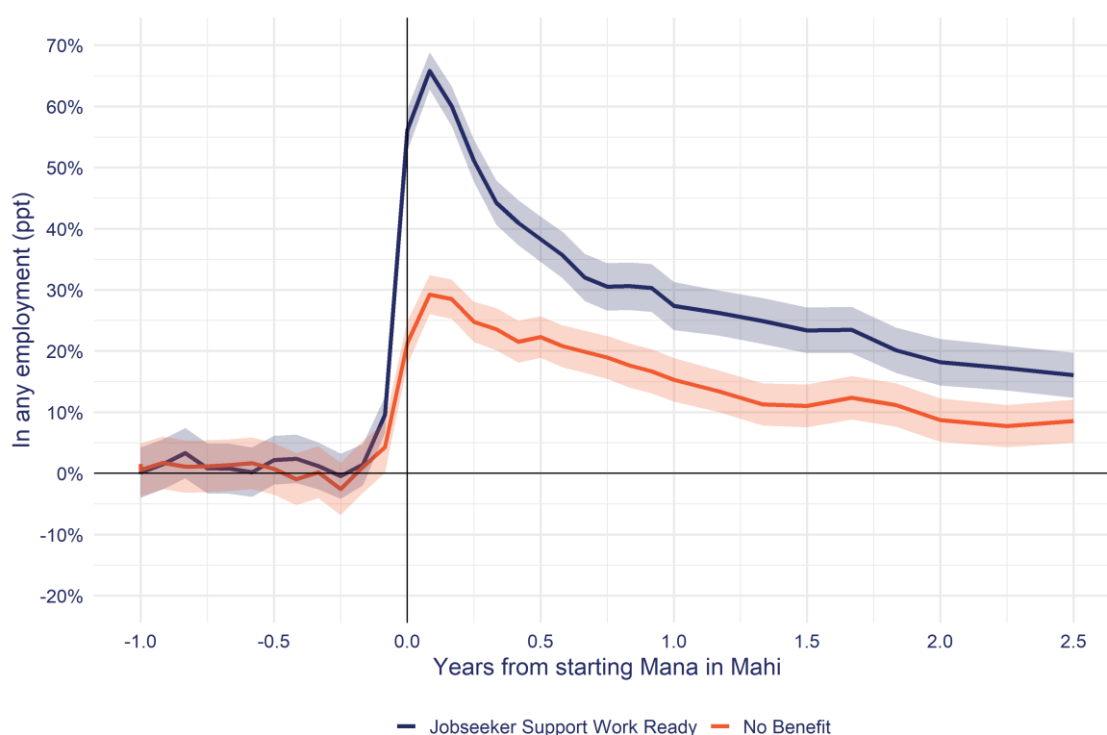


a. The shaded area around each line indicates the 95% confidence interval of the estimate.
b. In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

## Benefit duration

By benefit duration, we find that impact on employment and earnings increased with continuous duration on main benefit before starting Mana in Mahi (Table 15). Because the 1-to-2-year group is relatively small in number, we do not have impact results for this group.

Like gender, while people on benefit for over two years experienced higher impact on net-income from employment ($26,500±$4,830 after 2 years), the impact on overall net-income was lower ($11,409±$5,244) relative to the other two duration bands.

**Table 15**: Cumulative impact of Mana in Mahi on employment by continuous benefit duration

| | Years from participation start | | | | |
|---|---|---|---|---|---|
| Benefit duration | 0.5 | 1 | 1.5 | 2 | 2.5 |
| **Impact on net employment income** | | | | | |
| None | $5,805* | $10,127* | $13,229* | $16,172* | $18,542* |
| Under 1 year | $10,380* | $17,193* | $22,526* | $26,748* | $30,525* |
| Over 2 years | $10,970* | $17,423* | $22,279* | $26,500* | $30,185* |
| **Impact on net income from all sources** | | | | | |
| None | $4,625* | $7,838* | $10,227* | $12,457* | $14,196* |
| Under 1 year | $5,955* | $10,484* | $14,215* | $16,898* | $19,284* |
| Over 2 years | $4,567* | $7,257* | $9,596* | $11,409* | $12,711* |
| **Impact on the highest NZQF level achieved** | | | | | |
| None | -0.11 | | | | |
| Under 1 year | -0.17 | | | | |
| Over 2 years | 0.01 | | | | |
| **Impact on time enrolled in education and training in weeks** | | | | | |
| None | 7.00* | 15.0* | 22.0* | 28.0* | |
| Under 1 year | 6.70* | 14.0* | 20.0* | 24.0* | |
| Over 2 years | 7.60* | 16.0* | 22.0* | 27.0* | |
| **Impact on time in employment (weeks)** | | | | | |

| Benefit duration | Years from participation start | | | | |
|---|---|---|---|---|---|
| | 0.5 | 1 | 1.5 | 2 | 2.5 |
| None | 7.30* | 12.0* | 15.0* | 18.0* | 20.0* |
| Under 1 year | 14.0* | 22.0* | 28.0* | 32.0* | 36.0* |
| Over 2 years | 16.0* | 24.0* | 30.0* | 35.0* | 40.0* |

*: the 95% confidence interval of the impact estimate excludes zero.
 Impacts are for participants who started between 2018 and 2020 inclusive.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

# Impact of Mana in Mahi compared to other hiring subsidy programmes

Mana in Mahi is not the only hiring wage subsidy programme administered by MSD. In this section we look at the effectiveness of Mana in Mahi compared to similar programmes either running currently or have operated in the past (Table 16). Note the method used to estimate the effectiveness of these other programmes is the same as for Mana in Mahi. More information about each of these programmes can be found in the EA evidence catalogue.[11]

**Table 16**: Two-year cumulative impacts for hiring wage subsidy interventions

| Programme | Period | Employment | Income |
|---|---|---|---|
| Regional Wage Subsidy | 2001-2004 | 14.7 (6.4) | $-1,359 (3,472) |
| Job Plus | 2001-2004 | 24.5 (1.4) | $6,545 (854) |
| | 2005-2008 | 25 (1.4) | $6,368 (1,043) |
| Skills Investment | 2009-2012 | 27 (1.4) | $8,398 (1,149) |
| Flexi-wage | 2009-2012 | 37.4 (2.3) | $14,091 (1,904) |
| | 2013-2016 | 36.2 (1.4) | $12,343 (1,231) |
| | 2017-2020 | 30.4 (1.4) | $13,053 (1,367) |

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[11] https://ea.analytics.msd.govt.nz/

| Programme | Period | Employment | Income |
|---|---|---|---|
| Mana in Mahi | 2017-2020 | 27.7 (2.8) | $12,724 (2,353) |

Impact is measured over the four years after starting the programme.
The bracketed figure gives 95% confidence interval of the impact estimate.

**Source**: Statistics New Zealand, Integrated Data Infrastructure, October 2023.

Table 16 shows the two-year cumulative impacts for hiring subsidy programmes that have operated between 2001 and 2020. For each participant cohort (period) the table shows the impact on time in employment in weeks and the overall income (transfers plus earnings and adjusted for inflation). Apart from Regional Wage Subsidy, all programmes show positive impacts. Mana in Mahi (2018-2020) shows a similar impact to Flexi-wage (2017-2020) on time in employment and income.

# Method

This section provides a high-level summary of the methods used in this report.

## Individualised Cost Allocation Model

We use the individual Cost Allocation Model (iCAM) to estimate the cost of EA interventions for each financial year (MSD, 2017). Insights MSD created iCAM to provide a view of how spending to date has been allocated to outputs at the individual level. Here we define outputs as activities that MSD does to assist people such as a face-to-face meeting, a main benefit application, or an EA intervention.

### Principles behind the cost allocation model

The cost allocation model works on the following principles:

- **Include all financial costs for Service Delivery (the operational arm of MSD)**: the model starts with appropriation[12] expenditure for all outputs delivered by Service Delivery. The reason behind this principle is to make sure we do not exclude any costs that are already recorded in the Ministry's financial systems. Having said this, income support payments designed to reduce income inadequacy are currently excluded, but we plan to include this information in later updates.

- **Reconcile allocated expenditure to financial totals**: for each appropriation, the model reconciles (as far possible) the allocated expenditure back to the appropriation amount in each financial year. At the very least, the sum of the allocated expenditure in each financial year should not exceed the appropriation amount.

- **Disaggregate costs down to the individual output level**: to provide the highest level of accuracy and flexibility, the model disaggregates costs down to outputs (see the Cost allocation framework section below) at the person-event level. By doing so, we can accurately assess the amount of expenditure for individuals as well as retain the flexibility to summarise costs for any group of people. By building the model this way, we can also estimate the variability in the cost of delivering specific types of outputs.

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[12] We use the term here to refer to how public money is spent, see:
https://treasury.govt.nz/publications/guide/guide-appropriations-html#section-1

- **Apply the same approach over all financial years**: by applying the same approach across financial years (from 2001/2002 onwards) it is possible to identify trends in the cost of Service Delivery outputs across groups of people. However, this also means it is not possible to compare results across different versions of reports or updates to the model.

## Cost allocation framework

In this report, we briefly describe how the cost model works by using an example of an in-house seminar delivered by MSD. For a more detailed description, please refer to the iCAM technical report (MSD, 2017).

We breakdown the cost of an output into components as listed in Table 17. For example, for a seminar, one component would be the time taken to book an appointment, alongside the seminar cost itself in the form of staff running the seminar. On the other hand, a hiring wage subsidy would include referral, placement opportunity, subsidy administration as well as the subsidy payment itself.

The next step is to calculate the component cost for each output by financial year, starting with determining total expenditure (see the Financial inputs section below) for each of these components.

**Table 17**: Cost components and their metrics

| Component | Definition | Metric |
|---|---|---|
| Appointment | Scheduling an appointment | Staff time |
| Benefit administration | Assessing and maintaining entitlement to income support assistance | Staff time |
| Benefit payments | Bank fees for payment of income support benefits | Pay weeks |
| Client contact | Contact with individuals to help them plan and move into employment or time spent updating their records | Staff time |
| Contract Administration | Administration of contracts, including tendering, negotiation, payment and managing the performance of contracted providers | Contract amount |
| Contract payment | Payment of contracts | Contract amount |
| Grant | Financial transfer to people to assist them with further training or with transitioning into employment | Grant amount |
| Grant Administration | Assessing and administering grant applications | Staff time |
| Integrity (fraud and debt) | Identification of benefit fraud and the collection of outstanding debt | Staff time |

| Component | Definition | Metric |
|---|---|---|
| Placement opportunity | Time spent by contact centre staff and work brokers to identify and establish vacancies with employers | Starts |
| Referral | Time spent by case managers in referring people to employment vacancies, employment programmes, or training programmes | Staff time |
| Seminar | Staff time in administering and running seminars | Staff time |
| Study Assistance | Time in assessing and maintaining entitlement to student loans and allowances | Staff time |
| Wage Subsidy | Payments made to employers or sponsors in relation to wage subsidy, work experience, or self-employment programmes | Subsidy payments |
| Wage Subsidy Administration | Cost of administering wage subsidy assistance | Starts |
| Provider management | Staff time in managing service provider information and relationships. | Staff time |
| Unallocated Service Delivery | Unallocated frontline staff time costs for Service Delivery | Duration on income support or student allowance |

The next step is to find a metric related to each component so that we can assign a dollar value to that component. We define metrics as quantitative information about each component of an output. For example, for the appointment component, we can use the number of minutes that staff spent on booking participants for each seminar. Multiplying the number of minutes spent by staff cost-per-minute rate will give us the appointment cost for each seminar attendee.

Finally, we add the cost of each component to arrive at a total cost for the seminar. The variation in the cost of each output for the financial year will depend on the variability in the cost of each of its components.

## Financial inputs

Having identified the outputs, their cost components, and how to assign costs to them, the next question is where we source the financial costs for Service Delivery. We can access records of Service Delivery expenditure through the Ministry's financial accounting system. These records capture expenditure information down to the cost centre and general ledger (GL) nominal/natural account level.

With monthly financial data the next step is to link expenditure to cost components. For some cost components there is a relatively straightforward link to the financial inputs. For example, the wage subsidy payments for a

wage subsidy programme have their own GL nominal code. For others the relationship is less clear. For those cost components that involve staff time, the component costs are a subset of the overall expenditure on staff costs recorded in the financial systems. In these instances, we need to apportion staff costs to components based on the estimated time it took to undertake each component task.

