TAYLOR FRY

# Review of NDIA actuarial forecast model and drivers of Scheme costs

Full report

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Dear James,

## Review of NDIA actuarial forecast model and drivers of scheme costs

We thank you for the opportunity to review the NDIA Scheme Actuary Annual Financial Sustainability Report (AFSR) model. We trust this will be of assistance to the NDIS governing partners as they consider potential options to ensure the long-term future of the scheme.

Yours sincerely,

**Hugh Miller**
Principal

**Darryl Frank**
Principal

# Executive Summary

## Introduction

The National Disability Insurance Scheme (NDIS, or 'Scheme') is a landmark reform that has provided support to nearly half a million Australians with a disability. Increasing Scheme costs are natural as the Scheme continues to approach maturity. However, recent years have seen faster-than-expected escalation in costs. These trends have in turn been reflected in forecasts made by the Scheme Actuary. The latest cost estimate for 2024-25 is $41 billion, compared to the $31 billion estimate in the June 2019 Scheme Actuary report and the 2017 Productivity Commission review (after allowing for additional in-scope items).

This latest estimate is also higher than other recent estimates such as the 2020-21 Commonwealth Budget ($31.9B in participant costs by 2024-25[1]) and the Intergenerational Report (1.3% of GDP, perhaps around $31B, in 2024-25).

Taylor Fry has been asked to verify the Scheme Actuary's 2020-21 Annual Financial Sustainability Report (AFSR) and to explore the drivers of growth in cost as well as to compare the projections against the 2018-19 and 2019-20 AFSR estimates. We have been provided with the AFSR model and detailed data to undertake this review.

Escalating costs raise questions of sustainability, although ultimately, financial sustainability is tied to the willingness of government (and taxpayers) to meet Scheme costs. The nature of sustainability in the current context is described in the NDIS's 2016 Insurance Principles and Financial Sustainability Manual. The key principles from the manual are that "*a well-functioning NDIS generally means that the right people are being determined eligible for individual support packages and they are then being provided with the right supports. It also means that the ILC (linkages and capacity building) systems are working effectively and efficiently.*" Our report focuses on Scheme costs and does not assess the impact of the Scheme on outcomes and lifetime benefits for participants, their families, or society more broadly. These larger considerations are important for evaluating the overall effectiveness of the Scheme.

## Overall assessment of the 2020-21 AFSR financial projection

The baseline projection has participant costs growing to $41.4 billion in 2024-25 and $59.3 billion in 2029-30. As a relatively new Scheme, the assumptions underlying this projection are derived from a short and dynamic history. The AFSR also provides a plausible range based on scenario testing of various assumptions. The range highlights the continued **high degree of uncertainty** in forecasting NDIS costs, particularly over the longer time horizon. The baseline estimate sits closer to the lower end of the range.

Table 1 – Baseline estimates and plausible range ($B, accrual basis), 2020-21 AFSR

| Scenario | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2029-30 |
|---|---|---|---|---|---|
| Baseline projection | 29.2 | 33.9 | 38.0 | 41.4 | 59.3 |
| Plausible low case | 28.3 | 32.5 | 36.0 | 39.0 | 53.2 |
| Plausible high case | 30.5 | 36.6 | 41.9 | 47.8 | 74.2 |

Note: This accrual basis is consistent with the AFSR presentation. Cash basis is about 1% lower ($40.8B in 2024-25 and $58.5B in 2029-30 for the baseline scenario) and is used for detailed modelling such as results presented in Figure 7.

**Overall, we find that baseline estimates may represent a moderate underestimate of the expected value of future costs.** The plausible ranges set out in the AFSR 2020-21 are reasonable. The degree of uncertainty increases the further out one projects, which is evidenced by the range between the high and low case projections in 2029-30 being twice that of 2024-25. We also note that the current baseline

[1] Table 6.9.2 of Budget paper No. 1. Of the $33.3B total, about 96% relates to participant costs

estimate for 2024-25 sits outside the range of scenarios considered in the 2018-19 AFSR, which reflects both the significant change observed over two years and some of the uncertainty associated with forecasting. We are satisfied that the higher estimates better reflect recent trends and experience.

While this report does not seek to introduce a new estimate of NDIS costs to compete with those already in circulation, we regard the middle of the AFSR plausible range as a better guide to expected Scheme costs.

The main factors contributing to our conclusion are:

- **Continuing high numbers of Scheme entrants.** Long-term entry numbers have been set at 60,000 a year (plus an adjustment for population growth) in the 2020-21 AFSR, a significant increase on previous reviews. This increase seems justified given the recent entry numbers, ongoing high enrolment numbers in trial regions and shifts in prevalence rates. The adopted rate sits below the entry rates recently seen (70,000 in 2020-21 excluding those transferring from State and Commonwealth programs) and appears reasonable. Beyond 2024-25 there is both upside and downside risk; it may be that new entrant numbers plateau, on the other hand, disability prevalence as implied by the number of participants in the Scheme may continue to rise. The impact of such changes are potentially significant; for example, if new entrant rates from 2025-26 reduced from 60,000 to 40,000 per year (assuming the same mix of ages and disabilities, but with aggregate numbers broadly consistent with the 2018-19 AFSR) then payments in 2029-30 would reduce by $3.8B.
- **The risk of low ongoing exit rates.** Longer-term non-mortality exit rates have been set at three times the current exit rate. Without a concerted effort and new initiatives, this appears unlikely to occur.
- **The assumed reduction in base inflation.** Base inflation (relating to the prices paid for goods and services) has been reduced from 4% p.a. to 3.2% p.a. in the 2020-21 AFSR, with close to no allowance for 'superimposed inflation' above this level beyond 2024-25. While 3.2% p.a. is plausible, it does not represent the mid-range of potential cost escalation scenarios.
- **The potential for higher superimposed inflation.** Superimposed inflation is the allowance for average cost increases above standard inflation. The superimposed inflation assumption incorporates a range of potential cost drivers. It encompasses duration effects (people learn to use the plans more effectively over time), functional ability changes (a significant portion of the Scheme population is recorded as moving to a lower level of functional ability) and changing volumes and breadth of supports. More generally, there is minimal allowance for superimposed inflation from 2025-26 onwards which assumes very tight Scheme management will be able to be maintained for many years, and therefore we consider the current allowance to be on the low side.

Our conclusion means that we are confirming a large increase in future Scheme costs compared to previous estimates. This is predicated on the Scheme being operated and managed as it is currently. We also make the point here that some of the higher Scheme costs are effectively 'locked in', even with policy and operational responses. For example, suppose we assume:

- Plans only increase with inflation (3.2%, a blend of price and wage components), and
- Existing participants remain in the Scheme and increase their plan utilisation by 10 percentage points.

Then 2024-25 costs would be expected to be $32B before any allowance for new Scheme entrants. Therefore, we believe that the plausible range sits above baseline estimates made in previous years.

Our review and findings are based on the **current operating model** of the Scheme and **does not allow for potential operational changes that may alter the growth trajectory**. Future changes to the Scheme would obviously have implications for the forecasts. In our opinion, the three key areas where the NDIA has some degree of control and which will determine future costs are: the number of participants entering and leaving the Scheme, growth in committed supports and prices paid for services.

## The structure of the AFSR model

At its core, the AFSR model is a relatively straightforward multiplication of participant number and cost assumptions, performed for 2,052 different cohorts. These cohorts correspond to combinations of disability type, functional capacity, age and gender. Participant numbers are projected forward through the combination of 'flow' (people aging naturally) plus assumptions about the number of new entrants and exit rates due to mortality and other Scheme exits. Numbers of participants are then multiplied by cost assumptions, which are tied to recent average payment levels across 15 payment support types. Cost escalation assumptions are applied for future years – these relate to both price inflation and other sources of increase, referred to as 'superimposed inflation' (such as people accessing more supports or increasing their plan utilisation).

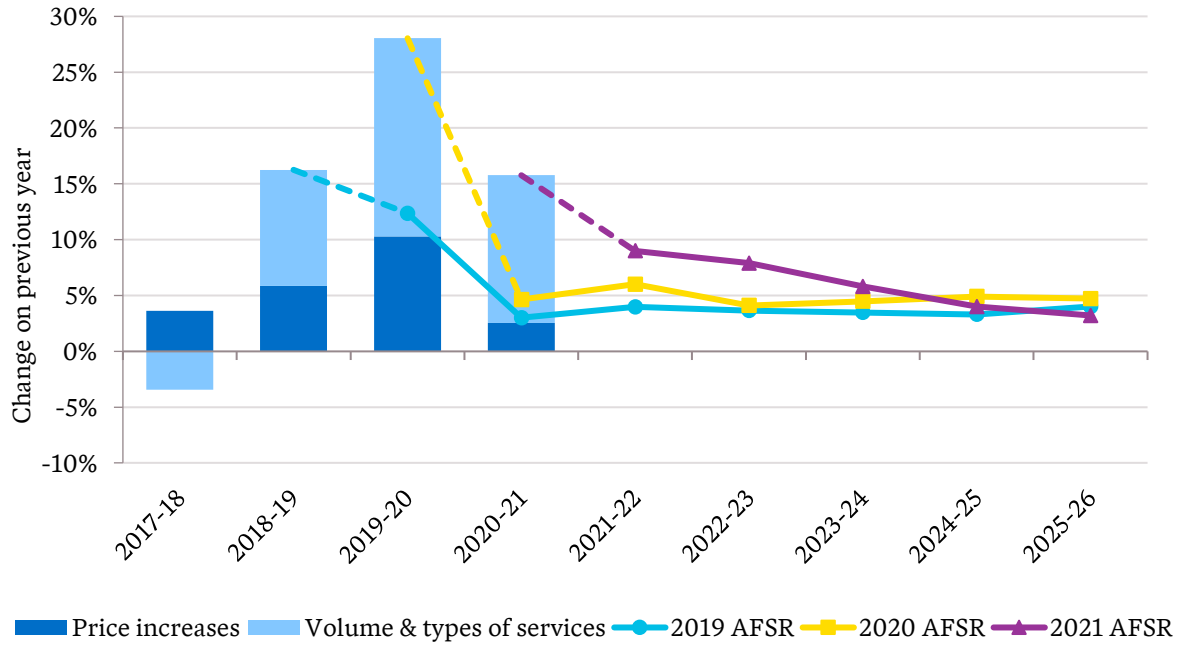
In our opinion, the current structure of the model is largely appropriate and should be increasingly appropriate as the Scheme matures. In reviewing the appropriateness of the model structure, we highlight three aspects that make assumption setting more difficult:

- There is no explicit assumption of future movement between levels of functional ability. This creates an inconsistency (historical movements are recognised) and creates greater dependence on an adequate superimposed inflation assumption.
- The model projects participant numbers independent of the prevalence rate it implies. Under the current assumptions there is indefinite growth in participant numbers as a proportion of the Australian population. While the high entry rates are consistent with experience and appropriate for the next few years (based on trial site and broader prevalence data), in later years this assumption does not allow NDIS participation to stabilise as a fraction of the Australian population.
- The model is highly dependent on assumptions for 'unanticipated superimposed inflation'. This allowance covers (some potentially overlapping) factors such as:
  - Higher volumes and broader range of goods and services accessed by participants
  - Increased utilisation of packages by participants
  - Price increases beyond standard CPI and wage inflation, including quality-related improvements
  - Transitions to lower level of functional ability
  - Changes in the proportion of cohorts accessing supported independent living (SIL) and specialist disability accommodation (SDA)
  - Duration effects (e.g. participant packages tend to increase at a faster rate in the first few reviews)
  - Participants becoming less reliant on informal care supports over time
  - Cross-sectional effects (e.g. participants aging into older age bands without assumed consequential changes in costs)

Cost escalation for continuing participants has been about 12% p.a. higher than was assumed for the past two years[2]. By comparison, the total allowance for other additional inflation is 14% over the next four years (about 3.5% p.a.). Figure 1 shows a comparison of actual and projected cost escalation (which excludes changes to the mix of participants) from successive AFSRs. While the 2020-21 AFSR (purple line) has higher assumptions relative to previous AFSRs, it still assumes a rate lower than the recent past (the blue bars) and a relatively fast transition to lower rates from 2024-25 onwards.

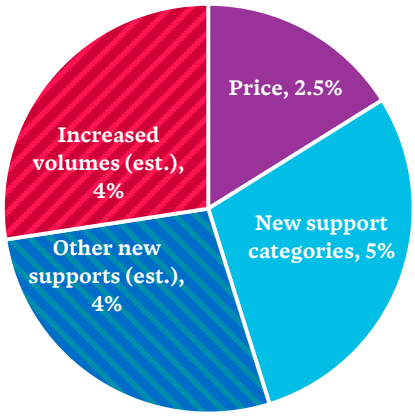
[2] We note the NDIS calculates a somewhat lower historical value for total inflation based on cohort-level changes in payments.

Figure 1 – Actual and projected annual cost escalation




Cost escalation is driven by a range of factors. We have attempted to split the 2020-21 increase into components related to price, additional supports and increased volumes of supports. This is shown below, with further detail in Section 3.5.

Figure 2 – Estimated split of 2020-21 cost escalation of 16% into price, new supports and volumes




Note: 'New support categories' refers to participants receiving support in one of the 15 main payment categories that they previously did not. 'Other new supports' relate to claim codes that are new for a participant, but within an existing category.

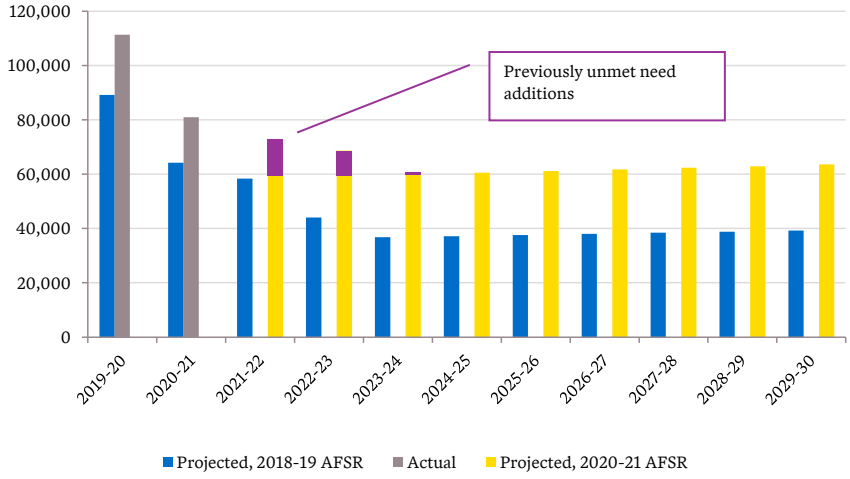
Other, less material, structural factors are discussed in Section 3.6 and Appendix B.

With the benefit of hindsight, the modelling approach may have been a contributing factor to the underestimation of Scheme costs in past AFSRs (relative to current forecasts). Alternate structures are possible and may have been able to better anticipate the recent increases. For instance, a projection that further divides modelling cohorts by the amount of support received as the starting point and projecting this forward would better track longitudinal dynamics.

The AFSR projection involves thousands of different component assumptions. We have reviewed the assumption setting basis for the AFSR, focusing on areas we judged most material.

