



Ministry of Social Development

Social Outcomes Modelling – 2020 Results
Report

25 February 2022

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IDI disclaimer:

Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the authors, not Stats NZ or individual data suppliers.

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>

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

1 Executive Summary

The purpose of this report is to provide information to the Ministry of Social Development (MSD) about long-term trends in benefit dynamics, offering insight into how the benefit system is changing over time.

This report uses the Social Outcomes Model (the Model) to provide a view of how people move into, through, and out of the benefit and public housing systems, and their interactions across government services. In this way, the Model estimates future service use for the population of New Zealand, based on past experience and future economic assumptions. A summary of the Model is set out in Appendix C of this report.

The Model is developed inside the Stats NZ Integrated Data Infrastructure (IDI). The IDI is a large research database which holds administrative data about people's life events like education, income, benefits, migration, justice and health. The data come from government agencies, Stats NZ surveys, and Non-government organisations, and is linked together and de-identified. Further information about the IDI can be found on the Stats NZ website.

For this report, the Model takes data available up to 30 September 2020. In doing so, it builds on the experience of people seen in the pre-COVID-19 period, as well as the first 10 months of the pandemic. The future economic assumptions used in the Model are those provided by The Treasury in their 2020 Half Year Economic and Fiscal Update (HYEFU 2020). All assumptions used in the Model are set out in the 2021 Social Outcomes Modelling 2020 Technical Report.

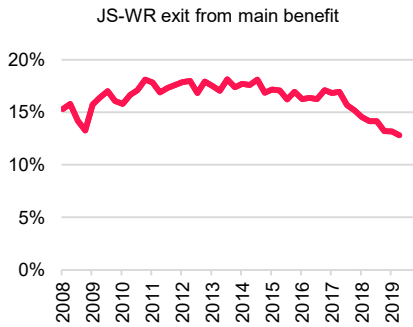
Through the findings outlined in this report, the Model shows the future outcomes we may expect to see, if current policy and social settings remain unchanged and economic forecasts hold true. At the time of writing this report, the Treasury's future economic assumptions outlined in the 2021 Budget Economic and Fiscal Update (BEFU 2021) were improved from that assumed in the HYEFU 2020.

A glossary of terms and acronyms are set out in Appendix D of this report.

The outputs from the Model are not official statistics, and due to the range of data used, the numbers in this report may not match to official figures.

Set out below are brief statistics of key findings. A fuller description of these findings then follows.

Key finding: There was a significant change in the rate that people left the benefit system prior to the COVID-19 pandemic



Drop in JS-WR exit rates from 17% to 13%

From early 2018 to end of 2019, and significant drops for other benefit categories.

Exit rates fell and entry rate increased for other benefit types

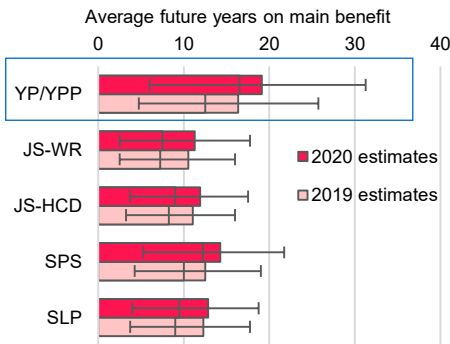
This was despite downward trending unemployment rates.

→ Impact on estimated future years on benefit for JS-WR clients

+ 1.4 years to the average estimated future years on main benefit for JS-WR clients

From 9.9 years in 2019 to 11.3 years in this report.

Key finding: Youth clients and Māori clients estimated average future time on benefit to age 65 is disproportionately affected by the change in exit rates



Long term impacts for youth clients

YP/YPP clients have 45+ years to age 65 so a longer period for potential future years on benefit.

Increase in future years on benefit greatest for people identifying as Māori

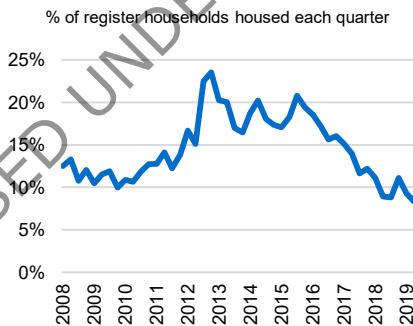
This is consistent across most benefit types.

→ Impact on estimated future years on benefit

A quarter of YP/YPP estimated to spend at least **31 future years** on main benefit

- Modelling can help identify some of the characteristics of people with the highest estimated future benefit receipt.
- Differences in future benefit receipt by prioritised ethnic group are not explained by age, gender, or regional distribution.

Key finding: People are staying longer in public housing



Decreasing exits

Long-term decrease in exit rates from public housing has resulted in a decrease in the percentage of the register able to be housed each quarter.

Large increase in register

Assessment scores are up across most domains. Change in applicant profile resulting in an increased requirement for 1-bed accommodation.

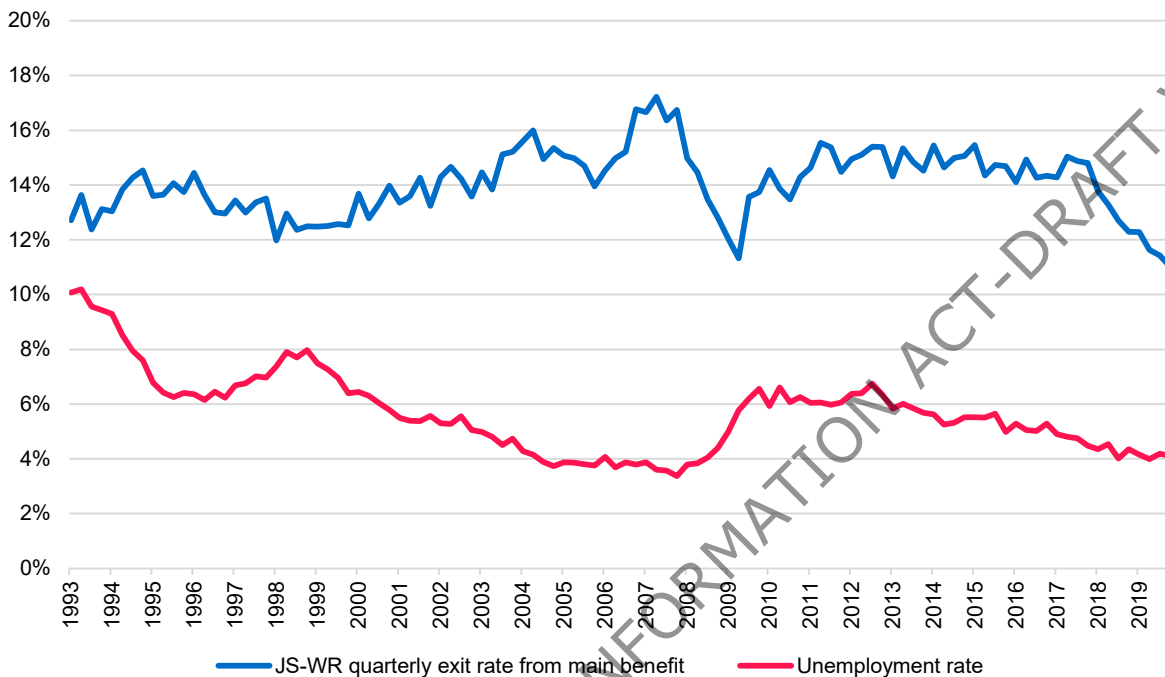
→ Impact on estimated future years in public housing

+ 1.4 years to the average estimated future years in public housing for primary tenants under age 65

From 16.8 years in 2019 to 18.2 years in this report.

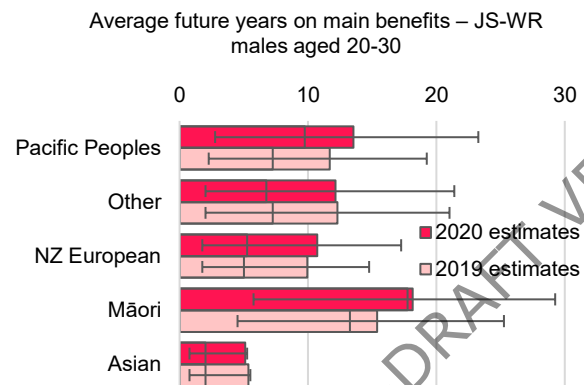
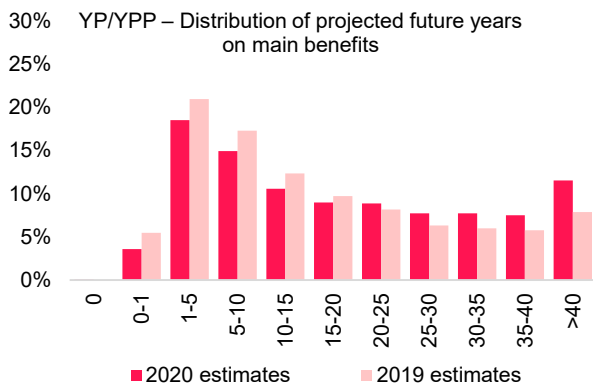
- Exit rates from public housing are estimated to continue to decrease, particularly if rental growth exceeds income growth.

1.1 There was a significant change in the rate that people left the benefit system prior to the COVID-19 pandemic



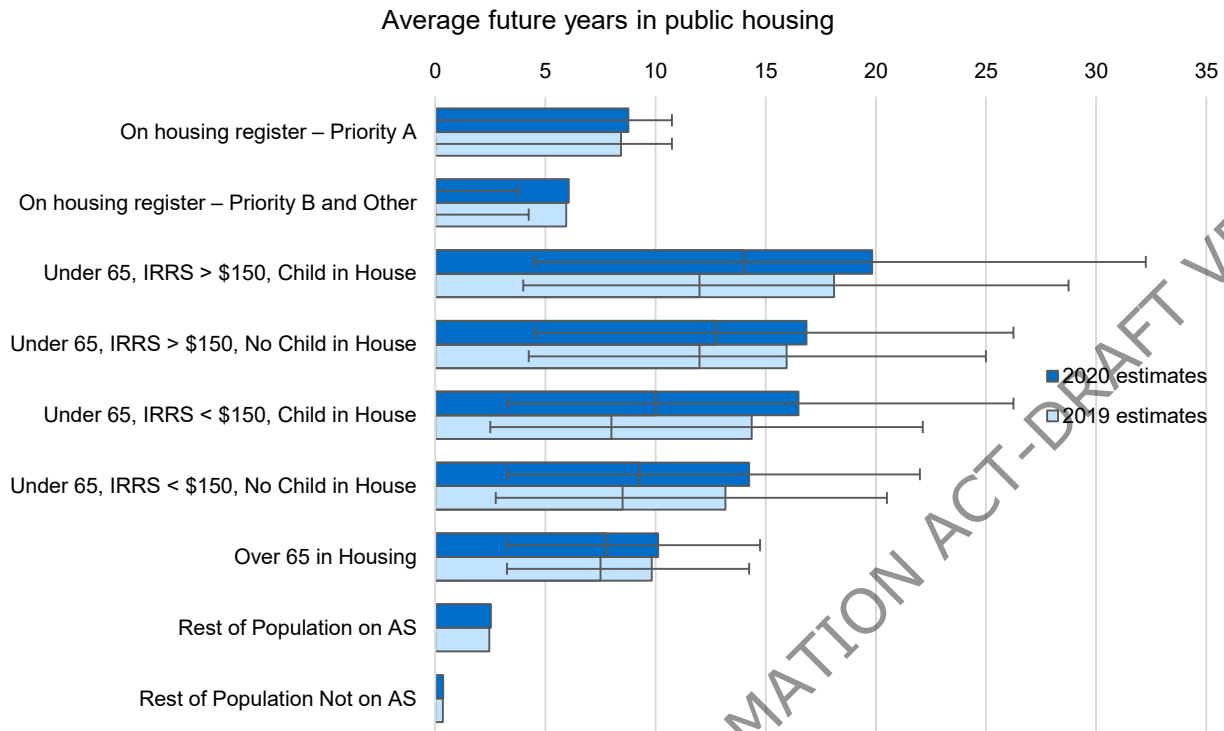
- There has been a range of Government supports to help people and businesses with the economic effects of COVID-19. However, there were changes occurring in the benefit system before COVID-19.
- Between early 2018 and the end of 2019, exit rates across most main benefit categories decreased significantly. Ordinarily, as the chart above demonstrates, exit rates reflect labour market conditions and move in the opposite direction to the change in the unemployment rate. This has not been the case between early 2018 and the end of 2019. Entry rates also increased over that period.
- From early 2018 to the end of 2019, exit rates decreased at the same time as the unemployment rate was low and falling slightly. This is unusual. During this time MSD’s engagement rate with clients had dropped as changes in the economy and housing pressures had led to more people on benefits.
- In absolute terms, the JS-WR exit rate at the end of 2019 was at the same level as the height of the Global Financial Crisis (GFC), even though the unemployment rate was at the same level as it was when exit rates peaked pre-GFC.
- Exit rates have decreased further in 2020 with the effects of COVID-19. These effects should broadly dissipate with time and return to pre-COVID-19 levels. After this dissipation, the model assumes that most (about two-thirds) of the pre-COVID-19 decrease in exit rates persists in the long term.
- Allowing for some of the pre-COVID-19 experience to continue in our modelling assumptions results in large increases in estimated future years on benefit e.g. +1.4 years on average for JS-WR clients.

1.2 Youth clients' and Māori clients' estimated future time on benefit to age 65 is disproportionately affected by the change in exit rates



- The left-hand chart shows the distribution of estimated future years on main benefits for YP/YPP clients. Year-on-year, this has changed significantly, with a higher proportion of clients estimated to spend 25+ future years on main benefits.
- This reflects:
 - The significance of factors resulting in early adulthood benefit receipt, and reduced near-term employment prospects due to COVID-19. Accumulated benefit history early in adulthood significantly increases the likelihood of sustained benefit receipt in the future.
 - The impact of lower assumed benefit exit rates over the long potential working lifetime of youth clients (45+ years to age 65).
- The model estimates there is likely to be an increasing proportion of people aging out of YP/YPP and into other main benefit categories (mainly JS-WR and SPS) with limited work experience. This highlights the potential of targeted MSD services and employment assistance programmes for this cohort.
- The right-hand chart shows the average estimated future years on main benefits by primary ethnic group for male JS-WR clients aged 20-30. By looking at this specific cohort we control for most of the differences in age and gender distributions between ethnicities.
- The bars represent mean averages and the black lines represent the interquartile range. If all people in each cohort were lined up in order of their estimated future years on main benefits, the interquartile range represents the quarter and three-quarter points on that line. The median (the mark in the middle of the black lines) is the half-way point.
- The chart highlights disparity and increasing separation between Māori and other ethnicities:
 - The mean average is much higher for Māori, as are the quarter, half-way (median) and three-quarter points of the distribution. 25% of male, Māori, JS-WR clients aged 20-30 are estimated to spend over 29 future years on main benefits.
 - Year-on-year change was greatest for Māori. The mean average increased from 15.4 to 18.0 years.
- These disparities can be seen across all regions.

1.3 People are staying longer in public housing

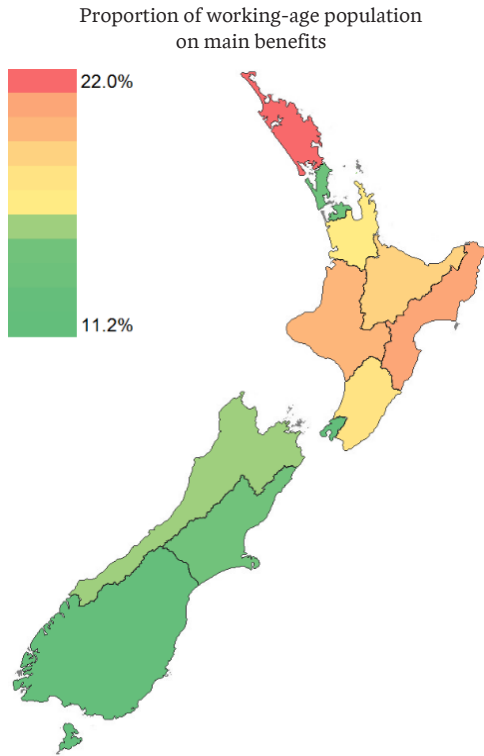


- There is a long-term downward trend in exit rates. Average Income Related Rent Subsidy (IRRS) has continued to increase as rental growth continues to outpace income growth. This has made it harder for public housing tenants to enter the private market which has contributed to exit rates declining.
- As it has become harder for people to enter the private market and exit public housing, the average age of tenants and the average tenure in public housing has gradually increased - both factors associated with a lower likelihood of exiting public housing.
- This all leads to increases in average estimated future years in public housing for tenants currently in public housing. All other things being equal, we expect this to continue increasing, particularly if rents continue to grow faster than incomes and the tenant cohort continues to increase in average age and duration in public housing. Without large increases in the public housing stock this will limit opportunities to place households on the register into public housing.
- At the same time there has been a significant increase in the number of eligible households applying for public housing and a significant increase in the number of emergency housing Special Needs Grants. The public housing register has grown three-fold since early 2018, implying the amount of housing need is growing (and/or an increasing amount of previously latent unmet need is reflected in the register).
- Furthermore, the assessed needs of register applicants appear to have increased over the last few years, with increases in the average score of four of the five application assessment domains. There is also a growing mis-match between the size of houses required by households on the register and public housing stock. 45% require a one-bedroom dwelling (13.5% of the Kāinga Ora housing stock is one-bedroom).
- Helping current tenants in existing private market rentals to sustain their tenancies and therefore reduce the need for public housing is a focus area of work for MSD and the Ministry of Housing and Urban Development.
- We believe the challenges facing the public housing system largely reflect broader systemic issues not under the direct control of any one agency – particularly housing affordability. While the Ministry of Housing and Urban Development has a housing system stewardship mandate, and work is being

undertaken to reset the housing system and improve housing affordability, a cross-agency response to these issues would likely be the best way to enduringly address these challenges.

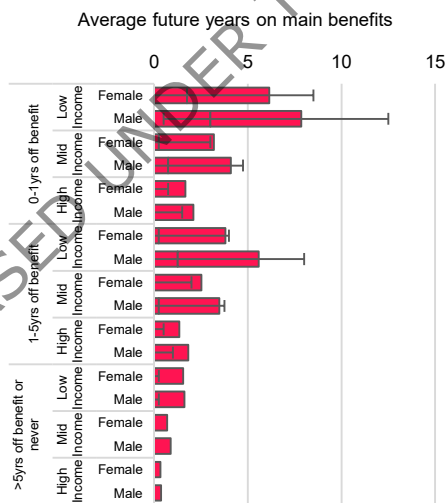
1.4 Other key points to note

Variation in outcomes between and within regions



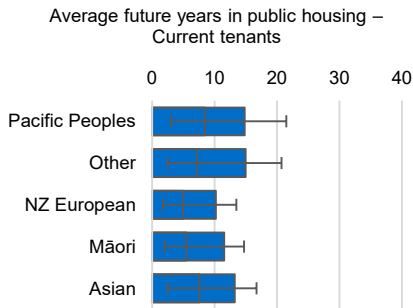
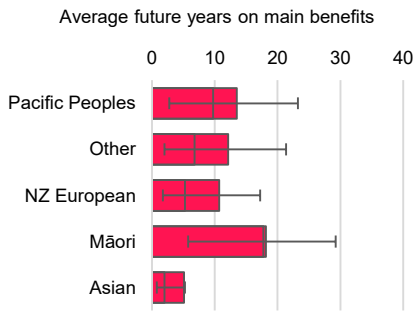
- The heat map highlights the large regional variation in proportions of working-age populations on main benefits (from 11.2% of 246k people in Southern to 22.0% of 105k people in Northland).
- However, amongst main benefit clients the regional variation in average estimated future years on main benefits is much narrower (from 11.3 years in Nelson to 13.0 years in the East Coast).
- This might be because:
 - Greater variation in average estimated future years on main benefits may exist within regions and this is averaged out at a regional level.
 - There may be a significant proportion of the main benefit population whose barriers to employment do not depend significantly on the dynamics of their local labour market.
- Understanding this would help inform the extent to which MSD resources could be focussed on connecting people to jobs or focussed on people’s skills, capability and specific barriers to employment.
- Adding a rural/urban indicator or scale as a predictive variable in the modelling could help with this.

New clients



- The chart shows average estimated future years on main benefits for a simple segmentation of people aged 16-64 who are currently not on benefit.
- The segmentation is based on time since they were last on benefit (if at all), income and gender. This can be refined further to build up a clear understanding of who is and isn’t likely to spend a material amount of time on main benefits in the future.
- This is also relevant for assessing new clients when they apply for a main benefit. The model can be used to help characterise the people who are likely to have the most difficulty reconnecting with the labour market.
- Prior income is one of the strongest predictors of future employment amongst new benefit system clients. Client needs assessments could be enhanced if prior income was collected through the application process.

Difference between benefit system and public housing use amongst Māori



- These charts cover male, JS-WR clients aged 20-30.
- Māori have a higher average estimated future years on main benefits than other prioritised ethnic groups. This is the case across age groups, regions and for both males and females.
- Conversely, Māori have a lower average estimated future years in public housing than people identifying as Asian or Pacific Peoples and a similar average to Europeans.
- It is not clear why there is inconsistency in outcomes for these two measures – further analysis is needed.
- To help with this it would be useful to investigate people’s pathways with respect to employment, benefit receipt, earnings and other outcomes before and after they exit public housing, and how this differs by ethnicity.

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System-level results

2 Evolution of the benefit system

Key points from this chapter

- The rates at which people exit from main benefits decreased significantly between early 2018 and the end of 2019.
 - Over that period, the labour market was relatively strong with the unemployment rate just above 4%.
 - Accommodating some of this decrease into the modelling has significantly increased our estimates of people's future time on main benefits and associated fiscal costs.
 - Effects on the benefit system from COVID-19 are evident from early 2020. At a system level, changes in the client benefit duration mix and in the mix between returning clients and new clients to the system, appear to be of similar magnitude to the last major recession (Global Financial Crisis).
-

In this chapter we analyse how the benefit system has changed over the last two to three years and what this means for benefit receipt in the long term.

We describe:

- Where the system was at in early 2018
- What has happened between then and 30 September 2020
- Where the system was at by 30 September 2020
- What this means for system performance and outcomes for individuals.

The system has seen significantly more change than at any other time in at least the last decade. Most notably, since early 2020 when the impact of COVID-19 first emerged in the system. However, even before COVID-19, significant change was occurring in terms of the rate at which people entered and exited the system.

2.1 The benefit system in early 2018

In early 2018, there were about 275,000 people receiving main benefits, or about 9.3% of the working-age population. This had been consistently declining since the Global Financial Crisis (GFC) and welfare reform in the early 2010s. Particularly among Sole Parent Support clients, most of whom had work obligations introduced as part of that reform.

The relatively low number of people receiving main benefits also reflected strong labour market conditions with unemployment slightly above 4% and participation rates near record highs of about 71%.

2.2 What happened between early 2018 and September 2020

The benefit system has changed materially since early 2018. There had been a raft of policy changes and, of course, COVID-19 had a significant impact on the labour market in 2020. There have also been significant changes in terms of the rates people enter and exit the benefit system. Particularly pre-COVID-19 when labour market conditions were relatively strong. The rate at which people entered the benefit system increased materially, while the rate at which people exited decreased materially.

The exact reasons for these changes are unclear, although during this time MSD's engagement rate with clients had dropped as changes in the economy and housing pressures had led to more people on benefits. If these exit and entry rates are sustained, they will have significant long-term implications.

2.2.1 Policy changes

Policy changes are one potential cause of change in the system, albeit we do not think they are a major contributor to the increase in entry rates or the decrease in exit rates. In Appendix A, we describe the policy changes impacting the benefit system. This includes benefit system specific policy changes and other policy changes. In summary, the key changes since early 2018 were:

- Families package – April-July 2018 – Changes to the benefit system and tax credit supports aimed at supporting families, including the Winter Energy Payment.
- COVID-19 response – March 2020 onwards – A range of measures in response to COVID-19 including increased benefit rates, the COVID-19 Income Relief Payment, wage subsidies, deferrals of the need to provide subsequent medical certificates, and the temporary suspension of 52-week reapplications for Jobseeker Support and Sole Parent Support benefits.
- Indexation of benefit payment rates to the after-tax average wage over the 12 months to the end of the prior calendar year – 1 April 2020.

2.2.2 COVID-19

COVID-19 affected labour market conditions in 2020, with specific industries, such as tourism, aviation and hospitality most affected. These industries tend to employ a relatively high proportion of low skill/wage workers i.e. people who have relatively low financial resilience. With different industries having different labour force demographic profiles and regional composition, the impact on different demographic groups and regions has varied. Despite an extensive fiscal COVID-19 response package, the number of people requiring benefit system support has increased significantly, albeit much less so than would have been the case without the fiscal package.

The effect of COVID-19 on the benefit system does not just relate to the number of people requiring support. It has also changed the profile of the client population, with many first-time beneficiaries. This includes people who have recently left education and have no material pre-existing work experience and older clients who may find re-entering the labour market challenging when conditions improve, albeit these are relatively small cohorts. On average, new clients entering the system after COVID-19 are expected to have fewer future years on a main benefit than new clients when they entered the system before COVID-19. This is because they tend to have fewer barriers to employment.

Figure 2.1 and Figure 2.2 highlight this. Figure 2.1 shows the profile of JS-WR clients over time by number of consecutive quarters on benefit. The increase in short duration clients in 2020 reflects new benefit entrants. This appears similar in magnitude to that seen after the start of the Global Financial Crisis (GFC).