## How do we estimate staff time?

Table 17 above shows that staff time is a commonly used metric in the model. However, obtaining this data is not straightforward. In this section, we summarise how we estimate the time spent on different activities. The source of this information is system transactions on MSD's various IT administrative systems combined with appointments, seminars and task management data. The key information for these transactions is:

- a unique ID for a staff member

- a unique ID for an individual

- a start time

- an end time

- what the action was.

This allows us to construct a transaction-based view of a staff member's day. Table 18 below shows an example for a staff member from the start of their day. For each period, the model identifies the type of action they are undertaking and measures the time until the next action based on the Time (end) value. If there is more than one action, then the elapsed time is split evenly between each action as shown in the Minutes column. Where client ID is missing, these represent periods where either the staff member is undertaken action unrelated to a client (eg a lunch break) or the action exceeded the expected time it would have taken to complete the action. The threshold of excessively long tasks is the 90th percentile for that activity over all staff on the same day. In cases whether the activity exceeds the 90th percentile, the activity is split into two records, with the excess time is allocated to non-contact time in the model.

**Table 18**: Example of a staff member's actions from the start of their day

| Time (end) | Action type | Action | Client id | Minutes |
|---|---|---|---|---|
| 9:12:00 | Case management | Search for client | 10 | 5.52 |
| 9:16:00 | Case management | Case Management | 25 | 2.00 |
| 9:16:00 | Case management | Scan Document | 25 | 2.00 |
| 9:19:00 | Income Support Administration | Third tier assistance | 6 | 3.00 |
| 9:20:00 | Income Support Administration | Third tier assistance | 6 | 0.50 |
| 9:20:00 | Case management | Case Management | 33 | 0.50 |
| 9:21:00 | Case management | Search for client | 33 | 1.00 |
| 9:22:00 | Income Support Administration | Maintenance | 33 | 0.50 |
| 9:22:00 | Income Support Administration | Third tier assistance | 33 | 0.50 |
| 9:23:00 | Income Support Administration | Third tier assistance | 33 | 1.00 |
| 9:24:00 | Case management | Scan Document | 33 | 1.00 |
| 9:29:00 | Income Support Administration | Maintenance | 33 | 3.50 |
| 9:29:00 | Non contact time | Non contact time | - | 1.50 |
| 9:30:00 | Income Support Administration | Third tier assistance | 33 | 1.00 |
| 9:31:00 | Case management | Case Management | 14 | 1.00 |
| 9:37:00 | Case management | Search for client | 14 | 6.00 |
| 9:38:00 | Case management | Search for client | 14 | 1.00 |
| 9:47:00 | Case management | Case Management | 14 | 3.50 |
| 9:47:00 | Non contact time | Non contact time | - | 5.50 |
| 9:48:00 | Case management | Search for client | 14 | 1.00 |

We then link transactions to outputs that have components with staff time as a metric. These transactions should occur around the start date of the output, or within the start date and end date of the output, depending on the type of cost component. Also, staff transactions need to be of the same type. For example, staff time spent on income support administration is not linked to the management or delivery of employment programmes or services.

# Counterfactual Approach and method

This section provides an overview of the approach used to estimate the difference Mana in Mahi makes to participants' outcomes. Also described are

outcome domains covered in this analysis and the specific outcome measures used.

## Approach: a quantitative counterfactual framework

In this report, effectiveness is analysed using a quantitative counterfactual framework. The counterfactual framework can be summarised by the question 'what outcomes would have occurred if the participants had not participated in Mana in Mahi?' Any quantitative difference in outcomes between these two scenarios is interpreted as the causal impact of Mana in Mahi on participant's outcomes.

The obvious challenge is that we cannot observe both scenarios for the participants. Instead, we need a suitable non-participant group whose outcomes can represent the counterfactual scenario (ie the outcomes of participants if they had not participated in Mana in Mahi).

## Controlling for participant selection

Central to the selection of a comparison group is to be certain their expected future outcomes are the same as the the participants. Discussion on comparison group selection often focuses on how to account for the process by which people become participants (ie selection effects).

For most employment interventions, the number of places available is less than the number of people eligible to participate. Accordingly, there needs to be some process of allocating people to different interventions. How this allocation process varies by intervention as well as over time and across local offices. What this means is that participants usually differ in important ways from those who do not participate. Of these differences, we are most concerned with those that are also important in determining future outcomes. For this reason, we cannot simply use the outcomes of non-participants to represent the counterfactual outcomes of participants (Bryson, Dorsett, & Purdon, 2002).

Selection bias is the term used to refer to difference in the expected outcomes of participants and non-participants **before** the participants receive the intervention. The challenge for counterfactual designs is to control for selection bias as far as possible. If selection bias is not adequately controlled for, then we cannot be sure how much of the difference in observed outcomes between participants and counterfactual are because of the programme or selection effects or, most likely, a combination of the two.

How selection effects occur depend on the intervention being evaluated. However, there are several common sources.

**Participant motivation**

For voluntary interventions, the motivation of people participating in the intervention is a key factor. The common concerned raised with the counterfactual approach is that more motivated and able people participate. Conversely, some people participate for ulterior reasons, such as re-qualifying for financial entitlements or to avoid looking for work. Participant motivation is the most difficult selection effect to account for because evaluators usually have limited insight into individual's motivation to participate.

**Case manager judgement**

For many interventions we must also look at the motivation of staff referring people to interventions. Here, staff may be making their own judgements on the suitability of individuals for interventions; either consciously or unconsciously (Bryson, Dorsett, & Purdon, 2002).

Alternatively, staff may have performance targets that lead to perverse behaviour. For example, intervention performance is often based on post-participation outcomes. In this case, the motivation is to refer highly employable people to maximise the post-participation outcomes (creaming) and discourage those who appear to face considerable barriers to employment from participating (parking).

Again, evaluators do not have direct knowledge of the motivation of those staff making referrals. However, we may not need to be as concerned over staff motivation as compared with participant motivation. We base this judgement on four observations:

- Statistical risk assessment approaches have been shown to be as good or better than front-line or clinical staff in predicting future outcomes for an individual, see Grove, Zald, Lebow, Snitz, & Nelson (2000), Hanson & Morton-Bourgon (2009). In the context of Public Employment Services, Swiss and Swedish analysis found risk profiling models achieved higher accuracy than caseworkers (Arni and Schiprowski, 2015, and Arbetsförmedlingen, 2014, cited in Desiere, Langenbucher and Struyven, 2019). Consequently, if there is a sufficiently rich profile information, it is possible to account for any targeting based on staff assessment of potential outcomes.

- Similarly, there is no evidence to show that front line staff can predict how beneficial an intervention will be for a given individual (Lechner & Smith, 2007; Frölich, 2001; Huber, Lechner, Wunsch, & Walter, 2009; Bell and Orr, 2002). All these studies concluded that case manager referrals are close to random in terms of referring those most likely to benefit.

- While case managers have access to information about potential participants unobserved by the evaluators, it is also true evaluators have information unobserved by case managers. In the context of the SNZ IDI, the evaluators have information about people from many different agencies and the census. Such information is not available to any one case manager, nor could a case manager be able to process this amount of information sensibly.

- Finally, of observable characteristics, the most important is the actual outcomes of individuals. In the context of employment programmes, meaningful changes in outcomes such as employment occur over months or years. It is rare for a case manager to be able to systematically observe the outcomes of all the people they worked with or made a referral decision about.[13] Therefore, any heuristic models case managers may have about the of expected outcomes of individuals or expected impacts of specific interventions suffer from high levels of missing data.

**Explicit eligibility criteria**

To target interventions, organisations often have explicit eligibility criteria on who can participate and who cannot. In addition, there can be rules about the priority for individuals in receiving the service. For evaluators this type of selection effect can be controlled for since the eligibility criteria are often based on information available for all potential participants. Examples include whether a person is on a main benefit, or if they are under a certain age.

**Intervention availability**

The availability of interventions can often vary in time and space. Therefore, evaluators need to account for when and where people participate in the intervention.

## Method: propensity score matching

Within the counterfactual framework, randomly allocating people into a treatment (who participate) or control group (who do not) is the most robust method to estimate the impact of an intervention. The reason is that, other than participating in the service, the treatment and control groups are

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[13] consistent tracking of outcomes is hampered by both changes in the roles of case managers themselves as well as geographic movement of individuals. In addition, there are no performance measure of how good case managers are at judging client future outcomes largely because case manager judgement of how likely a person is to be employed or become long term beneficiary is not recorded.

equivalent in all other respects.[14] This method is referred to as a randomised control trial or RCT.

However, because an RCT was not set up for Mana in Mahi, we need to use a less robust method called propensity score matching (PSM). PSM constructs a comparison group who have the same average observed profile as the participants. PSM is more credible if a rich profile is used, and for this reason, the analysis was done using the SNZ IDI (discussed next) as it has information on many varied aspects of people's lives.

The reason PSM is less robust than RCT is that it is still possible that, after matching, unobserved differences remain in the make-up of the participant and matched comparison group. The implication of these prior differences is that they may also result in differences in future outcomes, irrespective of participating in Mana in Mahi or not. Consequently, any actual difference in observed outcomes will be a combination of the effect of participating in Mana in Mahi and the effect of prior unobserved differences. It is not possible to

- know whether unobserved differences exist, and
- disentangle the two effects in the analysis.

Instead, we make the assumption that there are no unobserved differences between the matched comparison and the participant group. This assumption is referred to as the Conditional Independence Assumption (CIA).

### Integrated Data Infrastructure (IDI)

The PSM analysis was undertaken in the Statistics New Zealand Integrated Data Infrastructure (IDI), which is a data platform for researchers that links anonymised individual-level information across several domains ranging from health care through to driver licence status. While researchers have access to individual-level data, all outputs are aggregated with measures in place to protect the privacy of individuals, firms and institutions. Statistics New Zealand reviews all IDI output to ensure that these measures have been implemented.[15]

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[14] Note this statement holds for the two groups on average and does not mean that each treatment has an identical control.

[15] For more detail on the SNZ IDI, please visit https://www.stats.govt.nz/integrated-data/integrated-data-infrastructure/

### *PSM is well suited to evaluate the impact of Mana in Mahi*

PSM using the SNZ IDI is well suited to evaluating the impact of Mana in Mahi for the following reasons:

- participants make up a small proportion of the potential participant population, and therefore we have a large non-participant population to draw a comparison group from

- the IDI has information on the entire New Zealand population, allowing the selection of a potential comparison group from the largest pool of potential matches possible

- the IDI enables us to build a comprehensive set of profile variables to ensure the matched comparison group is similar to the participants on a large number of socio-demographic domains

- MSD has individual-level information on all individuals who have had contact with its services as well as access to information on these people from other government agencies through SNZ IDI.

In addition, examining the referral process for Mana in Mahi we have not identified significant issues with confounding. Confounding often occurs when referral is made in anticipation of a future event. Examples include transition to work interventions where it is difficult to identify a comparison group in a similar transition state independent of programme referral.

### *How good is PSM in estimating counterfactual outcomes?*

There have been a number of studies that have compared impacts between RCT and non-RCT studies (including PSM). These can be divided between cross and within study comparisons. Looking at each in turn.

**Cross comparison studies**

Cross study comparisons such as meta-analysis can examine if there is any systematic bias between study methods. In particular, whether non-RCT studies tend to produce more positive results than RCTs for the same types of programs. An important study of this type was by Card, Kluve & Weber (2017) who undertook a meta-analysis of impact of 857 employment or training programmes. As part of the analysis they examined whether the method used influenced the direction or size of reported impacts and found no substantive differences.

**Within study comparisons**

Within studies provide a more robust comparison of alternative methods. LaLonde (1986) is one of the first studies of this kind and concluded that non-experimental approaches did a poor job of replicating the experimental findings for employment programmes. However, later analysis identified

that in many instances these studies suffered from the problem that the non-experimental methods were constrained by the data available within the RCT study (Smith, 2000). Orr, Bell, and Klerman (2009) likewise point to the need to have good quality information on programme participants' prior employment and earnings trends to account for aspects such as Ashenfelter's dip as pre-conditions to undertake robust non-experimental studies. These recommendations have been incorporated into the current analysis.

A recent study in the health setting by Wang, Schneeweiss *et al* (2023) point to a similar conclusion. When comparing PSM using US based health insurance data with 32 RCTs, they found a moderate correlation in findings between RCT and PSM (Pearson correlation of 0.82 (95% CI, 0.64-0.91)). But when they limited the analysis to the 16 where PSM was able to emulate the RCT more closely than the correlation increased to 0.93.