- **Participant numbers.** As shown in Figure 3, relative to the 2018-19 AFSR, aggregate assumptions for new entrants have increased by about 25,000 per year for the full projection period – a large increase. We have considered the evidence from recent experience, NDIS trial regions, and secondary data sources. The projected aggregate number of new participants over the next four years appears reasonable, despite the consequent growth in Scheme numbers. This reflects what appears to be a generational change in the recognition of disability in Australia. This trend is also reflected in secondary data sources, such as the Survey of Disability, Aging and Carer. More people are being diagnosed with conditions such as developmental delay and autism, yielding steadily increasing prevalence rates. Further, those diagnosed young continue to report the disability at older ages and are likely to remain in the Scheme (rather than exiting after effective early intervention). Beyond 2024-25 there is greater uncertainty; we believe there is still the potential for stabilisation in prevalence across age bands which would imply new entrant numbers falling to a level significantly lower than the 60,000 per year projected.

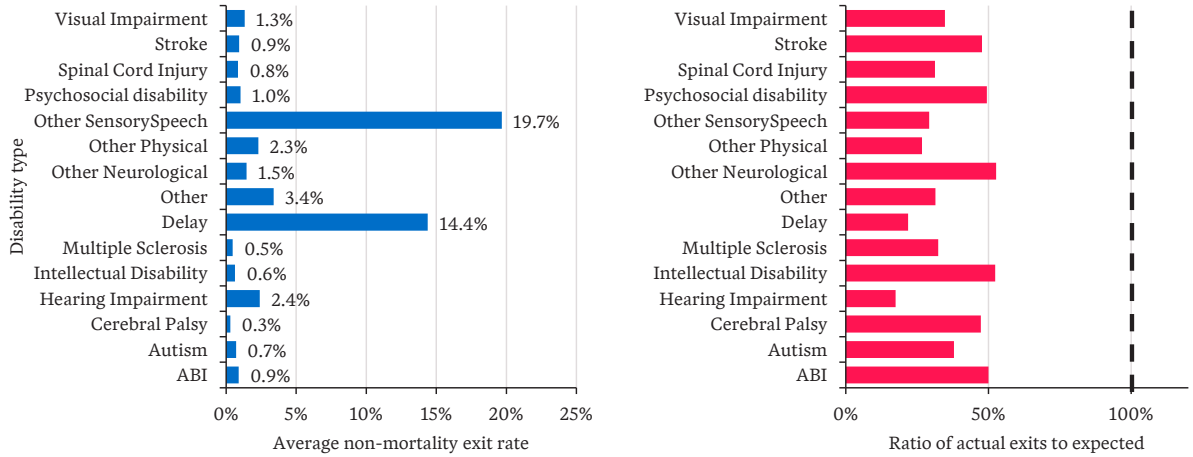
Figure 3 – Number of people entering the NDIS, past and projected




Note: Previously unmet need is an additional component of entries estimated separately in the AFSR reflecting people with existing long-term disabilities not supported in previous State and Commonwealth schemes. It contrasts to steadier ongoing entries that primarily relate to new incidence and diagnosis.

- **Non-mortality Scheme exits.** Scheme exits have been about a third of what they were expected to be in the 2018-19 AFSR across different disability types, ages and severities. The number of non-mortality exits was expected to be twice that of mortality-related exits but has emerged below the rate of mortality. The 2020-21 AFSR recognises this with lowered exit rates in the short term but reverts to higher rates over the first three years of the projection. These exit rates are sensitive to composition and imply further rises to the expected fraction of participants with disabilities such as developmental delay. Lower exit rates will increase long-term costs, particularly for those cohorts that were originally expected to transition out of the Scheme. Projecting current exit rates forward increases 2024-25 costs by $0.5B. Figure 4 shows both the rates of exit and the low level of exits by disability type.

Figure 4 – Weighted average assumed non-mortality exit rates by disability type and ratio of actual to assumed exit rates in 2020-21

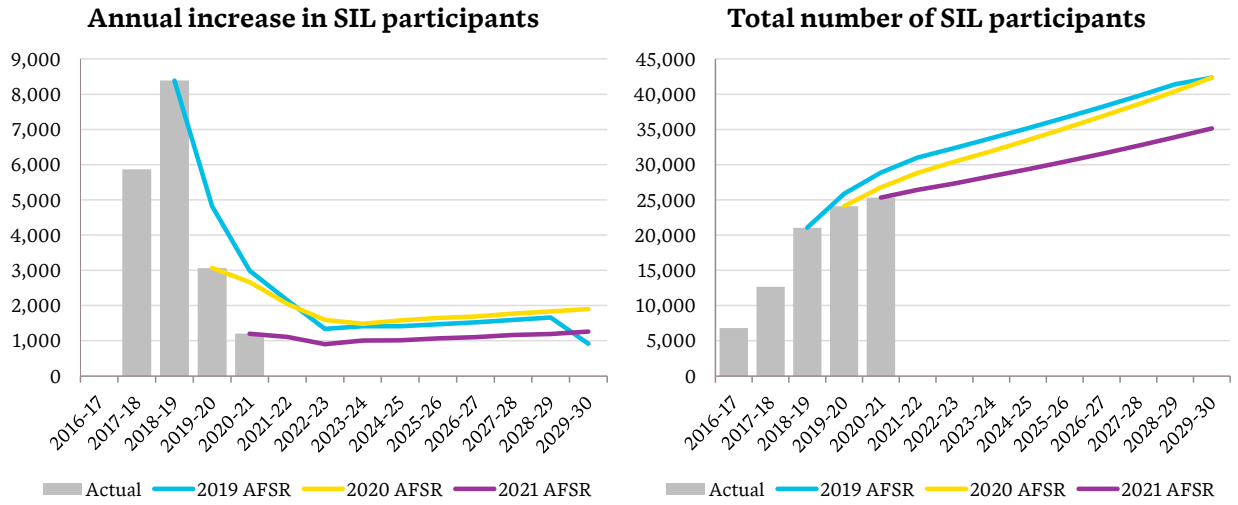



- **Number of participants accessing Supported Independent Living (SIL).** At 30 June 2021 about 25,000 participants accessed SIL. This group has high support costs so the projected number of participants in SIL has a material impact on the forecasts. The net increase in the number of people accessing SIL has reduced from about 3,000 additional people in 2019-20 to 1,200 in 2020-21, with experience below the previous AFSR estimates. Net increases in SIL over the past year were relatively stable across each of the four quarters and the 2020-21 AFSR mirrors this experience with a large reduction in assumed growth in SIL numbers.

  Much of the decrease in growth is tied to fewer people transitioning from state schemes where they had existing supports. However, there also appears to be a slowing in 2020-21 of Scheme participants moving from non-SIL to SIL.

  We believe that SIL assumptions carry both upside and downside risks. However, we would give some weight to the trends prior to 2020-21 which would imply slightly higher forecasts of SIL participants, and the magnitude of the change implies that there remains significant uncertainty in this assumption.

Figure 5 – Number of SIL participants



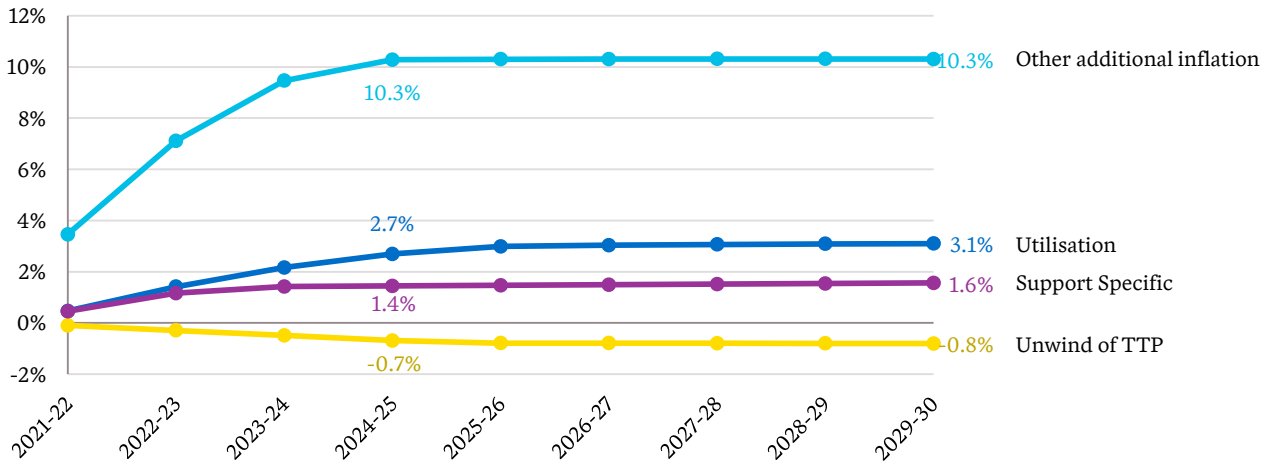

- **Cost assumptions.** The Scheme Actuary sets average cost size assumptions (i.e. average starting level of support payments per participant) for each support category, age group, disability type and level of function based on recent experience. This corresponds to 15 different payment assumptions for each of the 2,052 different cohorts. The average cost assumptions are largely based on experience during

the three months to May 2021. This is reasonable given the rapidly changing environment with costs escalating quickly and limited longitudinal data. Most support categories have appropriate assumptions, and although in some cases we would have selected different assumptions, in aggregate they are reasonable and capture recent trends. One minor point worth noting is that residential aged care costs have been removed from the assumptions and then applied as an overall loading onto projected Daily Activity payments. This distributes a small proportion of cost away from participants aged 45+ to younger clients, which may cause some small bias as the Scheme evolves.

- **Inflation assumptions**. Allowances are made for both price inflation and superimposed inflation (increases in average participant costs due to other factors). Price inflation is a mixture of CPI and wage inflation. A combined long-term rate of 3.2% p.a. represents a reduction from the 4% assumed in previous AFSRs. Price inflation assumptions are reasonable up to 2024-25, but beyond this we think that there is a non-trivial risk that at some stage over the subsequent five years rates for Daily Activities may increase at a faster pace due to the increasing demand for these services.

  The AFSR superimposed inflation assumption considers a range of factors explicitly, with the remainder falling in an 'other' component, which is highly material and carries high uncertainty. As shown in Figure 6 this component allows for a 10% cumulative increase in costs over the next four years above other inflation sources (light blue line), but with no allowance thereafter. Given recent trends (such as the growth in the volume and breadth of participant payments), the assumption is potentially low. In our opinion, it would take considerable operational effectiveness to avoid superimposed inflation from 2025 through to 2030.

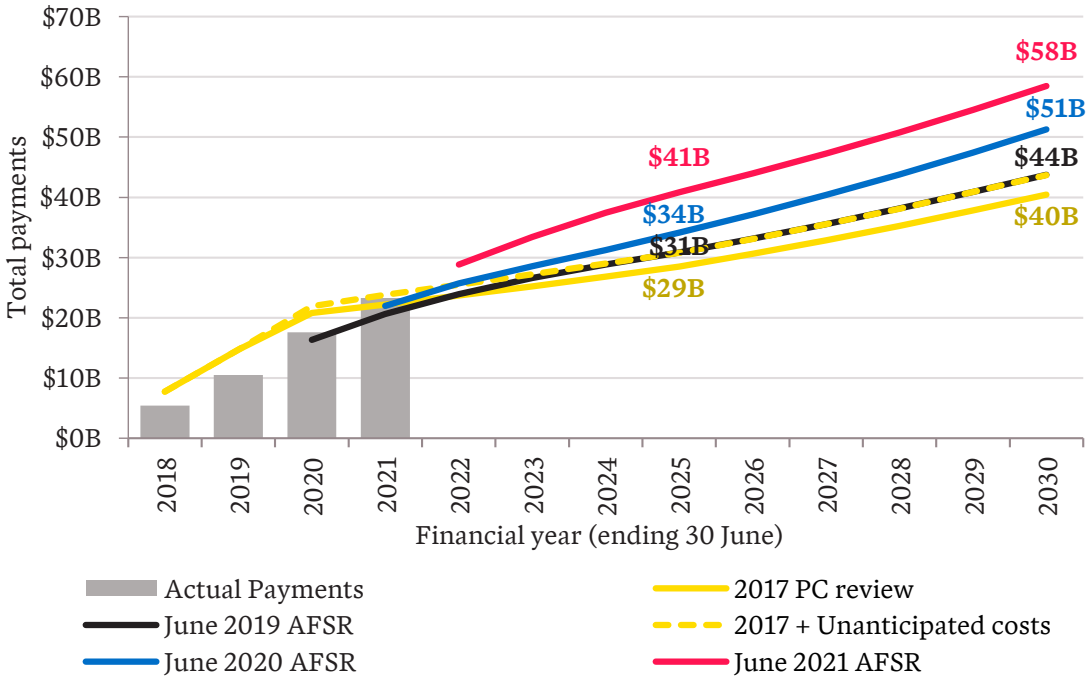
Figure 6 – Cumulative impact of superimposed inflation on total projected payments, 2020-21 AFSR



## Quantification of changes to Scheme forecasts of costs

We explore the drivers of change over time in Scheme forecasts. One way of doing this is by directly comparing 2020-21 AFSR forecasts with prior AFSRs, as well as other forecasts such as the 2017 Productivity Commission (PC) estimates. Figure 7 shows various Scheme forecasts, with 2024-25 and 2029-30 estimates highlighted. The analysis is performed based on projected cash payments rather than the accrued cost which is approximately 1.37% higher.

Figure 7 – Change in projected payments from different forecast models




After allowing for some unanticipated items (such as the National Injury Insurance Scheme not being operational and the inclusion of school transport costs), the 2017 PC and 2018-19 AFSR align closely. This is despite the two sets of projections having very different assumption bases with the PC estimates based on pre-Scheme estimates. For payments in 2024-25, the 2019-20 AFSR estimate is $3B higher than the 2018-19 estimate and in 2029-30 it is midway between the 2018-19 and 2020-21 AFSR forecasts.

Although there were more participants projected in the 2019-20 AFSR relative to the 2018-19 projection, the mix of participants was heavily weighted to less severe disabilities. This meant that after allowing for the new mix of participants, almost all of the increase from 2018-19 to 2019-20 related to higher assumed costs per participant.

Given the increase in projected costs is entirely captured by the gap between 2018-19 and 2020-21 AFSR estimates, we have focused most of our attention on the difference between these two projections. These projections also have comparable model structures so can be compared directly. The reasons for the changes between the 2018-19 and 2020-21 AFSR estimates are shown in Figure 8 and a reconciliation of the expected changes for 2024-25 and 2029-30 payments is given in Table 1.