Figure 2.1 – JS-WR client profile by number of consecutive quarters on benefit

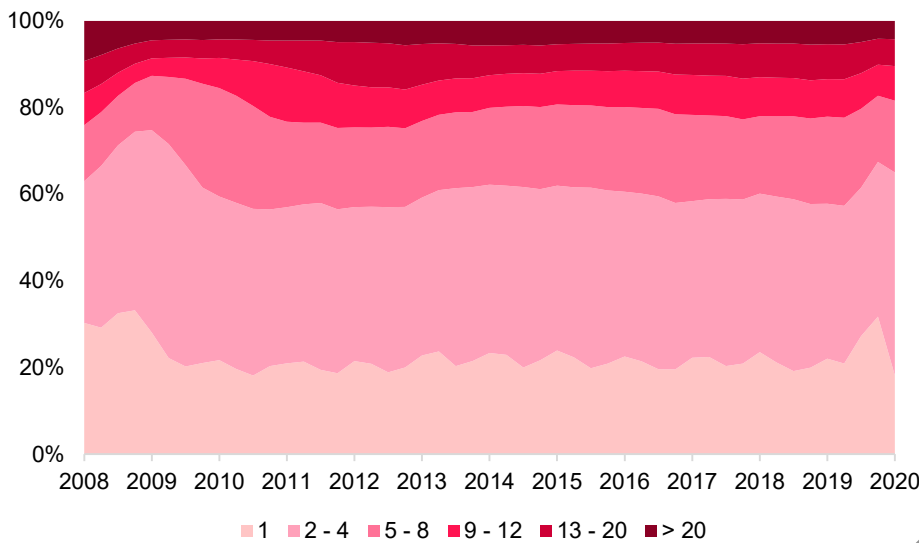
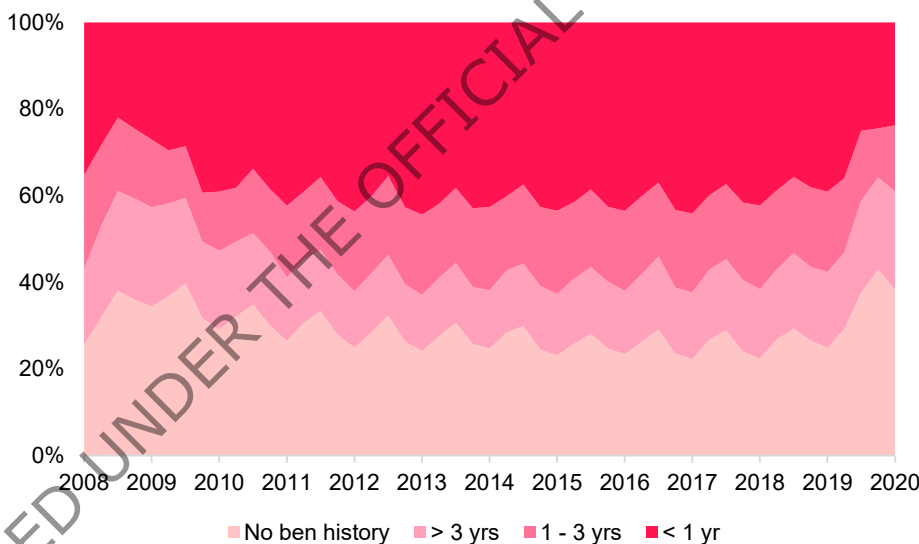


Figure 2.2 shows the profile of new JS-WR entrants by the time since they were last receiving a benefit. The proportion of new entrants who are experiencing their first ever spell on a main benefit increased in 2020 from around 25% to about 40%. Again, this is similar in magnitude to that seen after the start of the GFC.

The circumstances surrounding the current recession are unusual, and some localised effects are very specific (e.g. to industry). However, at a system level, the impacts so far match what we expect in an economic downturn and look similar to the last major recession.

Figure 2.2 – New JS-WR benefit system entrants by time since last on benefit



Of the new JS-WR benefit system entrants in the first 3 quarters of 2020, 73% are people under the age of 30. And of these, 91% earned less than the income threshold¹ in all of the last four quarters i.e. most are young people who were in low or limited income circumstances. These proportions are nearly identical to what was seen during the GFC.

¹ Equivalent to the minimum wage for 40 hours per week

2.2.3 Client movements - transition rate experience

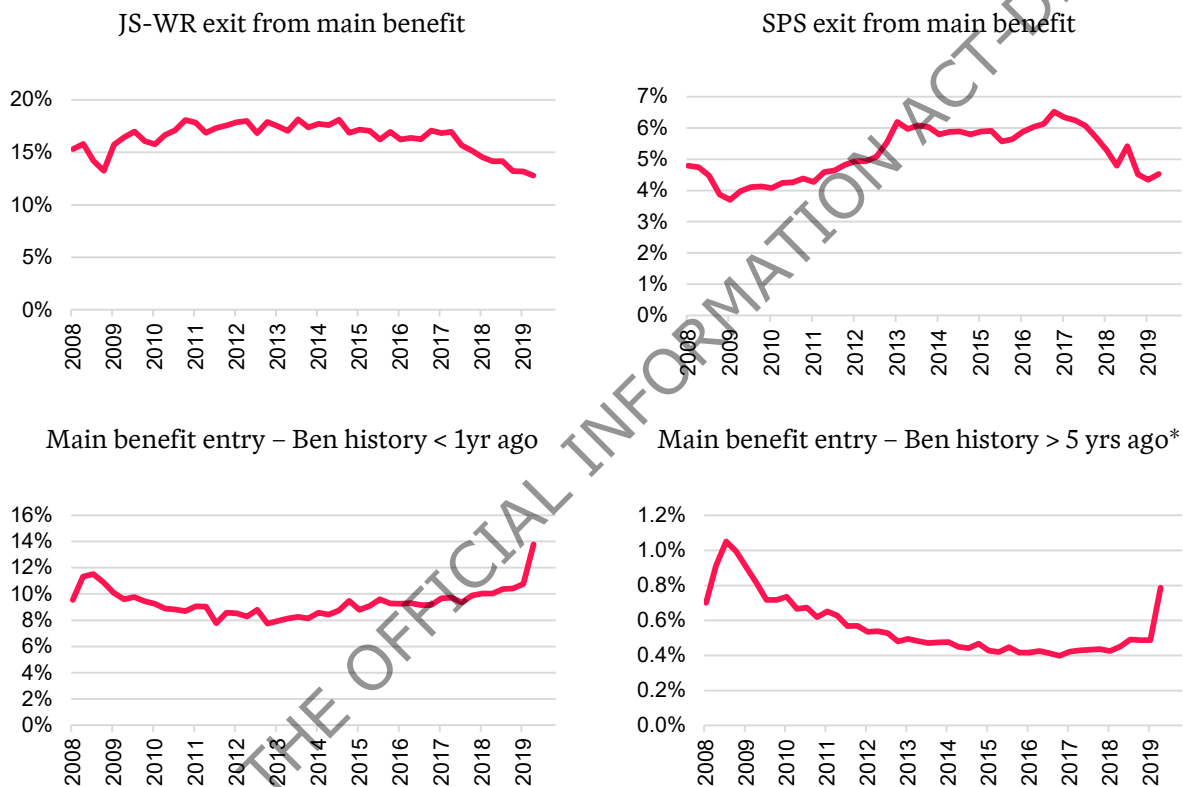
The modelling of benefit receipt operates by estimating how people enter, transition through, and exit the benefit system, informed by past experience and future forecasts for factors such as the unemployment rate. Changes in the estimates have significant effects on the modelling of future benefit receipt and other correlating outcomes e.g. public housing need.

Figures 2.3 shows a selection of transition rates up to the end of 2019 i.e. before the impact of COVID-19. Other rates can be found in Appendix B.

Note that several key transition rates start to change significantly from early 2018.

Some of the change has been reflected in the assumptions for our modelling, with significant effects on estimated outcomes, including future time on benefit and total future benefit payments.

Figures 2.3 – Historical quarterly benefit system transition rates (seasonally adjusted)



* Or no benefit history identifiable in the data

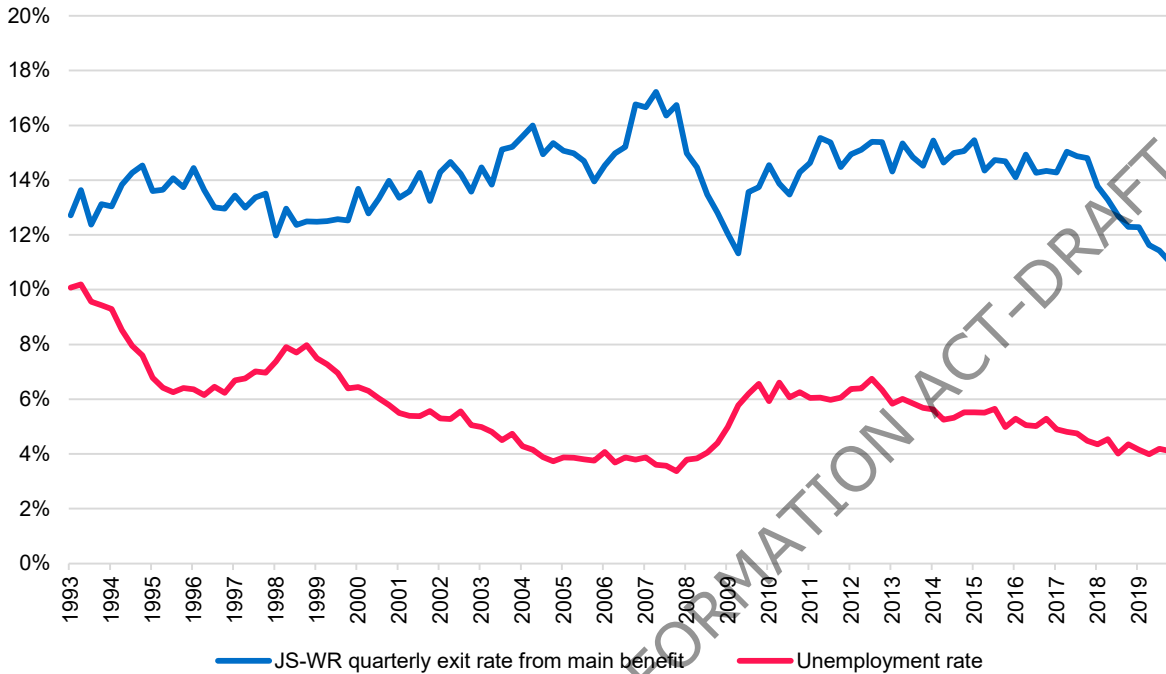
The key message to take from these charts is that entry rates were increasing and exit rates decreasing between early 2018 and the end of 2019. This was against a backdrop of a strong labour market i.e. before COVID-19. Specifically:

- Main benefit entry rates increased materially – this is true for recent exits from the system and for people with no recent benefit history.
- JS-WR exit rates decreased significantly – from about 17% in early 2018 to about 13% by the end of 2019. JS-WR exit rates are usually sensitive to labour market conditions, so the extent of this fall is notable given low unemployment rates over that period.
- SPS exit rates decreased significantly – from about 6.5% in 2017 to about 4.6% by the end of 2019. Prior to this, SPS exit rates had a long-term upward trend, reflecting welfare reform in the 2010s.

Changes in the profile of clients do not explain this. Further investigation is needed to understand the cause of these changes. If sustained, they will have significant long-term implications.

Figure 2.4 shows the same JS-WR exit from main benefit rates as in section 1.1. The change since early 2018 relative to the unemployment rate is inconsistent with history since 1993. The rate at the end of 2019 was lower than at other point since 1993, including the low following the GFC, despite the unemployment rate being relatively low at about 4%.

Figure 2.4 – Historical JS-WR quarterly exit from main benefit rates (seasonally adjusted)



Understanding this change is important for understanding the long-term implications for the management of the benefit system and outcomes of clients.

To respond to this change in experience it is necessary to understand why it occurred. A range of further analysis could be performed, including:

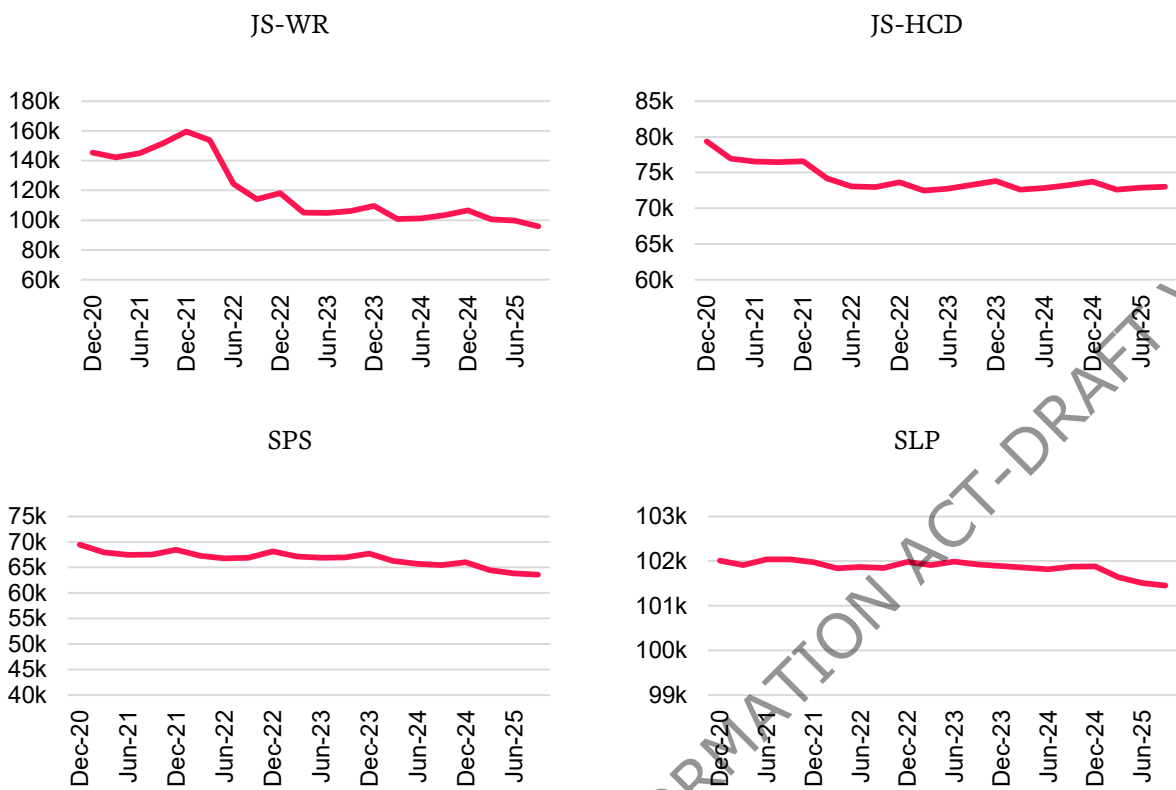
- Families Package – Causal inference analysis to estimate the effect of Accommodation Supplement changes on people’s propensity to exit.
- Housing affordability – Perform descriptive analysis and fit explanatory models using housing-related data from the census and tenancy bond data (in conjunction with other data used in our modelling). Establish if these data help explain the change in exit/entry rates.
- Household income – Causal inference analysis to estimate the effect of changes in equivalised after-housing-cost household income on exit rates (using 2013 and 2018 census household data).
- Policy and service changes - descriptive analysis of factors relating to policy and service changes including expenditure on employment assistance programmes, staff-related indicators such as numbers of appointments and adherence to processes such as 52-week re-applications.

We understand that MSD work on assessing the impact of the Families Package is ongoing.

2.3 What this means going forward

In the short-term, the benefit system is dominated by COVID-19 effects and the forecast economic recovery. This is illustrated in the 5-year estimates of client numbers in Figures 2.5. This is particularly true for JS-WR clients where the estimated late 2021 peak and subsequent decrease in client numbers broadly mirror the shape of the Treasury’s unemployment rate forecast (Half-Year Economic and Fiscal Update 2020).

Figures 2.5 – Estimate of client numbers over next five years by main benefit category



However, this short-term horizon only conveys part of the future picture and masks the potential implications of the pre-COVID-19 experience.

The effect of allowing for this experience in our modelling assumptions on our lifetime estimates is very significant.

Table 2.1 shows core benefit system lifetime results by high-level benefit segments, with comparisons to last year’s modelling results.

Table 2.1 – Summarised benefit system modelling results by high-level benefit category

Segment		Average age		Avg. future years on main benefit		
		2019	2020	2019	2020	
Main Benefits	Youth Benefit	YP/YPP	17.5	17.4	16.4	19.1
	Job Seeker	Work Ready	37.0	36.2	10.5	11.3
		HCD	43.9	43.7	11.0	11.9
		Sub Total	40.0	38.8	10.8	11.5
	Sole Parent Support		33.5	33.8	12.5	14.3
	Supported Living		47.7	47.6	12.3	12.9
Sub-total			41.1	40.1	11.6	12.4
NOMB	Supplementary benefits only		40.5	40.9	2.7	3.0
Recent Exits	Benefit history within last year		36.0	35.6	5.5	6.0
Longer Exits	Benefit history within 1-5 years		38.7	38.9	2.7	3.3
	No benefit history within last 5 years		39.8	40.1	0.8	1.0
	Sub-total		39.7	40.0	1.0	1.1
Total			39.7	39.9	2.3	2.7

The year-on-year change in average estimated future years on main benefits to age 65 mainly reflects changes to transition rate modelling assumptions i.e. entry and exit rates.

In section 2.4 we explicitly analyse the year-on-year change and quantify the contribution of different factors. It is important to note that changes in the client cohort have tempered the increases in average estimated future years on main benefits. These client cohort changes are mainly temporary effects resulting from the influx of clients due to COVID-19 and are expected to unwind as the economy recovers and those clients return to employment.

For youth benefit clients the average estimated future years on main benefit increased from 16.4 to 19.1 years. Most of this increase relates to expected future time receiving adult benefits such as JS-WR and SPS. Average estimated future years on main benefit for SPS clients also increased from 12.5 to 14.3 years.

In practical terms, this means people are estimated to spend more of their future lifetime to age 65 receiving main benefit financial support. The fiscal cost of providing these people with that support is estimated to increase accordingly.

This has related effects for people’s estimated employment, income and hence material wellbeing outcomes.

Figures 2.6 show core modelling results by high-level benefit segments for a range of outcomes.

2019 modelling results are shown for comparison.

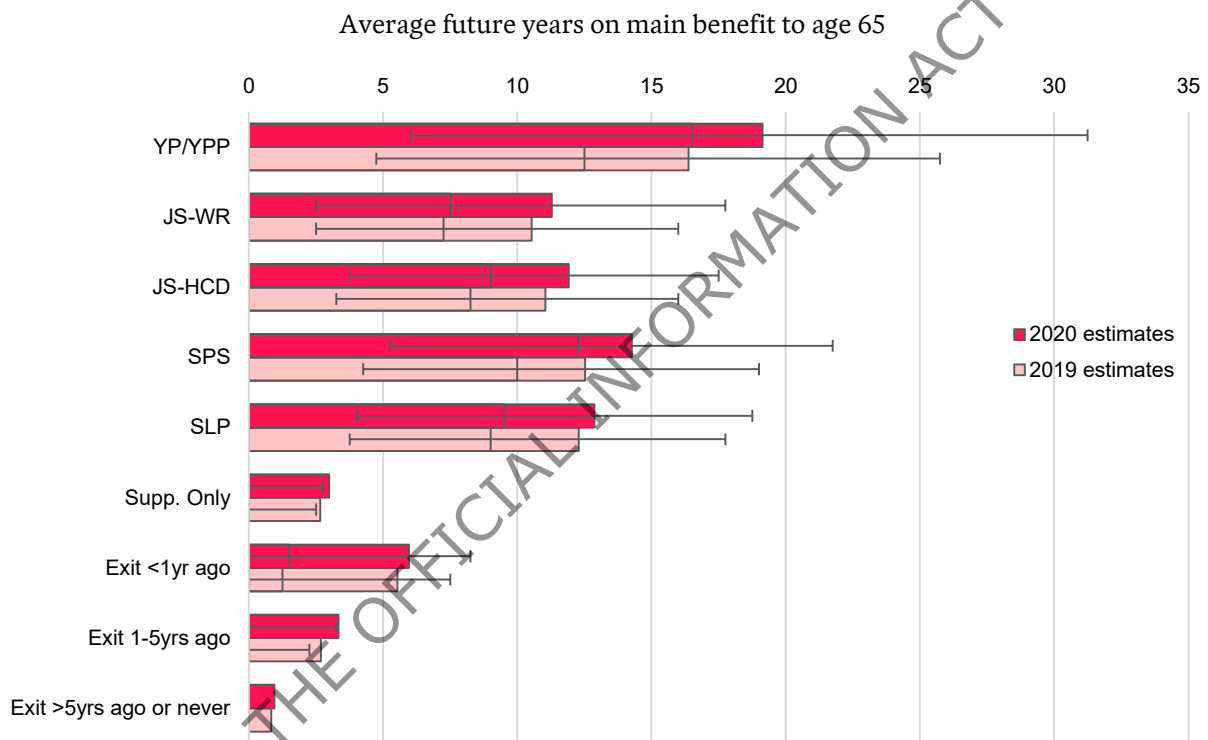
The bars represent mean averages. In the future years on main benefit to age 65 and future years in public housing charts, black lines represent the interquartile range. If all people in each cohort were lined up in order of their estimated future years on main benefits or estimated future years in public housing, the

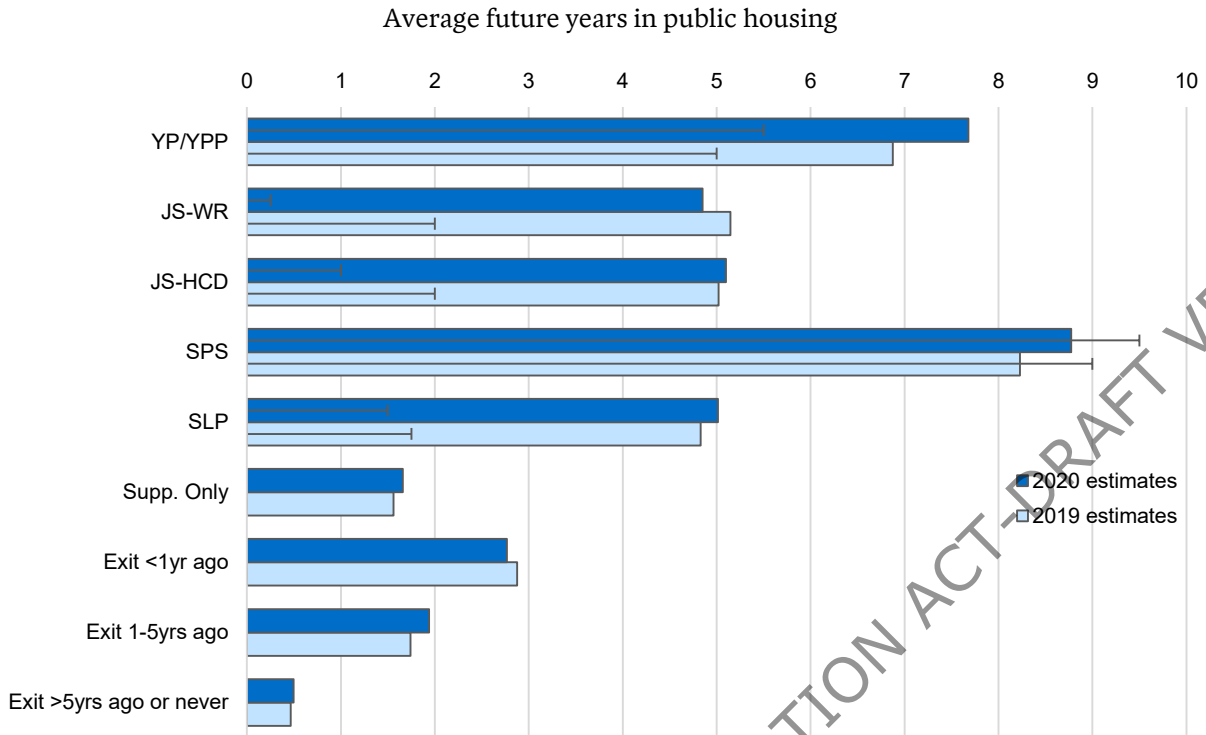
interquartile range represents the quarter and three-quarter points on that line. The median (the mark in the middle of the black lines) is the half-way point e.g. for JS-WR clients the 2020 estimates show an interquartile range from 2.5 years to 17.5 years. Another way for expressing this is that the model estimates that 25% of JS-WR clients will spend less than 2.5 future years on main benefit and 25% will spend more than 17.5 future years on main benefit over their lifetime to age 65.

This gives us useful information about the distribution of estimated outcomes within each category. Note some interpretation points about the interquartile ranges:

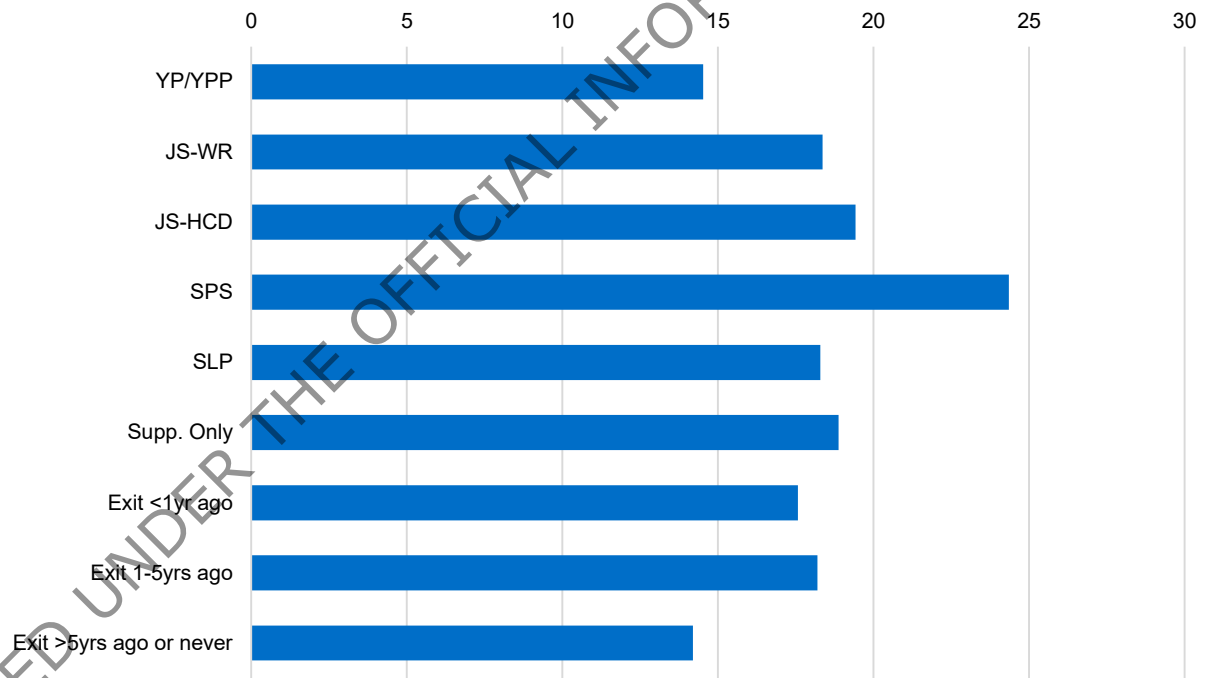
- In every case, the median average is lower than the mean average (represented by the bars). This highlights that in each category there is a concentration of people with very high future estimated years on main benefit (or in public housing).
- For some categories, parts of, or indeed the whole interquartile range are not visible. This is because some people have 0 estimated future years on main benefit or in public housing.