These results suggest that with access to comprehensive data, such as through the IDI, non-experimental methods such as PSM can produce similar conclusions as experimental methods. But the literature also confirms that experimental methods will always provide more robust evidence on effectiveness.

### *Profile variables*

Central to conducting a robust PSM is having a rich set of profile variables of participants and non-participants to ensure the matched comparison group has:

- the same expected future outcomes as the participants, and
- have similar probability of participating in Mana in Mahi.

We have built a standard set of profile variables that are designed to help ensure that participants and matched comparison are similar in these two respects.

Table 19 summarises the domains of the variables included in the PSM for EA interventions. Appendix 1 Table 20 shows, as an example, the participant and matched comparison group profiles for Mana in Mahi who started between 2019-2020 starts. For more detailed results refer to the EA evidence catalogue.

**Table 19**: Summary of profile variables used in propensity matching

| Area | Description |
|---|---|
| **Demographics** | |
| Age | Age group |
| Gender | Gender identity, only includes male and female. |
| Ethnicity | Total response, SNZ level one ethnic identity. |
| **Education** | |
| School | Information on the type of school (state or private), the decile of the school, the number of schools attended, suspensions, standdowns, truancy and special education support. |
| Tertiary study | Time enrolled in tertiary study by NZQF level and enrolled in study at set months before participation profile date. |
| Qualifications | Highest qualification based on education, census, or MSD data sources. Highest qualification is measured a set lapse periods before profile date to account for any changes in qualification status before starting a programme. This control is most important for younger people whose qualification level can change over relatively short periods. |
| **Health and disability** | |
| Incapacity information | Recorded incapacity information for people who have applied for Health Condition or Disability related benefits. A person can have up to four recorded incapacities at any one time. There are two measures, one for current incapacity status and one for incapacity in the last 5 years. |
| Mental health | Indicators of mental health care access including use of pharmaceuticals. |
| **Location** | |
| Deprivation index decile | The NZDep is an area-based measure of socioeconomic deprivation in Aotearoa New Zealand, it measures deprivation at SA2 level with decile 1 representing least deprived areas and 10 the most deprived. SA2 geographies aim to reflect communities that interact together socially and economically (eg at the level of a suburb or small town). |
| Urbanisation of location | SNZ classification of the person's location from major urban area through to rural as well as overseas. |
| Local labour market | Labour market information on the location a person lives (SNZ SA2 geographies), including average income, employment or study rate, average qualification level, working age population on main benefit and the dependency ratio. |
| **Housing** | |
| Number of address changes | Number of changes in recorded address over the last two years. |

| Area | Description |
|---|---|
| **Employment** | |
| Duration in employment | If currently employed the duration in their current spell of employment. |
| Duration since last employment | If not employed, the time since last employment. |
| Working life in employment | Proportion of working life (16-64) spent in employment, excluding time living outside New Zealand or before the year 2000. |
| Employment history | Employment status at set months before profile date. |
| **Income Support** | |
| Current benefit status | Current main benefit information. |
| Benefit duration | Duration on current main benefit. |
| Recent benefit history | Previous main benefit received. |
| Total benefit contact | Proportion of adult life spent on different types of main benefit. |
| First benefit information | Age and which benefit a person was first granted. |
| Childhood benefit receipt | Time that care givers where receiving a main benefit split by age group. |
| Income support history | Total income support payments at set months before profile date. |
| **Justice** | |
| Police offences | Includes number of offences, the time since last offence, the most serious offence and age of first arrest. |
| Corrections spells | Total time spent in different Corrections services, age of first Correction contact and time since last Correction involvement. |
| Youth Justice | Number of youth justice referrals and time spent in youth justice placements. |
| Corrections history | If in a correction service at set months before profile date. Correction service is split between prison and non-prison service. |
| **Income** | |
| Income history | Total net income from all sources, labour market income and child support payments at set months before profile date. |
| **Residency** | |
| Migrant status | Identifies time spent living in New Zealand, age of first arrival in New Zealand, Migrant's first arrival visa, including if arrived as a refugee, region of origin. |

| Area | Description |
|---|---|
| **Overseas** | |
| Overseas history | Whether a person is overseas at set lapse periods before profile date. |
| **Employment assistance** | |
| Participation in employment assistance | Expenditure on MSD funded employment assistance programmes and services at set months before profile date. |
| **Care and Protection** | |
| Care notifications | Notifications to child protection agencies, split by age group. |
| Care placements in childhood | Time spent in child protection placements, split by age group. |
| **Transport** | |
| Private driver licence | Private motor vehicle status at set lapse periods before profile date. |
| Commercial driver licence | Commercial driver licence status. |

One strategy to ensure participants and matched comparison group have similar expected future outcomes is to include key measures of those outcomes in the profile. In particular a number of profile variables related to outcomes such as employment and education and training are measured at set periods before the profile date. The current periods are 1 to 12, 15, 18, 21, 24, 30, 36 and 42 months before profile date. The purpose of measuring profile variables at set periods before profile date is to account for trend in outcomes leading up to participation in an intervention. For example, it is important to account for the often-observed downward trend in employment and increased benefit receipt by participants in the months before starting an intervention.

### *Selection of matched comparison group*

Here we outline the steps in conducting PSM for Mana in Mahi. We run a standard PSM matching process across approximately 70 employment programmes, including Mana in Mahi. Using a standardised PSM process both increases efficiency and coverage but also ensures that results can be compared across programmes without needing to consider methodological differences. However, such standardisation does reduce some flexibility in the analysis for specific interventions. As far as possible for specific programme questions, such as particular sub-groups of interest are incorporated into the standard matching procedure.

**Participant selection**: depending on the number of starts, Mana in Mahi participants are split into one-, two- or four-year cohorts. For smaller programmes and subgroups, these are grouped into longer periods to ensure sufficient number of participants for each PSM cohort (target is more than 2,000). Instances where participants repeat the programme within six months, then the second spell and subsequent spells are excluded from the analysis. In instances where the number of starts exceed 5,000, then a sample of 5,000 is taken.

**Non-participant selection**: using the IDI person table identify anyone who was aged between 16 and 64 in the same PSM cohort period (eg if PSM cohort covers starts between 2018 to 2020, then select all non-participants aged 16 to 64 between 2018 and 2020). Of this population, for each month we select a random date to represent the equivalent of the participation start date (ie if the PSM cohort is 12 months long then 12 dates are selected for each non-participant). The profile date is set to the end of the prior month to reduce the risk of confounding through including profile information from after the participation start date. For example, employee tax data is recorded by calendar month and therefore the income in the month a participant starts a programme may include income earned after participation start. At this stage, the non-participants sample can be in the tens of millions (eg individual non-participants x n-months). To reduce computation, a maximum ratio of 1 participant to 500 non-participants is selected using a propensity score using a reduced number of profile variables, as well as the variables used for exact matching in the final matching stage (discussed below). The selected profile variable are those which have tended to have the largest differences between participants and non-participants. The objective it to select a potential comparison group that is as similar to the participants.

**Exclude participants**: excluded from the non-participant sample are any participants who started over the same period (ie for sub-groups and samples of larger programmes the PSM cohort will not contain all programme participants). Note that we do not exclude non-participants who had participated in Mana in Mahi in the past (this is controlled for in the matching). Also we do not exclude any non-participants who participate in Mana in Mahi after the selection period.

**Common support**: based on the profile of participants, non-participants are removed from the initial sample where there is no common support. For example, if participants in a given intervention are all under the age of 25, then people who are older than 25 are removed. This step is applied to all categorical profile variables.

**Low participant counts**: PSM is based on a logistic model that may not converge if the number of observations in a categorical variable is less than 2. This issue tends to affect participant profile because of the smaller number of participants than non-participants. To address this issue the affected participant profile variable level response is randomly allocated to another level for the variable. We choose to do this as the number of affected records are small and the random reallocation to another level only increases the noise in the model. The alternative of dropping the entire affected participation record introduces a bias as well as increase the probability that other variables have low counts (ie a level value drops from 2 to 1 participant). This can set up a cascading cycle that can result in the removal of a large proportion of the participant group. As a result, the participant sample is no longer representative of programme participants.

**Model stability**: PSM requires a stable logistic regression model for calculating propensity score. Because of the large number of variables included in the profile, there is a high chance the model is not stable because of multi-collinearity. To ensure a stable model a sample of non-participants and participants are selected, and the logistic model is fitted with all profile variables. If the model has a negative Hessian matrix or is singular, then we drop the variable with the highest standard error and the model is re-estimated. This process is repeated until the model is stable. However, there is a check to limit the number of variables dropped to no more than 10% of the initial number of variables.

**Calculation of the propensity score**: once a non-participant group with broad common support with the participant profile is selected and a stable logistic model is achieved, the next step is to estimate the propensity score. We take a 10 to 1 sample of non-participants to participants and calculate the propensity score using a logistic model, all profile variables are retained in the model. The propensity score is then calculated for all non-sampled non-participants. Because non-participants can be included more than once in the sample (on different month dates) we select for each non-participant the record date with the highest propensity score.

**Matching**: we use nearest neighbour matching with replacement and no calliper restriction. We apply exact matching on calendar period. In the first match round we restrict matches where participant and non-participant start dates are in the same month. If balance is not achieved (discussed below), then the exact match period is extended; first to a quarter, then to six months and finally to a calendar year. If balance is still not achieved, then we remove 5% of participants in the region of the propensity distribution with the lowest common support. This is done by identifying the matched comparison group members with the highest weight (ie matched to multiple participants) and removing the corresponding matched

participants ranked by highest propensity score. Once removed, the matching process is repeated. If balance is still not achieved, then matching completes and the cohort is excluded from subsequent impact analysis.

### Quality of the matching, the balance test

While we cannot test if the conditional independence assumption (CIA) has been violated, we can check to see if the comparison group has a similar average profile to the participants. This is referred to as the balance test, with balance referring to whether the profiles of the participants and comparison group are similar to each other. The balance condition can be expressed as:

$$P(D) \perp X$$

Where $P(D)$ is the probability of participating in the programme, while $X$ is a set of observable characteristics, the $\perp$ indicates that $P(D)$ is independent of $X$. One way to test this condition is to predict $D$ based on $X$, using a logistic model:

$$\frac{D}{1-D} = exp(\alpha + x_1 + x_2 + \cdots + x_n)$$

Where, the target is membership of the participant group ($D$=1) or the matched comparison group ($D$=0), and $x_n$ is the set of all the profile variables available for matching (see Table 20). Somewhat counter intuitively, balance is achieved when the logistic model cannot predict $D$ and the model fit is poor. In other words, the regression model cannot identify if a given individual is in the participant or matched comparison group based on the available observed characteristics.

To test model fit, we use the area under a receiver operating characteristic (ROC) curve, abbreviated as AUC. The closer the AUC is to 1 the better the model is at predicting whether a given observation is in the participant or comparison group (ie a low false prediction rate). The lower bound of the AUC scale is 0.5, where the model cannot predict whether a given observation belongs to the participant or matched comparison group.

The next question is determining how high an AUC would need to be before we consider the profiles are unbalanced (ie the profiles of the participant and matched comparison group are not the same). To set this cut-off, we determine the expected AUC based on randomising an equivalent set of individuals into a control and treatment group. We achieve this by combining the participant and matched comparison group into a pooled sample. From this pooled sample, we randomly allocate half to treatment and the other half to a control group. In other words, we replicate an RCT

where membership to the control or treatment is, by definition, independent of $X$ (ie $P(D) \perp X$) and then proceed to calculate the AUC.

We repeated this process 100 times to generate an expected distribution of AUC for randomly allocated control and treatments drawn from the same population and observed profile as the original matched participant and comparison group.[16] Figure 10 shows the results for randomised, matched and eligible AUC for all Mana in Mahi matched cohorts. The Matched line shows the AUC for PSM matched, while the Randomised line shows the AUC distribution if these PSM had been randomly assigned to a treatment and control instead. The Eligible line shows the AUC for a sample non-participant group with a greater than zero probability of participating in the intervention.

From Figure 10 we can make the following observations:

- The average AUC for Eligible is 0.8, in other words, a regression model can identify to a high degree of accuracy whether a person is a participant or non-participant based on their observed characteristics. This result provides compelling evidence that participants differ in important ways from the eligible population. Such differences will be driven by a combination of institutional practices and guidelines, case manager preferences and assessments as well as self-selection decisions by participants themselves.