Figure 8 – Change in projected payments from 2018-19 to 2020-21 AFSR estimates

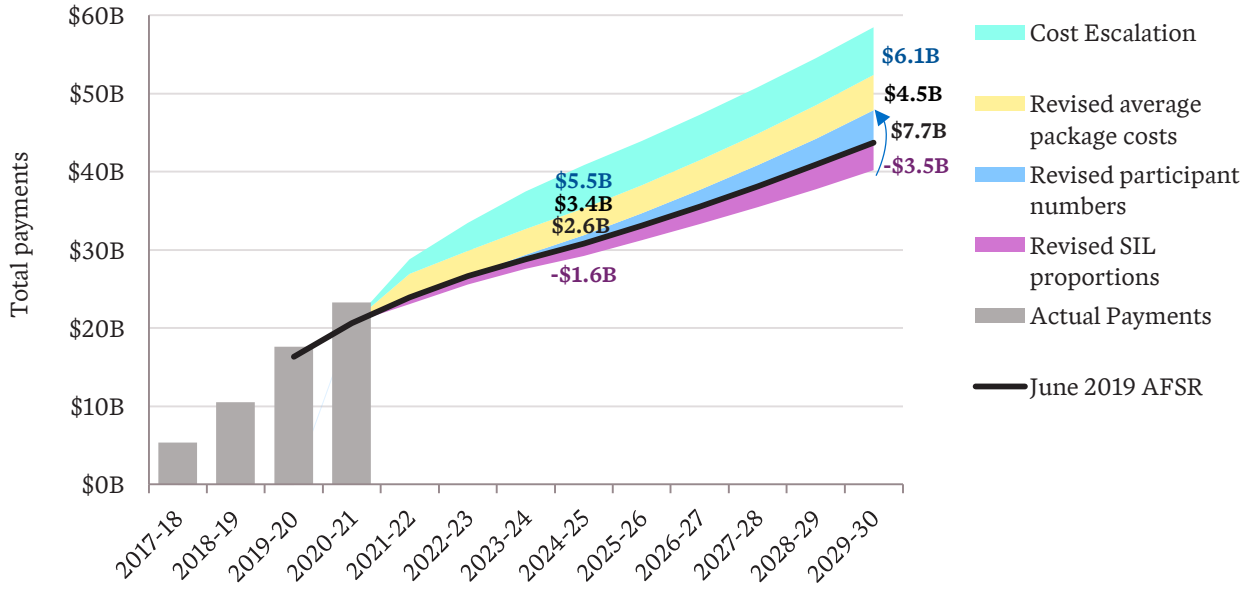



Figure note:

(a) SIL proportions refer to the assumptions for the proportion of people who receive payments for Supported Independent Living.

(b) Because the SIL proportion (purple area) is a reduction, the increase relating to revised participant numbers needs to be measured from the bottom of the purple area

Table 2 – Attribution of the changes in projected payments from 2018-19 to 2020-21 AFSR

| Item | 2024-25 estimate $B | 2029-30 estimate $B |
|---|---|---|
| 2018-19 AFSR | 30.8 | 43.7 |
| Participant numbers and characteristics (actuals and updated assumptions) | +2.6 | +7.7 |
| Number of people in Supported Independent Living and forecast growth | -1.6 | -3.5 |
| Participant costs – past experience to June 2021 | +3.4 | +4.5 |
| Participant costs – changes to future cost escalation | +5.5 | +6.1 |
| **2020-21 AFSR** | **40.8** | **58.5** |

The number of participants in the Scheme is projected to increase significantly from the 2019 estimates, being 23% higher at June 2025 and 35% higher by June 2030. However, most of these additional participants, especially those joining up to 2025, are expected to have low severity disabilities. Despite this most types of disability are expected to have more participants which has led to a $2.6B increase in the estimate of 2024-25 payments and a $7.7B increase for 2029-30.

Notwithstanding the increase in participants, a lower proportion of participants is expected to be in high-cost supported independent living arrangements which is expected to save the Scheme $1.6B in 2024-25 and $3.5B in 2029-30 compared to the payments estimated in the 2018-19 AFSR.

The increases attributable to participant costs can be split into:

- The cost escalation seen to date (up to 30 June 2021) is reflected in the higher average participant cost assumptions for each cohort. The flow-on effect from having higher costs to date compared to those estimated in the 2018-19 AFSR is an increase of $3.4B in 2024-25 and $4.5B in 2029-30.

- Assumed growth in payments beyond 30 June 2021. In 2029-30 the Scheme Actuary has assumed growth in average support costs over and above the 2019 allowances of $5.5B in 2024-25 and $6.1B in 2029-30.

Section 5 further breaks down the changes between different assumptions and cohorts, such as disability type.

Between June 2019 and June 2021 other forecasts of NDIS costs have been made, including the 2019-20 AFSR and the December 2020 interim AFSR. We have reproduced the NDIA's summary table of comparisons for convenience.

Table 3 – NDIS projected costs, accrual basis ($B)

| | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|---|---|
| Actual Costs (accrual) | 5.4 | 10.5 | 17.6 | 23.2 | | | | |
| 2017 PC estimates (including unanticipated costs) | | | 21.9 | 23.8 | 25.5 | 27.2 | 29.0 | 30.8 |
| June 2019 AFSR | | | 16.7 | 21.1 | 24.2 | 26.9 | 28.9 | 30.8 |
| June 2020 AFSR | | | | 22.3 | 26.1 | 28.9 | 31.4 | 34.3 |
| Dec 2020 AFSR | | | | | 28.1 | 32.9 | 36.9 | 40.7 |
| June 2021 AFSR | | | | | 29.2 | 33.9 | 38.0 | 41.3 |

Note: All numbers except final row taken from the June 2021 quarterly update. June 2021 numbers taken from the 2020-21 AFSR.

The June 2020 and December 2020 forecasts take values between the June 2019 and June 2021 levels, reflecting that some of the assumption changes observed between 2018-19 and 2020-21 AFSRs have been applied gradually over time. We have not performed a detailed analysis attributing assumption changes for the intermediate AFSR, but in broad terms:

- Most of the increase related to future **participant numbers** was applied in the December 2020 interim update; the long-term number of entrants was increased by roughly 50% and the short-term lowering of exit rates was applied.
- The increase related to rising **average package costs** has been recognised incrementally. These assumptions are tied to actual levels, which have generally been higher than expected at each timepoint.
- While individual components of **cost escalation** (inflation plus superimposed inflation) have varied over time, the largest increase was applied in the (June) 2020-21 AFSR, with smaller increases in the preceding reports.
- Much of the reduction related to **future SIL number assumptions** is concentrated in the 2020-21 AFSR, where a much lower growth trajectory is assumed.

We note other forecasts exist, such as those related to budget estimates and those from the Parliamentary Budget Office. We have not reviewed these in detail but understand that recent estimates lie between 2018-19 and 2020-21 AFSR numbers, so likely reflect gradual recognition of emerging experience.

## Sensitivity and scenario testing

Section 6 of our report includes sensitivity testing of key model assumptions. Future rates of new entrants and Scheme exit rates are important, particularly over the longer term (2029-30 estimates). Cost escalation assumptions will also materially affect future costs. We also note that the Scheme Actuary provides a range of scenario tests as part of their AFSR, which includes an estimate of the plausible range.

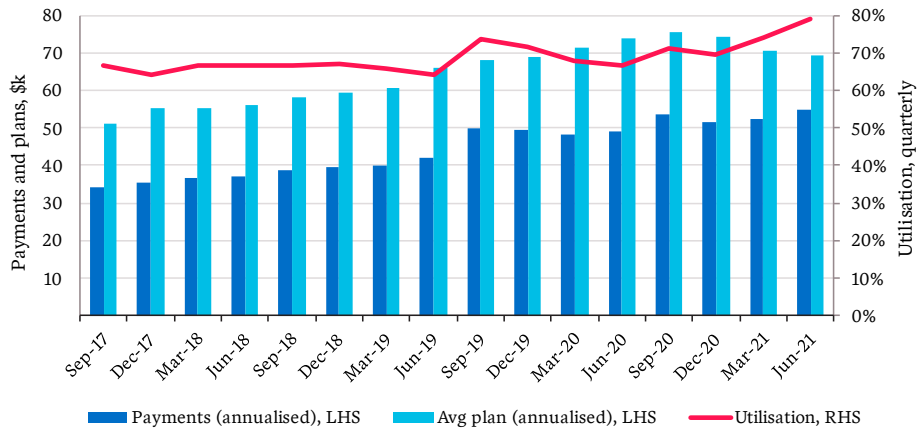
All forecasts carry uncertainty, and the sensitivity testing makes clear that the 2029-30 cost estimates are significantly more uncertain the 2024-25 estimates (about twice as variable). This uncertainty relates both to time horizon effects (longer-term is always hard) and Scheme maturity effects (likely changes in Scheme participant flows and pricing structures).

## Additional analysis

Section 7 of our report includes further analysis we have undertaken on aspects of the Scheme. To highlight some findings:

- **Trial regions** show a continued linear increase in the number of entrants from outside previous State and Commonwealth Schemes. Projecting this onto the broader population implies continued strong growth in numbers.
- NDIS numbers are comparable to those in the **ABS Survey of Disability, Aging and Carers (SDAC)** 'severe and profound' estimates for age groups under 25 and are projected to be much higher again by the end of 2024-25. But enrolments are lower than SDAC for ages over 25. The SDAC also echoes the increased rate of autism, particularly for young adults.
- **Multivariate analysis** shows strong increases in per participant Scheme costs by both duration (the length of time a person has been in the Scheme) and calendar effects (increases in payments over time for similar cohorts of people). It also implies that, assuming existing trends continue, duration-related growth is likely to persist.
- More **growth in payments** have come from those with lower payment levels in 2019-20. While people who had payments between $0 and $50k in 2019-20 represented a small fraction of overall Scheme costs, they had disproportionality large increases in 2020-21.
- **Utilisation rates** in 2020-21 were 89% for those with SIL and 68% for those without SIL. This leaves substantial headroom for payment increases even if plans are held steady.
- **Costs for participants over age 65**: The 2020-21 AFSR estimates that by 2024-25 the proportion of people in the Scheme aged over 65 doubles from 3.7% to 7.6%, and their payments grow from 6.5% to 13.6%. See Section 7.6. The approach used to perform this allocation appears reasonable.

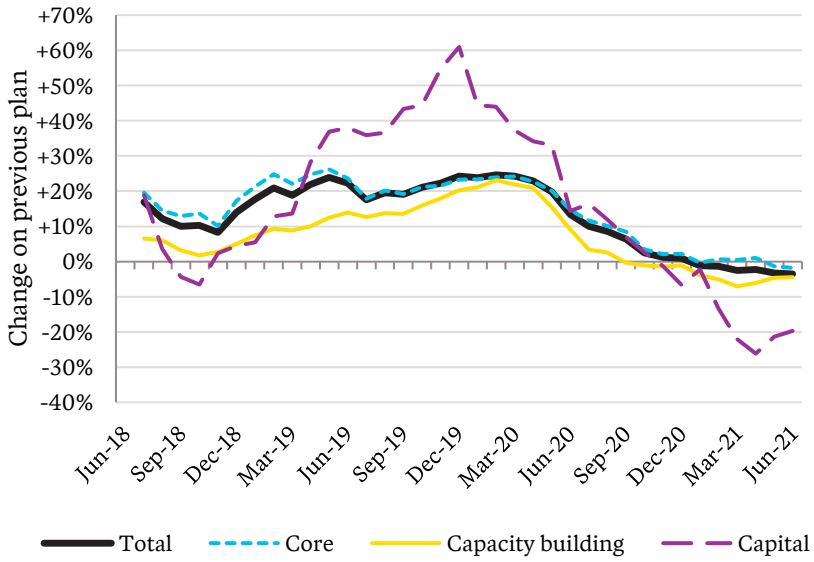
Figure 9 – Quarterly payments, plan, and utilisation rate




Note: Quarterly payments have been seasonally adjusted.

- While **plan size changes** have been only slightly negative in the second half of 2020-21, the result has been driven by larger reductions to the Capital and Capacity Building portions of plans.

Figure 10 – Change on previous plan for participants, split by broad payment type




Note: Figures are similar to, but don't exactly match, equivalent NDIS estimate such as those provided at Figure 70 in the NDIS September 2021 quarterly report due to slight differences in rules applied to compare successive plans. Specifically, NDIS business rules exclude plan auto-extensions and additional checks to exclude revoked or pending plans. NDIS estimates of capital changes are materially higher in the Mar-21 and Jun-21 quarters, being closer to zero.

- **Typical Support Plans (TSPs)** are a part of the planning process that give indicative estimates of participant package costs given their age, disability type and severity, plus adjustments from a set of questions exploring their support needs. When looking at TSPs, we have found:
  - Large variation between TSPs and Committed Supports (although some of this is to be expected).
  - Behavioural effects when committed supports sit above TSPs (such as plan sizes approaching the maximum level required before executive approval).
  - Significant growth in TSPs over time, echoing trends in committed supports.
  - Some reversion patterns, where people with a TSP significantly below the reference package (which does not allow for individual circumstances) often see an average final package closer to the higher reference package amount.
- Estimates of **scope changes to the NDIS** compared to the Productivity Commission's estimates are made in the 2020-21 AFSR.

## Consistency across the Scheme

The NDIS is characterised by individual-level variability. Much of this is by design; an uncapped suite of tailored supports is supposed to vary to reflect individual circumstances. This contrasts to other government Schemes where, subject to eligibility criteria, payments are broadly comparable across participants.

The variability in the Scheme means conclusions based on averages need to be treated with some care. Changes over time might be due to changes in participants' circumstances, or it could be a compositional effect as the mix of participants changes.

We also explore this variability over time and by location in Section 8.

- We believe the high rates of change in recorded disability severity and substantial increases to TSPs indicate a change, or 'drift', in the assessment of disability over time. That is, people are more likely to have higher recorded severity even if underlying functional severity has not changed by the same degree.
- Increasing volume and breadth of committed supports over time has translated to higher payments and a wider range of support categories being accessed by many participants, even for those whose functional level was unchanged. This may suggest a change in how 'reasonable and necessary supports' is being interpreted and how support needs are assessed. Some of this change might be appropriate (e.g. appropriate additional supports that participants were not previously aware of), but we are not in a position to make this assessment using current data.
- Scheme acceptance rates are high and have remained high for many disability groups. For other groups acceptance rates have moved down; some of this is to be expected as the transfers from State and Commonwealth Schemes subside.
- Application rates are higher in areas with lower socioeconomic scores, including regional areas. Acceptance rates tend to move in the opposite direction to application rates.
- Committed supports do not have a strong trend across socioeconomic levels or regional versus capital city splits. However, utilisation does vary; lower rates of utilisation in regional areas mean that average payments are lower for those participants.

## Implications

Although this report does not attempt to make policy recommendations that go beyond what we can see in the data, we take this opportunity to highlight a few areas that we believe are relevant to the question of long-term Scheme costs.