Figures 2.6 – Summarised modelling results by high-level benefit category



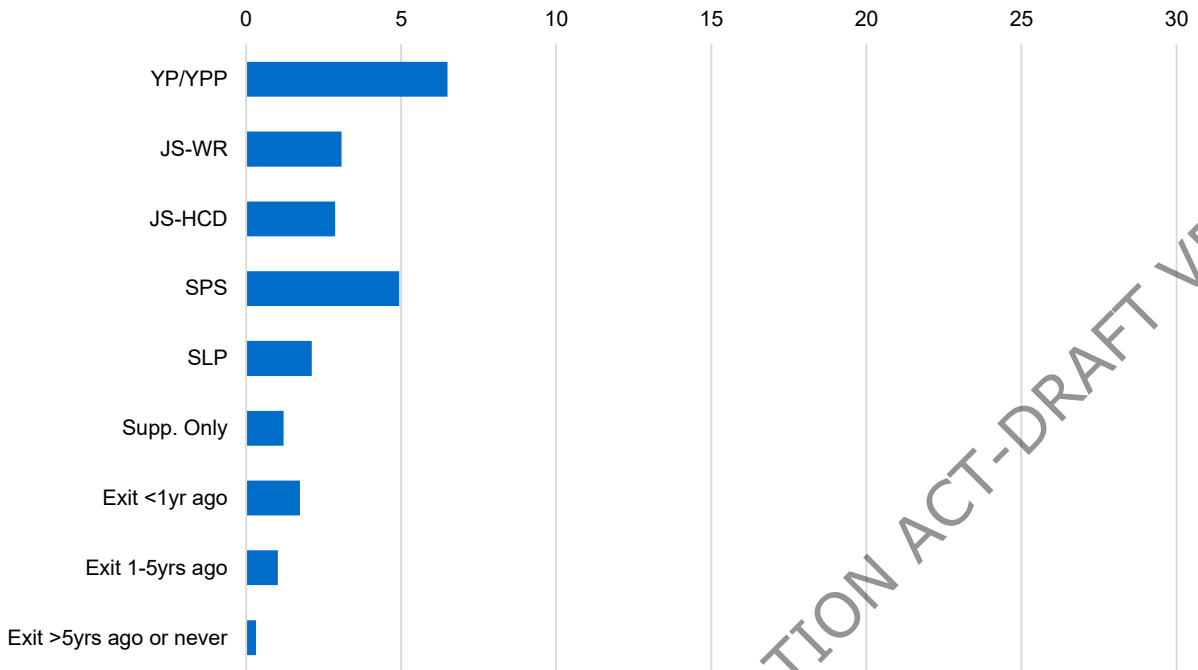


Average future years in public housing – Currently in public housing – 2020 estimates

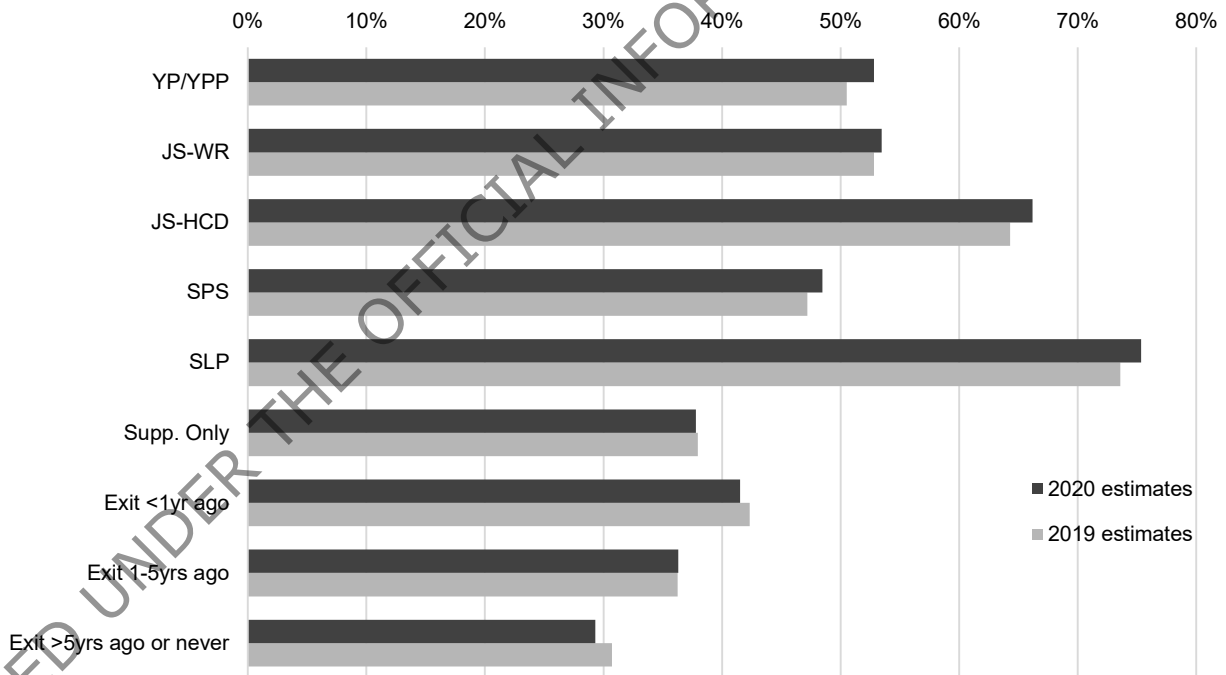


Note: Approximately 15% of main benefit clients are in public housing

Average future years in public housing – Not currently in public housing – 2020 estimates



Average proportion of future lifetime to age 65 earning below income threshold



* Threshold = 52 weeks at 40 hours per week at the minimum wage (increased with average wage growth) - \$39,312 in 2020.

The average future years on main benefit to age 65 chart shows some of the same information as in Table 2.1. For most categories we can infer that the year-on-year increase in the average future years on main benefit is mainly due to a greater distributional skew towards people with very high estimated future years on main benefit (because the upper end of the interquartile ranges increase more than the lower end) i.e. there is greater disparity.

As an example, the increase is pronounced for YP/YPP clients. 25% of YP/YPP clients are estimated to spend more than 31.25 future years on main benefit. The modelling can help characterise these clients.

Other key points to draw from these charts:

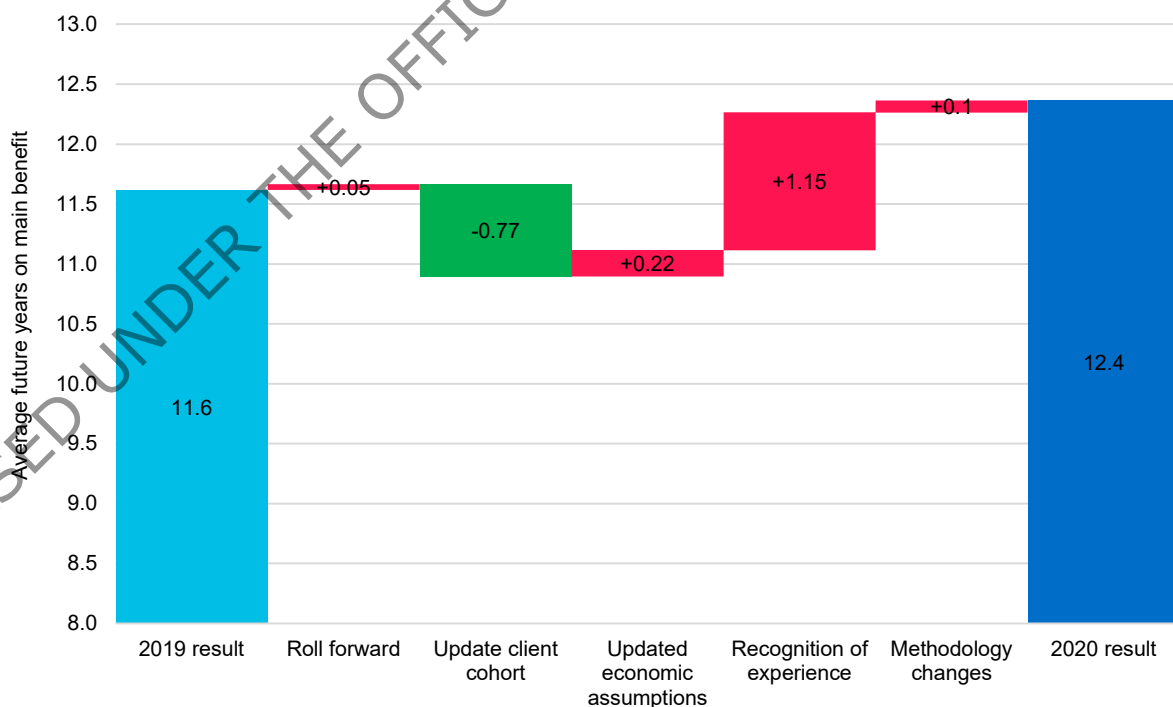
- SPS clients have the highest average estimated future years in public housing. This partly reflects a high proportion of SPS clients being in public housing (18%).
- On average, JS-HCD clients are estimated to spend a higher proportion of their future lifetime to age 65 earning less than the income threshold than other main benefit categories (excluding SLP). This is likely to have implications for their long-term material wellbeing.
- Year-on-year, the average proportion of future lifetime to age 65 earnings below the income threshold has increased for on-benefit categories and decreased for off-benefit categories. This partly reflects the changing profile of clients on benefits (and correspondingly the changing profile of clients not on benefit).

2.4 Analysis of change

There are many factors built into the modelling that affect estimates of future benefit receipt and other modelled outcomes. We can break down and quantify the contribution of different factors to the overall change in results from the last modelling round (2019) to the latest results (2020).

Figure 2.7 shows this breakdown, or analysis of change, for the estimated average future years on main benefits for people on main benefits at the relevant modelling date.

Figure 2.7 – 2019/2020 analysis of change – Average estimated future years on main benefits to age 65 - Main benefit clients



The average increased from 11.6 years in 2019 to 12.4 years in 2020. This moderate increase masks significant change factors moving in different directions. The main factors represented by the red and green bars in the chart are described in Table 2.2.

Note that the analysis was performed in a slightly different order to that implied in Figure 2.7 for ease of modelling. This also applies to Figure 2.8, Figure 2.9 and Figure 3.6. If the analysis had been performed in the order implied in Figure 2.7, the numbers would change slightly, but the overall picture would not be materially different.

Table 2.2 – Description of factors contributing to change in the average estimated future years on main benefits for clients on main benefits

Factor	Commentary
Roll Forward +0.05 years	<p>The 'roll forward' factor encapsulates how we expected average estimated future years on main benefits to change over the period between the 2019 and 2020 modelling dates, when we performed the 2019 modelling. It incorporates:</p> <ul style="list-style-type: none"> ▪ Estimated changes to the main benefit client cohort between the modelling dates: <ul style="list-style-type: none"> – people we estimated to leave the main benefit client cohort – people we estimated to join the main benefit client cohort – estimated changes (including ageing) to people in the 2019 main benefit client cohort who we estimated to also be in the 2020 main benefit client cohort. ▪ The forecast evolution of economic assumptions between the modelling dates <p>In the 2019 results we estimated a slight decrease in main benefit clients by the 2020 modelling date. This results in a positive roll forward factor because when client numbers reduce, the cohort of clients that remain tend to be less likely to exit main benefits. Also the proportion of main benefits clients that are receiving SLP was estimated to increase (SLP clients have a relatively high average estimated future years on main benefits).</p>

Factor	Commentary
Updated client cohort -0.77 years	<p>The ‘updated client cohort’ factor reflects how the client cohort actually changed between the two modelling dates compared to what we expected. Note that it also incorporates some adjustments we made to the modelling to model short-term COVID-19-related economic effects. Conceptually, these adjustments could be considered to be part of the ‘Updated economic assumptions’ factor.</p> <p>The ‘updated client cohort’ factor is dominated by COVID-19 effects. The influx of new clients in 2020 served to decrease the average estimated future years on main benefits. This is mainly because a large portion of the new clients receive JS-WR (which has a lower average estimated future years on main benefits than other benefit categories). Also, new clients tend to have less accumulated benefit history and less prevalence of other factors that predict long benefit tenure. The economic recovery embedded in the unemployment rate forecast means that many of these clients are expected to exit main benefits in the short-term.</p> <p>It is important to note that this factor is likely to unwind if client numbers reduce as estimated through the forecast economic recovery. Those closest to the labour market will exit main benefits, increasing the average estimated future years on main benefits amongst people who remain in the main benefit client cohort.</p>
Updated economic assumptions +0.22 years	<p>Treasury’s HYEPU 20 forecast is used for the modelling unemployment rate assumption. This forecasts a much higher unemployment rate in the short-term than that used for 2019 modelling (COVID-19 effects). This is counter-balanced a little by a slightly lower long-term forecast rate and the fact that the actual unemployment rate over the period between the 2019 and 2020 modelling dates was slightly lower than forecast in 2019.</p> <p>In the context of clients who are already receiving a main benefit, this had a moderate effect on average estimated future years on main benefit. Their short-term prospects of finding substantive employment and moving off benefit has been reduced.</p>
Recognition of experience +1.15 years	<p>The ‘recognition of experience’ factor reflects the impact of the changes to the transition rate assumptions in the modelling (mainly entry and exit rates). The changes reflected some of the significant decrease in exit rates observed pre-COVID-19.</p> <p>The size of this factor is very significant and would have been larger had we reflected even more of the decrease in exit rates in our assumptions.</p> <p>Also, it does not affect all main benefit clients evenly. It affects the following cohorts more than others:</p> <ul style="list-style-type: none"> ▪ Young main benefit clients ▪ Clients with work obligations (mainly JS-WR and SPS) ▪ Māori main benefit clients. <p>For example, the equivalent contribution of the ‘recognition of experience’ factor for JS-WR clients is +1.44 years.</p>

Factor	Commentary
Methodology changes +0.10 years	<p>Methodology changes tend not to have a large effect on aggregated modelling results over large population groups. However, they are rarely exactly neutral.</p> <p>The methodology changes made this year include:</p> <ul style="list-style-type: none"> ▪ The introduction of industry code as a predictor for modelled outcomes and a modelled outcome in its own right ▪ Refinements to the modelling of income

While we have shown the analysis of change for the whole main benefit client cohort, the modelling output allows us to perform this analysis for almost any cohort of interest. For example, in Figure 2.8 and Figure 2.9 below, we show the analysis for main benefit clients who have been on main benefits for:

- less than or equal to 4 quarters (Figure 2.8)
- more than 4 quarters (Figure 2.9).

Figure 2.8 highlights how the changing client profile due to COVID-19 counter-balances the effect of recognising pre-COVID-19 experience in the model's transition rate assumptions, among clients who have been on main benefit for less than year. For clients who have been on main benefit for more than a year (i.e. started on main benefit before COVID-19), there is no equivalent counter-balancing item and so the average estimated future years on main benefits increases significantly (+1.1 years).

Figure 2.8 – 2019/2020 analysis of change – Average estimated future years on main benefits to age 65 - Main benefit clients who have been on main benefits for less than or equal to 4 quarters

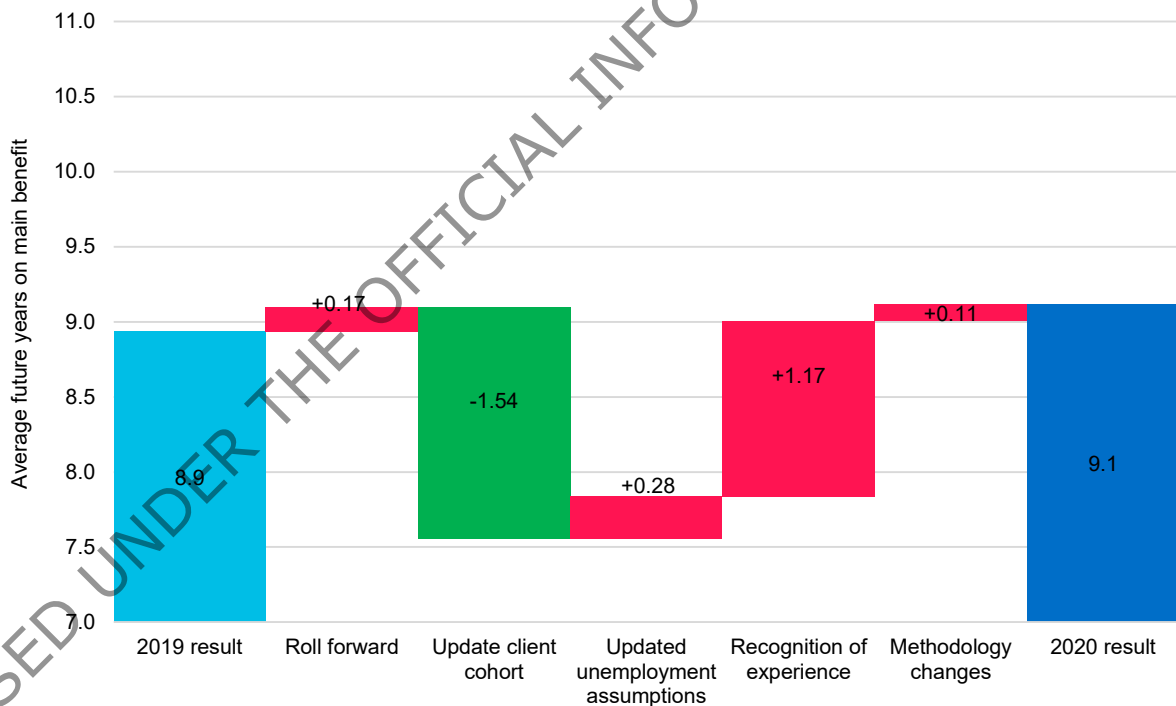
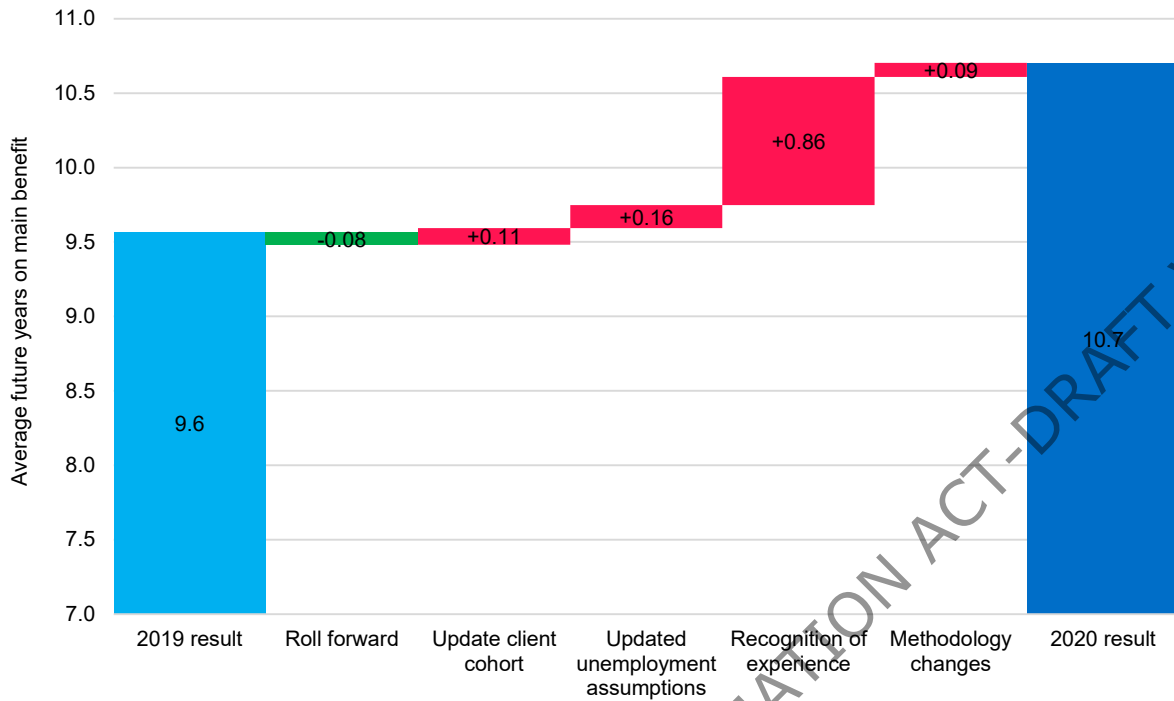


Figure 2.9 – 2019/2020 analysis of change – Average estimated future years on main benefits to age 65 - Main benefit clients who have been on main benefits for more than 4 quarters



2.5 Segmentation of people not on benefit

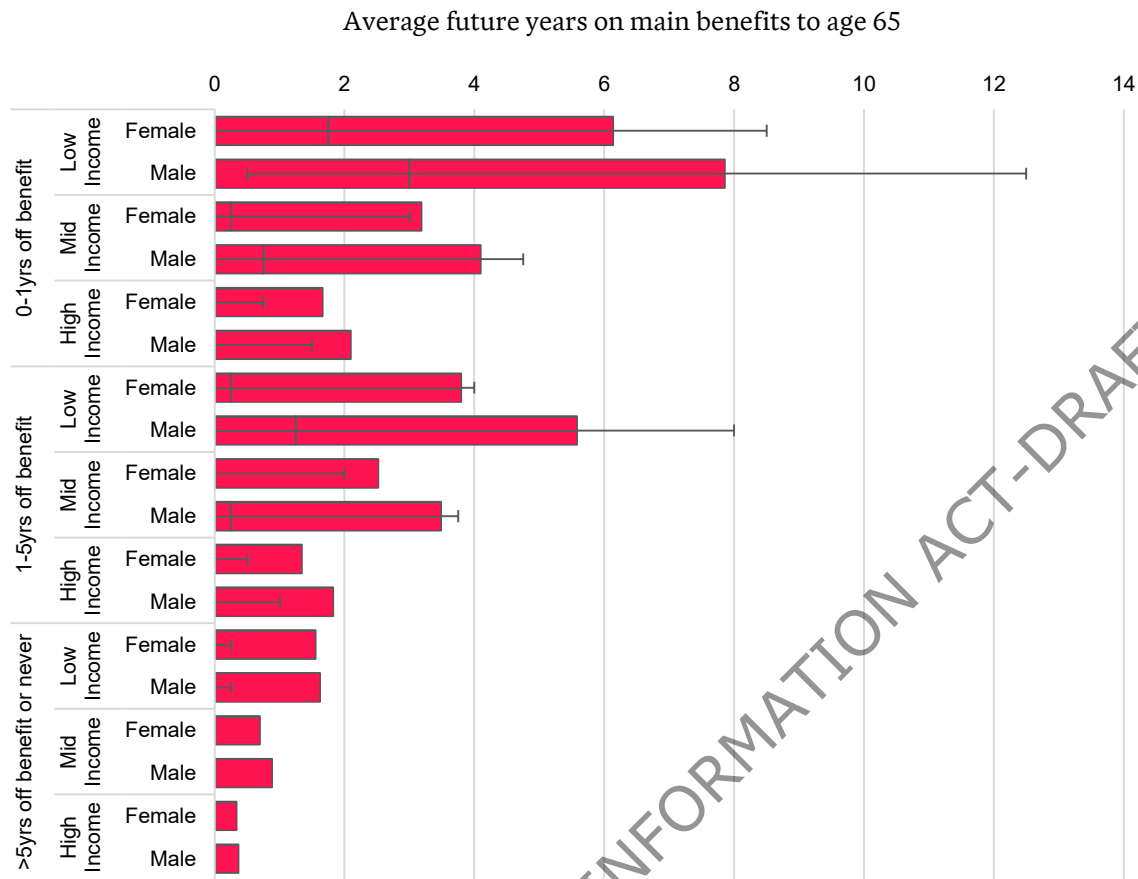
To help illustrate variation in outcomes, we have created an example segmentation of people aged 16-65 who are currently not on benefit. It categorises people into 12 segments based on their:

- Past benefit history
- Recent earned income history
- Gender.