- The Randomised AUC, by contrast, is close, but not centred on 0.5. Instead the AUC of the randomised simulations averages to 0.55 and 95 percentile value of 0.58. This distribution simply reflects that, for any given random draw, there will be spurious associations between $X$ and $D$ and therefore even when $P(D) \perp X$ is known to be true, the AUC is normally greater than 0.5.

- Of most importance is the Matched AUC that represents the performance of the PSM in selecting a comparison group that is observationally the same as the participant group. Reassuringly, the distribution of Matched AUC closely matches that of the Randomised baseline, with the Matched AUC mean being similar to the RCT AUC at 0.55.

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[16] Ideally we would use more simulations, such as a 1,000, but because of the computation involved and the number of PSM cohorts that are generated (in the 1,000s) we have used 100 instead.

**Figure 10**: AUC distribution for randomised, matched and eligible groups for Mana in Mahi
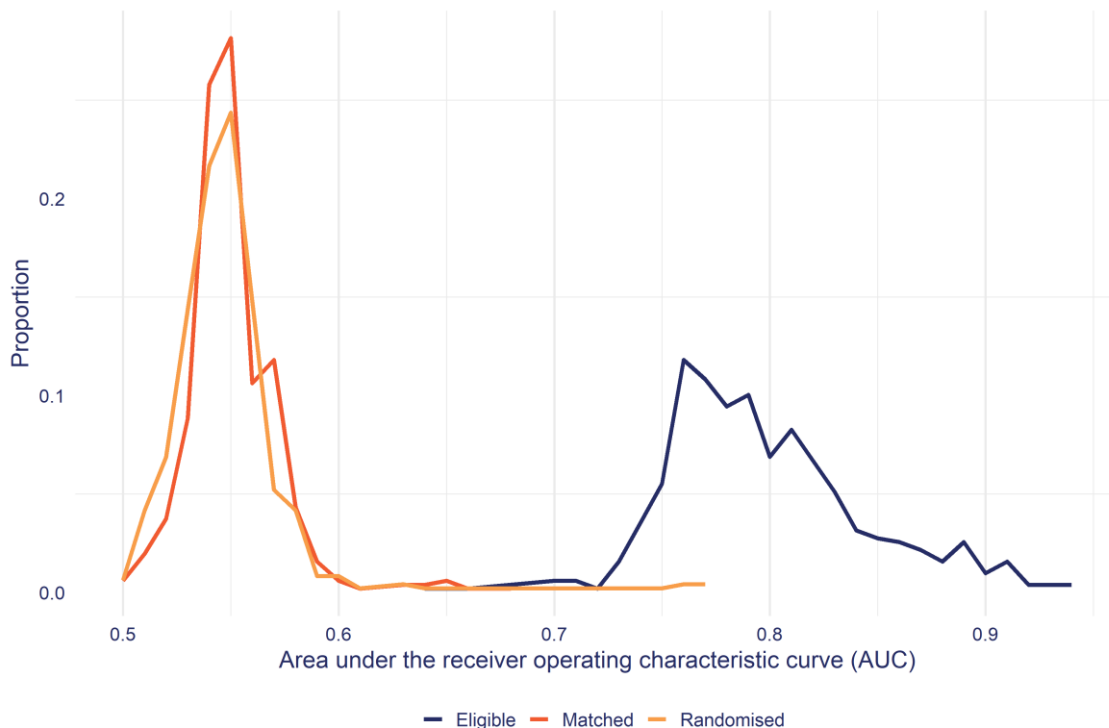


For each PSM cohort, the balance test fails if the PSM AUC is greater than the 95th percentile of the equivalent RCT AUC distribution. In other words, if the PSM AUC is less than the 95th percentile, we conclude it lies within the expected distribution of AUC where $P(D) \perp X$ is true. In the analysis section of this report, we only show the impacts for cohorts that have passed this balance test.

This is also the reason why the distribution of Matched AUC is to the left of the RCT AUC since we exclude any PSM where the Matched AUC exceeds the 95th percentile of the corresponding RCT. Accordingly the distribution of Matched AUC excludes those results where the balance test was poor and had a high AUC.

## IDI standard outcomes

Alongside the construction of credible comparison groups, the IDI also enables the tracking of meaningful outcomes. In this analysis we focus on the following outcome domains, with the specific outcome measure and its definition:

- **Employment** - In any employment: Employment is based on tax data (PAYE and annual tax returns). Periods with less than $100 of employment income per month are excluded.

- **Income** - Net income from all sources: Income includes taxable earnings, taxable and non-taxable income support payments including tax credits and pensions (but excluding recoverable assistance) and student allowance payments net of income tax.

- **Qualifications** - Average of highest NQF level achieved: For each person identify the highest NQF level awarded and calculate the average for the group. NQF levels start from 1 (year 11) through to 9 (PhD).

- **Justice** - Time in any corrections service: Corrections services include prison, community sentence, and home detention.

- **Study** - Enrolled in education or training: Education and training includes school, tertiary institutions and private training organisations. Enrolled does not always mean the person is attending.

- **Welfare** - Income Support expenditure: Income includes taxable and non-taxable income support payments including tax credits and pensions (but excluding recoverable assistance) net of income tax.

## Outcome follow up period

The above outcomes can be tracked over the period before starting Mana in Mahi through to a maximum of 3.0 years. The follow-up period is based on when the first cohort of participants started in Mana in Mahi (2019)[17] through to the most recent supply of administrative data to the IDI at time of publication (March 2023).

Because of the different ways agencies manage their administrative data, there are also considerable differences in how up to date administrative data is in the IDI. In particular, qualifications information is usually delayed by 18 months (eg information on qualifications gained in 2022 will be available in 2024).

It also follows that that follow up period will be longest for the initial cohort of participants who started Mana in Mahi in 2019 and shortest for the most recent cohort who started in 2023

## Interpretation of counterfactual impact estimates

It is important to keep in mind that the comparison group can and do receive other services and assistance. For the majority of impact

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[17] Because of how interventions are grouped for the standard PSM process, there were too few participants in 2018 to include them in the analysis.

evaluations, the comparison is not between a service or program and no assistance, but instead, it compares a service, such as Mana in Mahi, against some level of alternative assistance. The level and type of alternative assistance has a bearing on how an impact estimate should be interpreted. For example, if a large proportion of the comparison group receives alternative assistance (such as in a drug trial) then a 'no-impact' finding does not mean the new intervention was ineffective, but instead, that it was as effective as current standard treatment.

In the context of Mana in Mahi, we can measure the level and amount of employment and related assistance from MSD that both participants and the comparison group receive. Likewise, we can also measure the level of education and training both groups receive through MOE and TEC data. These differences were covered in the results section. On the other hand, assistance through other agencies and NGOs that is not captured through the IDI will be missed in this analysis.

## Interval and cumulative impacts

It is useful at this point to explain how we analyse the outcomes relative to participation in EA interventions. The outcomes described above are all longitudinal in nature. Therefore, we have the ability to measure outcomes at multiple points in time rather than being limited to a small number of measurement periods as would be the case for survey-based outcome measures.

This flexibility allows us to track outcomes relative to participation start dates as shown in Figure 11. The first point to make is that we measure outcomes from when people start an intervention, and this is defined as zero on our timeline. Why we choose the start date as the zero point is explained below. From the zero point, we can then create a series of lapse periods that represent the periods before and after the participation start date. Based on this timeline, we can measure outcomes in two ways: interval and cumulative.

**Figure 11**: Tracking EA intervention outcomes using administrative data
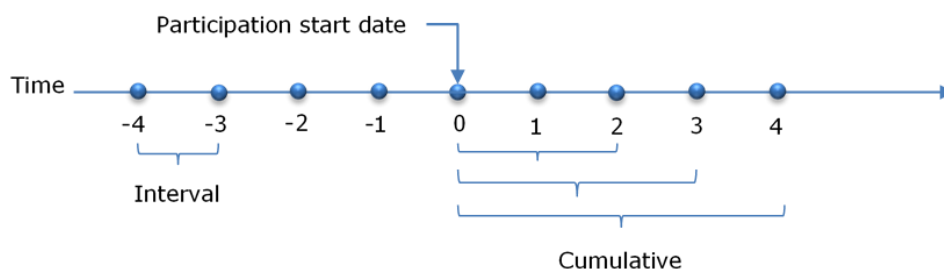
### Interval outcomes

Interval outcomes are measured within a discrete lapse period, say the amount of income a person earned in the 12th month after starting an intervention. These intervals can vary in duration from one day to any period, but for EA interventions we usually use 30-day intervals.

Tracking interval outcomes is most useful in understanding the dynamic relationship between the intervention and the outcome in question. The purpose of EA interventions is to change the outcome trajectories of participants. Looking at how outcomes change in each lapse interval before and after commencing an intervention provides important information on the likely behavioural responses to the intervention.

### Cumulative outcomes

While interval outcomes are useful to understand how outcomes and impacts change relative to when people start an intervention, they do not allow us to quantify the overall impact of an intervention. To make summary judgements we use cumulative outcomes. Cumulative outcomes are measured from participation start through to the end of each lapse period. Therefore, a cumulative 12-month outcome is for the entire 12 months from participation start.

### Why measure outcomes from participation start?

A common question is why we measure outcomes from when people start an intervention, rather than when they finish. There are two reasons. The first is practical, namely that when people finish an intervention is often poorly recorded. Therefore, the date when people actually finish participating in an intervention is much less certain than the date they started.

The second reason is the importance of capturing the full impact of an intervention. The period while a person is on a program can have an impact on their outcomes. The most common impact is referred to as the lock-in effect. As the name suggests, while people are participating in an intervention they are less likely to achieve an outcome, such as moving into employment. This can occur for a number of reasons. One is simply the reduction in time participants have to look for work. Another is the incentive to complete the program. This effect is common for training programs, where the need to complete the course to gain a qualification provides an incentive to turn down job opportunities if they do arise. If we did not include these effects, we run the risk of overstating the effectiveness of interventions.

# Appendix 1: example balance test results

The Table 20 shows the balance test for Mana in Mahi 2019-2020 starts. The * against comparison value indicates the simple difference is means is statistically significant.