- **The value of improved, objective data.** A key limitation of our work, and one echoed in comments by the Scheme Actuary, is that it is hard to comment on aspects of the Scheme on the 'shifting sand' that is the current data collection. Much of this is related to reliable assessments of functional capacity over time. A Scheme where recorded capacity is consistently falling runs contrary to the aims of early intervention and capacity building. We support the collection of more robust objective data on functional capacity and participant support needs.
- **Scheme entry rates compared to the original design.** The largest driver of additional participant numbers compared to the original Productivity Commission estimates are children aged 0-14, many of whom enter under earlier intervention provisions. There is a question as to whether the increased scope of the NDIS for children compared to the original design is consistent with the current intent of the Scheme.
- **The planning process.** Individual planners are responsible for multiple steps in the planning process including updating the disability severity rating, assessing the typical support package amount, and assessing required mainstream and informal supports, ultimately leading to the final committed support package. This creates efficiency but reduces the level of cross-checking as to why the packages are changing and the justification for those changes. The link between higher severity and higher packages suggests the planning process has contributed to some of the recent joint trends in increasing severity and committed supports.
- **The role and evidence of early intervention.** Part of the NDIS design is that effective early intervention lowers lifetime support costs by building capacity. We have found little obvious evidence of increased supports leading to reductions in needs in subsequent years, although it may be too early to expect to see such reductions. Further, the process by which such future savings could be measured and assessed is unclear. Work to better understand the effectiveness of early intervention and capacity building in the NDIS would be valuable.
- **Scheme exits**. One NDIS aim, consistent with the idea of early intervention, is that many people would exit from the Scheme after receiving capacity-building supports. There is a question as to

whether the current level of exits is appropriate – in particular, that most children entering under early intervention remain in the Scheme for an extended period of time. We note that faster exits are possible – in 2018 and 2019 the ACT saw an exit rate five times higher than the national average for children with developmental delay, reflecting a concerted effort at the time.

We also identify some areas for additional work that this report cannot cover:

- We cannot judge 'value for money'; only that services have been delivered. Therefore, we cannot make any comments on the quality of services and the resulting benefits gained from those services.
- We cannot judge whether additional supports being added to participant plans over time are 'reasonable and necessary'. That is, whether additions represent previously unmet need or go beyond what was previously judged as 'reasonable and necessary'.
- We have not attempted to access microdata related to the ABS Survey of Disability, Aging and Carers (SDAC). This would be needed for more detailed reconciliation of prevalence data (to the extent possible by sample size).

Additional research, including qualitative work, would be valuable to explore these areas.

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# Introduction

# 1 Introduction

## 1.1 Background

The National Disability Insurance Scheme (NDIS) is a landmark reform that has provided support to nearly half a million Australians with a disability. Increasing Scheme costs are natural as the Scheme continues to approach maturity. However, recent years have had faster-than-expected escalation in costs. These trends have in turn been recognised by the Scheme Actuary. The 2020-21 Annual Financial Sustainability Report (AFSR) includes estimates significantly higher than those published previously, and higher again than the 2017 Productivity Commission estimation of NDIS costs. For instance, 2024-25 participant costs are forecast to be $41.3B. This is a 34% increase on the $30.8B estimate given in the 2018-19 AFSR.

This estimate is also higher than other recent estimates such as the Commonwealth 2020-21 Budget ($31.9B by in participant costs by 2024-25[3]) and the Intergenerational Report (1.3% of GDP, perhaps around $31B).

The review group, chaired by Victorian officials of the Department of Families, Fairness and Housing (DFFH) and comprising officials representing the Commonwealth, the NDIA and all states and territories, has commissioned Taylor Fry ('us') to:

- Assess the projections presented in the 2020-21 AFSR
- Explore why NDIS costs are greater than previous estimates, including the Productivity Commission's 2017 report into NDIS Costs.

## 1.2 Timeframe for the review

The engagement for this review commenced on 14 September 2021 with a final report to be provided by the end of November 2021. The timetable to conduct the review is:

- **14 September 2021 to 1 October 2021**: Initial review and interim report
- **2 October to 25 November**: Further analysis and final report.

### Interim report

Owing to the limited timeframe, the interim report, dated 8 October 2021, focused only on high-level issues and had preliminary conclusions.

### Final report

Since the interim report, we have conducted:

- Further analysis on the overall reasonableness of the projections
- Further analysis on drivers and the potential for alternative assumptions
- Investigations into key assumptions
- Discussions on our results with the Scheme Actuary and the technical advisory group.

This final report is now based on the complete set of analyses.

[3] Table 6.9.2 of Budget paper No. 1. Of the $33.3B total, about 96% relates to participant costs

## 1.3 Status of this report

This report is the final version the full report and replaces all previous drafts.

## 1.4 Structure of this report

We have based our analysis on the 2020-21 AFSR and payment data to June 2021. This report contains two main sections, with Part A being a review of the Scheme Actuary's projection model and Part B analysing the key drivers of Scheme cost increases, both historically and into the future. Part B also contains some scenarios that quantify how sensitive the projected payments are to changes in key assumptions.

The 2020-21 AFSR has been publicly released and contains a significant amount of detail around approach, analysis and results. We have not attempted to reproduce all relevant material from that report, so interested readers may choose to read our report jointly with the 2020-21 AFSR.

## 1.5 The challenge of projecting the cost of the NDIS

It is important to recognise that the NDIS was launched with significant uncertainties attached to long-term costs.

- While the number of people supported by state and territory disability schemes was known, the NDIS is broader in eligibility. Good statistics did not exist (and indeed, still do not exist) around what the maximum eligible population is as a fraction of the Australian population. Threshold questions are also difficult to assess, with many disabilities existing on a spectrum.
- The concept of individualised supports that are 'reasonable and necessary' represents a departure from previous funding models, which were often capped. There were significant uncertainties around how this approach would translate into average package sizes.

This means that it is not surprising that experience differs from initial expectations.

One important related effect is that of anchoring. In the early years of the Scheme there was still limited evidence on ultimate trends in participant numbers and average participant costs. In the face of limited evidence of change, model assumptions are often set to be consistent with previous estimates. So, it is equally unsurprising that it takes time to recognise cost pressures and reflect these in financial projections.

These issues are combined with the natural uncertainty of a Scheme that is still maturing. Table 1.1 summarises the rapid growth in Scheme numbers and payments. There is judgement required in assessing how quickly such growth will stabilise.

Table 1.1 – Summary of Scheme growth

| Item | 2017-18 actual | 2018-19 actual | 2019-20 actual | 2020-21 actual |
|---|---|---|---|---|
| Number of participants (end of year) | 172,333 | 286,015 | 391,999 | 466,619 |
| Average cost per participant | $38,900 | $42,400 | $50,800 | $54,300 |
| Total participant costs (accrual) | $5.4B | $10.5B | $17.6B | $23.2B |

Source: NDIS June 2021 quarterly report

## 1.6 What does financial sustainability mean?

As described in the NDIS's 2016 Insurance Principles and Financial Sustainability Manual[4], under s118(1b) of the NDIS Act, the NDIA is responsible "to manage, and to advise and report on, the financial sustainability of the National Disability Insurance Scheme including by:

(i) regularly making and assessing estimates of the current and future expenditure of the National Disability Insurance Scheme; and

(ii) identifying and managing risks and issues relevant to the financial sustainability of the National Disability Insurance Scheme; and

(iii) considering actuarial advice, including advice from the Scheme Actuary and the reviewing actuary;"

In addition, the remainder of s118(1) legislates a range of other functions for the NDIA regarding matters such as:

- independence, social and economic participation and choice and control for people with a disability
- the provision of high quality and innovative supports
- the development and enhancement of the disability sector
- the development of community awareness of disability and the social contributors to disability
- undertaking research into disability, disability supports and social contributors to disability.

Failure to successfully undertake these functions is likely to put pressure, including financial pressure, on the Scheme.

Therefore, at one level, the NDIS will have satisfied its functions and the NDIS will be sustainable (including financially sustainable) provided that both participants (people with disability) and financial contributors (Governments/taxpayers) continue to believe that it is worthwhile.

The financial dimension to this is likely to involve:

- participants believe that they are getting enough money to buy enough high-quality goods and services to allow them reasonable access to life opportunities, and
- contributors think the cost is affordable, under control, represents value for money and therefore remain willing to contribute what is needed.

Ultimately the NDIS is sustainable if the cost is willingly borne by governments and taxpayers. We do not attempt to make this judgement in our report.

More pragmatically, unanticipated growth in Scheme costs will create fiscal pressures that require funding. This means that growth needs to be understood so it can be managed. This includes exploring issues such as:

- The number of people eligible for the Scheme entering over time, and the rate of exit from the Scheme
- The size of packages approved for participants
- The role of price increases versus other types of cost escalation
- Whether increased spending represents value for money
- Any broader social or economic benefits that may result from the supports provided by the Scheme.

Our focus, while relevant to the consideration of financial sustainability, is on the topic of Scheme costs. We have not assessed the impact of the Scheme on lifetime benefits and costs of the supports on participants, their families, or society more broadly.

[4] https://www.ndis.gov.au/media/833/download?attachment

## 1.7 Data provided

We have been provided the following data:

- De-identified unit record data pack which includes the following datasets, as at Jun-21:
  - Access requests: Information on plan approvals, access entry type, exits, etc.
  - Participant demographic: Information on participant's age, gender, residence, activeness status, disability type, functional level, etc.
  - In-kind payments: Information on date and payment amounts
  - Payments: Information on support category, payment date, status and amount
  - Plan support: Information on plan effective dates, SIL indicator, budget amount by support category, etc.
  - Data dictionary defining the terms in the unit record data.
- Annual snapshots of unit record patient demographic dataset from Jun-17 to Jun-21
- AFSR model packs from Jun-16, Jun-18, Jun-19, Dec-19, Jun-20, Dec-20 and Jun-21 reviews which include:
  - Key assumptions, participant number and cost projection workbooks
  - Snapshot summaries of key information (in Dec-20 and Jun-21 AFSR packs only)
  - Scenario analysis workbooks (not in Jun-16 AFSR pack).
- NDIA's analysis on changes in level of functionality over time
- Mapping between level of functionality and severity score by disability type
- Breakdown of superimposed inflation from the 2018-19, 2019-20 and 2020-21 AFSR
- Jun-21 snapshot with young people in residential aged care indicator flag
- Summary data on participants who entered via s25, as at 30 June 2021
- Assumed monthly seasonality factors for new participant entries and payments for 2021/22
- Reference package cost mapping for FY 2020/21
- NDIA's report on Participant Level of Function and Primary Disability Type Change Analysis dated 30 September 2019
- NDIA's report on New Incidence Rates Analysis as at Dec-20 and Jun-21
- NDIA's report on Disability-Related Health Supports dated June 2020
- NDIA's report on NDIS implementation and Productivity Commission costing
- NDIA's report on Reference Package and Guided Planning Framework Review dated Apr-18
- NDIA's reports on analyses on exits, new incidences and payments as at Dec-19

Over the course of the review, the Scheme Actuary has also provided responses and analysis to a range of questions that we have raised.

## 1.8 Reliances and Limitations

In performing the analysis, we have relied on the accuracy of the data and although we have performed detailed checks and reconciled most key aggregates, we have not independently audited it. We have no reason to believe the data is not reliable, but our analysis and conclusions rely on its accuracy. If the data is not complete or is inaccurate, the conclusions set out in this report may need to be altered.

This report has been prepared for the use of State, Territory and Commonwealth governments as an independent review of the 2020-21 AFSR financial projections performed by the NDIS Scheme Actuary. It should not be used for any other purpose. This report should be read in conjunction with the 2020-21 AFSR as it provides further details and context related to Scheme experience and assumptions.

# A

# Understanding the Scheme Actuary's model

# 2 Overall assessment of the 2020-21 AFSR financial projection

In assessing the 2020-21 AFSR financial projections we have looked at:

- The suitability of the model structure itself
- The process and selection of assumptions at various points of the model
- Drivers of change over time and how these have been reflected in the AFSR assumptions over time
- Sensitivities and uncertainties in the assumption-setting process
- Trends and features that are apparent in the underlying data.

Each of these aspects is described in more detail in subsequent sections. However, we give an overall opinion here that points to some of the most material considerations.

First, we note that the AFSR includes both a point ('baseline') estimate and a plausible range. The baseline estimate of participant costs (on an accrual basis) in 2024-25 is $41.4B, which lies in the estimated plausible range of $39.0B to $47.8B. These are shown in the table and figure below. 'Plausible range' does not have an explicit statistical interpretation but is intended to provide a range in which future costs are likely to occur. We also note that the current baseline estimate for 2024-25 sits outside the range of scenarios considered in the 2018-19 AFSR, indicating that actual payments are not guaranteed to fall in the plausible range.

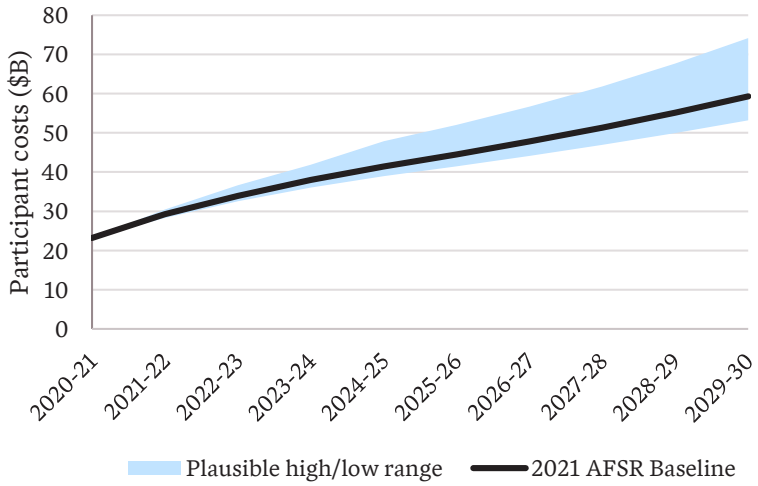
The plausible range is driven by scenario testing which in turn is dominated by the scenario that modifies cost escalation assumptions over the short-term. The 'high' case assumes that cost escalation observed over the past three years persists for the next two years, and the 'low' case assumes that cost escalation settles to the long-term rate one year earlier than the baseline.

Table 2.1 – AFSR 2020-21 baseline estimates and plausible range ($B, accrual basis)

| Scenario | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2029-30 |
|---|---|---|---|---|---|
| Baseline projection | 29.2 | 33.9 | 38.0 | 41.4 | 59.3 |
| Plausible low case | 28.3 | 32.5 | 36.0 | 39.0 | 53.2 |
| Plausible high case | 30.5 | 36.6 | 41.9 | 47.8 | 74.2 |

Note: This accrual basis is consistent with the AFSR presentation. Cash basis is about 1% lower ($40.8B in 2024-25 and $58.5B in 2029-30 for the baseline scenario) and is used for detailed modelling such as results presented in Section 5.

Figure 2.1 – Baseline estimates and plausible range, 2020-21 AFSR ($B, accrual basis)



Some important comments on these forecasts:

- The baseline estimates are set using assumptions that the Scheme Actuary judges to be most appropriate. They carry more upside risk than downside risk (see Section 6.1 of the 2020-21 AFSR), meaning that baseline estimates sit towards the lower end of the plausible range. In this sense the baseline estimate is not a statistical average of future costs which also means there is a greater chance of underestimating costs than overestimating[5].
- The plausible range is relatively large. For 2024-25 the range is $8.9B, about a fifth of the baseline estimate. This reflects a high degree of uncertainty in some assumptions. Cost escalation assumptions dominate this uncertainty in the short-term, but participant numbers are a significant source of longer-term uncertainty.
- The plausible range grows in width as the time horizon lengthens. The range as a fraction of baseline estimates rises from 21% in 2024-25 to 35% in 2029-30. Uncertainty in assumption-setting compounds over time, creating an expanding 'funnel of doubt'.

**Overall, we find that that baseline estimates may represent a moderate underestimate of the expected value of future costs. The plausible ranges set out in the AFSR 2020-21 are reasonable.**

While this report does not seek to introduce a new estimate of NDIS costs to compete with those already in circulation, we regard the middle of the AFSR plausible range as a better guide to expected Scheme costs.