Figures 2.10 shows the same benefit system and public housing results as Figures 2.6, using this example segmentation. The income categorisation is defined as:

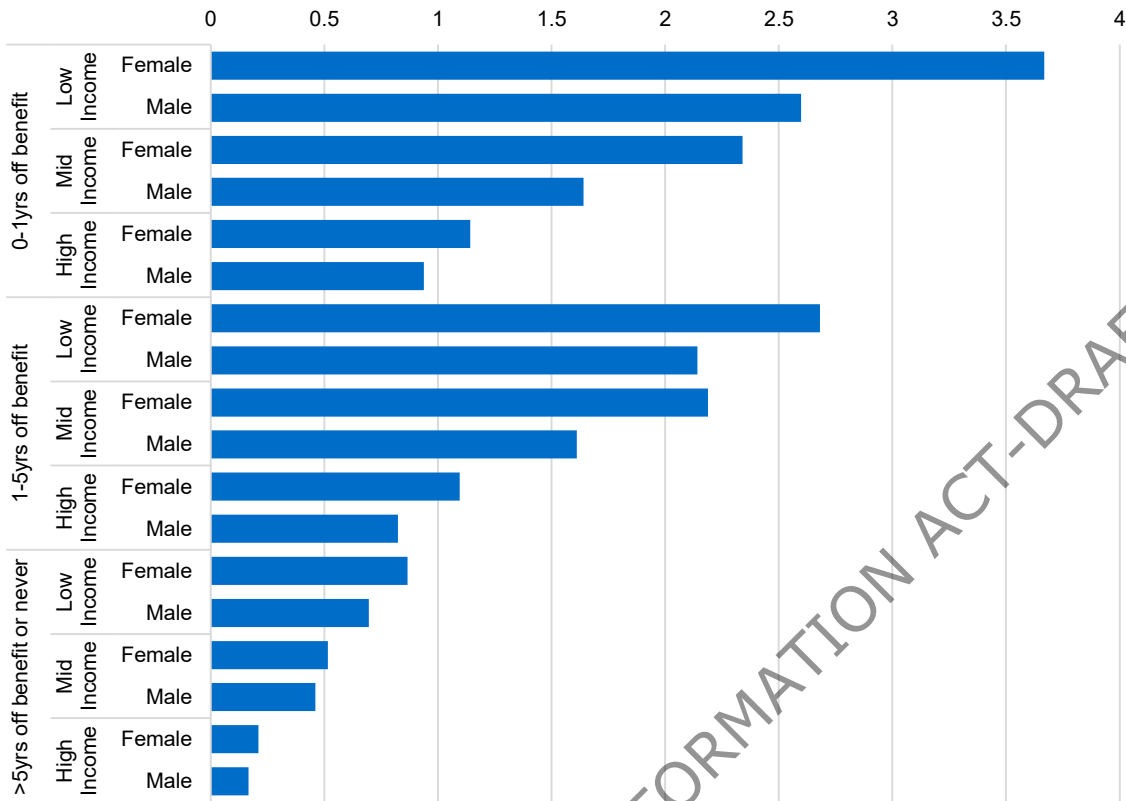
- Low-income - earning less than the income threshold (52 weeks at 40 hours per week at the minimum wage) over the last four quarters
- Mid-income – earning between the income threshold and \$60k over the last four quarters
- High-income – earning over \$60k over the last four quarters.

Figures 2.10 – Summarised modelling results for people not on benefit – 2020 estimates



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Average future years in public housing



The charts show the spread of estimated future benefit system and public housing use amongst people currently not on benefit.

For example, 25% of low-income females who received a benefit within the last year are estimated to spend more than 12.5 future years on a main benefit. The equivalent figure for high-income females who received a benefit within the last year is 1.75 future years.

The correlation between benefit receipt and income is particularly strong. Well over 50% of high-income earners are not estimated to spend any future time on a main benefit, even amongst the segment who received a benefit within the last year.

These segments could be refined further or a full segmentation exercise performed to more explicitly differentiate segments by future service use.

3 Evolution of the public housing system

Key points from this chapter

- Modelling from several years ago suggested a decreasing trend in public housing exit rates as average IRRS levels have increased and the characteristics of people in public housing have evolved more towards long-standing tenants. The trend has materialised and is estimated to continue further into the future.
- While housing stability is important, this slowing turnover creates challenges. Together with increasing numbers of applications and increasing need assessment scores amongst applicants, this has created a large increase in the number of people on the public housing register and an increase in the waiting time until housed.
- While the register size is hard to predict with accuracy, without material increases in exit rates, material increases in public housing stock or a material decrease in the number of people moving onto the register, it is likely to continue to grow.

In this chapter we analyse how the public housing system has changed over the last two to three years and what this means for public housing use and cost in the long term.

We describe:

- where the system was at in early 2018
- what has happened between then and 30 September 2020
- where the system is at by 30 September 2020
- what this means for system performance and outcomes for individuals.

3.1 The public housing system in early 2018

In early 2018 there were about 7,900 households on the public housing register, of which about 75% were assessed as priority A. There were about 179,000 people in a public house.

The public housing system was exhibiting a long-term trend of reduced exits in conjunction with increasing average Income Related Rent Subsidy (IRRS) and increasing average age of tenants (more so than the general population). Tenants were increasingly far away from being able to afford private market rentals (i.e. increasing Income Related Rent Subsidy).

3.2 What has happened between early 2018 and September 2020

Since early 2018, the public housing system has seen some significant changes. The number of public houses has steadily increased from about 66,600 in March 2018 to about 72,100 in September 2020. About 50% of the increase in public houses has come from community housing providers (CHPs).

The number of people in a public house in September 2020 was about 176,000. The number has decreased since early 2018, despite an increase in public housing stock, because the average number of people per household has decreased.

The increase in public housing supply has been significantly outweighed by an increase in demand. By September 2020, the public housing register had grown to about 21,400 households. This is an almost three-fold increase since early 2018. 90% are priority A. The growth in the register has been skewed to outside of Auckland.

The register has continued to grow because of:

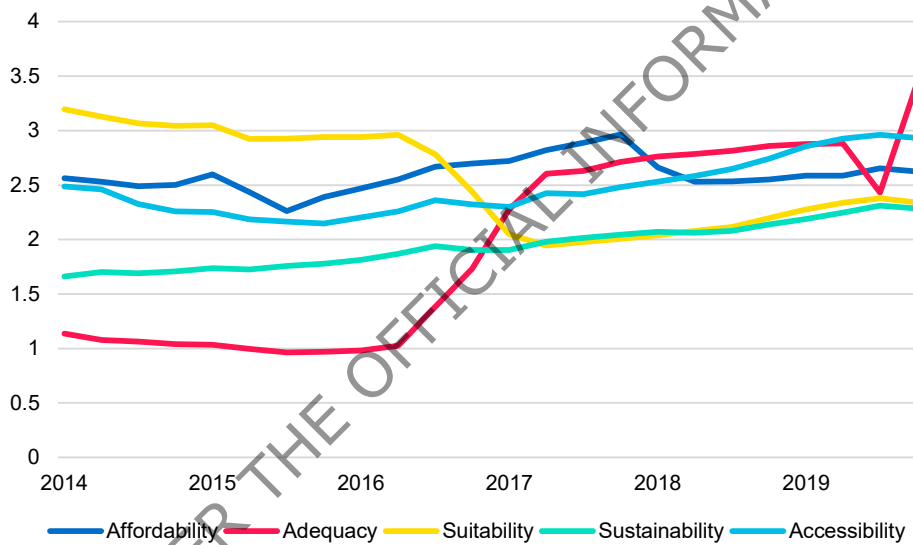
- Increased numbers of public housing applications, particularly from outside of Auckland. Helping current tenants in existing private market rentals to sustain their tenancies is a focus area of work for MSD and the Ministry of Housing and Urban Development.
- Very low exit rates from public housing meaning a lower proportion of households on the register can be housed in a public house.

Public housing applications are scored in five domains:

- Affordability – Whether the household can afford to rent suitable housing privately.
- Suitability – Whether the household’s current property is safe and suitable for their medical or physical needs.
- Adequacy – Whether the household’s current situation is adequate (property’s physical condition, size, access to basic living facilities etc).
- Accessibility – How difficult it is to find a private rental that meets the household’s needs.
- Sustainability – Whether the household could manage long term in a private rental.

Figure 3.1 shows average application domain scores over time. They are shown for Auckland, though the patterns are very similar outside of Auckland. The higher the score the higher the assessed need.

Figure 3.1 – Average SAS domain scores by applications in each quarter – Auckland



Note: Changes were made to the assessment process in 2016/17 with specific impacts on Adequacy and Suitability scores

Average adequacy, suitability, sustainability and accessibility scores have steadily increased since 2017. So, as well as increasing numbers of applications, the average assessed need seems to be increasing across most domains. This may partly reflect changes to the assessment process to better recognise the circumstances of people who are homeless, in emergency housing, have multiple and complex needs and/or are experiencing family violence.

Use of related housing supports has also increased, with the number of households or people accessing alternative housing when in urgent need (transitional housing and Emergency Housing Special Needs Grants) or accessing support to stay in their current house (Accommodation Supplement and Temporary Additional Support) all increasing significantly.

Add to this, increasing average IRRS among public housing tenants, and we see that the collective government housing support system is experiencing higher demand.

The effects of COVID-19 on the public housing system are less clear than for the benefit system. The housing register has continued to increase in 2020, though it is hard to distinguish between the long-term increasing trend and any COVID-19 effects.

3.2.1 Policy changes

In Appendix A, we describe policy changes impacting the public housing system. The key policy changes since early 2018 were:

- Public Housing tenancy reviews – Suspended in March 2018 before recommencing in February 2019 with expanded exemption criteria, paused again during COVID-19, and restarted in February 2021.
- Healthy Homes Guarantee Act 2017 and subsequent Residential Tenancies (Healthy Homes Standards) regulations 2019 covering rental properties. The standards cover heating, insulation, draught stopping, ventilation, moisture ingress and drainage. Full compliance is required for all rental homes by 1 July 2024, with phased compliance for landlords from 1 July 2021 (Private landlords have to comply within 90 days of new or renewed tenancies).
- Changes to the KiwiBuild programme, First Home Loans, the KiwiSaver HomeStart Grant and the Progressive Home Ownership Scheme.
- Reform of the Residential Tenancies Act 1986 – The Residential Tenancies Amendment Act 2020 became law on 11 August 2020 and most of the changes came into effect on 11 February 2021, including the changes to improve security of tenure. The change limiting rent increases to once every 12 months came into effect earlier, on 12 August 2020.
- COVID-19 response package – including:
 - temporary changes to the Residential Tenancies Act 1986, including significant restrictions on tenancy terminations for the three months to 25 June 2020, and a rent increase freeze for the six months to 25 September 2020, and
 - assistance to cushion the economic impact of COVID-19, which supported renters who were struggling to meet rent payments (including wage subsidies, increased Winter Energy Payments and temporary changes to the Rent Arrears Assistance Housing Support Product).

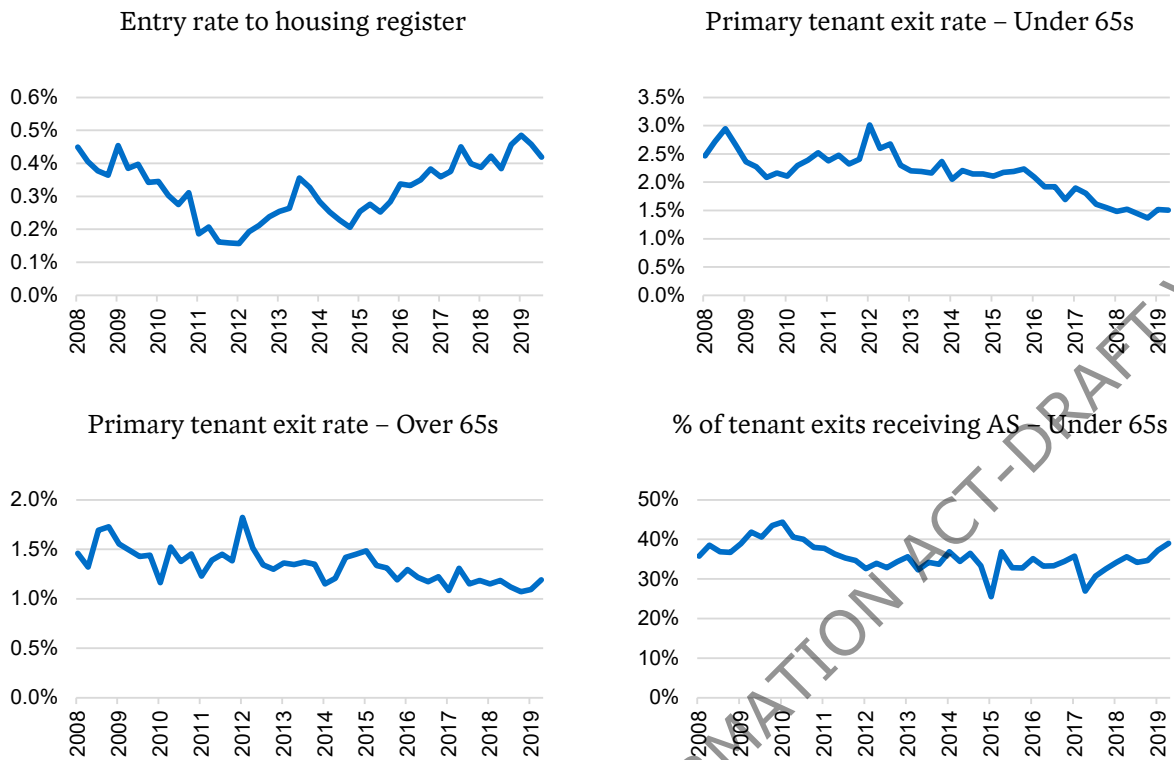
3.2.2 Tenant movements – Transition rate experience

If sustained, a change in entry rates and/or exit rates to the public housing system can have significant long-term implications.

The modelling of time on the public housing register and time in public housing operates by estimating these rates, informed by past experience and future forecasts for factors such as income and rental growth. We analyse the past experience in detail. Figures 3.2 shows transition rates up to the end of 2019 i.e. before any effects from COVID-19.

Some of the change has been reflected in the assumptions for our modelling, with significant effects on modelled outcomes.

Figures 3.2 – Historical quarterly public housing transition rates (seasonally adjusted)



Entry rates to the public housing register from the general population have increased significantly – more than doubling since 2015. The level of increase is substantially more for main benefit clients than other working-age people. An increase in the level of accessibility to register applications may be a contributor to this.

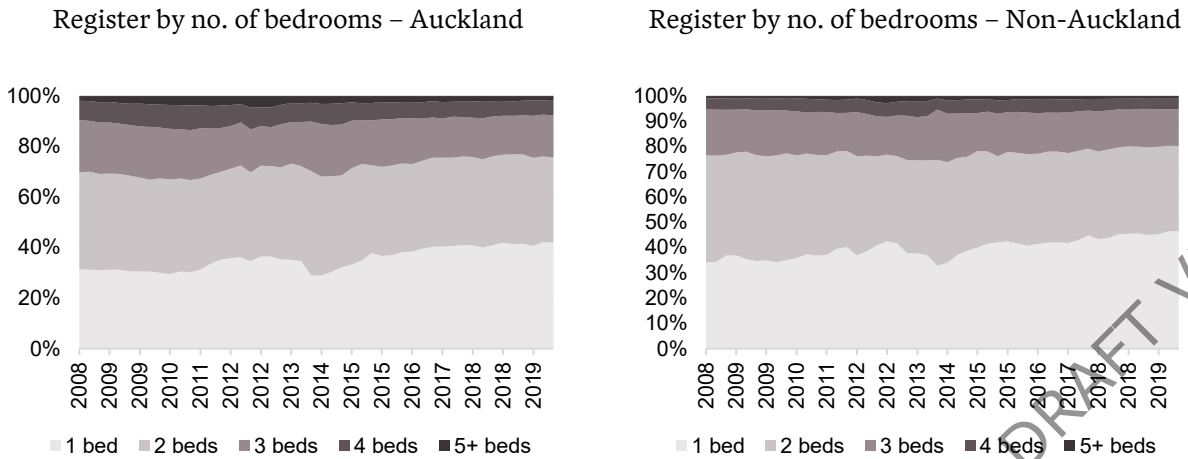
Exit rates out of public housing have continued a long-term downward trend. This is primarily a compositional effect, caused by a combination of compounding factors:

- **Increasing levels of IRRS** due to rents growing at a faster rate than incomes/benefits. Tenants who are further away from being able to afford the private market are less likely to exit.
- **Increasing average age** of tenants. All else being equal, older tenants are less likely to exit.
- **Increasing average duration in public housing.** All else being equal, the longer people have been in public housing the less likely they are to exit.

Increased entry rates to the public housing register and decreased exit rates have caused the public housing register to grow quickly.

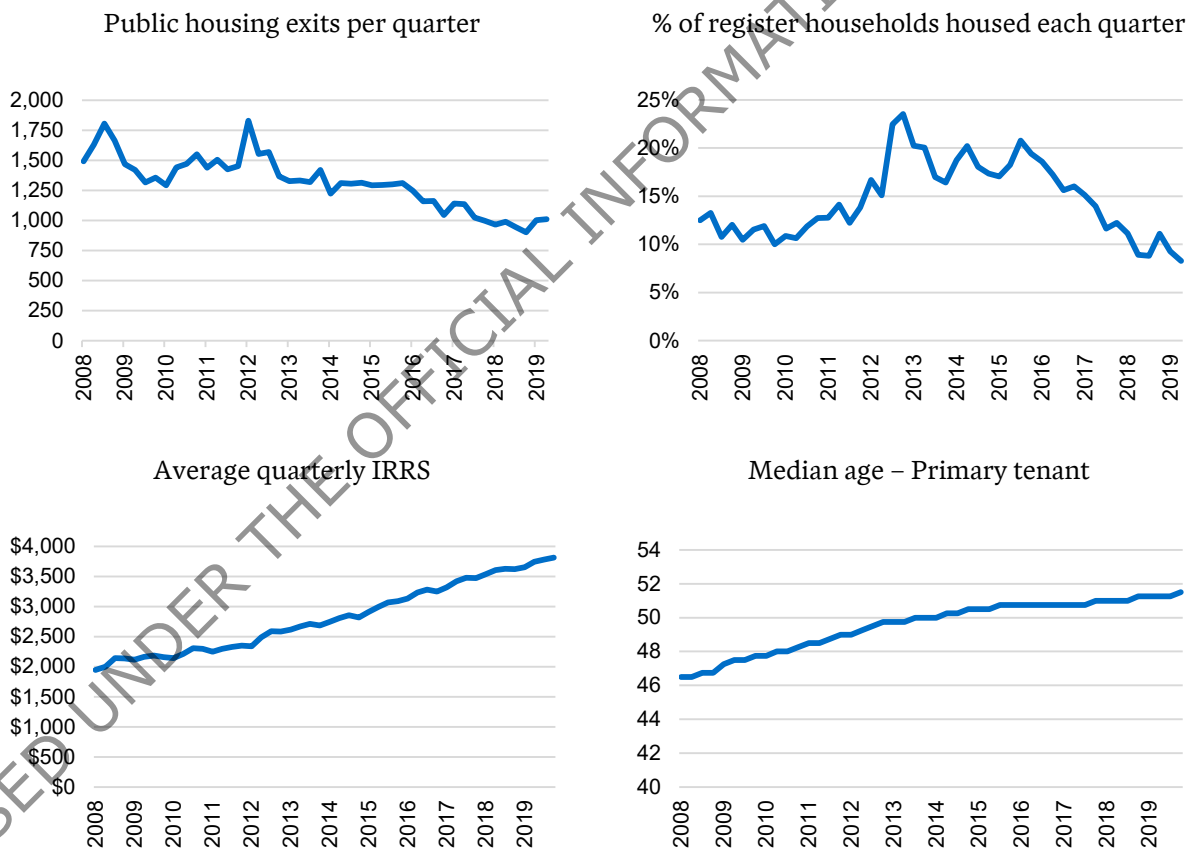
The number of bedrooms needed by households is also changing – see Figures 3.3. 45% of households on the register require a one-bedroom dwelling, up from 37% five years ago. Only 13.5% of Kāinga Ora’s housing stock is one-bedroom. The sizing mismatch between the public housing stock and the need of households on the register is increasing.

Figures 3.3 – Historical quarterly profile of the public housing register by number of bedrooms required



3.2.3 Other system-related experience

Figures 3.4 – Historical quarterly public housing experience (seasonally adjusted)



Figures 3.4 highlight some core dynamics of the public housing system – there is a long-term trend of slowing movements in and out of the system:

- **Decreasing number of household exits** despite an increase in the number of public housing places. This may in part be due to operational changes.
- **Decreasing proportion of register households being housed** reflecting:

- A significant increase in eligible households applying for public housing
- The decrease in the number of household exits

Over the last four years, the proportion of households housed from the register each quarter has more than halved from about 20% to under 10%. This decrease has been more significant outside Auckland. The non-Auckland rate is now lower than the Auckland rate – the first time this has happened, based on available data going back to 2008.

- **Increasing average IRRS** – This has maintained its steady upwards trend, almost doubling over the last 10 years. IRRS calculations are based on market rents, so this upward trend is in line with increasing rent trends nationally.
- **Increasing average age** of tenants (more so than the general population). This trend has flattened in the last 5 years, but is still increasing. The median average age of primary tenants is now 51.5 (compared to 51.25 a year ago and 50.5 five years ago).

The flow of people in and through the public housing system is slowing down and is expected to continue to do so with current policy and service settings for at least as long as rents grow faster than incomes/benefits.

3.3 What this means going forward

We have made some changes to our modelling assumptions to reflect the experience highlighted in Figures 3.2, Figures 3.3 and Figures 3.4.

Table 3.1 shows core public housing lifetime results by high-level housing segments, with comparisons to last year's modelling results.

Table 3.1 – Summarised public housing modelling results by high-level housing category

Segment		Average Age		Ave. future years in public housing		
		2019	2020	2019	2020	
On register	Priority A	39.4	39.8	8.4	8.8	
	Priority B and Other	43.4	44.3	5.9	6.1	
	Sub total	40.1	40.4	8.0	8.4	
IRRS recipients, primary aged <65	Less close / IRRS > \$150	Child in the household	34.5	34.9	18.1	19.8
		No child in the household	44.2	43.5	16.0	16.9
	Closer / IRRS < \$150	Child in the household	35.5	36.3	14.4	16.5
		No child in the household	45.0	42.7	13.2	14.3
	Sub total	38.8	38.8	16.8	18.2	
IRRS recipients, primary aged >65	IRRS 65+	63.5	63.6	9.8	10.1	
Rest of the population	Receiving AS	44.2	43.2	2.5	2.5	
	Not receiving AS	46.9	47.5	0.4	0.4	
	Sub total	46.7	47.0	0.5	0.6	
Total		46.6	46.9	1.0	1.1	

Note that the average ages are based on all people in public housing aged 16+.

The average estimated future years in public housing has increased for households currently in public housing, significantly so for households with children. For example, for households with primary tenants

under the age of 65, with children in the household and IRRS greater than \$150, the average has increased from 18.1 to 19.8 years.

In practical terms, this means people are estimated to spend more of their future lifetime in public housing, with increased average lifetime IRRS payments. It also means less opportunity for households on the register to be moved into suitable public housing quickly.

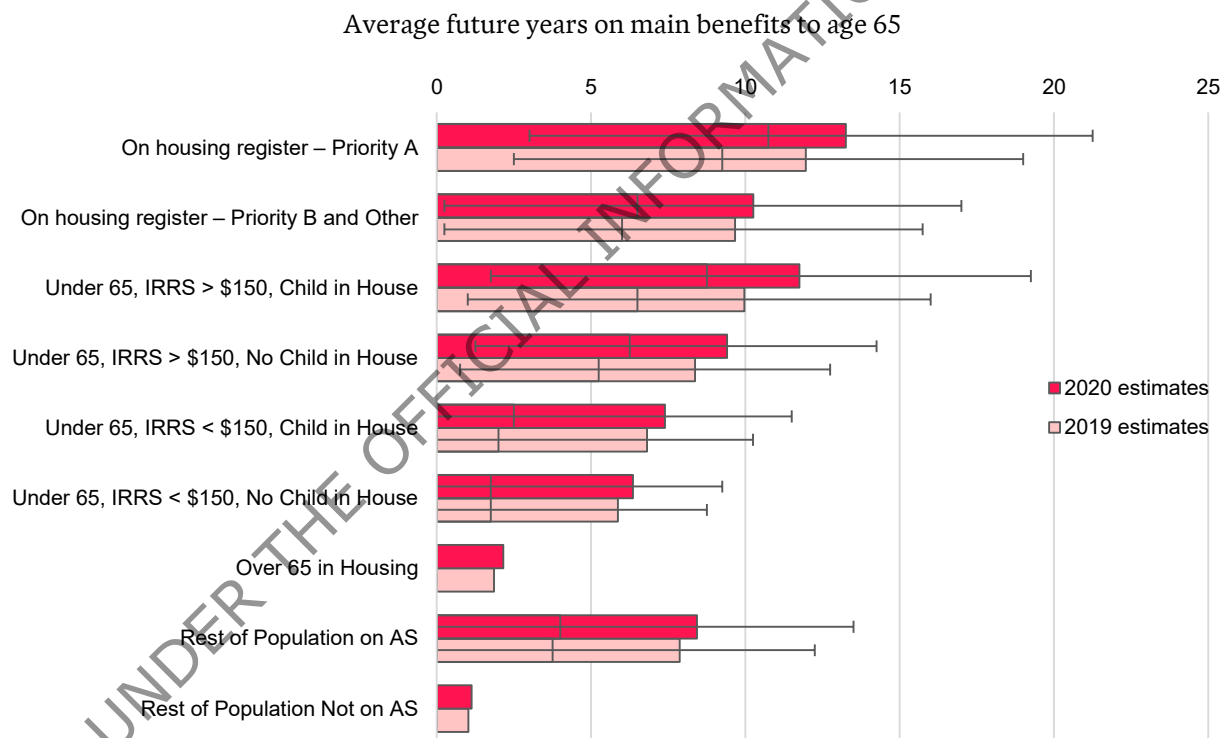
The register is estimated to continue increasing, albeit at a more moderate pace than during the last few years. By September 2025 the register (excluding the transfer register) is estimated to reach about 25,000 households. However, the register size is dependent on lots of factors, some of which are hard to predict. The key message is not so much the estimated number, but the likelihood that the number of households applying for public housing will remain high, the number of exits will remain low, and so the register size will increase.

There is also likely to be an increasing mismatch between the size of the households on the register and the size of available public housing places, with increasing numbers of single people on the register.