**Table 20**: Summary of the profile of participants and matched comparison group for Mana in Mahi

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| **Demographics: Gender** | | | | |
| Gender | Female | 25.0% | 25.4% | 0.4ppt |
| | Male | 75.0% | 74.5% | 0.5ppt |
| **Demographics: Ethnicity** | | | | |
| Ethnicity | Maori | 48.4% | 48.9% | 0.4ppt |
| | Pacific | 14.7% | 14.6% | 0.1ppt |
| | Asian | 4.7% | 4.7% | 0.0ppt |
| | MELAA | 1.9% | 2.0% | 0.1ppt |
| | European | 63.3% | 64.1% | 0.8ppt |
| | Other | 1.6% | 1.1% | 0.5ppt |
| **Education: School** | | | | |
| School type | Correspondence | 5.1% | 5.1% | 0.0ppt |
| | No school record | 21.6% | 21.5% | 0.1ppt |
| | Other School | 72.2% | 73.0% | 0.8ppt |
| | Special School | 1.1% | 0.5% | 0.5ppt |
| Current school decile | Decile 1 | 5.5% | 6.5% | 0.9ppt |
| | Decile 2 | 9.4% | 9.0% | 0.4ppt |
| | Decile 3 | 8.2% | 8.2% | 0.0ppt |
| | Decile 4 | 9.9% | 10.7% | 0.8ppt |
| | Decile 5 | 8.6% | 7.3% | 1.3ppt |
| | Decile 6 | 8.9% | 8.5% | 0.4ppt |
| | Decile 7 | 6.2% | 6.6% | 0.4ppt |
| | Decile 8 | 7.6% | 7.4% | 0.1ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | Decile 9 to 10 | 6.5% | 7.2% | 0.7ppt |
| | No school last 5 years | 29.1% | 28.7% | 0.4ppt |
| School authority for most recent school attended | State | 69.6% | 71.3% | 1.6ppt |
| | State Integrated | 6.1% | 4.6% | 1.5ppt |
| | Private | 0.7% | 0.5% | 0.1ppt |
| | Other | 2.2% | 2.2% | 0.0ppt |
| | No school record | 21.6% | 21.5% | 0.1ppt |
| Schools attended | | 4.37 | 4.39 | 0.02 |
| Suspensions | -0.01 to 0.01 | 90.7% | 90.0% | 0.7ppt |
| | 0.02 to 7 | 9.4% | 10.0% | 0.5ppt |
| Number of stand-downs | | 0.58 | 0.59 | 0.01 |
| Number of truancy events | -0.01 to 0.01 | 94.2% | 94.3% | 0.1ppt |
| | 0.02 to 11 | 5.8% | 5.7% | 0.1ppt |
| Number of special education events | -0.01 to 0.01 | 89.5% | 89.5% | 0.0ppt |
| | 0.02 to 17.5 | 10.7% | 10.7% | 0.0ppt |
| Education: Tertiary study | | | | |
| Currently studying at NZQF level | None | 85.6% | 85.7% | 0.1ppt |
| | School pre NZQF 3 | 8.0% | 7.8% | 0.1ppt |
| | NZQF 4 to 6 | 5.7% | 5.5% | 0.1ppt |
| | NZQF 7 plus | 0.4% | 0.3% | 0.1ppt |
| | Unknown | 0.4% | 0.5% | 0.1ppt |
| Total days enrolled in NZQF 1 to 3 courses | | 1,221 | 1,204 | 16.75 |
| Total days enrolled in NZQF 4 to 6 courses | | 296 | 289 | 7.63 |
| Total days enrolled in NZQF 7 plus courses | -0.01 to 0.01 | 90.7% | 91.4% | 0.7ppt |
| | 0.02 to 6811 | 9.3% | 8.6% | 0.7ppt |
| Total days enrolled in unknown NZQF level courses | -0.01 to 0.01 | 89.6% | 88.5% | 1.1ppt |
| | 0.02 to 6774 | 10.4% | 11.5% | 1.1ppt |
| Enrolled in study at 0 months before profile date | | 17.3% | 16.7% | 0.5ppt |
| Enrolled in study at 1 month before profile date | | 17.1% | 16.6% | 0.5ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Enrolled in study at 2 months before profile date | | 18.4% | 17.9% | 0.4ppt |
| Enrolled in study at 3 months before profile date | | 19.4% | 18.6% | 0.8ppt |
| Enrolled in study at 4 months before profile date | | 20.0% | 19.0% | 0.9ppt |
| Enrolled in study at 5 months before profile date | | 21.3% | 20.0% | 1.3ppt |
| Enrolled in study at 6 months before profile date | | 22.7% | 21.7% | 0.9ppt |
| Enrolled in study at 7 months before profile date | | 24.4% | 24.2% | 0.3ppt |
| Enrolled in study at 8 months before profile date | | 26.5% | 25.6% | 0.8ppt |
| Enrolled in study at 9 months before profile date | | 27.9% | 26.5% | 1.5ppt |
| Enrolled in study at 10 months before profile date | | 29.1% | 28.2% | 0.9ppt |
| Enrolled in study at 11 months before profile date | | 30.4% | 29.6% | 0.8ppt |
| Enrolled in study at 12 months before profile date | | 30.9% | 30.2% | 0.7ppt |
| Enrolled in study at 15 months before profile date | | 31.6% | 30.2% | 1.3ppt |
| Enrolled in study at 18 months before profile date | | 31.6% | 30.8% | 0.8ppt |
| Enrolled in study at 21 months before profile date | | 35.4% | 33.9% | 1.5ppt |
| Enrolled in study at 24 months before profile date | | 38.1% | 37.5% | 0.5ppt |
| Enrolled in study at 30 months before profile date | | 41.2% | 38.7% | 2.4ppt |
| Enrolled in study at 36 months before profile date | | 45.7% | 43.7% | 2.0ppt |
| Enrolled in study at 42 months before profile date | | 47.9% | 45.6% | 2.3ppt |
| **Education: Qualifications** | | | | |
| Highest qualification at 1 month before profile date | None | 2.6% | 2.7% | 0.1ppt |
| | School pre NZQF | 7.4% | 7.3% | 0.1ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | NZQF 1 to 3 | 68.0% | 67.2% | 0.8ppt |
| | NZQF 4 to 6 | 16.5% | 17.3% | 0.8ppt |
| | NZQF 7 plus | 2.7% | 2.8% | 0.1ppt |
| | Unknown | 3.0% | 3.0% | 0.0ppt |
| | None | 3.0% | 3.0% | 0.0ppt |
| | School pre NZQF | 7.6% | 7.2% | 0.4ppt |
| Highest qualification at 3 months before profile date | NZQF 1 to 3 | 67.6% | 66.8% | 0.8ppt |
| | NZQF 4 to 6 | 16.1% | 17.1% | 1.1ppt |
| | NZQF 7 plus | 2.7% | 2.8% | 0.1ppt |
| | Unknown | 3.1% | 3.2% | 0.1ppt |
| | None | 3.2% | 3.2% | 0.0ppt |
| | School pre NZQF | 8.1% | 7.7% | 0.4ppt |
| Highest qualification at 6 months before profile date | NZQF 1 to 3 | 67.1% | 66.4% | 0.7ppt |
| | NZQF 4 to 6 | 15.9% | 16.6% | 0.7ppt |
| | NZQF 7 plus | 2.6% | 2.7% | 0.1ppt |
| | Unknown | 3.4% | 3.5% | 0.1ppt |
| | None | 3.8% | 4.0% | 0.3ppt |
| | School pre NZQF | 8.4% | 7.7% | 0.7ppt |
| Highest qualification at 8 months before profile date | NZQF 1 to 3 | 66.5% | 65.6% | 0.9ppt |
| | NZQF 4 to 6 | 15.7% | 16.5% | 0.8ppt |
| | NZQF 7 plus | 2.3% | 2.7% | 0.4ppt |
| | Unknown | 3.6% | 3.8% | 0.1ppt |
| | None | 4.7% | 4.9% | 0.1ppt |
| | School pre NZQF | 8.6% | 8.4% | 0.3ppt |
| Highest qualification at 12 months before profile date | NZQF 1 to 3 | 66.0% | 64.9% | 1.1ppt |
| | NZQF 4 to 6 | 14.7% | 15.7% | 0.9ppt |
| | NZQF 7 plus | 2.0% | 2.2% | 0.1ppt |
| | Unknown | 3.8% | 3.9% | 0.1ppt |
| Highest qualification at 15 months before profile date | None | 5.3% | 5.3% | 0.0ppt |
| | School pre NZQF | 9.0% | 9.2% | 0.1ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | NZQF 1 to 3 | 65.2% | 64.0% | 1.2ppt |
| | NZQF 4 to 6 | 14.6% | 15.2% | 0.7ppt |
| | NZQF 7 plus | 2.0% | 2.2% | 0.1ppt |
| | Unknown | 3.9% | 4.2% | 0.3ppt |
| Highest qualification at 18 months before profile date | None | 5.9% | 5.7% | 0.3ppt |
| | School pre NZQF | 9.4% | 9.6% | 0.1ppt |
| | NZQF 1 to 3 | 64.4% | 63.3% | 1.1ppt |
| | NZQF 4 to 6 | 14.0% | 14.7% | 0.7ppt |
| | NZQF 7 plus | 1.9% | 2.0% | 0.1ppt |
| | Unknown | 4.3% | 4.6% | 0.3ppt |
| Highest qualification at 21 months before profile date | None | 7.7% | 7.4% | 0.3ppt |
| | School pre NZQF | 10.9% | 10.7% | 0.3ppt |
| | NZQF 1 to 3 | 61.5% | 60.7% | 0.8ppt |
| | NZQF 4 to 6 | 13.5% | 14.2% | 0.7ppt |
| | NZQF 7 plus | 1.8% | 2.0% | 0.3ppt |
| | Unknown | 4.6% | 5.1% | 0.5ppt |
| Highest qualification at 24 months before profile date | None | 9.7% | 9.2% | 0.5ppt |
| | School pre NZQF | 11.3% | 10.9% | 0.4ppt |
| | NZQF 1 to 3 | 59.2% | 59.0% | 0.3ppt |
| | NZQF 4 to 6 | 13.0% | 13.5% | 0.5ppt |
| | NZQF 7 plus | 1.8% | 1.9% | 0.1ppt |
| | Unknown | 5.1% | 5.5% | 0.4ppt |
| Highest qualification at 30 months before profile date | None | 16.5% | 15.2% | 1.2ppt |
| | School pre NZQF | 8.5% | 8.9% | 0.4ppt |
| | NZQF 1 to 3 | 54.8% | 55.2% | 0.4ppt |
| | NZQF 4 to 6 | 11.7% | 12.3% | 0.5ppt |
| | NZQF 7 plus | 1.5% | 1.6% | 0.1ppt |
| | Unknown | 7.0% | 6.6% | 0.4ppt |
| Highest qualification at 36 months before profile date | None | 23.9% | 22.9% | 0.9ppt |
| | School pre NZQF | 7.4% | 7.7% | 0.3ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | NZQF 1 to 3 | 49.1% | 49.5% | 0.4ppt |
| | NZQF 4 to 6 | 10.0% | 10.4% | 0.4ppt |
| | NZQF 7 plus | 1.3% | 1.6% | 0.3ppt |
| | Unknown | 8.4% | 8.1% | 0.3ppt |
| | None | 26.2% | 25.5% | 0.7ppt |
| | School pre NZQF | 7.6% | 7.6% | 0.0ppt |
| Highest qualification at 42 months before profile date | NZQF 1 to 3 | 46.3% | 46.6% | 0.3ppt |
| | NZQF 4 to 6 | 9.4% | 10.1% | 0.7ppt |
| | NZQF 7 plus | 1.3% | 1.6% | 0.3ppt |
| | Unknown | 9.3% | 8.8% | 0.5ppt |
| Health and disability: Incapacity information | | | | |
| Current incapacity for depression | | 0.5% | 0.7% | 0.1ppt |
| Current incapacity for injury | | s | s | s |
| Current incapacity for other psychological | | 1.5% | 1.1% | 0.4ppt |
| Current incapacity for schizophrenia | | s | s | s |
| Incapacity for bipolar disorder in last 5 years | | 0.5% | 0.4% | 0.1ppt |
| Incapacity for circulatory condition in last 5 years | | s | s | s |
| Incapacity for depression in last 5 years | | 3.4% | 3.4% | 0.0ppt |
| Incapacity for endocrine condition in last 5 years | | 0.4% | 0.4% | 0.0ppt |
| Incapacity for injury in last 5 years | | 2.6% | 1.8% | 0.8ppt |
| Incapacity for musculoskeletal condition in last 5 years | | 1.1% | 1.1% | 0.0ppt |
| Incapacity for nervous condition in last 5 years | | 0.8% | 0.7% | 0.1ppt |
| Incapacity for other psychological in last 5 years | | 5.8% | 5.5% | 0.3ppt |
| Incapacity for pregnancy in last 5 years | | 0.4% | 0.4% | 0.0ppt |
| Incapacity for respiratory condition in last 5 years | | 0.3% | 0.4% | 0.1ppt |
| Incapacity for schizophrenia in last 5 years | | 0.5% | 0.4% | 0.1ppt |
| Incapacity for stress in last 5 years | | 1.3% | 1.3% | 0.0ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Incapacity for substance abuse in last 5 years | | 1.1% | 1.5% | 0.4ppt |
| Other incapacity in last 5 years | | 0.8% | 0.7% | 0.1ppt |
| Unspecified incapacity in last 5 years | | 0.5% | 0.8% | 0.3ppt |
| **Location: Urbanisation of location** | | | | |
| Level of urbanisation of current address | Major urban area | 36.8% | 36.0% | 0.8ppt |
| | Large urban area | 23.9% | 22.4% | 1.5ppt |
| | Medium urban area | 10.3% | 10.1% | 0.1ppt |
| | Small urban area | 13.5% | 13.8% | 0.3ppt |
| | Rural settlement | 4.0% | 4.3% | 0.3ppt |
| | Rural other | 10.8% | 13.1% | 2.3ppt |
| | Overseas | 0.4% | 0.3% | 0.1ppt |
| | Unknown | s | s | s |
| **Location: Local labour market** | | | | |
| Working age dependency ratio | | 0.67 | 0.67 | 0.00 |
| Working age population in average income | | 50,101 | 50,059 | 42.51 |
| Working age population in employment or study rate | | 0.77 | 0.76 | 0.00 |
| Working age population in qualification level | | 4.31 | 4.29 | 0.02 |
| Working age population main benefit rate | | 0.17 | 0.17 | 0.00 |
| **Housing: Number of address changes** | | | | |
| Address changes in the last two years | 1 to 2 address changes | 36.0% | 37.2% | 1.2ppt |
| | 3 address changes | 25.2% | 24.8% | 0.4ppt |