In coming to our judgement of a likely moderate underestimation, we acknowledge the high degree of uncertainty but believe a number of factors will lead to further upwards cost pressure:

- Long-term entry numbers have been set at 60,000 a year (plus an adjustment for population growth) in the 2020-21 AFSR, a significant increase on previous reviews. This increase seems justified given the recent entry numbers, ongoing high enrolment numbers in trial regions and shifts in prevalence rates. The adopted rate sits below the entry rates recently seen (70,000 in 2020-21 excluding those transferring from State and Commonwealth programs) and appears reasonable. Beyond 2024-25 there is both upside and downside risk; it may be that new entrant numbers plateau, on the other hand, disability prevalence as implied by the number of participants in the Scheme may continue to rise.
- Longer-term non-mortality exit rates have been set at three times the current exit rate. Without a concerted effort and new initiatives, this appears unlikely to occur.
- Base inflation (relating to the prices paid for goods and services) has been reduced from 4% p.a. to 3.2% p.a. in the 2020-21 AFSR, with close to no allowance for 'superimposed inflation' above this level beyond 2024-25. While 3.2% p.a. is plausible, it does not represent the mid-range of potential cost escalation scenarios; there is a material likelihood that increasing demand for additional services (either breadth or volume), plus the potential for wages to grow faster than 3.5%, means that we would adopt a higher rate in the later years.
- The superimposed inflation assumption incorporates a range of potential cost drivers. It encompasses duration effects (people learn to use the plans more effectively over time), functional ability changes (a significant portion of the Scheme population is recorded as moving to a lower level of functional ability) and changing volumes and breadth of supports. More generally, there is minimal allowance for superimposed inflation from 2025-26 onwards which assumes very tight Scheme management will be able to be maintained for many years, and therefore we consider the current allowance to be on the low side.

Impacts of varying specific assumptions are explored in Section 6.2.

The baseline estimate potentially being a moderate underestimation of future costs is based on the current operating model of the Scheme and does not allow for potential operational changes that may alter the

[5] Strictly speaking, the average of future costs combines both the likelihood of underestimation versus overestimation and the likely size of these differences.

growth trajectory. Future changes to the Scheme would obviously have implications for the forecasts. In our opinion, the three key areas where the NDIA has some degree of control and which will determine future costs are: the number of participants entering and leaving the Scheme, growth in committed supports and prices paid for services. Of these, controlling the rate of growth in committed supports may have the largest and most immediate impact on Scheme costs, while recognising that packages should continue to meet the reasonable and necessary support needs of participants. See also Section 3.5, which shows some evidence that growth in committed supports is moderating. Increases and decreases in plans must reflect the changing needs, health and independence of participants which organisationally will require improved consistency in decision making, a strong monitoring framework and processes that are sustainable into the future.

We further discuss the implications of our analysis in Section 9 – *Implications.*

Our conclusion means that we are confirming a large increase in future Scheme costs compared to previous estimates. We also make the point here that some of the higher Scheme costs are effectively 'locked in', even with policy and operational responses. For example, suppose we assume:

- Plans only increase with inflation (3.2%, a blend of price and wage components), and
- Existing participants remain in the Scheme and increase their plan utilisation by 10 percentage points.

Then 2024-25 costs would be expected to be $32B before any allowance for new Scheme entrants. Therefore, we believe that the plausible range sits above baseline estimates made previously, such as the 2018-19 AFSR.

# 3 Assessment of the Scheme Actuary AFSR model structure

## 3.1 Description of the model

This section describes how the actuarial estimates of Scheme cost are constructed. The projection extends for 20 years, although natural uncertainty means that later years carry far greater uncertainty, but they are useful for seeing the impact of continued action of model assumptions.

The model itself is implemented in three spreadsheets (assumptions, participant numbers and costs). A core part of the structure is the splitting of participants into cohorts, with separate assumptions (e.g. average payments per year) set for each. The main splits are:

- Disability-severity groups – There are 15 disability groups, each of which are split into somewhere between 1 and 9 subgroups based on assessed severity (or functional capacity). These are summarised in the figure below.
- Age groups – Nine age groups, including 3 for those under 18: 0-6, 7-14, 15-18, 19-24, 25-34, 35-44, 45-54, 55-64 and 65+.
- Gender – 2 groups
- Indicator for Supported Independent Living – 2 groups.

Multiplying these gives **2,052 cohorts**, for which assumptions such as numbers and size are then set. While many assumptions are set for all 2,052, some are shared (e.g. some assumptions might be consistent across gender).

Figure 3.1 – Severity thresholds for cohort splitting in the AFSR

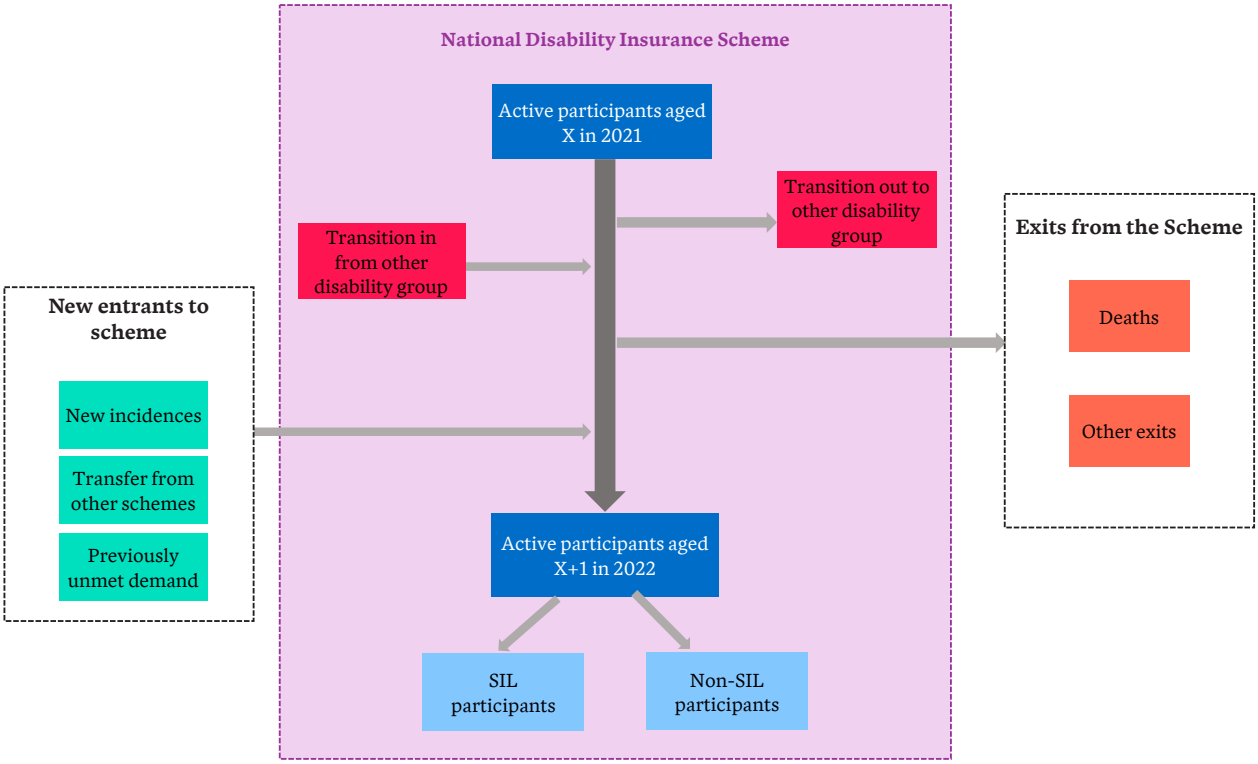
| | Band 1 | Band 2 | Band 3 | Band 4 | Band 5 | Band 6 | Band 7 | Band 8 | Band 9 |
|---|---|---|---|---|---|---|---|---|---|
| **Acquired Brain Injury (ABI)** | 1-4 | 5-7 | 8 | 9 | 10-11 | 12-13 | 14-15 | | |
| **Autism** | 1-5 | 6-9 | 10-11 | 12-15 | | | | | |
| **Cerebral Palsy** | 1 | 2-6 | 7-10 | 11-15 | | | | | |
| **Hearing Impairment** | 1-5 | 6-15 | | | | | | | |
| **Intellectual Disability** | 1-5 | 6-8 | 9-11 | 12-15 | | | | | |
| **Multiple Sclerosis** | 1 | 2-5 | 6-8 | 9 | 10-11 | 12-15 | | | |
| **Delay** | 1-8 | 9-15 | | | | | | | |
| **Other** | 1-15 | | | | | | | | |
| **Other Neurological** | 1-8 | 9-11 | 12-15 | | | | | | |
| **Other Physical** | 1-8 | 9-11 | 12-15 | | | | | | |
| **Other SensorySpeech** | 1-15 | | | | | | | | |
| **Psychosocial disability** | 1-2 | 3-7 | 8-9 | 10-11 | 12-15 | | | | |
| **Spinal Cord Injury** | 1-4 | 5-7 | 8 | 9 | 10-11 | 12 | 13 | 14 | 15 |
| **Stroke** | 1-3 | 4-9 | 10-12 | 13-15 | | | | | |
| **Visual Impairment** | 1-4 | 5-15 | | | | | | | |

The first stage of the model is a projection of participant numbers. This is a flow-based model where the population is split into individual age years and 'aged' through the projection years. This means that within each of the 57 disability-severity-gender groups, assumptions are applied relating to:

- **Natural aging** of participants where cohorts move up in age every year
- **Exits from the Scheme** due to deaths, eligibility being revoked and other reasons
- **New entrants to the Scheme** arising from new incidences of disabilities, participants transitioning from state and Commonwealth schemes, and previously unmet needs
- **Selected transitions between disability groups** – Participants, already within the Scheme, transitioning in and out of disability types (applicable only for developmental delay, autism and intellectual disabilities).

Once projected, the total number of active participants in each year is separated into supported independent living (SIL) and non-SIL categories using assumptions around future SIL proportions.

Figure 3.2 – Participant numbers flow model for each Disability-severity-gender group




The second step is applying average cost assumptions. There are 15 support categories (spread across core supports, capital and capacity building groups). For each of the 2,052 cohorts a starting level of average payments is set (based on recent history).

Table 3.1 summarises the allocation of 2020-21 payments to different support categories. Core services related to Daily Activities and Social Community Civic were 73% of payments during 2020-21, which increases to 85% after including CB Daily Activities. The extent to which these three costs increase will have a large bearing on total future payments and will therefore be areas of focus for this report. While capital purchases can be expensive and may be potentially higher recently due to the large number of new joiners than they will be once participants numbers stabilise, they represent only 3.5% of payments and are not a large cause of higher projected payments.

Table 3.1 – List of Support categories for payment models

| | Support Category | % of payments in 2020-21 |
|---|---|---|
| **Core** | Consumables | 1.9% |
| | Daily Activities | 56.1% |
| | Social Community Civic | 17.0% |
| | Transport | 2.9% |
| **Capital** | Assistive Technology | 2.4% |
| | Home Modifications | 1.0% |
| **Capacity building (CB)** | CB Choice Control | 1.3% |
| | CB Daily Activities | 12.2% |
| | CB Employment | 0.9% |
| | CB Health Wellbeing | 0.2% |
| | CB Home Living | 0.0% |
| | CB Lifelong Learning | 0.0% |
| | CB Relationships | 0.9% |
| | CB Social Community Civic | 0.5% |
| | Support Coordination | 2.6% |

To each average payment amount two inflation assumptions are applied to increase over the projection years:

- **Inflation** –This is the expected change in prices for NDIS-funded services (which may differ from other inflation measures such as CPI or wage growth).
- **Superimposed inflation** – Cost escalation beyond standard inflation. We understand that this allowance is mainly aimed at capturing growth in costs which is not attributable to price increases, for example increased volume of services, higher utilisation of packages, or a shift to more expensive service items.

These inflation assumptions vary (somewhat) by support category but are otherwise constant across different cohorts (so superimposed inflation for daily activities is assumed to be the same for different disability types and age groups).

A summary list of assumptions, and what groups they vary over, is provided at the start of section 4.

The numbers and average payment sizes (for 2020-21) for the 57 disability-severity cohorts are shown below for convenience. Apart from some volatility in the smaller cohorts, payment levels increase with severity band in a natural way.

Figure 3.3 – Numbers in disability-severity bands, June 2021

| | Band 1 | Band 2 | Band 3 | Band 4 | Band 5 | Band 6 | Band 7 | Band 8 | Band 9 |
|---|---|---|---|---|---|---|---|---|---|
| Acquired Brain Injury (ABI) | 323 | 1,307 | 1,528 | 447 | 3,437 | 7,221 | 657 | | |
| Autism | 28,369 | 85,497 | 9,370 | 28,197 | | | | | |
| Cerebral Palsy | 1,097 | 4,948 | 2,204 | 8,323 | | | | | |
| Hearing Impairment | 17,195 | 5,168 | | | | | | | |
| Intellectual Disability | 16,431 | 29,246 | 21,908 | 23,726 | | | | | |
| Multiple Sclerosis | 18 | 844 | 1,438 | 1,480 | 1,878 | 2,870 | | | |
| Delay | 46,061 | 1,172 | | | | | | | |
| Other | 3,760 | | | | | | | | |
| Other Neurological | 4,751 | 4,312 | 10,435 | | | | | | |
| Other Physical | 7,892 | 4,627 | 6,098 | | | | | | |
| Other SensorySpeech | 2,778 | | | | | | | | |
| Psychosocial disability | 96 | 8,443 | 9,920 | 15,123 | 0 | | | | |
| Spinal Cord Injury | 487 | 239 | 690 | 391 | 1,432 | 1,005 | 222 | 549 | 119 |
| Stroke | 76 | 1,389 | 4,719 | 771 | | | | | |
| Visual Impairment | 4,038 | 5,019 | | | | | | | |

Figure 3.4 – Average payments by disability-severity cohort, 2020-21, rounded

| | Band 1 | Band 2 | Band 3 | Band 4 | Band 5 | Band 6 | Band 7 | Band 8 | Band 9 |
|---|---|---|---|---|---|---|---|---|---|
| Acquired Brain Injury (ABI) | 16,200 | 28,600 | 38,300 | 83,400 | 79,400 | 165,700 | 350,800 | | |
| Autism | 10,600 | 17,400 | 45,600 | 83,000 | | | | | |
| Cerebral Palsy | 12,300 | 24,900 | 60,500 | 205,400 | | | | | |
| Hearing Impairment | 4,800 | 15,000 | | | | | | | |
| Intellectual Disability | 20,800 | 44,700 | 90,100 | 162,700 | | | | | |
| Multiple Sclerosis | 8,000 | 15,000 | 24,500 | 39,700 | 61,700 | 163,200 | | | |
| Delay | 9,300 | 21,600 | | | | | | | |
| Other | 71,300 | | | | | | | | |
| Other Neurological | 22,100 | 56,800 | 159,600 | | | | | | |
| Other Physical | 19,900 | 46,800 | 100,200 | | | | | | |
| Other SensorySpeech | 7,600 | | | | | | | | |
| Psychosocial disability | 33,000 | 22,500 | 33,900 | 58,400 | 93,300 | | | | |
| Spinal Cord Injury | 53,000 | 30,100 | 56,400 | 106,100 | 112,000 | 156,300 | 218,800 | 283,800 | 505,700 |
| Stroke | 10,900 | 30,300 | 103,100 | 241,100 | | | | | |
| Visual Impairment | 18,200 | 39,800 | | | | | | | |

## 3.2 Overall view of the model structure

An appropriate model structure should enable:

- Good predictions of aggregate future cost
- Useful splits of future costs, including projected numbers and average payments for important cohorts
- Identification and allowance for important drivers of cost
- Assumptions that reflect Scheme drivers and have reasonable basis for selection

At the same time, a modeller needs to balance the complexity of the model with the additional time it takes to create this.