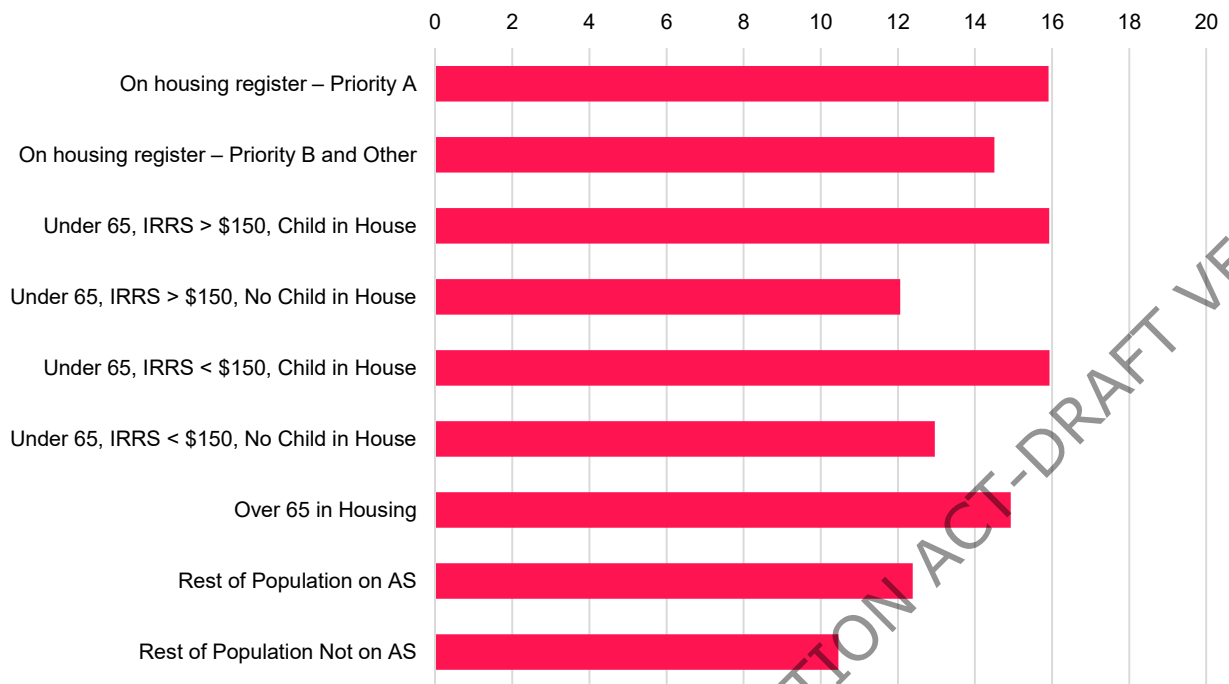
Figures 3.5 show core modelling results by high-level housing categories.

As is the case for Figures 2.6, interquartile ranges and median averages are also shown. 2019 modelling results are shown for comparison.

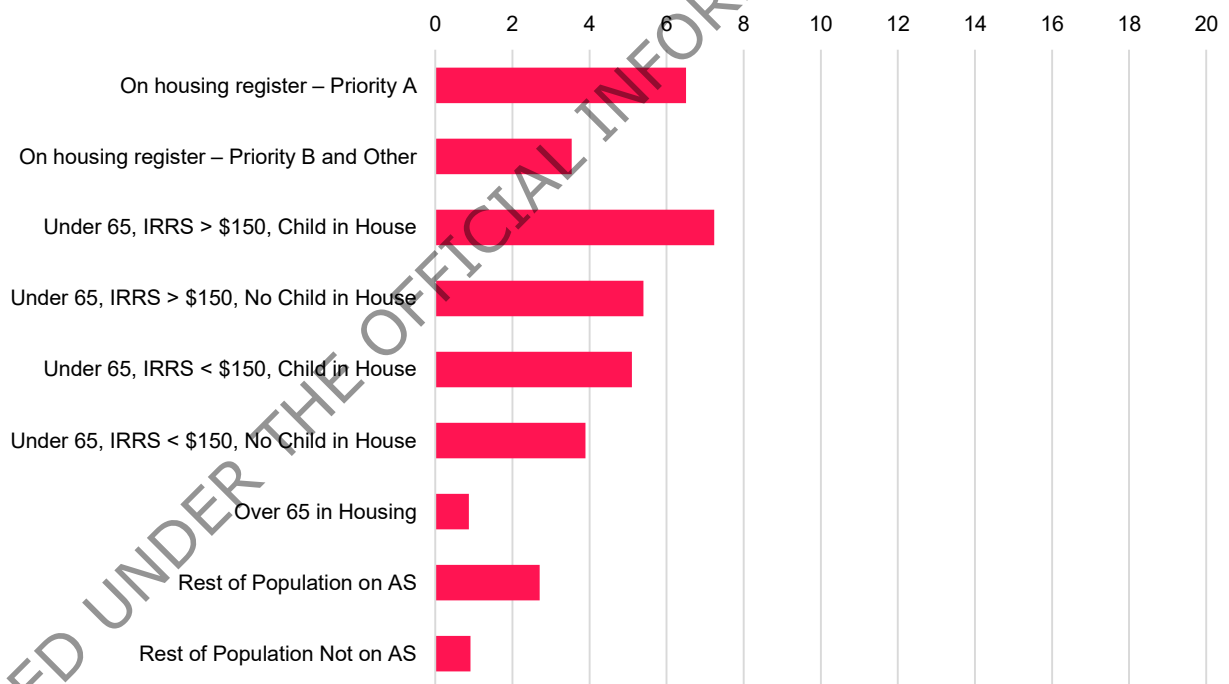
Figures 3.5 – Summarised modelling results by high-level housing category



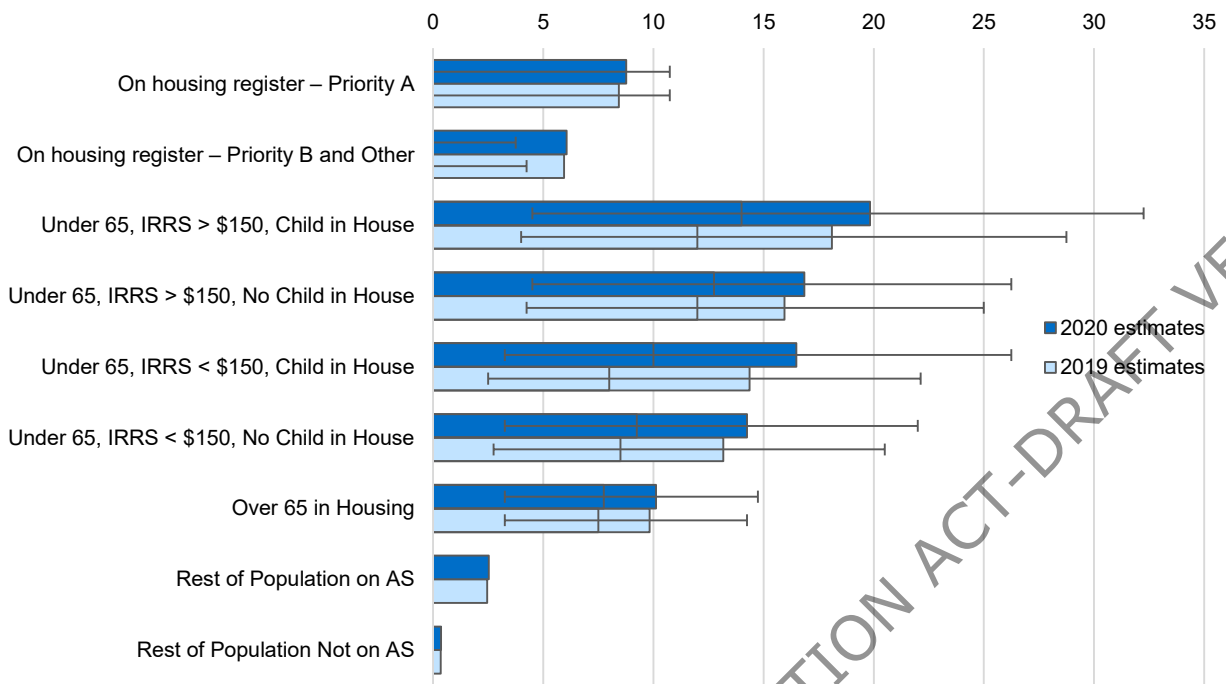
Average future years on main benefits to age 65 – Currently on main benefit – 2020 estimates



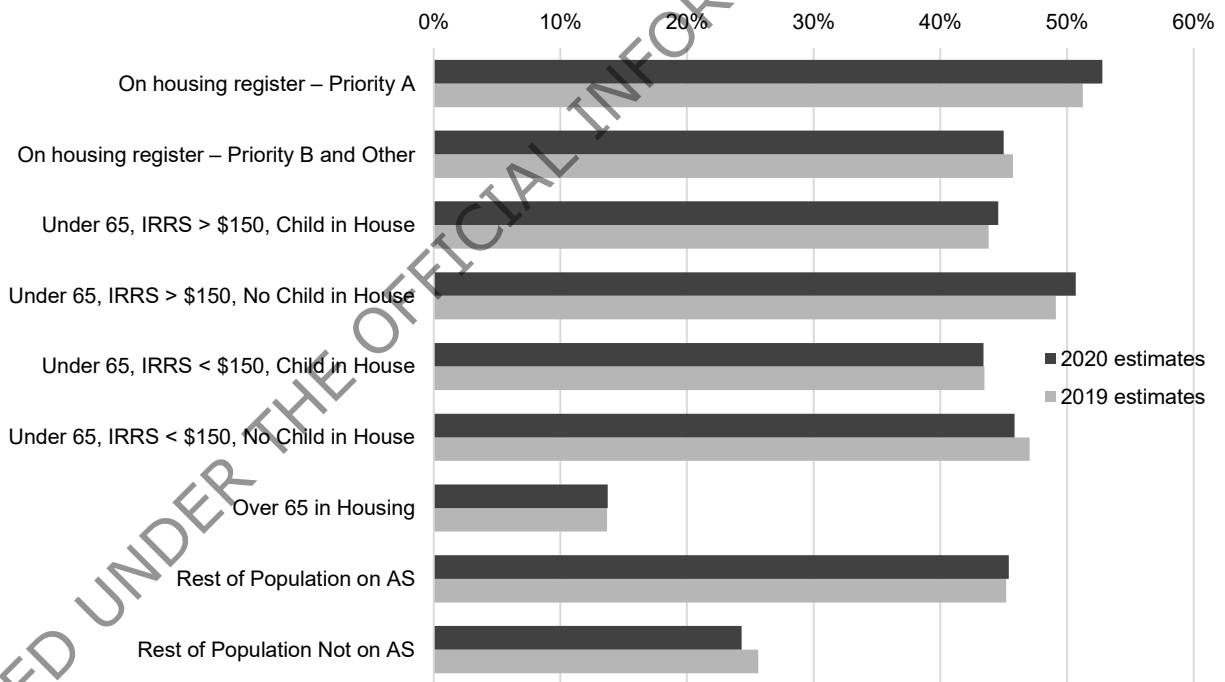
Average future years on main benefits to age 65 – Currently not on main benefit – 2020 estimates



Average future years in public housing



Proportion of future lifetime to age 65 earning below income threshold



* Threshold = 52 weeks at 40 hours per week at the minimum wage (increased with average wage growth) - \$39,312 in 2020.

These charts highlight information about the distribution of outcomes and how that has changed year-on-year.

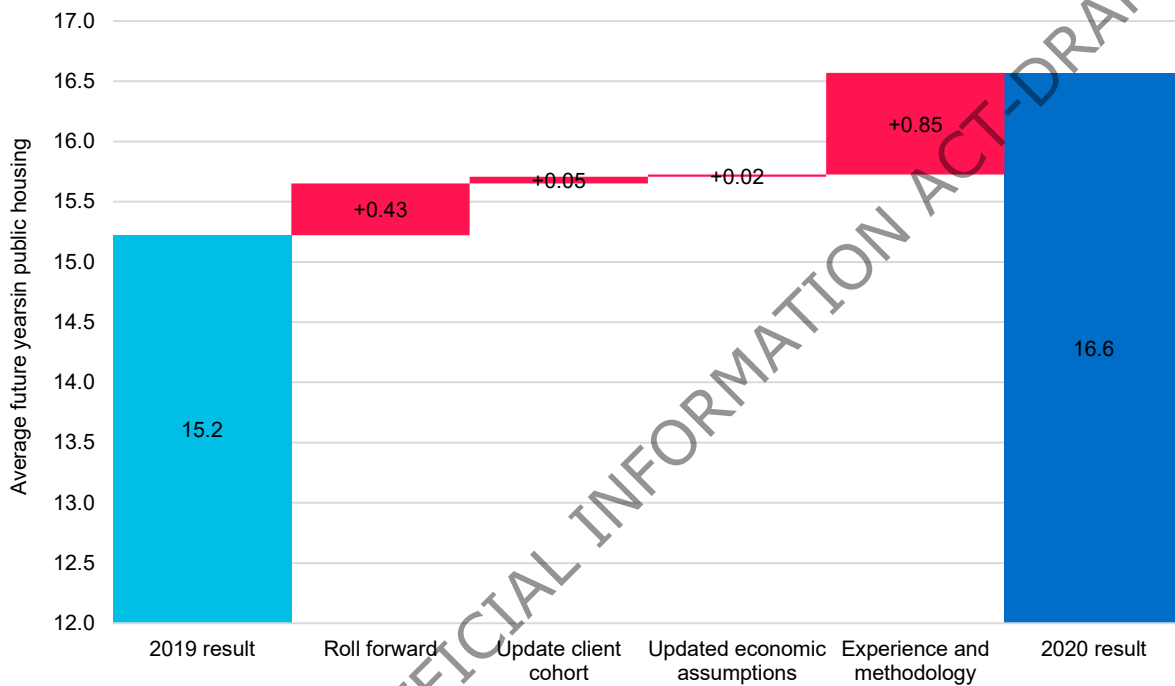
For example, the average estimated future years in public housing for the 'Under 65, IRRS >\$150, Child in House' category is 19.8 years. However, the highest 25% of that category are estimated to spend more than 32.25 future years in public housing. The lowest 25% are estimated to spend less than 4.5 future years in public housing. As for any category, the modelling can help characterise these tenants.

Whereas estimated average future time in public housing has significantly increased for the categories of people currently in public housing, it has only marginally increased for those on the register. This is partly because of the decreasing rate of households being housed from the register. Average future years on main benefit has increased for those on the register.

3.4 Analysis of change

In this section we describe the contributing factors to the change in average estimated future years on public housing for current tenants at the relevant modelling date – see Figure 3.6.

Figure 3.6 – 2019/2020 analysis of change – Average estimated future years in public housing - Current tenants (aged 16+)



The average increased from 15.2 years in 2019 to 16.6 years in 2020. The main factors are described in Table 3.2.

Table 3.2 – Description of factors contributing to change in the average estimated future years in public housing – Current tenants (aged 16+)

Factor	Commentary
Roll Forward +0.43 years	<p>The ‘roll forward’ factor encapsulates how we expected average estimated future years in public housing to change over the period between the 2019 and 2020 modelling dates, when we performed the 2019 modelling. It incorporates:</p> <ul style="list-style-type: none"> ▪ Estimated changes to the public housing cohort between the modelling dates: <ul style="list-style-type: none"> – people we estimated to leave public housing – people we estimated to enter public housing – estimated changes (including ageing) to people in the 2019 public housing cohort who we estimated to also be in the 2020 public housing cohort. ▪ The forecast evolution of economic assumptions between the modelling dates. Notably rental growth relative to income growth. <p>The increase stemming from this factor is mainly because the public housing population is estimated to increase in average age and average duration in housing, and average IRRS was estimated to increase. These are all factors which serve to increase average estimated future years in public housing.</p>
Updated client cohort +0.05 years	<p>The ‘updated client cohort’ factor reflects how the client cohort actually changed between the two modelling dates compared to what we expected. This includes how IRRS levels changed.</p> <p>The small contribution of this factor to the change in average estimated future time in public housing highlights the fact that the tenant cohort is highly predictable from one year to the next. The tenant cohort does not change much over short periods of time. While housing stability is important for tenants, this is somewhat problematic because the needs of households on the register are relatively high.</p>
Updated economic assumptions +0.02 years	<p>We used Treasury’s HYEFU 20 forecast for the modelling unemployment rate assumption. This forecasts a much higher unemployment rate in the short-term than that used for 2019 modelling (COVID-19 effects). This is counter-balanced a little by a slightly lower long-term forecast rate and the fact that the actual unemployment rate over the period between the 2019 and 2020 modelling dates was slightly lower than forecast in 2019.</p> <p>The effect of economic assumption changes on estimated public housing use is far less significant than for the benefit system i.e. tenants’ propensity to exit (and potentially re-enter) public housing is not significantly affected by the economy. The exception being the relativity of assumed rental growth to assumed income growth. However, this did not change materially.</p>

Factor	Commentary
Experience and methodology +0.85 years	<p>The 'Experience and methodology' factor reflects the impact of the changes to the transition rate assumptions in the modelling (exit rates) and methodology changes.</p> <p>We decreased public housing exit rates to reflect observed experience. This is the main reason for the 0.85 years increase. Changes to assumed rates of benefit entry and exit also had a second-order effect.</p> <p>The methodology changes made this year include:</p> <ul style="list-style-type: none"> ▪ The introduction of industry code as a predictor and modelled outcome ▪ Refinements to the modelling of income <p>These were broadly neutral in their effect on average estimated future years in public housing.</p>

All other things being equal, average estimated future years in public housing for tenants in public housing will continue to increase if rents continue to grow faster than incomes and the tenant cohort continues to increase in average age and duration in public housing. Without large increases in the public housing stock this will further limit opportunities to place households on the register into public housing.

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B

Cohort-level results

4 Distribution of outcomes

Key points from this chapter

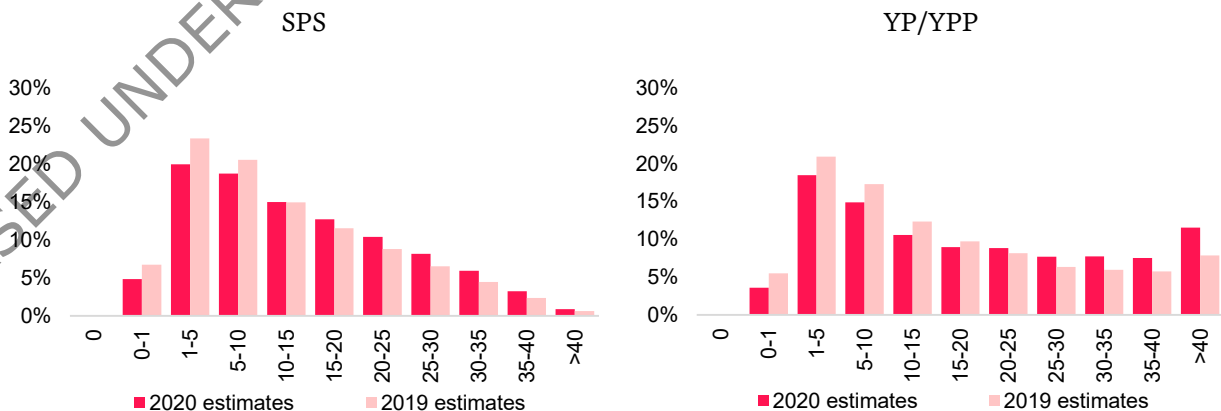
- Estimated future years on main benefits has increased significantly for YP/YPP clients. Their employment prospects can be affected beyond the economic downturn due to reduced employment now. Early adulthood benefit receipt is a strong predictor of benefit receipt in the future.
- It is important to consider how these clients' prospects can be improved through MSD services and employment assistance programmes, particularly as they age out of YP/YPP and into other benefit categories (mainly JS-WR and SPS).
- On average, long-term employment prospects for those already on JS-WR at the start of 2020 have worsened significantly.
- The modelling could be used to characterise which people currently not in the benefit system are most likely to experience unemployment and need financial support in the future.
- The modelling could also be used to inform the assessment of new clients for services and programmes when they apply for a benefit. Collecting information about an applicant's income and employment history prior to applying for a benefit would enhance the strength of the assessment.
- Some estimated outcomes vary by the industry (or last industry) a person was employed in. For example, nearly twice as many JS-WR clients with last industry of employment code 'Transport, postal and warehousing' are estimated to spend the next four quarters out of work, compared to JS-WR clients with last industry of employment code 'Agriculture, forestry, fishing and mining'.

In this chapter we describe results at a more detailed level, including distributions of estimated outcomes and how they have changed. We also describe a wider set of results including health, justice and education-related outcomes.

4.1 Distribution of future years on main benefit

Figures 4.1 show the distribution of estimated future years on main benefit for SPS and YP/YPP clients. These benefit categories are shown because they show the greatest level of year-on-year change. Charts for other benefit categories can be found in Appendix B.

Figures 4.1 – Distribution of estimated future years on main benefits to age 65



42% of SPS clients are now estimated to spend over 15 future years on main benefits. This is up from 34% in the 2019 estimates. Correspondingly, the proportion estimated to spend less than 10 future years on

main benefits has decreased. This change in distribution primarily reflects changes made to the SPS exit rate assumption in the modelling in response to observed experience pre-COVID-19 (see Figures 2.3).

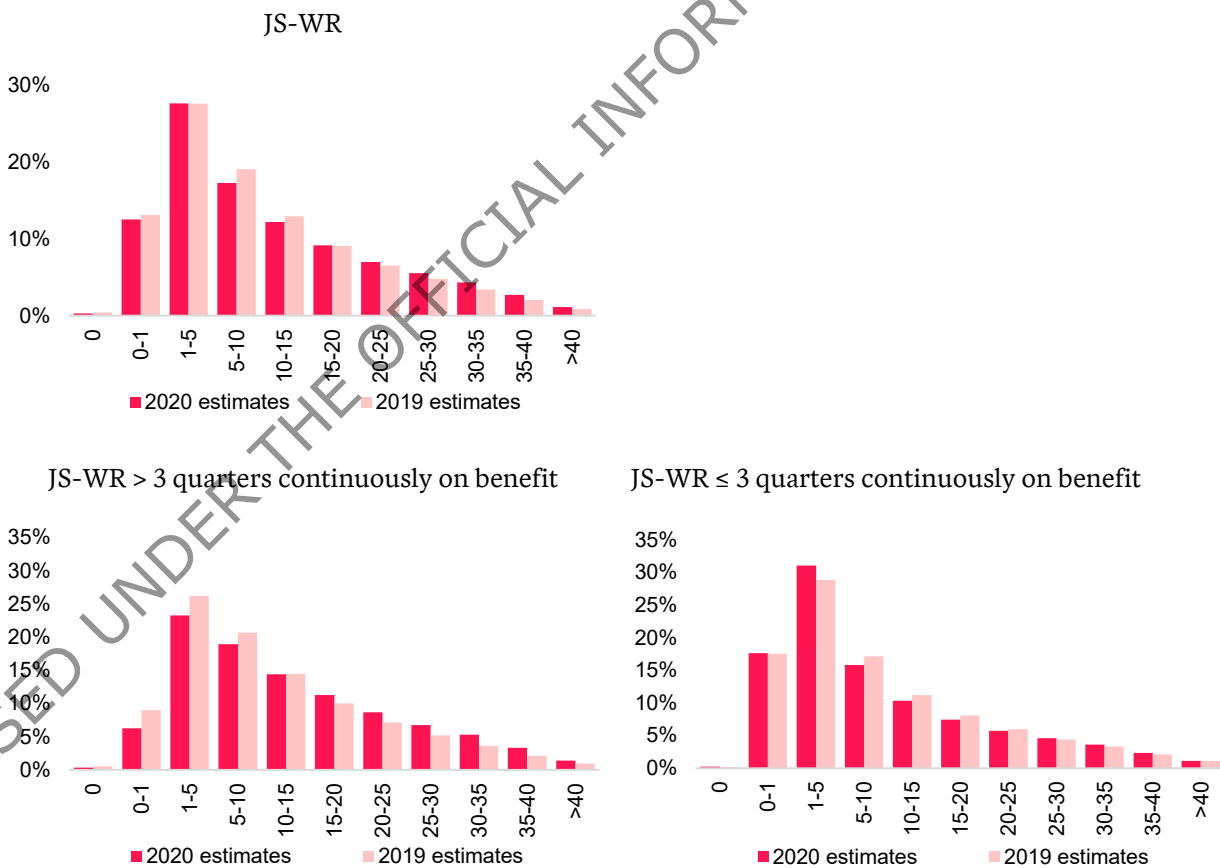
The change in distribution for YP/YPP clients is more pronounced. The change reflects:

- The strength of early adulthood benefit receipt as a predictor of future benefit receipt. We have adjusted our modelling for pre-COVID-19 experience and elevated levels of youth unemployment in 2020 (and forecast in the near-term). Consequently, YP/YPP clients are estimated to accumulate more early adulthood benefit history than estimated in 2019. This increases our estimates of benefit receipt over their future working lifetimes significantly. Their employment prospects may be harmed beyond the economic downturn due to reduced employment prospects now.
- The impact of lower exit rates assumed in the modelling accumulating over their long future working lifetime period (45-49 years).

There is likely to be an increasing proportion of people aging out of YP/YPP and into other main benefit categories (mainly JS-WR and SPS) with limited work experience. It is important to consider how these clients' prospects can be improved through MSD services and employment assistance programmes.

In section 2.2.2 we highlighted how the client mix in the benefit system population changed in 2020 as COVID-19 affected the labour market. Our modelling date is 30 September 2020 and the effects of COVID-19 on the benefit system started to appear in the first quarter of 2020. This can be seen when comparing the distributions of estimated future years on main benefits for people who started receiving JS-WR before and after the start of 2020 – see Figures 4.2.

Figures 4.2 – Distribution of estimated future years on main benefits to age 65 – JS-WR



The first chart shows the distribution for all JS-WR clients. Despite the decrease in exit rates discussed in section 2.2.3 (and associated changes in our modelling assumptions), the distribution has not changed as much year-on-year as it has for SPS and YP/YPP clients. However, when we compare the year-on-year

changes in the distributions for people with greater than three quarters or three or fewer quarters continuously on benefit, there are clear differences. The distribution for clients with less than or equal to 3 quarters continuously on benefit has shifted towards shorter future estimated years on main benefits (< 5 years). The distribution for clients with more than 3 quarters continuously on benefit has shifted towards longer future estimated years on main benefits (> 15 years). Long-term employment prospects for those already on JS-WR at the start of 2020 have worsened significantly.