| | 4 address changes | 17.7% | 17.5% | 0.1ppt |
| | Over 4 address changes | 21.3% | 20.4% | 0.9ppt |
| **Employment: Working life in employment** | | | | |
| Proportion of adult life in New Zealand in employment | 0% | 6.6% | 6.9% | 0.3ppt |
| | 1 to 9% | 7.4% | 6.5% | 0.9ppt |
| | 10 to 19% | 9.6% | 9.0% | 0.5ppt |
| | 20 to 29% | 9.7% | 10.4% | 0.7ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | 30 to 39% | 10.4% | 11.1% | 0.7ppt |
| | 40 to 49% | 10.3% | 10.0% | 0.3ppt |
| | 50 to 59% | 10.0% | 10.9% | 0.9ppt |
| | 60 to 69% | 10.9% | 10.3% | 0.7ppt |
| | 70 to 79% | 10.5% | 10.8% | 0.3ppt |
| | 80 to 89% | 6.6% | 6.9% | 0.3ppt |
| | 90% plus | 8.4% | 7.6% | 0.8ppt |
| **Employment: Employment history** | | | | |
| Employed at 1 month before profile date | | 40.4% | 41.0% | 0.7ppt |
| Employed at 2 months before profile date | | 42.8% | 43.2% | 0.4ppt |
| Employed at 3 months before profile date | | 45.5% | 45.5% | 0.0ppt |
| Employed at 4 months before profile date | | 48.4% | 49.4% | 0.9ppt |
| Employed at 5 months before profile date | | 49.5% | 49.4% | 0.1ppt |
| Employed at 6 months before profile date | | 50.6% | 50.9% | 0.3ppt |
| Employed at 7 months before profile date | | 52.4% | 52.9% | 0.5ppt |
| Employed at 8 months before profile date | | 52.4% | 52.2% | 0.1ppt |
| Employed at 9 months before profile date | | 52.1% | 53.2% | 1.1ppt |
| Employed at 10 months before profile date | | 52.2% | 52.6% | 0.4ppt |
| Employed at 11 months before profile date | | 52.2% | 53.0% | 0.8ppt |
| Employed at 12 months before profile date | | 50.5% | 52.0% | 1.5ppt |
| Employed at 15 months before profile date | | 50.7% | 52.5% | 1.8ppt |
| Employed at 18 months before profile date | | 51.4% | 51.6% | 0.1ppt |
| Employed at 21 months before profile date | | 49.1% | 50.1% | 0.9ppt |
| Employed at 24 months before profile date | | 46.7% | 46.8% | 0.1ppt |
| Employed at 30 months before profile date | | 43.6% | 43.7% | 0.1ppt |
| Employed at 36 months before profile date | | 39.4% | 40.9% | 1.5ppt |
| Employed at 42 months before profile date | | 36.8% | 37.4% | 0.5ppt |
| **Income Support: Benefit duration** | | | | |
| Duration on current benefit | | 116 | 111 | 5.12 |
| **Income Support: Total benefit contact** | | | | |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Proportion of adult life on carer related benefits | -0.01 to 0.01 | 99.3% | 99.7% | 0.4ppt |
| | 0.02 to 1.7 | 0.8% | 0.4% | 0.4ppt |
| Proportion of adult life on invalid related benefits | -0.01 to 0.01 | 98.8% | 99.1% | 0.3ppt |
| | 0.02 to 1.99 | 1.3% | 1.1% | 0.3ppt |
| Proportion of adult life on job seeker related benefits | | 0.11 | 0.11 | 0.00 |
| Proportion of adult life on sickness related benefits | | 0.02 | 0.02 | 0.00 |
| Proportion of adult life on sole parent related benefits | -0.01 to 0.01 | 92.8% | 93.1% | 0.3ppt |
| | 0.02 to 1.86 | 7.3% | 7.0% | 0.3ppt |
| Proportion of adult life on student related benefits | -0.01 to 0.01 | 99.1% | 99.2% | 0.1ppt |
| | 0.02 to 1.18 | 1.1% | 0.8% | 0.3ppt |
| Proportion of adult life on youth related benefits | | 0.02 | 0.02 | 0.00 |
| **Income Support: First benefit information** | | | | |
| First type of main benefit granted | Youth | 9.3% | 9.7% | 0.4ppt |
| | Jobseeker Support Work Ready | 42.6% | 43.0% | 0.4ppt |
| | Jobseeker Support HCD | 4.9% | 5.1% | 0.3ppt |
| | Jobseeker Support Student | 2.2% | 2.2% | 0.0ppt |
| | Supported Living Payment | 0.5% | 0.5% | 0.0ppt |
| | Caring For Sick Or Infirm | s | s | s |
| | Sole Parent Support | 1.8% | 1.9% | 0.1ppt |
| | Off Benefit | 38.6% | 37.5% | 1.1ppt |
| **Income Support: Childhood benefit receipt** | | | | |
| Childhood benefit (0-4) | No time on main benefit | 30.1% | 30.0% | 0.1ppt |
| | Under 25% of the period | 7.7% | 7.3% | 0.4ppt |
| | 25 to 75% of the period | 15.5% | 15.7% | 0.1ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | Over 75% of the period | 32.3% | 32.8% | 0.5ppt |
| | Over age range by 1 Janurary 1993 | 14.4% | 14.3% | 0.1ppt |
| | No time on main benefit | 39.9% | 38.5% | 1.5ppt |
| | Under 25% of the period | 8.4% | 8.0% | 0.4ppt |
| Childhood benefit (4-8) | 25 to 75% of the period | 15.9% | 15.2% | 0.7ppt |
| | Over 75% of the period | 29.1% | 31.2% | 2.0ppt |
| | Over age range by 1 Janurary 1993 | 6.9% | 7.2% | 0.3ppt |
| | No time on main benefit | 34.4% | 33.6% | 0.8ppt |
| | Under 25% of the period | 8.0% | 7.8% | 0.1ppt |
| Childhood benefit (12-16) | 25 to 75% of the period | 15.9% | 16.3% | 0.4ppt |
| | Over 75% of the period | 31.8% | 32.7% | 0.8ppt |
| | Over age range by 1 Janurary 1993 | 10.0% | 9.7% | 0.3ppt |
| | No time on main benefit | 46.6% | 44.1% | 2.4ppt |
| | Under 25% of the period | 8.8% | 9.3% | 0.5ppt |
| Childhood benefit (16-18) | 25 to 75% of the period | 15.2% | 14.6% | 0.7ppt |
| | Over 75% of the period | 24.6% | 26.3% | 1.8ppt |
| | Over age range by 1 Janurary 1993 | 4.9% | 5.5% | 0.7ppt |
| **Income Support: Income support history** | | | | |
| Time on main benefit or pension at 0 months before profile date | | 17.15 | 17.31 | 0.16 |
| Time on main benefit or pension at 1 month before profile date | | 15.89 | 16.01 | 0.12 |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Time on main benefit or pension at 2 months before profile date | | 14.27 | 14.32 | 0.05 |
| Time on main benefit or pension at 3 months before profile date | | 12.73 | 12.60 | 0.13 |
| Time on main benefit or pension at 4 months before profile date | | 11.12 | 10.68 | 0.44 |
| Time on main benefit or pension at 5 months before profile date | | 10.07 | 9.79 | 0.29 |
| Time on main benefit or pension at 6 months before profile date | | 9.05 | 8.99 | 0.06 |
| Time on main benefit or pension at 7 months before profile date | | 8.30 | 8.16 | 0.14 |
| Time on main benefit or pension at 8 months before profile date | | 7.67 | 7.76 | 0.09 |
| Time on main benefit or pension at 9 months before profile date | | 7.28 | 7.61 | 0.33 |
| Time on main benefit or pension at 10 months before profile date | | 6.95 | 7.16 | 0.22 |
| Time on main benefit or pension at 11 months before profile date | | 6.82 | 7.16 | 0.34 |
| Time on main benefit or pension at 12 months before profile date | | 6.73 | 6.83 | 0.10 |
| Time on main benefit or pension at 15 months before profile date | | 5.89 | 5.92 | 0.04 |
| Time on main benefit or pension at 18 months before profile date | | 5.43 | 5.51 | 0.08 |
| Time on main benefit or pension at 21 months before profile date | | 5.64 | 5.60 | 0.04 |
| Time on main benefit or pension at 24 months before profile date | | 5.41 | 5.66 | 0.25 |
| Time on main benefit or pension at 30 months before profile date | | 4.92 | 5.01 | 0.09 |
| Time on main benefit or pension at 36 months before profile date | | 4.29 | 4.09 | 0.20 |
| Time on main benefit or pension at 42 months before profile date | | 4.11 | 4.00 | 0.12 |
| **Justice: Police offences** | | | | |
| Number of offences | | 3.34 | 3.43 | 0.08 |
| | Never | 54.8% | 55.2% | 0.4ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Time since last offence | 6 to under 12 months | 5.7% | 5.7% | 0.0ppt |
| | 1 to under 2 years | 8.9% | 9.9% | 0.9ppt |
| | 2 to under 3 years | 5.7% | 4.5% | 1.2ppt |
| | 3 to under 5 years | 7.8% | 6.7% | 1.1ppt |
| | 5 to under 8 years | 6.2% | 6.9% | 0.7ppt |
| | Under 6 months | 7.4% | 8.4% | 0.9ppt |
| | Over 8 years | 3.6% | 3.2% | 0.4ppt |
| Most serious offence score | | 126 | 115 | 11.31 |
| Age of first arrest | Never | 54.8% | 55.2% | 0.4ppt |
| | 5 to 14 years | 10.8% | 10.8% | 0.0ppt |
| | 15 to 17 years | 12.7% | 11.9% | 0.8ppt |
| | 18 to 19 years | 8.0% | 8.8% | 0.8ppt |
| | 20 to 24 years | 7.7% | 7.3% | 0.4ppt |
| | 25 to 44 years | 5.7% | 5.5% | 0.1ppt |
| | 45 to 54 years | 0.5% | 0.5% | 0.0ppt |
| **Justice: Corrections spells** | | | | |
| Total time in home detention | -0.01 to 0.01 | 96.4% | 96.5% | 0.1ppt |
| | 0.02 to 470 | 3.8% | 3.6% | 0.1ppt |
| Total time in community service | | 137 | 152 | 14.83 |
| Age at first Correction service | Never | 79.2% | 79.1% | 0.1ppt |
| | 15 to 19 years | 11.6% | 12.6% | 0.9ppt |
| | 20 to 24 years | 5.8% | 5.7% | 0.1ppt |
| | 25 to 54 years | 3.4% | 2.7% | 0.7ppt |
| Time since last Corrections involvement | Never | 84.5% | 85.3% | 0.8ppt |
| | Under 2 years | 7.0% | 6.1% | 0.9ppt |
| | 2 to under 8 years | 5.8% | 5.5% | 0.3ppt |
| | Over 8 years | 2.8% | 3.0% | 0.1ppt |
| **Justice: Youth Justice** | | | | |
| | No placement | 94.2% | 93.9% | 0.3ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Time in Youth Justice placements | Under 25% of the period | 0.8% | 0.8% | 0.0ppt |
| | 25 to 75% of the period | 0.8% | 0.9% | 0.1ppt |
| | More than 75% of the period | s | s | s |
| | Over age range by 1 January 1991 | 3.8% | 4.3% | 0.5ppt |
| Youth Justice referrals | No referrals | 86.8% | 85.8% | 0.9ppt |
| | One referral | 3.8% | 4.5% | 0.7ppt |
| | Two to four referrals | 3.9% | 3.8% | 0.1ppt |
| | Five or more referrals | 1.8% | 1.8% | 0.0ppt |
| | Over age range by 1 January 1991 | 3.8% | 4.3% | 0.5ppt |
| Justice: Corrections history | | | | |
| In correction service at 0 months before profile date | Non Prison | 5.7% | 7.4% | 1.8ppt |
| | None | 94.3% | 92.7% | 1.6ppt |
| In correction service at 1 month before profile date | Prison | s | s | s |
| | Non Prison | 5.5% | 7.0% | 1.5ppt |
| | None | 94.2% | 92.8% | 1.3ppt |
| In correction service at 2 months before profile date | Prison | s | s | s |
| | Non Prison | 5.5% | 6.7% | 1.2ppt |
| | None | 94.2% | 93.1% | 1.1ppt |
| In correction service at 3 months before profile date | Prison | 0.4% | 0.3% | 0.1ppt |
| | Non Prison | 5.3% | 6.9% | 1.6ppt |
| | None | 94.5% | 93.0% | 1.5ppt |
| In correction service at 5 months before profile date | Prison | 0.7% | 0.4% | 0.3ppt |
| | Non Prison | 5.0% | 6.6% | 1.6ppt |
| | None | 94.5% | 93.1% | 1.3ppt |
| In correction service at 6 months before profile date | Prison | 0.7% | 0.5% | 0.1ppt |
| | Non Prison | 5.0% | 6.3% | 1.3ppt |
| | None | 94.3% | 93.1% | 1.2ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| In correction service at 8 months before profile date | Prison | 0.9% | 0.9% | 0.0ppt |
| | Non Prison | 4.3% | 5.1% | 0.8ppt |
| | None | 94.7% | 94.1% | 0.7ppt |
| In correction service at 10 months before profile date | Prison | 0.9% | 0.9% | 0.0ppt |
| | Non Prison | 4.3% | 5.0% | 0.7ppt |
| | None | 94.7% | 94.1% | 0.7ppt |
| In correction service at 15 months before profile date | Prison | 1.1% | 1.2% | 0.1ppt |