Ultimately, any model that includes assumptions for Scheme numbers and average participant costs can be viewed as 'good enough' if suitable assumptions are made around growth in these two components. A careful choice of superimposed inflation can allow for the material factors not built into the model. Better models can facilitate this process – for instance, a model with explicit Scheme duration effects would not need an implicit adjustment to be made to superimposed inflation.

In our opinion, the current structure of the model is largely appropriate and should be increasingly appropriate as the Scheme matures. Indeed, as we have found in Section 2, it produces estimates that lie within a plausible range.

There are aspects of the current structure that make assumption setting difficult. The most relevant are:

- No explicit assumption of future movement between levels of functional ability. This creates an inconsistency (historical movements are recognised and make comparisons more difficult) and creates greater dependence on an adequate superimposed inflation assumption.
- The model projects participant numbers independent of the prevalence rate it implies. Under the current assumptions there is indefinite growth in participant numbers as a proportion of the Australian population. While the high entry rates are consistent with experience and appropriate for the next few years (based on trial site and broader prevalence data), in later years this assumption does not allow NDIS participation to stabilise as a fraction of the Australian population. Participant numbers aged 0-64 are projected to grow from 2.1% to 3.5% of the relevant population by 2030 and keep growing beyond that.
- The model is highly dependent on assumptions for 'unanticipated superimposed inflation'. This must allow for factors[6] such as
  - Higher volumes and broader range of goods and services accessed by participants
  - Increased utilisation of packages by participants
  - Price increases beyond standard CPI and wage inflation, including quality-related improvements
  - Transitions to lower level of functional ability
  - Changes in the proportion of cohorts accessing SIL and specialist disability accommodation (SDA)
  - Duration effects (e.g. participant packages tend to increase at a faster rate in the first few reviews)
  - Participants becoming less reliant on informal care supports over time
  - Cross-sectional effects (e.g. participants aging into older age bands without assumed consequential changes in costs)

[6] We note some of these factors are overlapping, as in separate estimates for each would include some double counting.

Cost escalation for continuing participants has been about 12% p.a. higher than projected for the past two years[7]. By comparison, the total allowance for other additional inflation is 14% over the next four years (about 3.5% p.a.).

With the benefit of hindsight, the modelling approach may have been a contributing factor to the underestimation of Scheme costs in past AFSRs (relative to current forecasts). Model structures that work well in a mature Scheme struggle to handle the rapid changes observed. This underestimation would then come through as regular upward revisions as assumptions around the number of people in lower-function groups, higher proportions in SIL for some groups, or higher starting points for average payments are recognised. This appears consistent with the recent past.

An alternative structure is a more person-centred model, where existing supports become the starting point for estimating what costs will be next year, at either an individual or cohort level (e.g. cohorts could be defined based on payment levels). Such an approach is adopted for many of the motor-injury lifetime care Schemes which were set up in parallel to the NDIS. This does not solve all issues; there are still uncertainties related to the distribution of new entrants and some aspects of cost escalation. But it gives a more direct way of understanding year-on-year increases unhindered by the current cohort definitions.

Another alternative is to explicitly build more complexity into certain elements of the model likely to have a larger impact on the projection; for instance, explicit increases associated with recorded changes to severity levels, the number and cost of SIL assumptions, or cost assumptions for low function groups.

We discuss the bullet points above in detail in the following subsections. Additionally, we have listed further structural items in Section 3.6, with relevant detail in Appendix B.

Verifying model forecasts requires assessing both the model structure and the corresponding assumptions. Our review of assumptions is given in Section 4. These taken together with model structure considerations have led to our conclusions in Section 2.

## 3.3 Handling of movement between levels of functional ability

Each disability-function subgroup is modelled as an independent cohort (with the exception of some movements out of the Developmental Delay into Intellectual Disability and Autism groups). This means that the observed movements between functional groups[8] are not reflected as part of the model structure.

This affects movements between the functional bands in the AFSR model. Average transition rates to a higher severity band are shown in Figure 3.5. The rates are high – we estimate that overall, 12% of participants move up a band and about half that number move down a band. For example, 32% of ABI level 3 participants (top row of Figure 3.5) increased to severity level 4, 5 or 6 over the past two years.

[7] We note the NDIS calculates a somewhat lower historical value for total inflation based on cohort-level changes in payments.

[8] See addendum 1 of the NDIS June 2021 quarterly report

Figure 3.5 – Average transition rates to a higher severity band, all participants in 2020 and 2021

| | Band 1 | Band 2 | Band 3 | Band 4 | Band 5 | Band 6 | Band 7 | Band 8 | Band 9 |
|---|---|---|---|---|---|---|---|---|---|
| Acquired Brain Injury (ABI) | 35% | 34% | 32% | 24% | 20% | 3% | | | |
| Autism | 30% | 7% | 15% | | | | | | |
| Cerebral Palsy | 20% | 13% | 15% | | | | | | |
| Hearing Impairment | 6% | | | | | | | | |
| Intellectual Disability | 30% | 17% | 14% | 0% | | | | | |
| Multiple Sclerosis | 41% | 26% | 26% | 22% | 16% | | | | |
| Delay | 2% | | | | | | | | |
| Other | | | | | | | | | |
| Other Neurological | 24% | 26% | | | | | | | |
| Other Physical | 14% | 16% | | | | | | | |
| Other SensorySpeech | | | | | | | | | |
| Psychosocial disability | 44% | 28% | 24% | 13% | | | | | |
| Spinal Cord Injury | 21% | 31% | 18% | 11% | 12% | 9% | 2% | 1% | |
| Stroke | 43% | 21% | 4% | | | | | | |
| Visual Impairment | 16% | | | | | | | | |

We agree with the view of the Scheme Actuary that the bulk of the transitions are not related to genuine deterioration in function; it is unlikely that a large number of people would see such a rapid decline in function due to their disabilities. So, the changes are either:

- Improved functional assessment – in some cases a revised functional assessment may improve on an initial one
- Behavioural – a revised functional rating may make it easier for planners to justify an increase to an approved package. We discuss the package review process further in Section 7.5.

Even if this is the case, the movement as recorded in the data represents a source of cost escalation, and future movements are not explicitly recognised by the projection model. We have confirmed that participants moving bands had significantly higher cost increases; for instance, people in psychosocial bands 2 or 3 who have been in the Scheme since June 2019 and moved to a higher band in 2021 saw a 55% increase in payments between 2020 and 2021, compared to 25% for those who remained in those bands.

There is also an inconsistency in treatment. Historical changes in functional level are recognised (people are projected according to their June 2021 status), whereas future changes are only recognised through superimposed inflation. This means that projected numbers of people within each functional band cannot be directly compared with actual values.

The issue also affects the calculation of other components as cohort-based superimposed inflation estimates will understate the degree of cost escalation if it does not properly allow for the movement between groups.

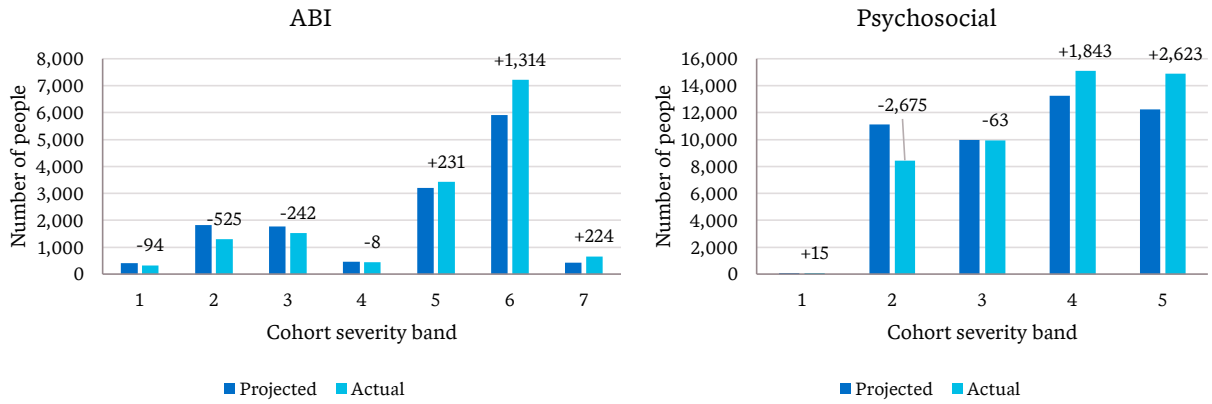
We have tested the impact of the changes in function over time. A naïve estimate of impact (multiplying average payments within each cohort allowing for the transition rates) suggests that the transition behaviour could add 2-3% to Scheme cost growth per year. Some of this may be implicitly allowed for in superimposed inflation assumptions but this appears to have been a genuine dynamic contributing to increasing costs.

We can also test the impact of the transition behaviour via a back-test. Suppose we:

- Start with the actual numbers of people at 30 June 2017
- Use actual entries over the next four years
- Use the AFSR model assumptions to project forward participant numbers.

We can then see how well the model reproduces the actual numbers at 30 June 2021.The figure below shows the results for two disability types.

Figure 3.6 – Back-test results for ABI and psychosocial disability groups under perfect information about entrants and latest exit assumptions.



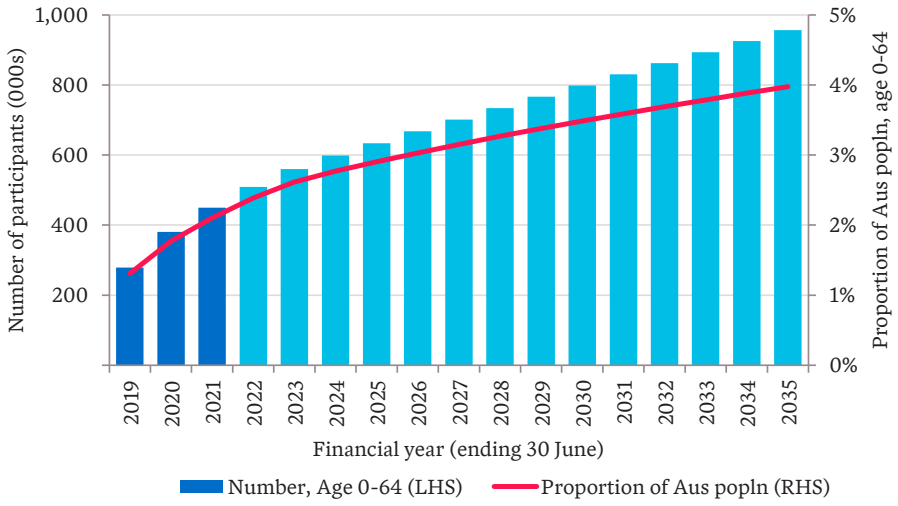

The results show that the AFSR model does not accurately reproduce the numbers within each band, with transition behaviour the primary driver of the difference. For instance, actual numbers in the two most severe psychosocial disability bands are 18% higher than projected while the two least severe band are 24% lower.

Similar results are found for most disability types and full results are provided in Appendix A. Transfer effects appear large for autism, cerebral palsy, intellectual disability, multiple sclerosis and other neurological. The effects are less pronounced for some disability types such as hearing impairment and spinal cord.

## 3.4 Indefinite growth in participant numbers as a proportion of population

The number of new entrants into the Scheme is driven by top-level assumptions of the total number of entrants. These are shown below; as a fraction of the Australian population aged 0-64, the fraction of participants is forecast to grow from 2.1% to 3.5% by 2030. As discussed in Section 4.2, these numbers have increased substantially in recent years. While a strong trend reflects recent experience and appears appropriate over the short-term part, there is still significant uncertainty as to when a plateau will be reached; at some point growth as a proportion of the Australian population will slow.

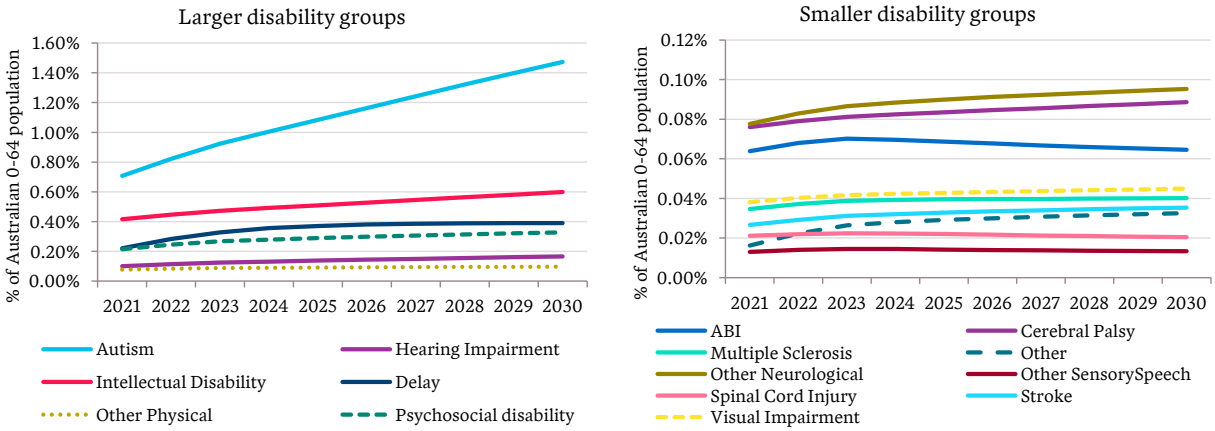
Figure 3.7 – Forecast number of participants aged 0-64



The assumed entry rates of between 60,000-70,000 people per year is enough to drive steady growth in the number of participants, both in absolute terms and as a fraction of the Australian population. As a result, there is no intrinsic anchor in the assumptions about what a future steady state could be.

This varies by disability type. Large gains are forecast for autism, intellectual disability, delay and psychosocial disabilities, whereas, ABI, Spinal, Other Sensory/Speech are forecast to be stable as a fraction of the Australian population.

Figure 3.8 – Forecast number of participants by disability type, aged 0-64, as a proportion of the Australian population, at 30 June each year




One consequence is that estimates of participant numbers are very uncertain, particularly in the medium to long term (beyond 2025, say). Newer entrants tend to have lower-than-average package costs, so the impact on total costs is relatively smaller.

## 3.5 Reliance on aggregate cost escalation assumptions

The model has components for inflation (which can be thought of as the core per-unit price increases as goods become more expensive over time and wages increase in line with Fair Work rulings) and superimposed inflation.