In a practical sense, this means that there is greater disparity in benefit system outcomes, and understanding the characteristics of clients who are more or less likely to need services and employment assistance programmes is arguably more important now than ever. The modelling can help with this.

4.2 Estimated employment status and income

In this sub-section we look at estimated employment status and income for:

- JS-WR clients
- A group of people not receiving a benefit, but with a relatively high likelihood of receiving a benefit in the future – this group has been defined by their recent main benefit and income history.

For each population group we show a comparison group scaled to have the same age, gender and prioritised ethnic group distribution as the population group. This controls for differences in demographic composition and gives more meaningful comparisons.

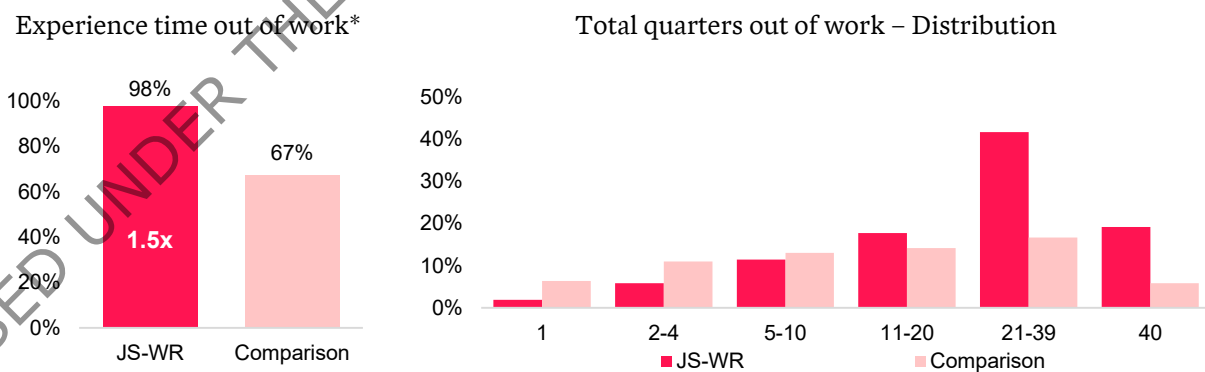
4.2.1 JS-WR clients

The comparison group covers working-age people who are not on a main benefit.

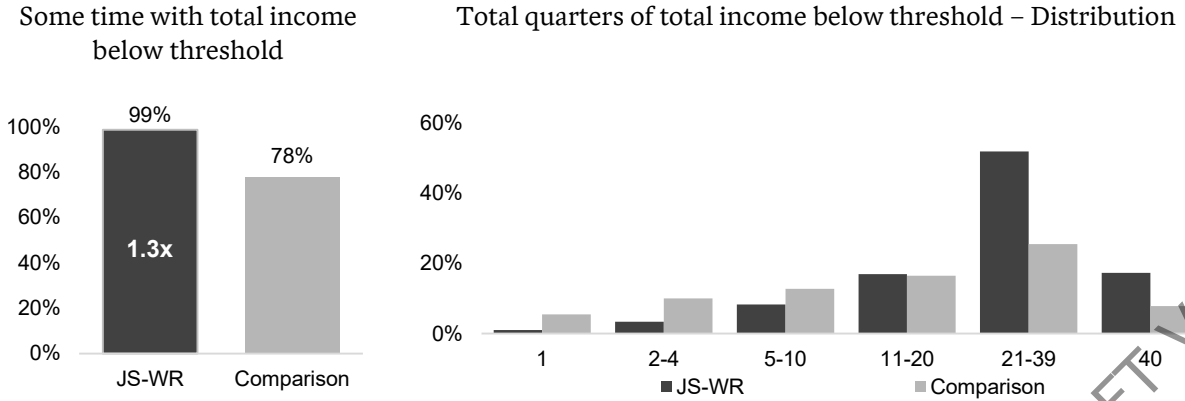
61% of JS-WR clients are estimated to spend at least half of the next 10 years out of work. For many clients in this 61%, the estimated time out of work is made up of multiple periods. This highlights the value of supporting clients into sustainable jobs with career pathways.

Similarly, 69% are estimated to spend at least half of the next 10 years with a total income below the minimum wage threshold. While individual-level income is not as good a proxy for material wellbeing as household income, this implies a significant proportion of JS-WR clients will experience persistent financial limitations.

Figures 4.3 – Estimated employment outcomes and income over the next 10 years



*Note: time out of work refers to someone not being employed for at least a quarter. Employment status is based on whether someone has earned more than the equivalent of the minimum wage for 20 hours per week in the quarter.

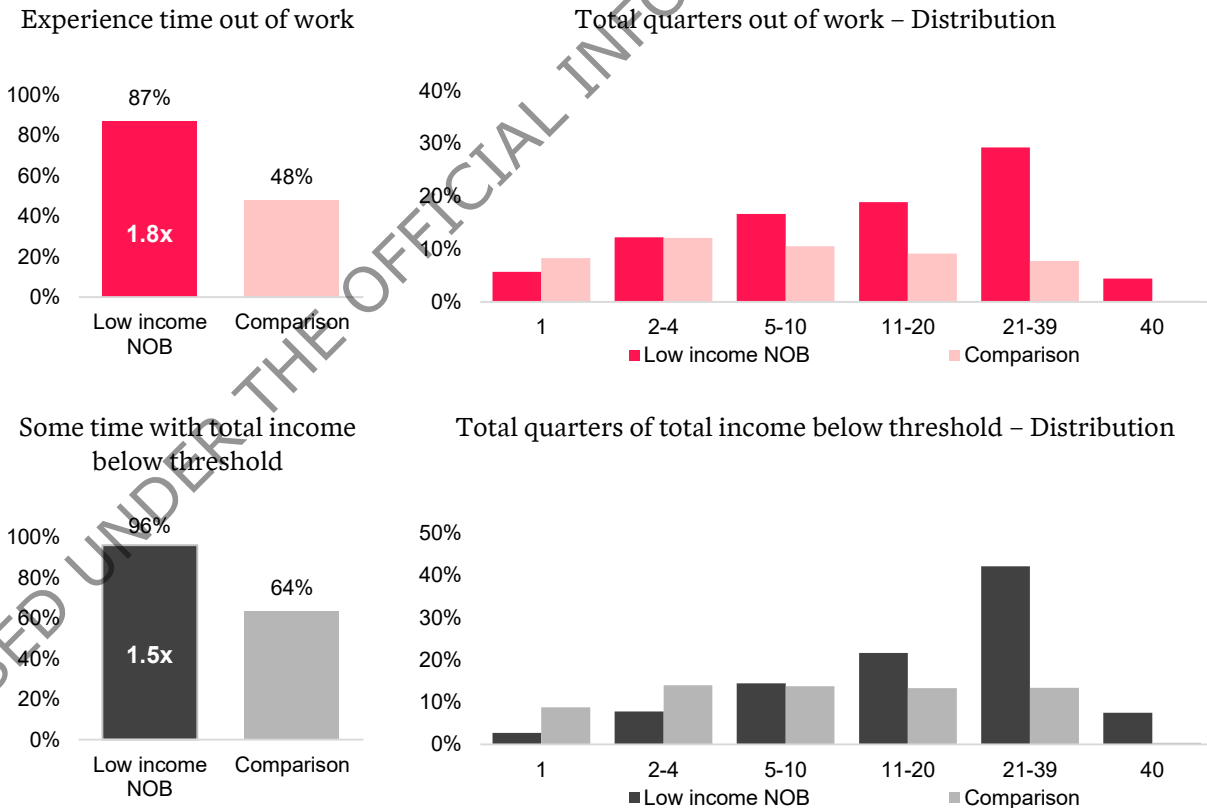


Note: Total income includes earned income, benefits, Working for Families Tax Credits and the effective boost to income from IRRS. The income threshold is based on 52 weeks at 40 hours per week at the minimum wage (increased with average wage growth) - \$39,312 p.a. in 2020.

4.2.2 People not on benefit with high likelihood of receiving a benefit in the future

The population group covers working-age people who are not receiving a benefit, have some main benefit history in the last 5 years and had non-zero income below the minimum wage income threshold in each of the last four quarters. The comparison group covers working-age people who are not receiving a benefit and not in the population group – see Figures 4.4.

Figures 4.4 – Estimated employment outcomes and income over the next 10 years



The population group covers low-income workers. Most (87%) of the group are estimated to spend some time out of work in the next 10 years, with a third estimated to spend at least half the next 10 years out of work.

A key point to take from this is that while MSD does not traditionally tend to work with people not in the benefit system, the modelling can help characterise people that are most likely to experience unemployment in the future. This is also relevant for assessing new clients when they apply for a main benefit. The modelling can help characterise which people are likely to have the most difficulty reconnecting with the labour market.

Specifically, prior income is one the best predictors of future employment amongst new benefit system clients. The assessment process could be enhanced if prior income information was collected through the application process.

4.3 Industry of employment

The modelling was enhanced this year to include modelling of people's industry of employment. We used the Australia and New Zealand Standard Industrial Classification 2006 (ANZSIC06) codes which classifies employment into 19 categories. These are:

<i>Agriculture, forestry and fishing</i>	<i>Mining</i>	<i>Manufacturing</i>	<i>Electricity, gas, water and waste services</i>
<i>Wholesale trade</i>	<i>Retail trade</i>	<i>Accommodation and food services</i>	<i>Transport, postal and warehousing</i>
<i>Information media and telecommunications</i>	<i>Financial and insurance services</i>	<i>Rental, hiring and real estate services</i>	<i>Professional, scientific and technical services</i>
<i>Administration and support services</i>	<i>Public administration and safety</i>	<i>Education and training</i>	<i>Health care and social assistance</i>
<i>Arts and recreation services</i>	<i>Construction</i>	<i>Other services</i>	

For the purposes of modelling, we combined:

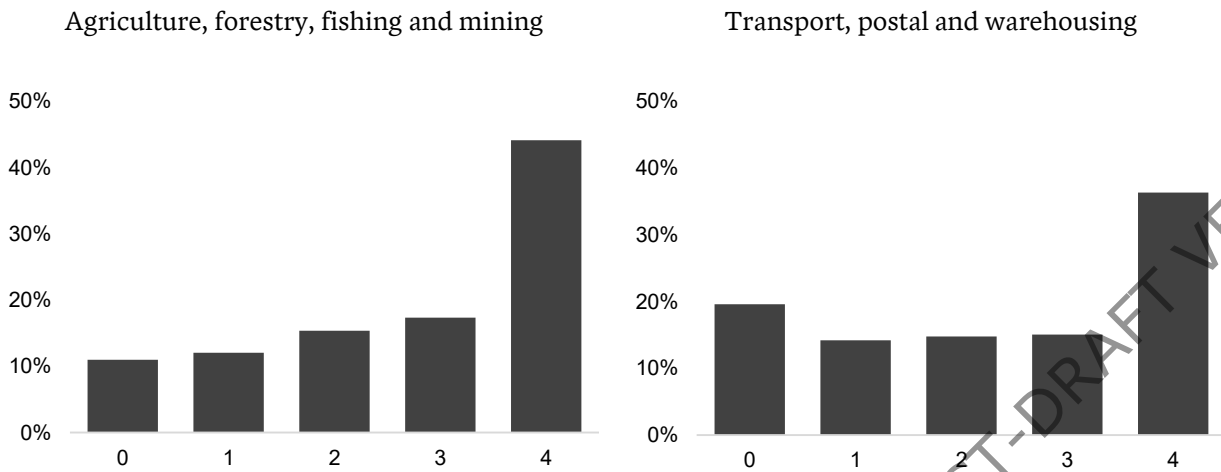
- Agriculture, forestry and fishing with mining
- Professional, scientific and technical services with administration and support services
- Arts and recreation services with other services

This was done to reduce the complexity of the modelling and is consistent with Stats NZ's approach. We also added a category for people with earned income, but no industry data. This includes people receiving Student Allowance and ACC weekly compensation (which are included in our definition of earned income).

Adding industry of employment to the modelling (and specifically last industry of employment for people unemployed and on main benefits) has enhanced our ability to estimate future employment outcomes, benefit receipt and income.

In Figures 4.5, we show the estimated number of quarters employed in the next four quarters for JS-WR clients by their last industry of employment. We show two examples to highlight differences in estimated near-term employment outcomes.

Figures 4.5 – Estimated number of quarters employed in the next 4 quarters –JS-WR clients by last industry of employment



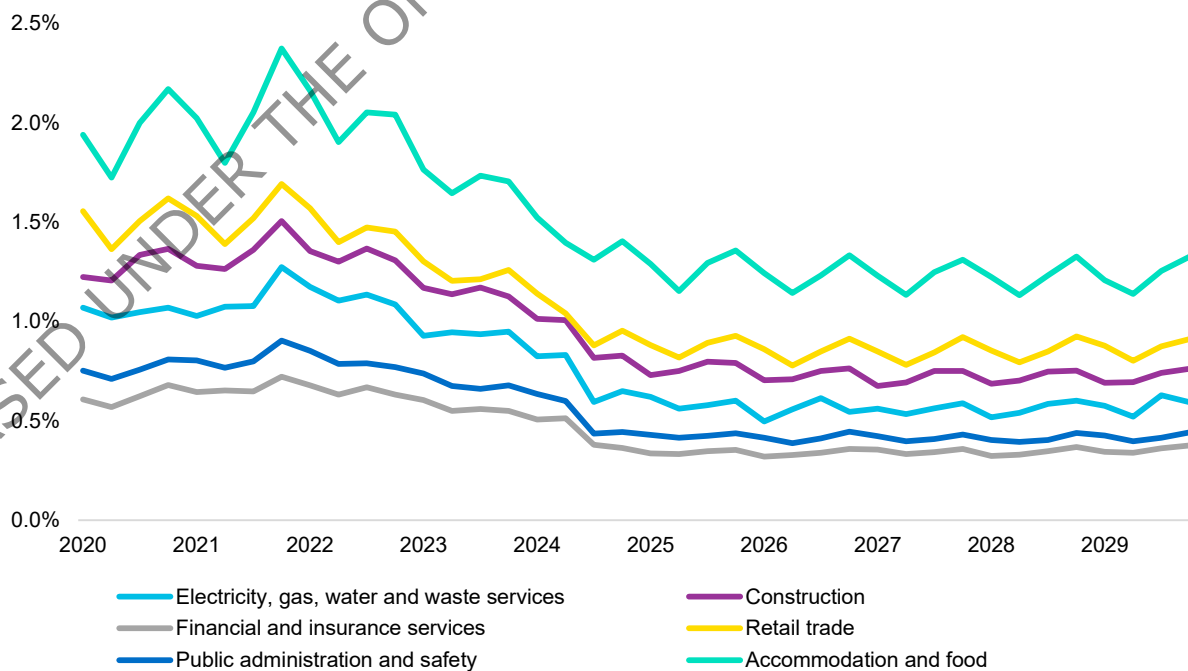
Nearly twice as many JS-WR clients with last industry of employment code ‘Transport, postal and warehousing’ are estimated to spend the next four quarters out of work compared to JS-WR clients with last industry of employment code ‘Agriculture, forestry, fishing and mining’.

Prior employment history is likely to reflect clients’ skills and capability. In thinking about employment services for clients (e.g. industry training and wage subsidies), consideration should be given to industries that offer transferrable skills, more stable employment and the potential for career pathways.

4.3.1 Benefit system entry

Industry code has a strong correlation to people’s likelihood of entering the benefit system and receiving a main benefit. Figure 4.6 shows estimated main benefit entry rates over the next 10 years for a selection of industry codes.

Figure 4.6 – Estimated quarterly main benefit entry rate - By industry of employment



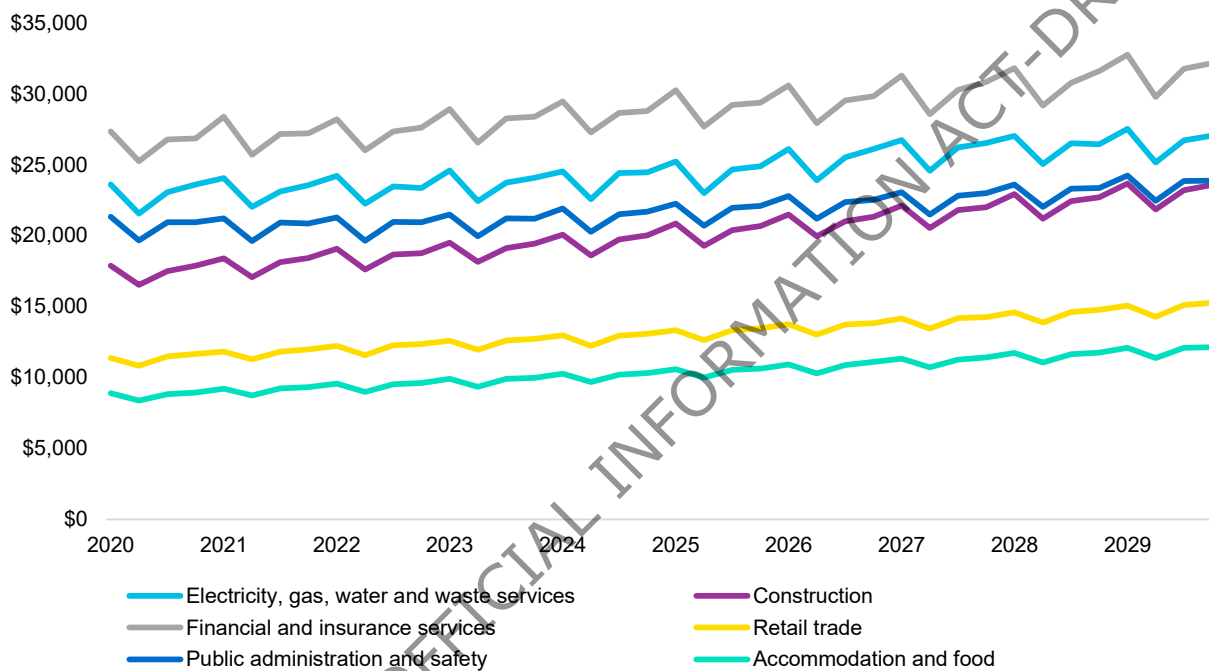
The chart highlights:

- Significantly different main benefit entry rates by industry code, with rates for ‘Financial and insurance services’ being about one-third of rates for ‘Accommodation and food’.
- Differing estimated effects of economic recovery on main benefit entry rates. For example, rates for ‘Electricity, gas, water and waste services’ are estimated to nearly half by 2026, whereas rates for ‘Accommodation and food’ are only estimated to decrease by about 30%.

4.3.2 Future income estimates

We also show future income estimates over the next 10 years by industry code in Figure 4.7.

Figure 4.7 – Estimated average quarterly earned income (nominal amounts) - By industry of employment



Note that the differences in estimated average quarterly earned income reflect a combination of differing income levels and differing average hours worked.

Differing levels of estimated income are entirely expected, as is the general upwards trajectory. However, it is useful to note the differing levels of estimated increases in income over the next 10 years. This ranges from 12.0% for ‘Public administration and safety’ to 36.5% for ‘Accommodation and food’. Exactly how average nominal earned income level will vary in the future will depend on a number of factors including:

- Inflation and other economic factors
- Average hours worked
- Labour market legislation including minimum wage levels
- Changing profile of employment within industry codes, including labour market factors such as the potential for an increased level of automation.

5 Results by current MSD region

Key points from this chapter

- There are significant differences in the proportion of regional populations accessing benefits and the public housing system
 - Amongst those currently receiving a main benefit and/or in public housing, there is relatively little regional difference in estimated future years on main benefits and/or in public housing.
 - Understanding rural/urban differences within regions could help understand these dynamics better. It could also help inform the extent to which MSD resources should be focussed on connecting people to jobs or focussed on people's skills, capability and specific barriers to employment.
 - Enrolment in tertiary education amongst JS-WR clients is high across all regions. Further work is required to understand the effectiveness of this investment in improving employment and career prospects.
-

In chapters 2 to 4, we mainly covered modelling results at a national level. In this chapter we explore regional differences in the modelling results.

5.1 Future benefit receipt and public housing use

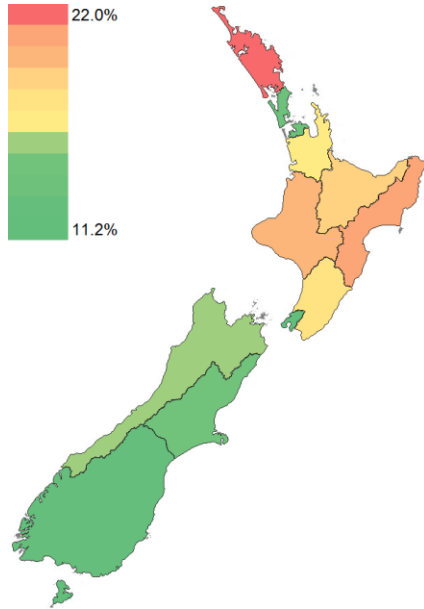
Figures 5.1 show regional heat maps for the proportions of people who are on main benefits and/or in public housing (or on the register).

Main benefit receipt is particularly concentrated in the North Island (excluding Auckland and Wellington). Notably Northland and the East Coast. Auckland and Wellington regions, and the South Island have relatively low proportions, reflecting large urban job markets and low unemployment in the South Island more broadly.

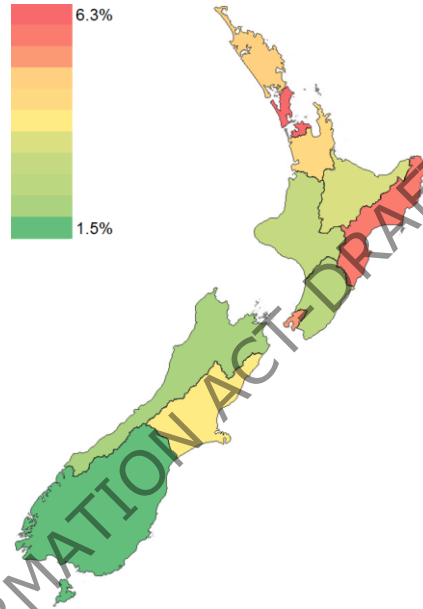
Conversely, public housing stock (and thus use) is more concentrated in Auckland. East Coast has the highest proportion of population aged 16 and over on the public housing register (1.9%).

Figures 5.1 – Proportion of population on main benefits and in public housing at 31 March 2020

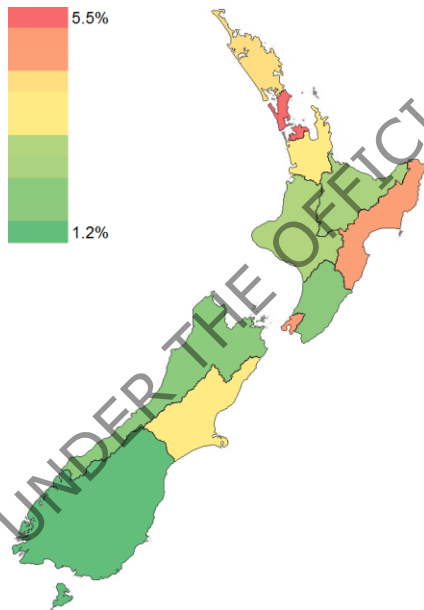
% of working-age population on main benefits



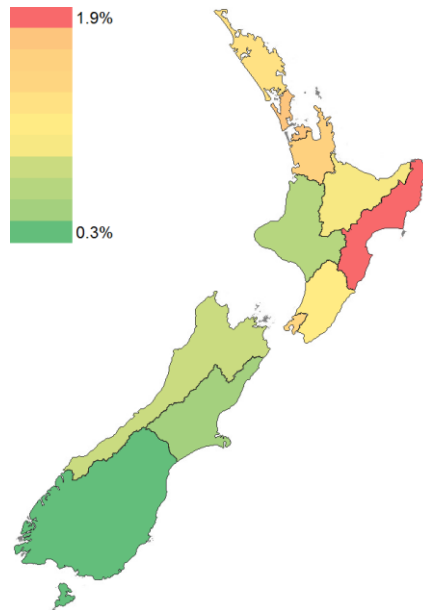
% of population aged 16+ in public housing or on the register



% of population aged 16+ in public housing



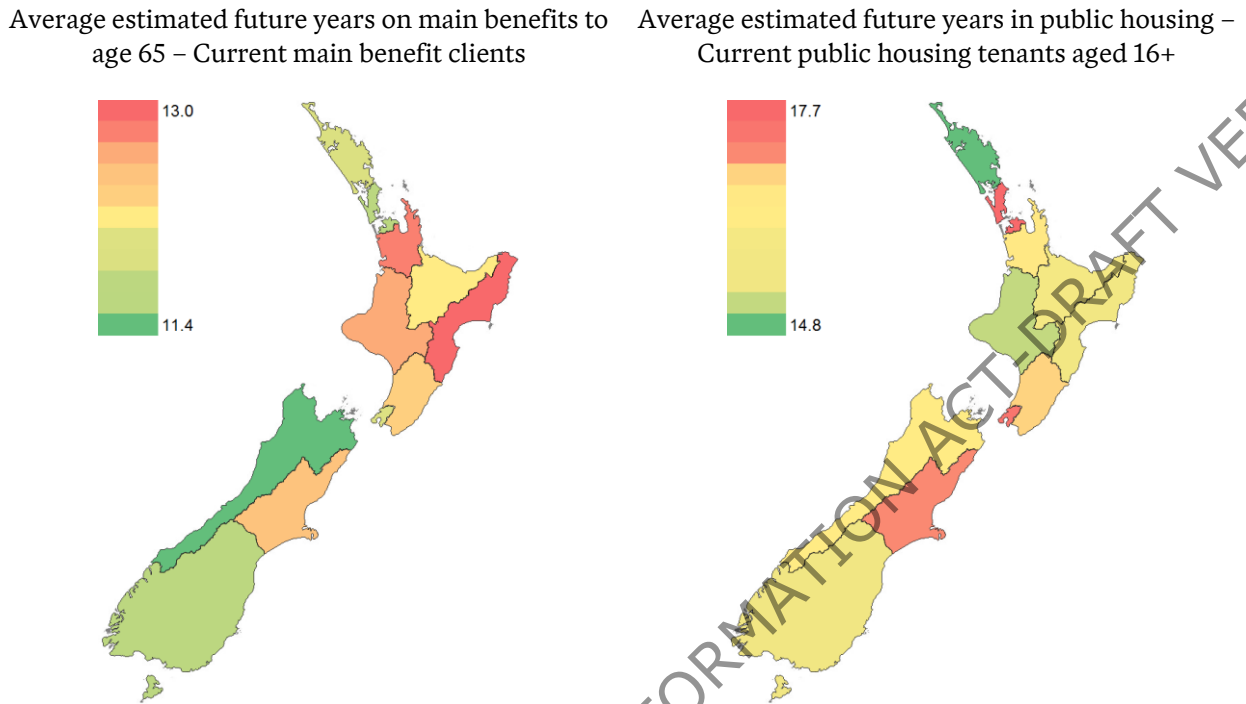
% of population aged 16+ on the register



Figures 5.2 show how the average estimated future time on main benefits and in public housing varies from region to region. The regional spread of these averages is much narrower (1.6% for main benefits; 2.9% for public housing) than the regional spread of the proportions of people on main benefits and/or in public housing (10.8% for main benefits; 4.8% for public housing).