| | Non Prison | 4.7% | 4.7% | 0.0ppt |
| | None | 94.2% | 94.1% | 0.1ppt |
| In correction service at 18 months before profile date | Prison | 1.1% | 1.1% | 0.0ppt |
| | Non Prison | 5.0% | 5.1% | 0.1ppt |
| | None | 94.1% | 93.7% | 0.4ppt |
| In correction service at 21 months before profile date | Prison | 1.1% | 0.9% | 0.1ppt |
| | Non Prison | 4.9% | 5.0% | 0.1ppt |
| | None | 94.3% | 94.2% | 0.1ppt |
| In correction service at 24 months before profile date | Prison | 0.9% | 0.8% | 0.1ppt |
| | Non Prison | 4.3% | 4.3% | 0.0ppt |
| | None | 94.7% | 95.1% | 0.4ppt |
| In correction service at 30 months before profile date | Prison | 1.1% | 1.1% | 0.0ppt |
| | Non Prison | 3.9% | 4.7% | 0.8ppt |
| | None | 95.0% | 94.5% | 0.5ppt |
| In correction service at 36 months before profile date | Prison | 1.1% | 0.9% | 0.1ppt |
| | Non Prison | 3.9% | 4.6% | 0.7ppt |
| | None | 95.1% | 94.5% | 0.7ppt |
| In correction service at 42 months before profile date | Prison | 1.1% | 1.1% | 0.0ppt |
| | Non Prison | 3.0% | 3.9% | 0.9ppt |
| | None | 96.1% | 95.0% | 1.1ppt |
| Residency: Migrant status | | | | |
| Proportion of life living in New Zealand | | 0.92 | 0.92 | 0.00 |
| | Born in NZ | 88.3% | 88.8% | 0.5ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Age at first arrival in New Zealand | Under 9 years | 5.9% | 5.5% | 0.4ppt |
| | 10 to 29 years | 5.1% | 4.7% | 0.4ppt |
| | 30 to 64 years | 0.7% | 0.9% | 0.3ppt |
| Arrived as a refugee | | 0.5% | 0.9% | 0.4ppt |
| Migrant's region of origin | New Zealand | 93.4% | 93.9% | 0.5ppt |
| | Oceania | 2.0% | 1.5% | 0.5ppt |
| | Asia | 1.8% | 2.0% | 0.3ppt |
| | United Kingdom | 1.3% | 1.1% | 0.3ppt |
| | Americas | s | s | s |
| | Africa | 1.2% | 1.3% | 0.1ppt |
| Visa when first arriving in New Zealand | Citizen | 91.6% | 91.9% | 0.3ppt |
| | Resident | 4.0% | 4.6% | 0.5ppt |
| | Temporary | 4.5% | 3.5% | 0.9ppt |
| **Income: Income history** | | | | |
| Income support payments at 0 months before profile date | | 733 | 731 | 2.22 |
| Income support payments at 1 month before profile date | | 679 | 689 | 10.18 |
| Income support payments at 2 months before profile date | | 599 | 602 | 3.67 |
| Income support payments at 3 months before profile date | | 527 | 531 | 3.58 |
| Income support payments at 4 months before profile date | | 453 | 446 | 7.58 |
| Income support payments at 5 months before profile date | | 400 | 402 | 2.47 |
| Income support payments at 6 months before profile date | | 363 | 372 | 9.07 |
| Income support payments at 7 months before profile date | | 331 | 339 | 7.61 |
| Income support payments at 8 months before profile date | | 308 | 324 | 15.77 |
| Income support payments at 9 months before profile date | | 294 | 313 | 18.74 |
| Income support payments at 10 months before profile date | | 287 | 305 | 18.31 |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Income support payments at 11 months before profile date | | 284 | 298 | 13.38 |
| Income support payments at 12 months before profile date | | 278 | 282 | 3.99 |
| Income support payments at 15 months before profile date | | 245 | 243 | 1.46 |
| Income support payments at 18 months before profile date | | 224 | 227 | 2.71 |
| Income support payments at 21 months before profile date | | 233 | 238 | 4.68 |
| Income support payments at 24 months before profile date | | 217 | 227 | 10.37 |
| Income support payments at 30 months before profile date | | 197 | 193 | 3.56 |
| Income support payments at 36 months before profile date | | 167 | 159 | 7.89 |
| Income support payments at 42 months before profile date | | 156 | 151 | 4.83 |
| Income transfer payments (yearly average) | | 3,740 | 3,652 | 88.01 |
| Labour market income (yearly average) | | 10,251 | 10,455 | 205 |
| Net child support payments (yearly average) | -0.01 to 0.01 | 92.3% | 92.6% | 0.3ppt |
| | -1266 to -0.02 | 7.8% | 7.6% | 0.3ppt |
| Net income at 0 months before profile date | | 1,675 | 1,705 | 29.70 |
| Net income at 1 month before profile date | | 1,640 | 1,698 | 57.99 |
| Net income at 2 months before profile date | | 1,625 | 1,651 | 26.10 |
| Net income at 3 months before profile date | | 1,617 | 1,647 | 29.90 |
| Net income at 4 months before profile date | | 1,632 | 1,665 | 32.88 |
| Net income at 5 months before profile date | | 1,603 | 1,650 | 47.51 |
| Net income at 6 months before profile date | | 1,590 | 1,625 | 34.97 |
| Net income at 7 months before profile date | | 1,652 | 1,662 | 10.59 |
| Net income at 8 months before profile date | | 1,620 | 1,629 | 8.29 |
| Net income at 9 months before profile date | | 1,626 | 1,684 | 57.79 |
| Net income at 10 months before profile date | | 1,633 | 1,663 | 30.86 |
| Net income at 11 months before profile date | | 1,566 | 1,583 | 17.33 |
| Net income at 12 months before profile date | | 1,559 | 1,571 | 12.63 |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Net income at 15 months before profile date | | 1,473 | 1,495 | 21.71 |
| Net income at 18 months before profile date | | 1,440 | 1,419 | 20.40 |
| Net income at 21 months before profile date | | 1,426 | 1,414 | 12.41 |
| Net income at 24 months before profile date | | 1,358 | 1,360 | 2.23 |
| Net income at 30 months before profile date | | 1,181 | 1,159 | 22.08 |
| Net income at 36 months before profile date | | 1,072 | 1,101 | 29.12 |
| Net income at 42 months before profile date | | 975 | 991 | 15.95 |
| Labour market income at 0 months before profile date | | 804 | 842 | 37.31 |
| Labour market income at 1 month before profile date | | 812 | 866 | 54.55 |
| Labour market income at 2 months before profile date | | 869 | 897 | 27.49 |
| Labour market income at 3 months before profile date | | 920 | 941 | 21.16 |
| Labour market income at 4 months before profile date | | 1,000 | 1,046 | 45.29 |
| Labour market income at 5 months before profile date | | 1,025 | 1,073 | 47.68 |
| Labour market income at 6 months before profile date | | 1,047 | 1,078 | 31.27 |
| Labour market income at 7 months before profile date | | 1,137 | 1,149 | 11.44 |
| Labour market income at 8 months before profile date | | 1,135 | 1,130 | 4.83 |
| Labour market income at 9 months before profile date | | 1,146 | 1,181 | 34.93 |
| Labour market income at 10 months before profile date | | 1,160 | 1,176 | 16.08 |
| Labour market income at 11 months before profile date | | 1,104 | 1,115 | 10.99 |
| Labour market income at 12 months before profile date | | 1,100 | 1,115 | 15.54 |
| Labour market income at 15 months before profile date | | 1,054 | 1,079 | 24.94 |
| Labour market income at 18 months before profile date | | 1,039 | 1,027 | 12.67 |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Labour market income at 21 months before profile date | | 1,006 | 1,015 | 9.09 |
| Labour market income at 24 months before profile date | | 960 | 978 | 18.90 |
| Labour market income at 30 months before profile date | | 842 | 834 | 8.03 |
| Labour market income at 36 months before profile date | | 776 | 831 | 54.99 |
| Labour market income at 42 months before profile date | | 703 | 740 | 37.18 |
| Net child support payments at 0 months before profile date | -0.01 to 0.01 | 96.5% | 96.8% | 0.3ppt |
| | -535 to -0.02 | 3.6% | 3.4% | 0.3ppt |
| Net child support payments at 4 months before profile date | -0.01 to 0.01 | 96.9% | 97.0% | 0.1ppt |
| | -535 to -0.02 | 3.2% | 3.1% | 0.1ppt |
| Net child support payments at 6 months before profile date | -0.01 to 0.01 | 97.2% | 97.2% | 0.0ppt |
| | -535 to -0.02 | 3.0% | 2.8% | 0.1ppt |
| Net child support payments at 7 months before profile date | -0.01 to 0.01 | 97.6% | 97.6% | 0.0ppt |
| | -535 to -0.02 | 2.6% | 2.3% | 0.3ppt |
| Net child support payments at 8 months before profile date | -0.01 to 0.01 | 97.6% | 97.6% | 0.0ppt |
| | -535 to -0.02 | 2.3% | 2.3% | 0.0ppt |
| Net child support payments at 10 months before profile date | -0.01 to 0.01 | 97.6% | 97.6% | 0.0ppt |
| | -535 to -0.02 | 2.3% | 2.6% | 0.3ppt |
| Net child support payments at 12 months before profile date | -0.01 to 0.01 | 97.6% | 97.6% | 0.0ppt |
| | -535 to -0.02 | 2.3% | 2.6% | 0.3ppt |
| Net child support payments at 15 months before profile date | -0.01 to 0.01 | 97.7% | 97.6% | 0.1ppt |
| | -535 to -0.02 | 2.4% | 2.6% | 0.1ppt |
| Net child support payments at 18 months before profile date | -0.01 to 0.01 | 97.7% | 97.7% | 0.0ppt |
| | -535 to -0.02 | 2.2% | 2.4% | 0.3ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Net child support payments at 21 months before profile date | -0.01 to 0.01 | 97.8% | 98.1% | 0.3ppt |
| | -535 to -0.02 | 2.2% | 1.9% | 0.3ppt |
| Net child support payments at 24 months before profile date | -0.01 to 0.01 | 98.0% | 98.2% | 0.3ppt |
| | -535 to -0.02 | 2.2% | 1.9% | 0.3ppt |
| Net child support payments at 30 months before profile date | -0.01 to 0.01 | 97.6% | 97.7% | 0.1ppt |
| | -535 to -0.02 | 2.6% | 2.2% | 0.4ppt |
| Net child support payments at 36 months before profile date | -0.01 to 0.01 | 97.6% | 97.6% | 0.0ppt |
| | -535 to -0.02 | 2.6% | 2.3% | 0.3ppt |
| Net child support payments at 42 months before profile date | -0.01 to 0.01 | 98.0% | 97.6% | 0.4ppt |
| | -535 to -0.02 | 2.2% | 2.6% | 0.4ppt |
| Overseas: Overseas history | | | | |
| Overseas at 0 months before profile date | | 1.1% | 0.5% | 0.5ppt |
| Overseas at 1 month before profile date | | 1.3% | 0.8% | 0.5ppt |
| Overseas at 2 months before profile date | | 1.9% | 1.5% | 0.4ppt |
| Overseas at 3 months before profile date | | 2.6% | 2.0% | 0.5ppt |
| Overseas at 4 months before profile date | | 3.1% | 2.6% | 0.5ppt |
| Overseas at 5 months before profile date | | 3.4% | 2.8% | 0.5ppt |
| Overseas at 6 months before profile date | | 3.6% | 3.4% | 0.3ppt |
| Overseas at 7 months before profile date | | 4.3% | 3.4% | 0.9ppt |
| Overseas at 8 months before profile date | | 4.6% | 4.3% | 0.3ppt |
| Overseas at 9 months before profile date | | 4.7% | 4.0% | 0.7ppt |
| Overseas at 10 months before profile date | | 4.7% | 4.0% | 0.7ppt |
| Overseas at 11 months before profile date | | 5.1% | 4.5% | 0.7ppt |
| Overseas at 12 months before profile date | | 5.0% | 3.9% | 1.1ppt |
| Overseas at 15 months before profile date | | 5.4% | 4.6% | 0.8ppt |
| Overseas at 18 months before profile date | | 5.1% | 4.3% | 0.8ppt |
| Overseas at 21 months before profile date | | 5.5% | 5.1% | 0.4ppt |
| Overseas at 24 months before profile date | | 5.9% | 5.3% | 0.7ppt |