The structure of the model means that the superimposed inflation component is accounting for a variety of effects, including:

- Participants moving to a lower functional band (item 1 above)
- Participants utilising more of their plan packages
- Participants increasing the volume of a service consumed (e.g. more hours of attendant care)
- Participants changing their use of SIL and SDA
- Participants becoming aware of other services or components they can add to packages
- Participants becoming less reliant on informal care and support
- Unanticipated price changes, noting that some price changes are anticipated and allowed for (such as those applied in July 2019 which included substantial increases for therapy, attendant care and community participation).

We understand that the current assumptions are based on a combination of judgement and historical experience. In AFSRs up to December 2020 components of superimposed inflation were separately estimated and summed. For example, the December 2020 interim AFSR, Table 15 provided a breakdown of the aggregate superimposed inflation assumption. The June 2021 assumption does not have a formal split but involves consideration of a similar list of components – as part of this review we have been provided with the workings underlying these assumptions, which we explore in Section 4.6.

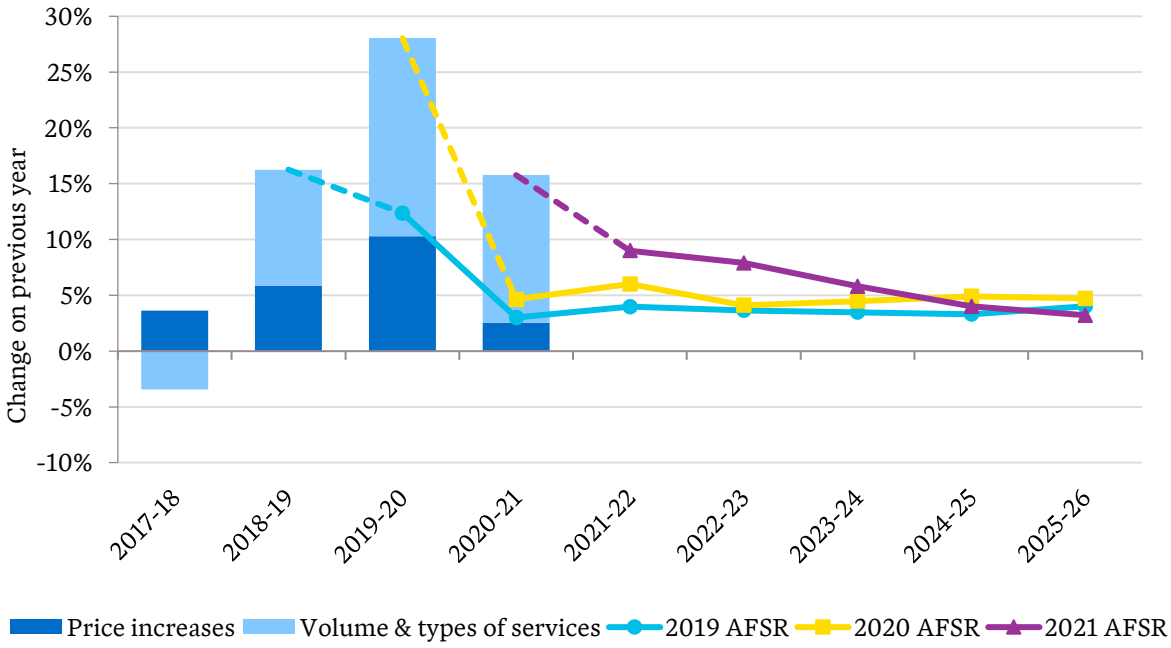
While the Scheme Actuary considers a broad range of factors when setting inflation assumptions, the large number of implicit and unanticipated sources of escalation may have contributed to the persistent underestimation of cost escalation over the past few years. It is likely that without understanding and explicitly incorporating these types of operational dynamics related to how plans are approved most modelling approaches would have to some degree underestimated growth in payments.

Figure 3.9 below compares historical and assumed escalation factors. In calculating these:

- There are multiple ways to calculate historical rates, since there are compositional effects too. We have estimated these in a relatively simple fashion; for an annual escalation between two years (2019-20 to 2020-21 say) we take everyone in the Scheme for the full two years (and three months prior to the first). Then we simply total payments (including in-kind amounts) in the two financial years and divide one by the other. This will tend to produce larger estimates of escalation than average participant costs, since it is not offset by the lower payments made to new entrants.
- Projected rates are the combination of inflation, superimposed and other adjustments, expressed as a weighted average, from AFSR models. We take the weighted average across payment support types, with weights set using the first year of the 2020-21 AFSR.

Measured on this basis, historical cost escalation for people remaining in the Scheme has been 16%, 28% and 15% for the past three years respectively. This compares against an assumption of about 12% falling to 4% used in the 2018-19 AFSR, a range of 4-6% for the 2019-20 AFSR and a 9.7% decreasing to 3.2% assumption for the 2020-21 AFSR. We estimate that the volume and mix of services delivered grew by more than 10% in each of the past two years or approximately 30% in total. While price increases were close to broader levels of economic inflation in 2021, it follows two years of much larger increases. Based on the most recent NDIS Price Guide, the cost for many daily activity services is again likely to increase by more than inflation.

Figure 3.9 – Actual and projected annual cost escalation



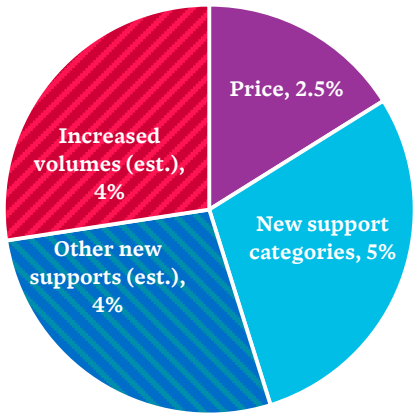

Note: Escalation is the percentage change in payments for people in the Scheme for both years and who entered at least six months prior. So, the 2021 bar is people joining before December 2018 and in the Scheme for all of 2019-20 and 2020-21.

The historical increases mean that the starting point for each successive AFSR is higher. It also means that assumptions made in the 2018-19 and 2019-20 AFSRs assumed far greater cost control than was observed. Some of this underestimation has been reflected in the 2020-21 AFSR, but rates are still less than half those seen previously.

Figure 3.10 shows the split between price and other factors in the historical cost escalation. Price is the smaller component, representing 2.5 percentage points out of a total 16. Splitting the remainder between new supports and support volumes is difficult on the payment data; many different payment codes are used for similar supports. In Figure 3.10 we have (crudely) estimated that, of the remainder:

- 5 percentage points relate to payment categories (the 15 groups in Table 3.1) that people received in 2020-21 but not 2019-20; these can be reasonably assumed to be new types of supports.
- The remaining 8 percentage points are split between new types of supports within a category plus volume increases. Volume appears to be a reasonable fraction of this, so we have adopted a 4-4 percentage point split.

Figure 3.10 – Estimated split of 2020-21 cost escalation of 16% into price, new supports and volumes



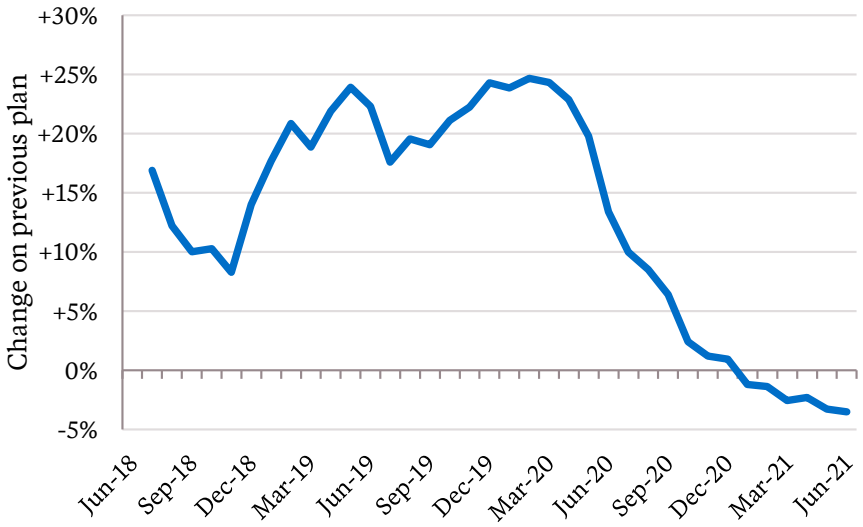

Note: 'New support categories' refers to participants receiving support in one of the 15 main payment categories that they previously did not. 'Other new supports' relate to claim codes that are new for a participant, but within an existing category.

There will be reasons to expect falling rates over time. Compositional factors appear to have slowed (e.g. fewer people moving into SIL) and increases associated with Scheme duration tend to plateau after the first few years. But it is important to recognise that the current assumptions imply tighter control of payment escalation.

While there is little evidence of a reduction of cost escalation, we do note there is evidence that growth in committed supports has started to flatten in the second half of 2020-21 – see Figure 3.11. This means much of the increase in payments is due to participants using a higher proportion of existing packages. Although this does not make a large difference to payments over the short-term, over the longer term if this persists it would limit the scope for growth in future payments. Limiting growth in committed supports is an important first step to controlling growth over the long-term. Further, SIL participants tend to have much higher utilisation than non-SIL participants which we understand is one reason why escalation assumptions are lower for SIL participants.

We understand that the Scheme Actuary has not explicitly factored into the projections any future operational initiatives or strategies that could reduce the rate of growth in costs.

Figure 3.11 – For plans approved in a quarter for existing participants, average change in annualised plan allowance relative to their previous plan




Note: Figures are similar to, but don't exactly match, equivalent NDIS estimate such as those provided at Figure 70 in the NDIS September 2021 quarterly report due to slight differences in rules applied to compare successive plans Specifically, NDIS business rules exclude plan auto-extensions and additional checks to exclude revoked or pending plans.

Further discussion of the trends in committed supports, including splits of the above figure into components, is in section 7.4

## 3.6 Other structural items

This section lists some other limitations of the current modelling approach, with further detail in Appendix B. Although there may be scope for refining the approach, we take the view that based on materiality, available data and Scheme experience, many of the simplifications adopted are reasonable. Below we have listed some further suggestions for completeness, and some of it is relevant for other parts of our discussion:

- **Superimposed inflation (and total cost escalation) assumptions do not vary by disability type, only payment type.** There is reasonable evidence that the disability types have seen different rates of cost escalation over the past few years. This is consistent with a reasonable portion of the escalation relating to volume and breadth of supports rather than price; the former being more likely to vary by disability type.
- **Future average payment sizes for a participant are not driven by their current costs and in many cases is assumed to decrease as they age.** If a cohort currently has lower costs at higher ages, these are applied to people as they age in the Scheme. However, longitudinally we do not see much evidence of decreases with age.
- **Partial allowance for transitions between disability groups.** Primary disability type can vary over time. The two largest transitions are allowed for (delay to autism and delay to intellectual disability). However, other transitions (such as movements between autism, intellectual disability and psychosocial disability) also occur in material numbers.
- **Unusual projected age distributions for some cohorts.** The 'aging plus new entries' structure can produce oddities. For instance, the age distribution for the second-lowest function group for males with autism is projected to move from a single peak at age 15 to twin peaks at 10 and 25, which seems unlikely.
- **SIL status does not follow participants.** The number of people in SIL is a simple proportional allocation within each cohort (disability type – severity band – age band). As the population ages, we'd expect SIL status to evolve in line with those currently in SIL. In some cases, the model effectively assumes a large exit from SIL (e.g. when participants turn 65).
- **Large variation in costs within modelled groups.** While the selected cohorts have different average costs, the variation within any individual band is large. Within the group with lowest functional ability, aged 35-44 and not in SIL, the most expensive 20% of participants accounted for two-thirds of payments in 2020-21 compared to the least expensive 40% whose costs were only 2.5% of payments. This range makes it hard to meaningfully talk to trends within the group.
- **No link between TSPs, plan and payments.** Growth in payments is estimated directly, without reference to plan committed supports. In previous years the strong growth in plans could have been used as a lead indicator for payment growth.
- **Other variables are not incorporated into the model.** Duration, regional effects (including socioeconomic level of a region) and package management arrangements are all predictive of costs. By not modelling, the model assumes these effects are constant over time, or allowed for implicitly in superimposed inflation assumptions. Duration effects (the tendency for plans to increase from year to year) in particular are visible and would therefore form some of the superimposed allowance.

# 4 Review of AFSR Projection Assumptions

## 4.1 Summary of assumptions required in the model

To implement the AFSR model, given its structure, a series of assumptions must be set. Table 4.1 summarises these and how they vary by different model variables. This section explores the appropriateness of current assumptions.

Table 4.1 – Main assumptions built into the AFSR model and what dimensions they vary by

| Assumption group | Assumption | Description | Age | Age group | Disability group | Severity | Gender | SIL/non-SIL | Year |
|---|---|---|---|---|---|---|---|---|---|
| **Starting participant numbers** | | Taken from those in the Scheme at 30 June 2021 | Yes | Yes | Yes | Yes | Yes | Yes | |
| **Entrants – New incidences** | New total entrants | Total estimated new incidences for 2021-22 | | | Yes | Yes | Yes | | Yes |
| | Age distribution | Breakdown of new incidences by age | Yes | Yes | Yes | | Yes | | |
| | Australian population growth | Applied to new entrant assumptions after 2021-22 | | | | | | | Yes |
| **Entrants – State/Comm schemes** | | Projected entrants transitioning from state and Commonwealth programs. Currently set to 0. | | | | | | | |
| **Entrants – Previously unmet need (PUN)** | Total unmet need | Entrants from outside existing schemes – set as top-level assumption, decreasing over 3 years to a stable population fraction | | | Yes | Yes | | | Yes |
| | Age and disability distribution | Breakdown of new PUN entrants by age | Yes | Yes | | | Yes | | |
| **Exits – Mortality** | Base mortality (ALT 16-18) | Mortality rates for general Australian population | Yes | Yes | | | Yes | | |
| | Mortality multiplier | Factors to adjust base mortality rates for higher mortality rates observed in disabled people | Yes | Yes | Yes | Yes | Yes | | |
| **Exits – Other** | Exit rate | Rate of participants leaving the Scheme other than due to mortality | Yes | Yes | Yes | Yes | | | |
| | New entrants adjustment | Adjustment factor to reflect the lower exit rates for new entrants | | | | | | | |
| | Short term adjustment | Adjustment factor to reflect the lower exit rates in recent times, reverting to longer-term rate | | | | | | | Yes |
| **Transitions** | Disability type transition rates | Rate of participants with developmental delay transitioning to autism and intellectual disability groups. | Yes | Yes | Yes | Yes | | | |

| Assumption group | Assumption | Description | Age | Age group | Disability group | Severity | Gender | SIL/non-SIL | Year |
|---|---|---|---|---|---|---|---|---|---|
| **SIL** | SIL proportion – short term | Proportion of population with SIL, with pathway assumed over about 10 years (short/medium/long assumptions) | | Yes | Yes | Yes | | | Yes |
| **Costs** | Average support payments | Average support payments per participant for each support type | | Yes | Yes | Yes | | Yes | |
| | New entrant adjustment | An adjustment to average support payments to reflect the low support required by new entrants | | Yes | Yes | Yes | | Yes | |
| **Cost increases** | Price inflation | Average price change for each support category | | | | | | Yes | Yes |
| | Superimposed inflation | Average allowance for changes above for price inflation and non-price related changes for each support category | | | | | | Yes | Yes |
| | Payment adjustments | Additional adjustments for some support types | | | | | | Yes | Yes |
| **Over age 65 loading** | Additional adjustment | Additional cost adjustment applied for 65+ | | | Yes | | | | |

We have reviewed the assumption setting basis for the AFSR, focusing on areas we judged most material. We focus our discussion on the five most important sets of assumptions, and then briefly describe our findings on other assumptions. The key assumptions are:

- Participant entry numbers and mix
- Participant non-mortality exits
- Number of participants accessing SIL
- Cost assumptions
- Inflation assumptions

## 4.2 Participant entry numbers and mix

New entrant assumptions are material, albeit more material over the medium and long term, where there is greater uncertainty of trends.