Notably, Northland has one of the lowest average estimated future years on main benefits and/or in public housing. Whereas, it has one of the highest proportions of people on main benefits and/or in public housing.

Figures 5.2 – Average future estimated years on main benefits and in public housing



These heat maps tell us that:

- There are significant differences in the proportions of regional populations accessing benefits and the public housing system e.g. 22% of the Northland’s working-age population are on main benefits compared with 11.2% for Southern.
- Amongst those currently receiving a main benefit and/or in public house, there is relatively little regional difference in estimated future years on main benefits and/or in public housing.

There may be several factors influencing this, including:

- Variations between regions of public housing availability.
- A significant proportion of the main benefit population (SLP clients aside) whose barriers to employment do not depend significantly on the dynamics of their local labour market i.e. their likely future benefit receipt does not depend heavily on where they reside.

Further work is needed to understand if these factors are actually influencing outcomes.

Adding a rural/urban indicator or scale as a predictive variable in the modelling could help with understanding this dynamic.

5.1.1 Differences by prioritised ethnic group

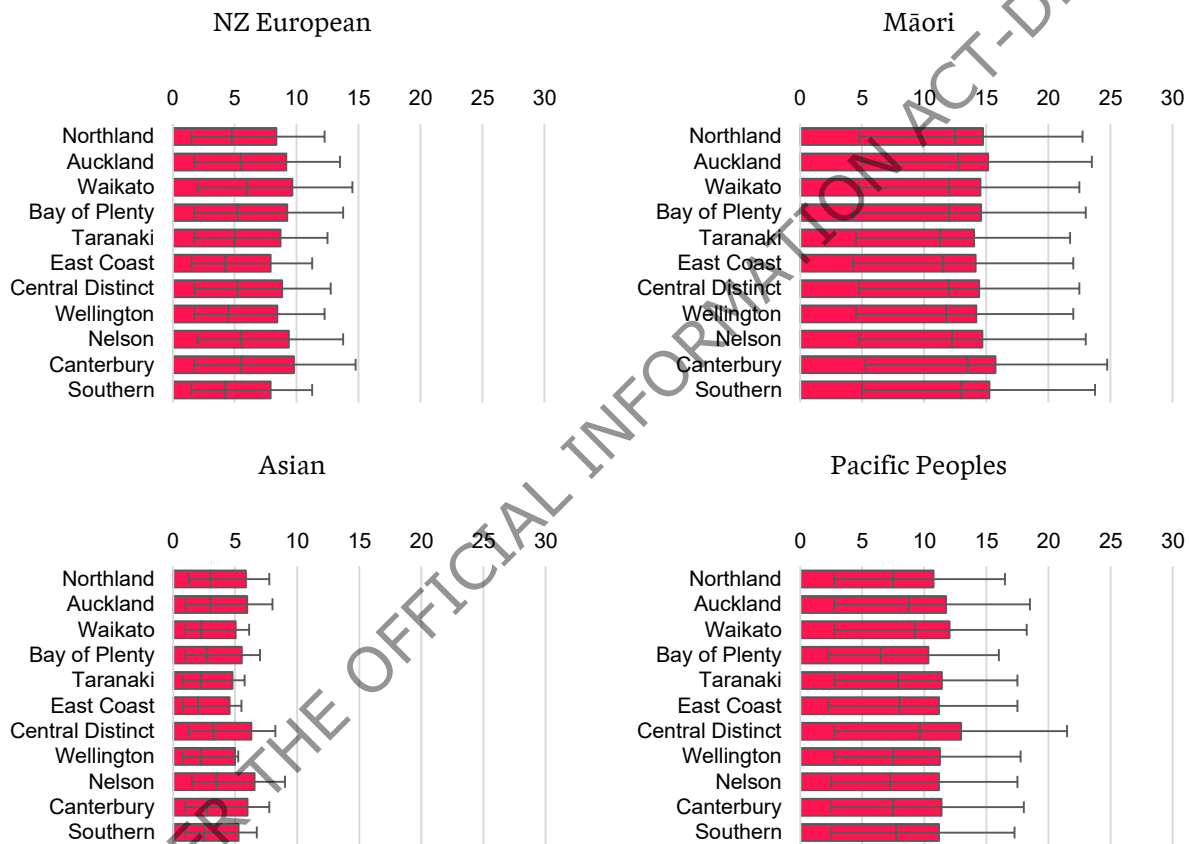
There are demographic differences between regional populations. Table B.1 in Appendix B shows age, gender and prioritised ethnic group distributions for the total working-age population and JS-WR client population in each region. The key points to take from this table are:

- The populations in the main urban centres (Auckland, Wellington and Canterbury) are a little younger than other regions. However, overall there is not much regional variation in age distributions in both the total working-age population and the JS-WR client population. Similarly, there is little regional variation in gender mix.

- Auckland has a much higher proportion of its population who identify as Asian (29%). All other factors being equal, Asians have much lower average estimated future years on main benefits than other prioritised ethnic groups. This significantly reduces the average for Auckland as a whole. Figures 5.3 show that for each prioritised ethnic group, Auckland’s average is fairly similar to other regions.
- A relatively high proportion of populations in the Bay of Plenty (27%), Northland (32%), East Coast (29%), Taranaki (22%) and Waikato (20%) identify as Māori. Māori are over-represented in the JS-WR client population in all regions by as much as 3x.

Because of these demographic differences (and others), side-by-side regional comparisons can be misleading. To control for ethnicity, Figures 5.3 show average future estimated years on main benefit for JS-WR clients by prioritised ethnic group.

Figures 5.3 – Average future estimated years on main benefits to age 65 – JS-WR clients by prioritised ethnic group



Figures 5.3 show us that average estimated future years on main benefits:

- Is much higher for Māori on average across all regions, and much lower for Asians on average across all regions.
- Varies less by region for Māori. There is only 11% variation from the highest region (Canterbury – 15.7 years) to the lowest region (Taranaki – 14.0 years). Equivalently, this variation is 19% for Europeans, 20% for Pacific Peoples and 30% for Asians. Similar to comments in the context of estimated future years on main benefits covering all prioritised ethnic groups, there may be several factors influencing this, including:
 - Māori having a different geographical profile within regions compared to other prioritised ethnic groups e.g. higher proportion living outside of urban centres.
 - Māori having a higher proportion of their JS-WR population whose barriers to employment do not depend significantly on the dynamics of their local labour market (and hence region).

Further work would be needed to understand if these factors are actually influencing outcomes. Again, adding a rural/urban indicator or scale as a predictive variable in the modelling could improve understanding of this dynamic.

Note that the modelling infrastructure can be used to show how an estimated outcome (such as future benefit receipt) varies by a particular variable while holding all other variables constant i.e. partial dependence analysis. Performing such analysis would give a more precise understanding of how average estimated future years on main benefits and/or public housing varies by factors such as region and ethnicity.

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6 Results by ethnicity

Key points from this chapter

- Most of Māori and Pacific Peoples’ over-representation in the benefit system cannot be fully explained by differences in age-gender distribution.
- Pacific Peoples’ over-representation in the public housing system is across all regions and not just Auckland, where most Pacific People reside.
- Disparities between Māori and other ethnicities in terms of estimated future years on main benefits have widened. About 25% of male, Māori, JS-WR clients aged 20-30 are estimated to spend at least 30 future years on main benefits.

In this chapter we explore differences in the modelling results by prioritised ethnic group.

6.1 Future benefit receipt and public housing use

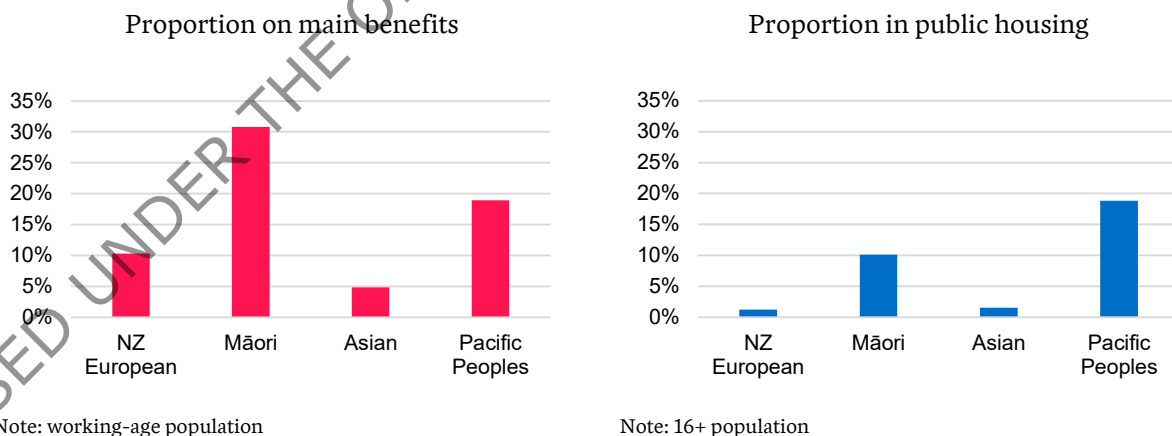
Māori and Pacific Peoples are over-represented in the main benefit population and correspondingly Europeans and Asians are under-represented– see Figures 6.1.

Differences in age distribution account for some of the over-representation. Māori and Pacific People have a higher proportion of young people amongst their working-age populations. For example, 38% of working-age Māori and 38% of working-age Pacific People are aged 16-30, compared to 25% and 32% for Europeans and Asians respectively. Younger people are more likely to access main benefits.

However, most of the over-representation cannot be explained by differences in demographic characteristics.

Pacific Peoples are significantly over-represented in the public housing system. This is true of all regions and not just Auckland where most Pacific People reside.

Figures 6.1 – Proportion of population on main benefits and in public housing by prioritised ethnic group

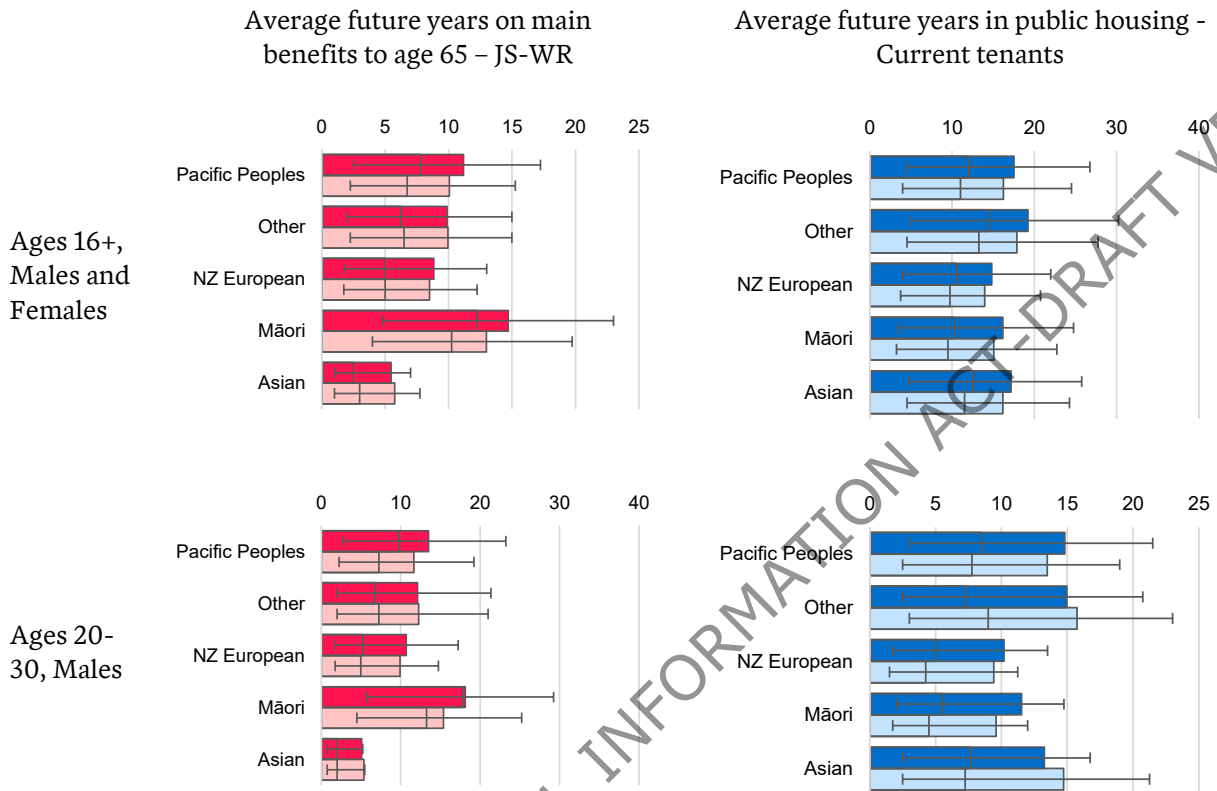


Amongst people currently on main benefits and/or in public housing there are also significant differences in estimated outcomes.

Figures 6.2 show estimated future years on main benefits and estimated future years in public housing by prioritised ethnic group. This is shown for a whole benefit category (JS-WR) and all public housing tenants. Charts are shown for combined ages and genders (top charts). For illustration purposes we also

show results for male JS-WR clients aged 20-30 (bottom charts). This controls for most of the age and gender profile differences between prioritised ethnic groups.

Figures 6.2 – Estimated outcomes by prioritised ethnic group – Darker bars = 2020 estimates, lighter bars = 2019 estimates



Estimated average future years on main benefits is much higher for people identifying as Māori. For example, the average for 20-30-year old male, Māori JS-WR clients is 18.1 years, compared to 13.5 years for Pacific Peoples and 10.7 years for Europeans. Averages for Māori have increased from the 2019 estimates more than for other prioritised ethnic groups. About 25% of male Māori JS-WR clients aged 20-30 are estimated to spend at least 30 future years on main benefits.

Conversely, estimated average future years in public housing is lower for people identifying as Māori than for other prioritised ethnic groups. Amongst male JS-WR clients aged 20-30, the average for Māori is similar to Europeans (11.5 vs. 10.2 years respectively) and much lower than for Pacific Peoples (14.8 years).

The differing pictures for the benefit and public housing systems by prioritised ethnic group are interesting. Further work would be required to understand this dynamic.

To help with this it would be useful to investigate people's pathways with respect to employment, benefit receipt, earnings and other outcomes before and after they exit public housing, and how these differ by prioritised ethnic group.

Appendix A Policy changes

A.1 Benefit system policy changes

Main benefit rate indexation – 1 April 2018

After-tax rates of main benefits were increased on average 1.36% in line with the movement in the Consumer Price Index (CPI) excluding tobacco over the 12 months to 31 December 2017.

Families Package – April – July 2018

The Families Package encompassed a range of changes to the benefit system and tax credit supports aimed at supporting families:

- Increased Accommodation Supplement (AS) rates and movement of locations between the 4 MSD AS areas. Accommodation Benefit also increased.
- Winter Energy Payment introduced for all main benefit clients and superannuitants to help with the cost of heating homes during the winter.
- Best Start tax credit introduced – Weekly payment. Non-means tested up to age 1. Means tested between the age of 1 and 3. Replaces the Parental Tax Credit.
- Increases to Orphan's and Unsupported Child's benefits.
- Other changes to tax credits such as an increase in the Family Tax Credit threshold.

Emergency and maintenance needs appointments – 23 April 2018

No longer required to be face-to-face. Phone appointments can be booked through MyMSD.

Main benefit rate indexation – 1 April 2019

After-tax rates of main benefits were increased on average 1.69% in line with the movement in the CPI excluding tobacco over the 12 months to 31 December 2018.

COVID-19 response – March to October 2020

- Benefit stand down - Initial stand down provisions suspended until November.
- Emergency Housing Special Needs Grants – period after which 25% of income must be paid towards the cost of emergency accommodation extended from 7 to 21 days. Plus grants now able to be granted for up to 21 days (previously 7).
- Main benefit rates increased by \$25. This change is permanent.
- 2020 Winter Energy Payment doubled.
- COVID-19 Income Relief Payment – for people losing their job between 1 March 2020 and 30 October 2020. Available for up to 12 weeks. Higher rates than main benefits.

Main benefit rate indexation – 1 April 2020

After-tax rates of main benefits were increased on average 3.09% in line with the movement in the after-tax average wage over the 12 months to 31 December 2019.

Sole Parent Support – April 2020

Removal of the penalty for not naming the other parent.

A.2 Public housing policy changes

Auckland Housing Relocation Grant abolished – January 2018

This was available to public housing tenants in Auckland who moved to another area of New Zealand.

Tenancy reviews suspended – March 2018

This was to allow for consideration as to whether vulnerable tenant groups should be exempt from periodic tenancy reviews.

Public housing tenancy reviews recommenced – February 2019

Recommenced with expanded exemption criteria to provide greater stability of tenure. Approximately 80% of public housing tenants are exempt from the review process.

Bond no longer collected from new tenants – April 2019

Two weeks income-related rent no longer collected as a bond from new tenants.

Public housing fast-track – September 2019

Fast-track to public housing became available for specified children or young people in custody under the Oranga Tamariki Act 1989 or in an approved permanent care arrangement.

A.3 Other housing-related changes

Tamaki Regeneration Programme: New approach – March 2018

The Hobsonville Land Company (a subsidiary of Kāinga Ora) was appointed as the master developer for the Tamaki Regeneration Company, with the responsibility for delivering the physical redevelopment of Tamaki. The programme would see 2,500 of the existing state houses replaced with at least 7,500 state, affordable, Kiwibuild and private market houses over the following 20 years.

Housing First Programme expanded – July 2018

Housing First is a programme to house and support people who have been homeless for a long time or are homeless and facing multiple complex issues. Funding for the programme was extended as part of the 2018 budget.

Kiwibuild Scheme: Prospective homebuyers – July 2018

From this time, people could register their interest in a Kiwibuild home subject to eligibility criteria.

Ministry of Housing and Urban Development established – August 2018

The new agency began operating from 1 October 2018 and combined functions and operational funding from the Ministry of Business, Innovation and Employment, Ministry of Social Development and the Treasury. MSD continued in its role of assessing people's need for housing support and managing the public housing register.

Reform of the Residential Tenancies Act 1986 – August 2018

Discussion document released proposing a range of objectives including to:

- Improve security and stability for tenants, while maintaining adequate protection for landlords
- Modernise the legislation so it can respond to changing trends in the rental market

- Improve quality standards of boarding houses and accountability of boarding house operators.

Public Housing Plan 2018-2022 – August 2018

Signified Government's intent to secure around 6,400 additional public housing places by June 2022

New social objectives for Housing New Zealand Corporation – September 2018

The social objectives include:

- Providing good quality, warm, dry and healthy rental housing for those who need it most
- Assisting tenants to sustain a tenancy
- Being a fair and reasonable landlord
- Building and leasing additional houses
- Managing its housing stock prudently.

Porirua Regeneration Project – November 2018

The Government announced a \$1.5bn programme for revitalising eastern Porirua over the following 25 years. This included:

- Approximately 2,900 public houses to be renewed to be warmer and drier
- 150 new public houses in the Porirua area.

KiwiSaver HomeStart Grant and First Home Loan – December 2018

House price caps for newly-built homes outside of the main centres were increased.

Healthy Homes Guarantee Act 2017 and subsequent Residential Tenancies (Healthy Home Standards) Regulations 2019

The standards cover heating, insulation, draught stopping, ventilation, moisture ingress and drainage. Full compliance is required for all rental homes by 1 July 2024, with phased compliance for landlords from 1 July 2021 (Private landlords have to comply within 90 days of new or renewed tenancies).

KiwiBuild reset – September 2019

The Government announced a reset of the KiwiBuild programme. This included changes to First Home Loans and HomeStart Deposit Grant Scheme criteria.

Kāinga Ora – Homes and Communities established – October 2019

The agency combined Housing New Zealand Corporation and its subsidiary the Hobsonville Land Company, and the KiwiBuild unit of the Ministry of Housing and Urban Development.

Housing support products – Rent Arrears Assistance introduced – November 2019

This provides assistance to a person who was unable to access other forms of assistance to meet rent arrears. The payment is recoverable.

Reform of the Residential Tenancy Act – November 2019

The Government announced a package of proposed changes covering tenant security and safety and limiting rent increases to once every 12 months.

Aotearoa/New Zealand Homelessness Action Plan released – February 2020

The plan sets out a framework for communities, Māori, Iwi, providers and government agencies to work together to prevent and reduce homelessness.

Progressive Home Ownership Fund launched – July 2020

Pathways to enable Iwi, Māori organisations and Providers to develop or expand their progressive home ownership programmes to help individuals, families and whānau in their communities achieve independent home ownership.

Emergency Housing Special Needs Grants – Client contributions – October 2020

From this time, recipients of grants were required to contribute 25% of their income towards the cost of accommodation after seven days in emergency housing (aligning with contribution requirements for transitional housing and public housing). Also, the maximum grant period was extended from 7 to 21 days.

COVID-19 response package

The COVID-19 response package included some housing-related elements, including:

- Temporary changes to the Residential Tenancies Act 1986, including a rent increase freeze for the six months to 25 September 2020 and restrictions on terminations
- Temporary increased availability of assistance with rent arrears.

Residential Tenancies Amendment Act 2020

Key changes to the Residential Tenancies Act in 2020 (the RTA reform) included:

- Removing 'no cause' terminations and instead providing a list of justified reasons that landlords can use to terminate a periodic tenancy
- Providing that fixed-term tenancies will convert to periodic tenancies at the end of the fixed-term unless the tenant and landlord agrees otherwise, the tenant gives notice, or the landlord gives notice using one of the fixed-grounds
- Limiting rent increases to once per year
- Enabling successful parties in the Tenancy Tribunal to have their identifying details suppressed.

Most of these changes came into effect on 11 February 2021. The change limiting rent increases to once every 12 months came into effect on 12 August 2020.

A.4 Selected other policy changes

Fees-free tertiary education – January 2018

First year of tuition fees covered up to \$12,000 for eligible first-time students in provider-based study (24 months for industry training).

Minimum wage increase – 1 April 2018

The adult minimum wage was increased from \$15.75 to \$16.50 gross per hour, while the new entrant minimum wage (applicable to 16- and 17-year-olds) was increased from \$12.80 to \$13.20 per hour.

Paid Parental Leave increases – 1 July 2018

Increased from 18 to 22 weeks. The maximum weekly rate for eligible employees and self-employed parents increased from \$538.55 to \$564.38.

Free doctor visits for children – 1 December 2018

Extended to children under 14 years (previously for children under 13 years).

Minimum wage increase – 1 April 2019

The adult minimum wage was increased from \$16.50 to \$17.70 gross per hour, while the new entrant minimum wage (applicable to 16- and 17-year-olds) was increased from \$13.20 to \$14.16 per hour.

Paid Parental Leave increases – 1 July 2019

The maximum weekly rate for eligible employees and self-employed parents increased from \$564.38 to \$585.80.

COVID-19 response – March to October 2020

- Wage subsidy - 12 weeks at flat payment levels with business specific qualifying criteria. Extended for a further 8 weeks in June with tightened criteria
- Leave payment and leave support schemes – Flat rates for people self-isolating
- Mortgage Holiday Repayment Scheme – 6-month holidays available for loans secured against residential property through mortgage providers
- Rent increase freeze and protection against tenancy terminations for tenants - Rent freeze until 25 September 2020 and restrictions against terminations until 25 June 2020
- Various tax measures

Minimum wage increase – 1 April 2020

The adult minimum wage was increased from \$17.70 to \$18.90 gross per hour, while the new entrant minimum wage (applicable to 16- and 17-year-olds) was increased from \$14.16 to \$15.12 per hour.

Paid Parental Leave increases – 1 July 2020

Increased from 22 to 26 weeks. The maximum weekly rate for eligible employees and self-employed parents increased from \$585.80 to \$606.46.