| Variable Level | Participant | Comparison | Difference |
|---|---|---|---|
| Overseas at 30 months before profile date | 5.3% | 4.7% | 0.5ppt |
| Overseas at 36 months before profile date | 7.0% | 6.3% | 0.7ppt |
| Overseas at 42 months before profile date | 6.3% | 5.5% | 0.8ppt |
| **Employment assistance: Participation in employment assistance** | | | |
| Employment assistance expenditure at 3 months before profile date | 90.79 | 67.09 | 23.70 |
| Employment assistance expenditure at 4 months before profile date | 67.07 | 60.69 | 6.38 |
| Employment assistance expenditure at 5 months before profile date | 81.50 | 58.91 | 22.58 |
| Employment assistance expenditure at 6 months before profile date | 85.16 | 53.65 | 31.52 |
| Employment assistance expenditure at 7 months before profile date | 57.59 | 49.38 | 8.21 |
| Employment assistance expenditure at 8 months before profile date | 66.83 | 62.42 | 4.41 |
| Employment assistance expenditure at 9 months before profile date | 64.26 | 46.24 | 18.03 |
| Employment assistance expenditure at 10 months before profile date | 65.04 | 56.94 | 8.10 |
| Employment assistance expenditure at 11 months before profile date | 67.69 | 67.52 | 0.17 |
| Employment assistance expenditure at 12 months before profile date | 73.72 | 66.17 | 7.54 |
| Employment assistance expenditure at 15 months before profile date | 68.85 | 41.31 | 27.54 |
| Employment assistance expenditure at 18 months before profile date | 46.58 | 59.37 | 12.79 |
| Employment assistance expenditure at 21 months before profile date | 38.48 | 43.80 | 5.32 |
| Employment assistance expenditure at 24 months before profile date | 36.99 | 35.26 | 1.74 |
| Employment assistance expenditure at 30 months before profile date | 31.63 | 44.78 | 13.15 |
| Employment assistance expenditure at 36 months before profile date | 22.43 | 33.33 | 10.90 |
| Employment assistance expenditure at 42 months before profile date | 25.52 | 20.40 | 5.12 |
| **Care and Protection: Care notifications** | | | |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Care notifications (0-3 years) | Two to more notifications | 4.7% | 5.4% | 0.7ppt |
| | One notification | 5.5% | 4.2% | 1.3ppt |
| | Over age range by 1 January 1991 | 11.6% | 11.5% | 0.1ppt |
| | No notifications | 78.1% | 78.9% | 0.8ppt |
| Care notifications (4-7 years) | Five or more notifications | 1.6% | 1.1% | 0.5ppt |
| | Two to four notifications | 6.5% | 6.2% | 0.3ppt |
| | One notification | 8.5% | 8.1% | 0.4ppt |
| | Over age range by 1 January 1991 | 8.2% | 7.8% | 0.4ppt |
| | No notifications | 75.4% | 76.7% | 1.2ppt |
| Care notifications (8-11 years) | Five or more notifications | 2.6% | 2.3% | 0.3ppt |
| | Two to four notifications | 7.8% | 7.8% | 0.0ppt |
| | One notification | 10.3% | 11.1% | 0.8ppt |
| | Over age range by 1 January 1991 | 5.7% | 6.5% | 0.8ppt |
| | No notifications | 73.8% | 72.3% | 1.5ppt |
| Care notifications (12-15 years) | Five or more notifications | 3.0% | 2.6% | 0.4ppt |
| | Two to four notifications | 9.4% | 9.7% | 0.3ppt |
| | One notification | 10.7% | 10.0% | 0.7ppt |
| | Over age range by 1 January 1991 | 4.2% | 4.5% | 0.3ppt |
| | No notifications | 72.7% | 73.3% | 0.5ppt |
| Care and Protection: Care placements in childhood | | | | |
| Time in care (0-3 years) | No placement | 88.3% | 88.5% | 0.3ppt |
| | Over age range by 1 January 1991 | 11.6% | 11.5% | 0.1ppt |
| Time in care (4-7 years) | No placement | 91.9% | 92.0% | 0.1ppt |
| | Over age range by 1 January 1991 | 8.2% | 7.8% | 0.4ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Time in care (8-11 years) | No placement | 94.2% | 93.7% | 0.5ppt |
| | More than 75% of the period | s | s | s |
| | Over age range by 1 January 1991 | 5.7% | 6.5% | 0.8ppt |
| Time in care (12-15 years) | No placement | 95.5% | 95.0% | 0.5ppt |
| | More than 75% of the period | 0.3% | 0.5% | 0.3ppt |
| | Over age range by 1 January 1991 | 4.2% | 4.5% | 0.3ppt |
| **Transport: Private driver licence** | | | | |
| Private drivers licence status | Full | 32.8% | 33.1% | 0.3ppt |
| | Restricted | 28.5% | 28.1% | 0.4ppt |
| | Learner | 28.2% | 28.3% | 0.1ppt |
| | No licence | 10.4% | 10.4% | 0.0ppt |
| Driver licence status at 0 months before profile date | Full | 30.5% | 31.2% | 0.7ppt |
| | Restricted | 27.9% | 27.4% | 0.5ppt |
| | Learner | 30.5% | 30.2% | 0.3ppt |
| | No licence | 11.1% | 11.2% | 0.1ppt |
| Driver licence status at 1 month before profile date | Full | 29.7% | 30.5% | 0.8ppt |
| | Restricted | 27.9% | 27.4% | 0.5ppt |
| | Learner | 30.9% | 30.5% | 0.4ppt |
| | No licence | 11.5% | 11.6% | 0.1ppt |
| Driver licence status at 2 months before profile date | Full | 29.3% | 30.1% | 0.8ppt |
| | Restricted | 27.5% | 27.0% | 0.5ppt |
| | Learner | 30.8% | 31.2% | 0.4ppt |
| | No licence | 12.6% | 11.9% | 0.7ppt |
| Driver licence status at 3 months before profile date | Full | 28.9% | 29.8% | 0.9ppt |
| | Restricted | 26.7% | 26.2% | 0.5ppt |
| | Learner | 30.9% | 31.2% | 0.3ppt |
| | No licence | 13.5% | 12.8% | 0.7ppt |
| | Full | 28.3% | 29.1% | 0.8ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Driver licence status at 4 months before profile date | Restricted | 26.5% | 26.0% | 0.4ppt |
| | Learner | 30.9% | 31.2% | 0.3ppt |
| | No licence | 14.3% | 13.6% | 0.7ppt |
| Driver licence status at 5 months before profile date | Full | 27.8% | 28.2% | 0.4ppt |
| | Restricted | 26.3% | 26.3% | 0.0ppt |
| | Learner | 31.0% | 31.3% | 0.3ppt |
| | No licence | 15.0% | 14.2% | 0.8ppt |
| Driver licence status at 6 months before profile date | Full | 27.3% | 27.8% | 0.5ppt |
| | Restricted | 26.0% | 26.3% | 0.3ppt |
| | Learner | 31.2% | 31.2% | 0.0ppt |
| | No licence | 15.5% | 14.6% | 0.9ppt |
| Driver licence status at 7 months before profile date | Full | 26.6% | 27.0% | 0.4ppt |
| | Restricted | 26.3% | 26.6% | 0.3ppt |
| | Learner | 31.2% | 31.7% | 0.5ppt |
| | No licence | 16.1% | 14.7% | 1.3ppt |
| Driver licence status at 8 months before profile date | Full | 26.0% | 26.6% | 0.5ppt |
| | Restricted | 26.0% | 26.3% | 0.3ppt |
| | Learner | 30.9% | 31.6% | 0.7ppt |
| | No licence | 17.1% | 15.5% | 1.6ppt |
| Driver licence status at 9 months before profile date | Full | 25.4% | 26.2% | 0.8ppt |
| | Restricted | 25.8% | 25.6% | 0.1ppt |
| | Learner | 31.0% | 32.0% | 0.9ppt |
| | No licence | 17.8% | 16.3% | 1.5ppt |
| Driver licence status at 10 months before profile date | Full | 25.0% | 25.4% | 0.4ppt |
| | Restricted | 25.5% | 25.9% | 0.4ppt |
| | Learner | 31.2% | 31.8% | 0.7ppt |
| | No licence | 18.4% | 16.9% | 1.5ppt |
| Driver licence status at 11 months before profile date | Full | 24.7% | 25.2% | 0.5ppt |
| | Restricted | 24.8% | 25.2% | 0.4ppt |
| | Learner | 31.4% | 32.1% | 0.7ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| | No licence | 18.9% | 17.7% | 1.2ppt |
| Driver licence status at 12 months before profile date | Full | 24.4% | 24.8% | 0.4ppt |
| | Restricted | 24.4% | 25.0% | 0.5ppt |
| | Learner | 31.2% | 31.6% | 0.4ppt |
| | No licence | 20.0% | 18.8% | 1.2ppt |
| Driver licence status at 15 months before profile date | Full | 22.8% | 23.6% | 0.8ppt |
| | Restricted | 23.5% | 23.8% | 0.3ppt |
| | Learner | 31.6% | 32.3% | 0.7ppt |
| | No licence | 22.3% | 20.5% | 1.8ppt |
| Driver licence status at 18 months before profile date | Full | 21.6% | 22.4% | 0.8ppt |
| | Restricted | 22.7% | 22.8% | 0.1ppt |
| | Learner | 30.2% | 30.8% | 0.5ppt |
| | No licence | 25.5% | 24.2% | 1.3ppt |
| Driver licence status at 21 months before profile date | Full | 20.9% | 21.9% | 0.9ppt |
| | Restricted | 21.1% | 21.6% | 0.5ppt |
| | Learner | 29.7% | 29.4% | 0.3ppt |
| | No licence | 28.3% | 27.1% | 1.2ppt |
| Driver licence status at 24 months before profile date | Full | 20.0% | 21.1% | 1.1ppt |
| | Restricted | 20.4% | 20.9% | 0.5ppt |
| | Learner | 27.9% | 27.7% | 0.3ppt |
| | No licence | 31.7% | 30.4% | 1.3ppt |
| Driver licence status at 30 months before profile date | Full | 18.2% | 19.4% | 1.2ppt |
| | Restricted | 18.4% | 17.3% | 1.1ppt |
| | Learner | 25.1% | 26.2% | 1.1ppt |
| | No licence | 38.3% | 37.1% | 1.2ppt |
| Driver licence status at 36 months before profile date | Full | 16.5% | 17.1% | 0.7ppt |
| | Restricted | 17.3% | 16.3% | 0.9ppt |
| | Learner | 22.5% | 24.0% | 1.5ppt |
| | No licence | 43.9% | 42.6% | 1.2ppt |
| | Full | 15.1% | 15.9% | 0.8ppt |

| Variable | Level | Participant | Comparison | Difference |
|---|---|---|---|---|
| Driver licence status at 42 months before profile date | Restricted | 14.8% | 14.6% | 0.3ppt |
| | Learner | 20.8% | 21.3% | 0.5ppt |
| | No licence | 49.1% | 48.3% | 0.8ppt |
| **Transport: Commercial driver licence** | | | | |
| Commercial drivers licence status | Full | 3.6% | 3.2% | 0.4ppt |
| | Learner | 0.7% | 0.5% | 0.1ppt |
| | No licence | 95.8% | 96.2% | 0.4ppt |

a. Participant: mean value for the participant group.
b. Comparison: mean value for the matched comparison group.
c. Difference: difference between participant and comparison means.
d. s: supressed for IDI confidentiality.

**Source**: MSD, Statistics New Zealand IDI

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