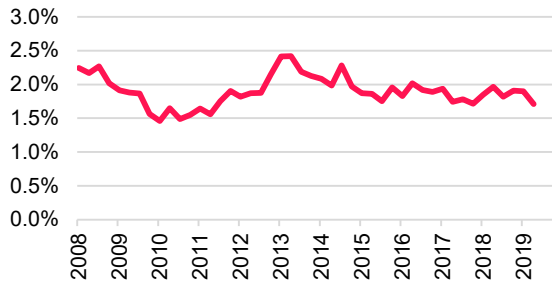
Appendix B Extra charts

B.1 Benefit system transition rates

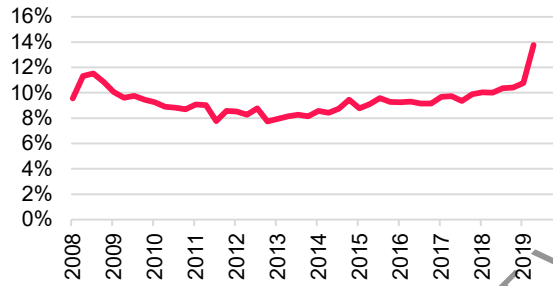
Figures B.1 – Historical quarterly benefit system transition rates (seasonally adjusted)



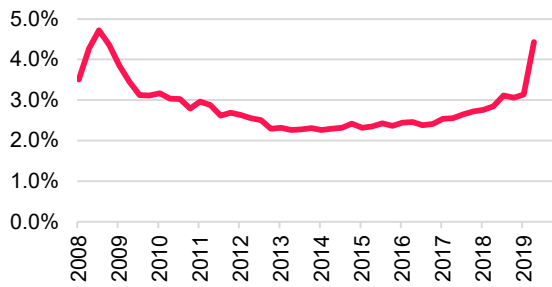
Transfer from JS-HCD to SLP



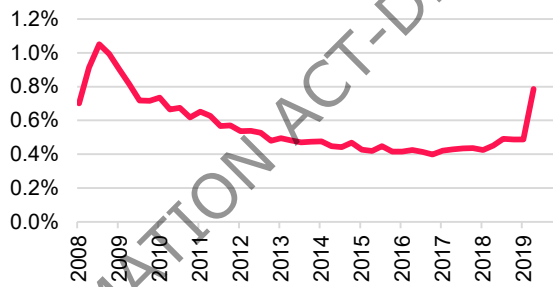
Main benefit entry – Ben history < 1yr ago



Main benefit entry – Ben history 1-5 yrs ago



Main benefit entry – Ben history > 5yrs ago*

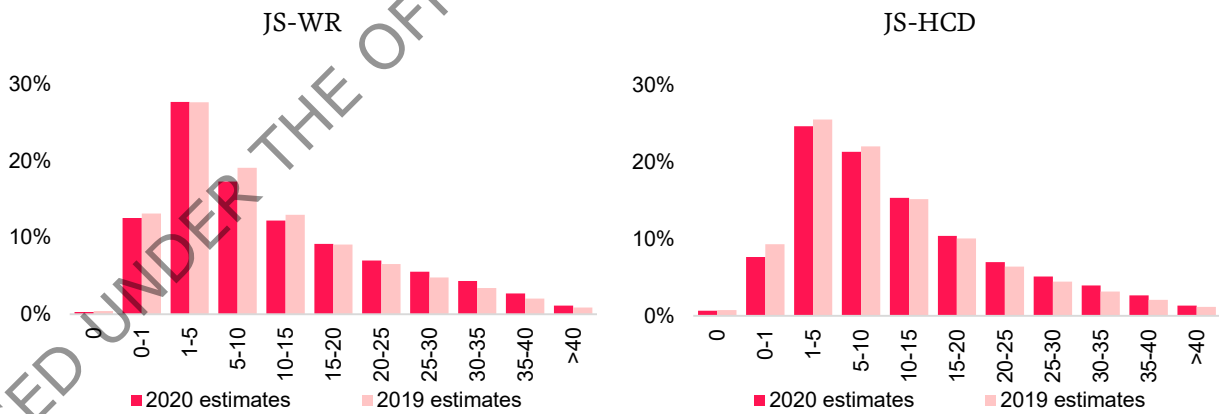


* or no benefit history identifiable in the data

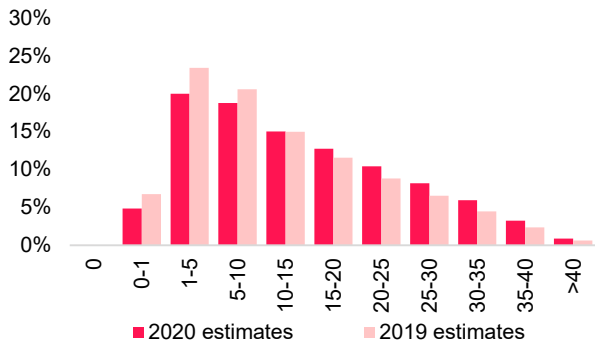
B.2 Modelling results

B.2.1 Distribution of estimated outcomes

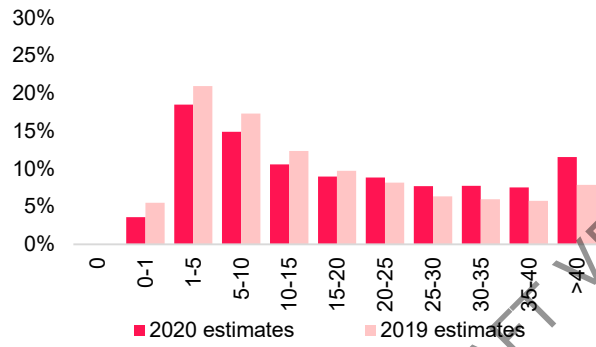
Figure B.2 – Distribution of estimated future years on main benefits to age 65



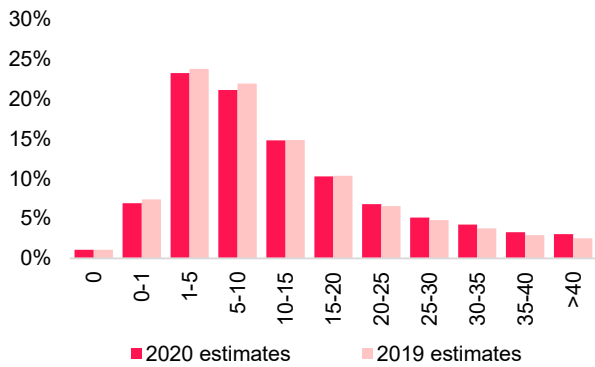
SPS



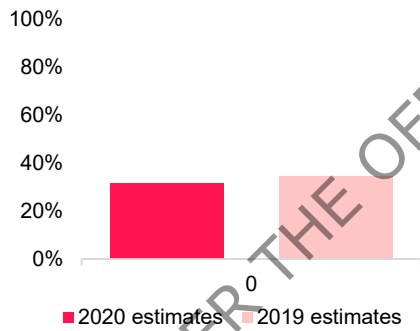
YP/YPP



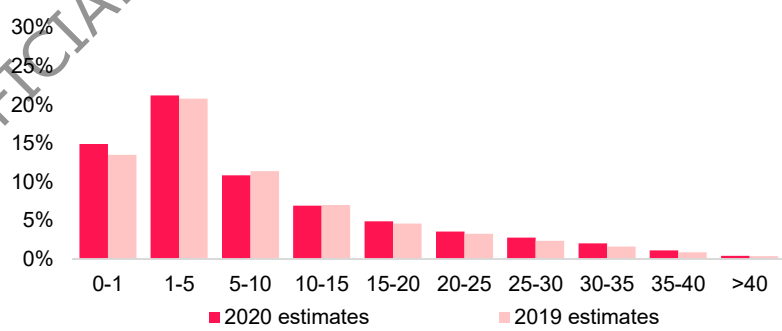
SLP



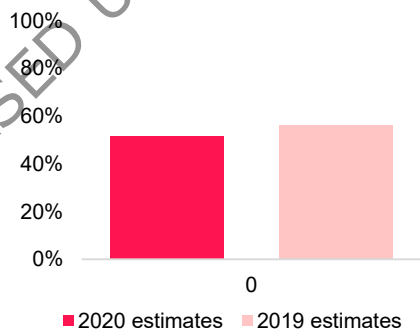
Exit < 1yr ago



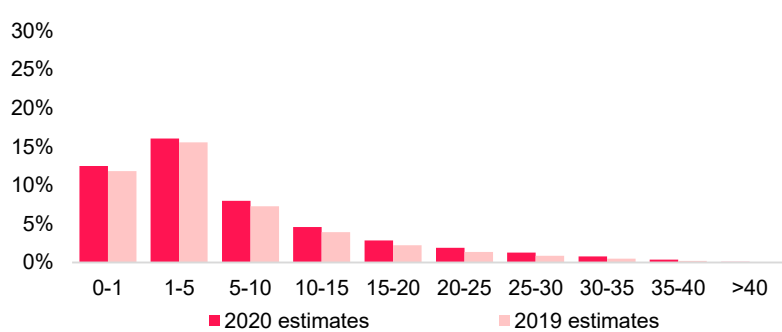
Exit < 1yr ago – Distribution

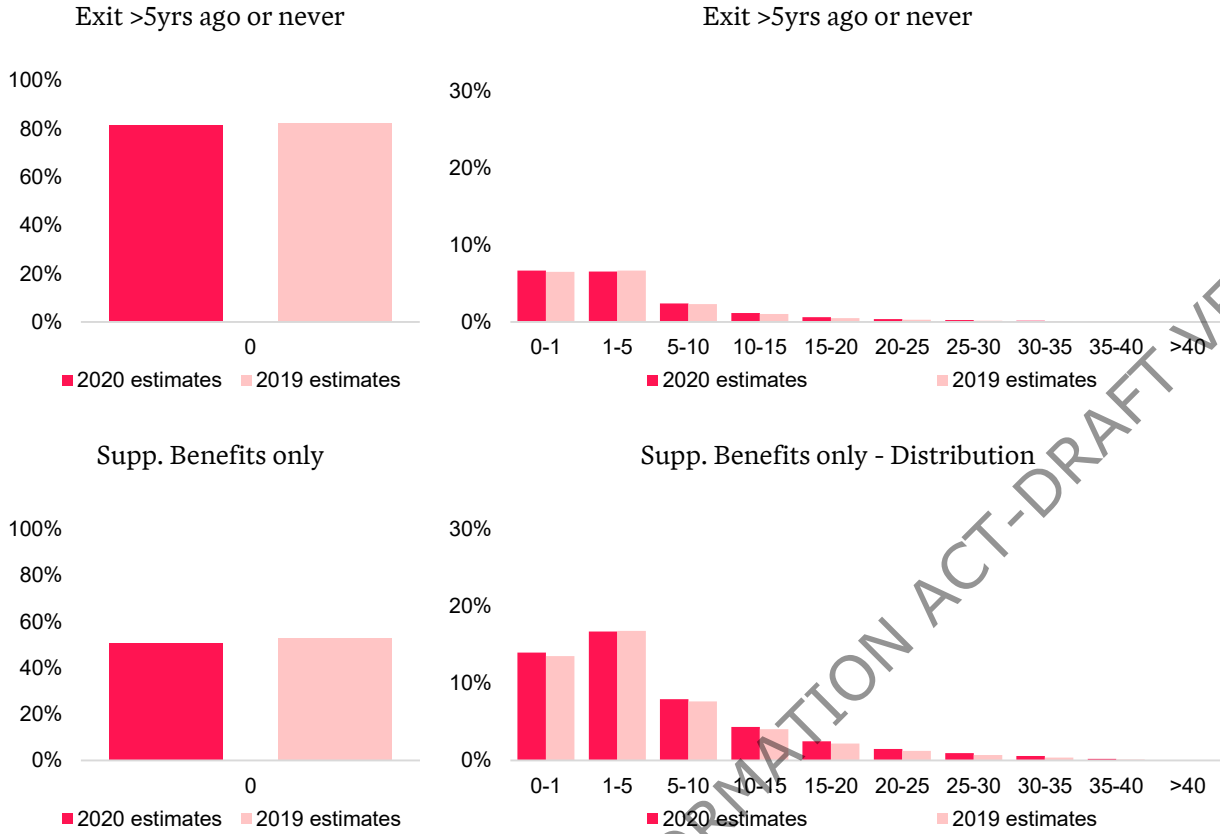


Exit 1-5yrs ago



Exit 1-5yrs ago – Distribution





B.3 Regional demographic information

Table B.1 – Regional demographic information

	Total working-age population			JS-WR clients		
	Age	Gender	PEG*	Age	Gender	PEG*
	16-19	Male	European	16-19	Male	European
	30-49	Female	Māori	30-49	Female	Māori
	50-64		Asian	50-64		Asian
			Pacific P.			Pacific P.
Wellington	30%	49%	59%	42%	58%	36%
	43%	51%	13%	36%	42%	35%
	27%		16%	21%		9%
			8%			13%
Waikato	30%	49%	62%	45%	56%	33%
	41%	51%	20%	37%	44%	53%
	29%		11%	18%		5%
			3%			5%
Taranaki	27%	49%	69%	42%	58%	40%
	40%	51%	22%	37%	42%	53%
	33%		5%	21%		2%
			2%			3%

	Total working-age population			JS-WR clients		
Southern	29%	50%	77%	42%	58%	61%
	40%	50%	9%	36%	42%	27%
	31%		7%	22%		3%
			2%			5%
Bay of Plenty	28%	49%	61%	43%	56%	26%
	40%	51%	27%	36%	44%	66%
	31%		8%	21%		3%
			2%			4%
Northland	26%	49%	59%	42%	56%	25%
	38%	51%	32%	35%	44%	68%
	36%		4%	23%		2%
			2%			4%
Nelson	24%	50%	79%	37%	57%	61%
	39%	50%	10%	36%	43%	29%
	36%		5%	28%		3%
			4%			3%
East Coast	28%	49%	59%	43%	55%	24%
	40%	51%	29%	37%	45%	68%
	33%		5%	20%		2%
			4%			5%
Central District	28%	49%	70%	44%	58%	44%
	38%	51%	17%	35%	42%	45%
	33%		6%	22%		5%
			3%			4%
Canterbury	29%	50%	72%	45%	59%	56%
	41%	50%	9%	34%	41%	27%
	29%		12%	21%		7%
			3%			6%
Auckland	31%	50%	44%	44%	54%	25%
	44%	50%	11%	37%	46%	33%
	26%		29%	19%		14%
			13%			26%

*PEG = Prioritised Ethnic Group

Appendix C Modelling approach summary

This summary is a copy of chapter 2 from the technical report². Further detail on the modelling approach can be found in that report.

We give an overview of the model in non-technical terms, answering core questions:

- What is the model?
- What does the model do?
- What outcomes does the model project?
- How does the model work?
- What does the model not do?

C.1 What is the model?

The term ‘model’ is broadly used to describe physical, mathematical and conceptual models. This model is a mathematical model. Many definitions of a ‘mathematical model’ centre on the notion of imitation or simulation i.e. a model imitates or simulates a real-world situation, often in a simplified way because the ‘situation’ being modelled is complex. In this sense, a model (including this one) might be described as a ‘simplification of reality’.

Key aspects of the modelling framework for this project are:

- The population being modelled – In this case, New Zealand (NZ) residents aged 16 or older, and people entering this population over the next ten years.
- The future outcomes that are being modelled – What outcomes does the model project?
- The time horizon over which the future outcomes are being modelled – In this case, people’s future lifetime.
- The historical data – Used to understand the correlative relationships between variables (or combinations of variables) and the future outcomes being modelled. Variables may be characteristics (e.g. demographics), relate to events (e.g. experience of the modelled outcomes in the past) or be environmental (e.g. measures of labour market conditions). Understanding the correlative relationships informs the construction of the mathematical equations that define the model, and the parameters for these equations.
- Assumptions – The model is underpinned by a range of assumptions which are either implied by the construction and parameterisation of the mathematical equations, or explicitly made. Explicit assumptions relate to variables that the model does not project but are built into model because they are important to projecting future outcomes, e.g. the future unemployment rate as a measure of future labour market conditions.

C.2 What does the model do?

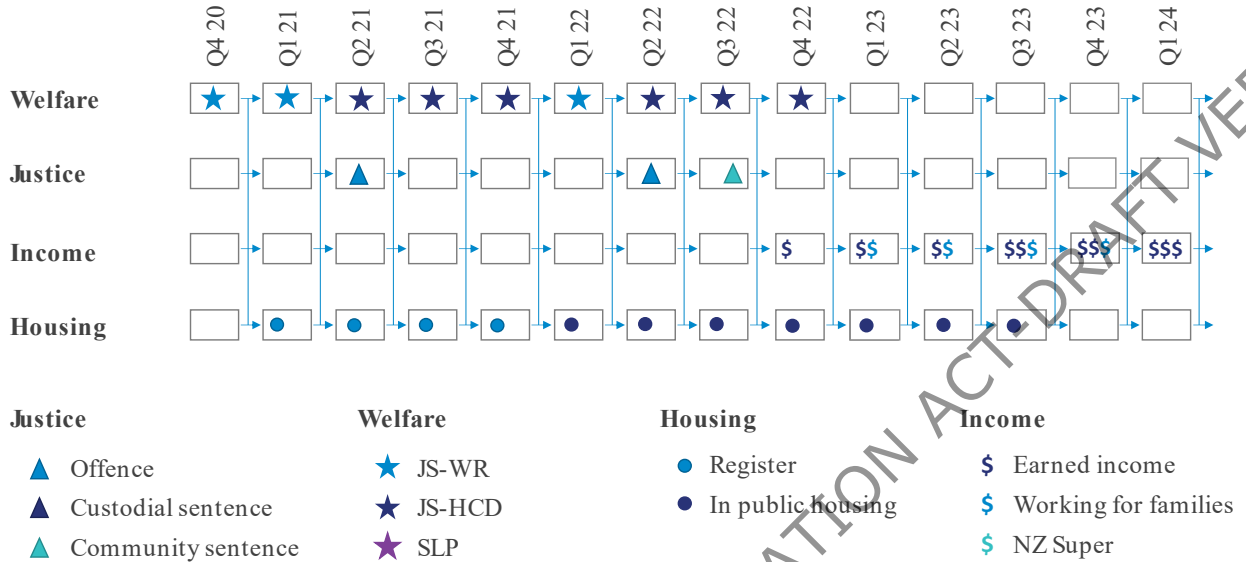
In section C.1 we referred to the model as a projection of future outcomes for a defined population (NZ residents 16 and over) over a defined time horizon (people’s lifetimes). It does this by projecting people’s status in relation to these outcomes (and other associated characteristics and outcomes) over each quarter-year period in the future. This is indicatively shown in Figure C.1 below:

- For one person – a full model run produces similar projections for all NZ residents aged 16 and over.

² Social Outcomes Modelling 2020 – Technical Report

- Over 14 quarters – a full model runs covers all people’s future lifetimes and so runs for about 400 quarters.
- In respect of four outcomes – other outcomes are estimated by the model.

Figure C.1 – Projected pathways



Where relevant, estimated cash flows are modelled in relation to future estimated outcomes. For example, benefit payments are modelled for those in receipt of a benefit and income related rent subsidies paid to public housing providers are modelled for people in public housing.

In addition to projecting outcomes for the present NZ adult population, the model also projects outcomes for those entering the population over the next 10 years. Population entry may happen in two ways:

- Ageing-in: children are considered to enter the adult population in the quarter in which they turn 16. We use projected output from the 2019 Oranga Tamariki children’s model.
- Migration: Both children and adults may enter the population via migration (which includes returning New Zealanders as well as foreign nationals).

Once in the population, outcomes for new entrants are estimated in the same manner as those in the present population.

C.3 What outcomes does the model project?

The model projects a large range of outcomes:

- Benefit receipt** – This covers the incidence of benefit receipt and the associated payments. Benefit receipt is categorised into main benefit categories and supplementary assistance.
- Other benefit receipt characteristics** – These include, but are not limited to partnered status, existence and age of children, and incapacity coding for health-related benefits.
- Public housing** – This covers entry to the public housing register and associated prioritisation rating, movement off the register (either into public housing or otherwise), income related rent subsidy, exit from public housing, size and location of house allocated, and future dissolution of households currently in public housing.
- Income** – This covers personal income, Working for Families (WFF) tax credits and NZ superannuation. The primary industry from which personal income is earned is indicated.

- **Justice activity** – This covers number and type of police proceedings as well as community and custodial sentences managed by the Department of Corrections.
- **Education** – This covers secondary and tertiary enrolment in the quarter, secondary attainment, total days of any suspensions or stand downs at secondary school, highest New Zealand Qualification Framework (NZQF) level enrolled and qualifications attained at tertiary level.
- **Child and protection (CNP) and Youth Justice (YJ)** – This covers the highest level of either type of intervention as well as the total number of days spent in placements.
- **Health** – this covers mental health and addiction-related pharmaceutical prescriptions, specialist community and specialist inpatient events, acute hospital discharges and mortality.
- **Location** – this covers the region/TLA/Auckland board where an individual resides.

Most of these outcomes relate to specific indicators within the interim wellbeing framework used for this project.

C.4 How does the model work?

Figure C.1 highlighted how the model projects outcomes at each quarterly time step.

Referring to the model as a ‘model’, implies that it is single model. In fact, it is made up of over 200 individual models. Each of these individual models plays a specific part in the overall modelling construct. Some relate to how a person moves between different outcome states from one quarter to the next e.g. benefit state. Some relate to the evolution of other modelled outcomes e.g. personal income. Others relate to cash flows associated with particular outcomes e.g. benefit payment given an individual is projected to be receiving a benefit in a quarter.

The vast majority of the models fall into the broad category known as regression models, which means they estimate one variable based on other variables. The remainder of the models are probability table models that attach probabilities to different outcomes.

The models are pulled together in what we refer to as the ‘projection code’. Many of the variables that each individual model relies upon are themselves modelled variables. For example, the models relating to transitioning between benefit states from one quarter to the next depend on, say, corrections activity variables which, in turn, are updated each quarter. The projection code runs each model in a set sequence for a future quarter, before moving onto the next quarter and repeating the sequence based on the updated variables. For this reason, the overall modelling construct is sometimes referred to as a ‘chained regression model’: it chains together regression models over a series of future time steps (in this case quarters).

C.5 What the model does not do?

The model is not a causal inference model. By this, we mean that the model does not attempt to determine the causal factors relating to different outcomes. Rather, the model is a predictive model, and thus seeks to determine factors that are correlated with outcomes. This difference is important. For example, a key finding of previous work is that long-term dependence on welfare is highly correlated with those who first receive benefits when under twenty years of age. So, age of first benefit is highly predictive of lengthy spells supported by benefit. However, it cannot be concluded that this is the cause of these spells. Nevertheless, knowledge about correlations and relationships between certain characteristics and outcomes is valuable information for policy and programme design and monitoring.

The model is based on simulating individual pathways through various welfare and housing states (including not receiving any benefit/assistance) as well as other characteristics (family information, education, income, corrections sentences etc) over their lifetimes. There are many possible pathways from the modelling projection date to time of death, so the exact pathway is very uncertain. Results for any particular individual reflect the average for people with similar characteristics and are not intended to be

an accurate prediction of that individual person's future pathway. Results, therefore, should be considered for segments of the population, rather than at an individual level.

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Appendix D Glossary

The following table gives definitions for common acronyms used in this report.

Term	Definition
ANZSIC06	Australian and New Zealand Industrial Classification 2006 – The industry category a business is assigned according to the predominant activity it is engaged in
AS	Accommodation Supplement (and related assistance)
AWE	Average Weekly Earnings
CHP	Community Housing Provider
CPI	Consumer Price Index
Earned income	Taxable income earned from: <ul style="list-style-type: none"> – Wages & Salaries – ACC weekly compensation – Student Allowance – Withholding payments – Paid parental leave – Self-employed, partnership and company income
Employment status	Whether someone is employed defined by having earned income in the quarter equivalent to greater than the minimum wage for 20 hours per week
Future working lifetime	Take to be time to age of eligibility for NZ Super (age 65)
GFC	Global Financial Crisis
HCD	Health condition, disability (sub-set of both JobSeeker Support clients with reduced work obligations and Supported Living Payment clients)
HYEFU	Half-year Economic and Fiscal Update
IDI	Integrated Data Infrastructure – research database containing microdata about people and households from a range of government agencies, surveys and non-government organisations
Income below threshold	Whether someone's income in a quarter is less than equivalent to the minimum wage for 40 hours per week
IRRS	Income Related Rent Subsidy – a top-up payment to housing providers to bridge the difference between the income-related rent a client pays and the full rent for a public house

Term	Definition
JS	JobSeeker Support – benefit type introduced in 2013 (replacing the unemployment benefit and sickness benefit, and partially replacing the Domestic Purposes Benefit)
Mental health services	Mental health and addiction service events as defined by the Social Wellbeing Agency. Source code for the definition is available at https://github.com/nz-social-investment-agency/mha_data_definition . On advice from the Ministry of Health pharmaceuticals labelled in the definition as ‘potential’ have been removed.
MSD	Ministry of Social Development
NOMB	Not supported by a main benefit but still receiving some benefit system support – supplementary benefits and/or Orphan’s Benefit
PH	Public housing
Police proceeding	An event on which police initiate a legal action against a person
Prioritised ethnic group	Ethnicity based on the SNZ source ranked ethnicity in the IDI. Where a person is indicated as associating with multiple ethnicities, a single ethnicity is chosen based on the following priority order: Māori, Pacific Peoples, Asian, Other, European
Recent exit	A client who is currently not receiving a benefit but has done in the last 12 months
SLP	Supported Living Payment – benefit type introduced in 2013 (replacing the invalid’s benefit and domestic purposes benefit – care of sick and infirm)
Some time	Occurring at some point in a defined time period. Used in the context of estimated social outcomes
SPS	Sole Parent Support – benefit type introduced in 2013 (partially replacing the domestic purposes benefit)
Supp only	Supplementary benefit only. Supplementary benefits include: <ul style="list-style-type: none"> – Accommodation Supplement – Childcare Assistance – Child Disability Allowance – Disability Allowance
Tenant	Clients are sometimes referred to as tenants where they reside in a property managed by Kāinga Ora or a Community Housing Provider. We usually refer to tenants aged 16+.
Tertiary education	Education at a tertiary education provider or industry training provider
Time out of work	Whether someone is not employed for at least a quarter

Term	Definition
Total income	Income received from: <ul style="list-style-type: none"> - Earned income - Working for Families Tax Credits - Benefit payments - IRRS
Working-age population	People who are aged over 15 and under 65
WR	Work-ready (sub-set of JobSeeker Support clients with work obligations)
YP	Youth Payment
YPP	Young Parent Payment

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