Since the numbers of people in previous State, Territory and Commonwealth schemes were known, the overwhelming bulk of unanticipated entrants relate to those entering from outside other schemes.

Entries were 25% higher than expected in 2019-20 and 2020-21 compared to the 2018-19 AFSR projections. The experience is not uniform across disability types; some types have seen lower-than-expected entries, and the entire difference is more than explained by two disability types (Autism and Delay). Although intellectual disability entries were lower than expected, many entrants in the delay group will transition into intellectual disability as they age.

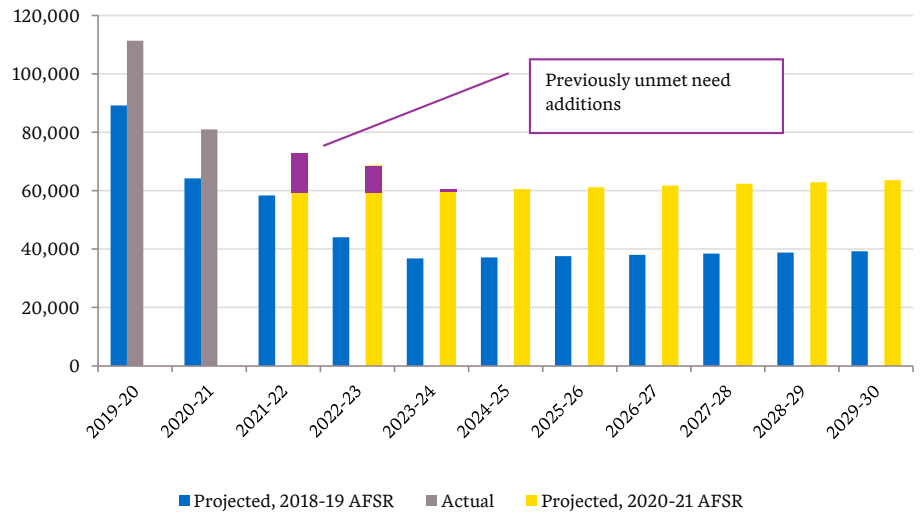
Table 4.2 – Comparison of actual new entrants in 2020-21 compared to those expected in the 2018-19 AFSR

| Disability group | Expected in 2020-21 (2018-19 AFSR) | Actual | Difference | Ratio |
|---|---|---|---|---|
| ABI | 2,309 | 2,249 | -60 | 97% |
| Autism | 16,229 | 23,371 | 7,142 | 144% |
| Cerebral Palsy | 1,940 | 846 | -1,094 | 44% |
| Delay | 7,121 | 20,677 | 13,556 | 290% |
| Hearing Impairment | 3,958 | 3,628 | -330 | 92% |
| Intellectual Disability | 10,962 | 6,803 | -4,159 | 62% |
| Multiple Sclerosis | 1,410 | 1,079 | -331 | 77% |
| Other* | 129 | 2,282 | 2,153 | 1763% |
| Other Neurological | 3,942 | 3,172 | -770 | 80% |
| Other Physical | 3,812 | 2,758 | -1,054 | 72% |
| Other Sensory Speech | 1,087 | 199 | -888 | 18% |
| Psychosocial disability | 7,437 | 11,049 | 3,612 | 149% |
| Spinal Cord Injury | 920 | 541 | -379 | 59% |
| Stroke | 1,463 | 1,399 | -64 | 96% |
| Visual Impairment | 1,466 | 924 | -542 | 63% |
| **Total** | **64,186** | **80,977** | **16,791** | **126%** |

Note: Other covers more than 40 different conditions, with the top 5 being amputations, early onset dementia, chronic lung disease, other metabolic disorders and childhood apraxia of speech

Relative to 2018-19, the aggregate assumptions for new entrants have increased by about 25,000 per year for the full projection period – a large increase. This includes an additional set of entrants in the first three years ascribed to 'previously unmet need'. The increases are largest for developmental delay, psychosocial disability and autism (in that order).

Figure 4.1 – Number of people entering the NDIS, past and projected




Note: Previously unmet need is an additional component of entries estimated separately in the AFSR reflecting people with existing long-term disabilities not supported in previous State and Commonwealth schemes. It contrasts to steadier ongoing entries that primarily relate to new incidence and diagnosis.

In assessing the reasonableness of these increases in aggregate we have considered evidence from:

- Experience of trial regions
- Secondary data sources on disability prevalence
- Steady state calculations

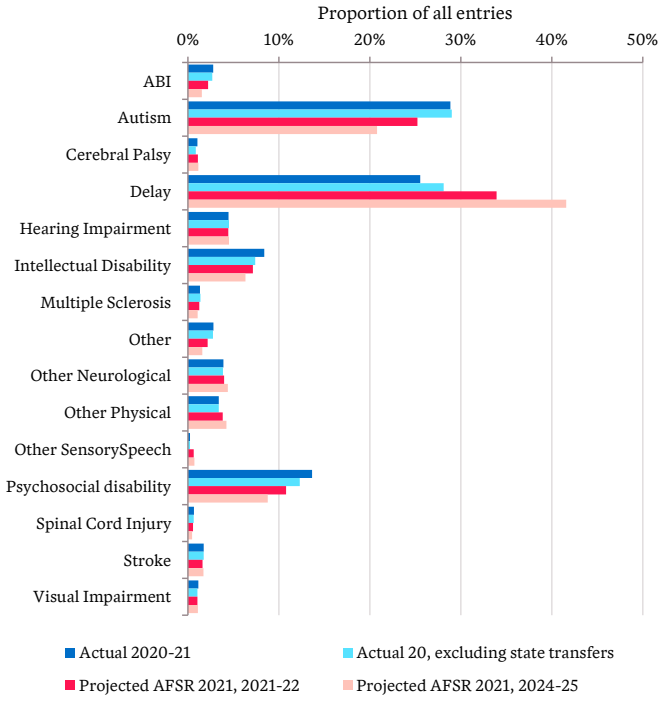
These are discussed further in Section 7.1.

The high number of entrants, leading to large increases in the size of the NDIS participant pool, appear to reflect a generational change in the recognition of disability in Australia. This trend is also reflected in secondary data sources, such as the Survey of Disability, Aging and Carer. More people are being diagnosed with conditions such as developmental delay and autism. Further, those diagnosed young continue to report the disability at older ages and are likely to remain in the Scheme (rather than exiting after effective early intervention). This is consistent with the AFSR projection, which sees a high number of child entries remain in the Scheme into adulthood.

On balance, we regard the assumptions as reasonable for the years to 2024-25. Trial region entries remain strong and increasing rates of diagnosis for conditions such as autism and developmental delay mean that high numbers of new entrants are likely to persist. Further, the number of entries from outside existing State and Commonwealth schemes remains high; 80,000 in 2019-20, 72,500 in 2020-21, and little evidence of a drop over the course of 2020-21. Beyond 2024-25, there is greater uncertainty; we believe there is still the potential for stabilisation in prevalence across age bands which would imply new entrant numbers falling to a level significantly lower than the 60,000 per year projected. While some disability types are approaching a steady state already, there is limited evidence of this at an aggregate level.

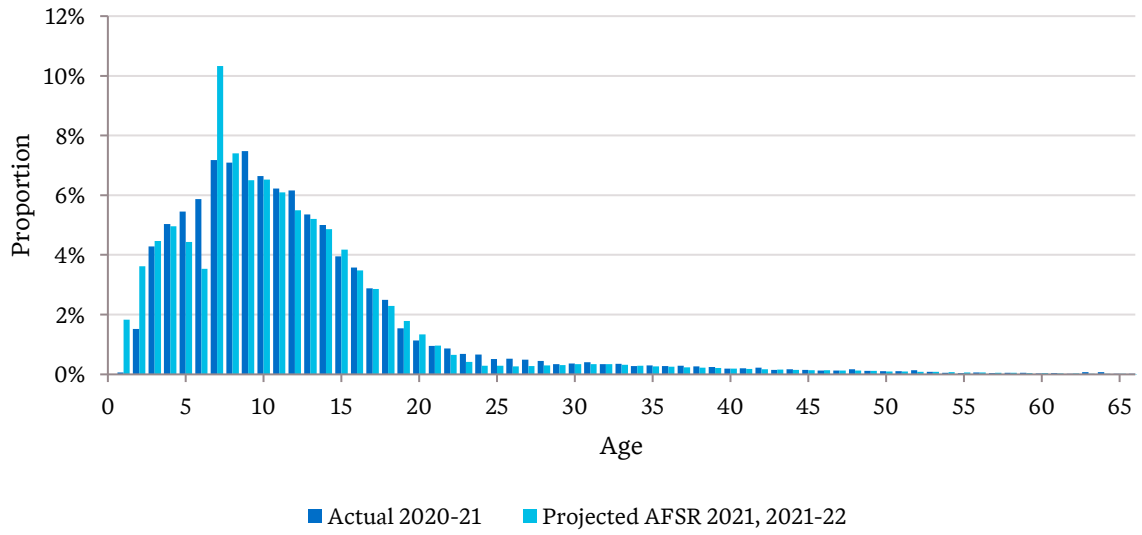
The distribution of entrants across disability type is shown in the figure below. There are some differences that appear material, such as a higher fraction of developmental delay entries and a step down in autism entries. We have confirmed with the Scheme Actuary that the discrepancies are an artefact of their assumption-setting method, which blends direct evidence (number of entries last year) with indirect (the distribution of current Scheme participants). We understand that they intend to switch to a direct method next year, which should better match the actual entry distribution.

Figure 4.2 – Distribution of new entrants across disability type



Age distribution assumptions within disability-severity groups mostly align well with the recent past. For example, the age distribution of children with autism is shown in the figure below. Assumptions of age distributions differ for the additional 'previously unmet need' components in the first three years but are constant for the majority of entries over time.

Figure 4.3 – Comparison of actual (2020-21 entrants) and projected (2021-22 forecasts) of age distribution for children with Autism.




Aggregate entry numbers over the next two to three years appear broadly reasonable. Further analysis of new entrants is shown in Section 7.1.

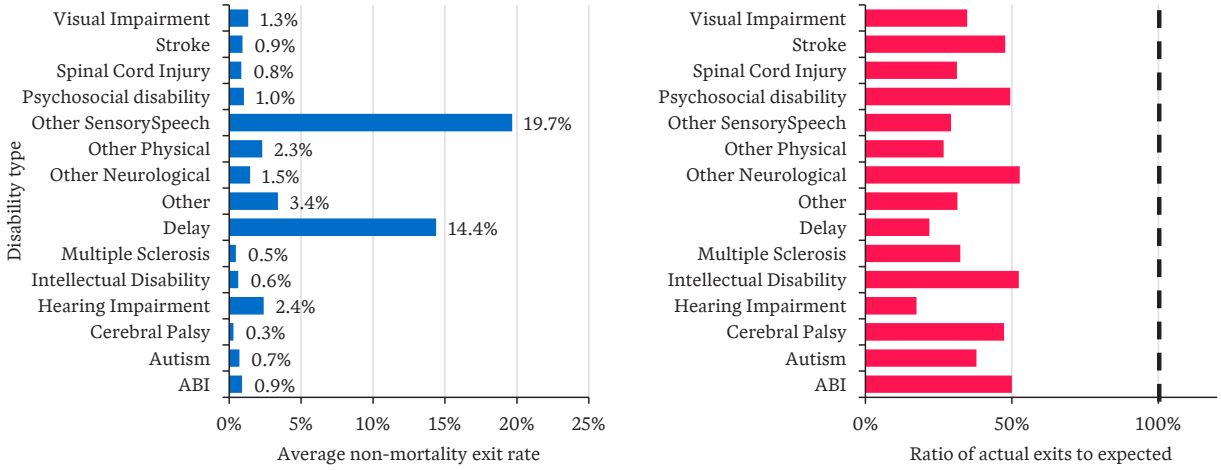
## 4.3 Participant non-mortality exits

The model also allows for participants to exit the Scheme for reasons other than mortality such as access being revoked or participants voluntarily withdrawing from the Scheme. This behaviour is modelled using exit rate assumptions which vary by age, disability group and severity. Long-term assumptions have not been updated in the 2020-21 AFSR but have been lowered in the short term.

We summarise the average assumed annual exit rate by disability type, based on the active participant mix as at June 2021, in Figure 4.4. For example, the proportion of active participants that are expected to exit the Scheme for reasons other than mortality, range from almost 20% for sensory and speech disabilities to as low as 0.3% for people with cerebral palsy. In the long run, we expect roughly 2% of all active participants to exit the Scheme for non-mortality reasons in any given year.

A key component of non-mortality exits is related to those with developmental delay (primarily child participants). In the 2018-19 AFSR these were expected to be just under half of all exits.

Figure 4.4 – Weighted average assumed non-mortality exit rates by disability type and ratio of actual to assumed exit rates in 2020-21



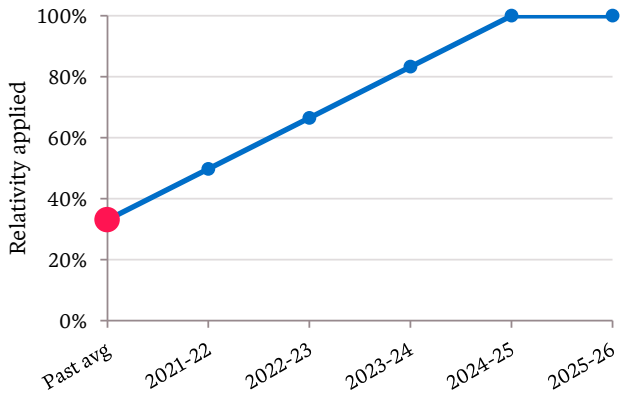

Actual exits over the past two years have been far below the long-term rates assumed in the 2018-19 AFSR. In aggregate, non-mortality exits have been about a third of what was expected, as shown in Table 4.3.

Table 4.3 – Comparison of actual and expected non-mortality exits over the past two years

| Year | Expected (2018-19 AFSR) | Actual | Ratio |
|---|---|---|---|
| 2019-20 | 5,960 | 1,930 | 32% |
| 2020-21 | 7,620 | 2,963 | 39% |

To reflect this discrepancy, the 2020-21 AFSR retains the higher long-term rates but scales them down in the short term. The model assumes 50% of the long-term rate in 2021-22 and gradually returning to 100% of the long-term rates (similar to those used in 2019) by 2024-25.

Figure 4.5 – Assumed relativity of non-mortality exits in 2020-21 AFSR compared to long-term assumptions



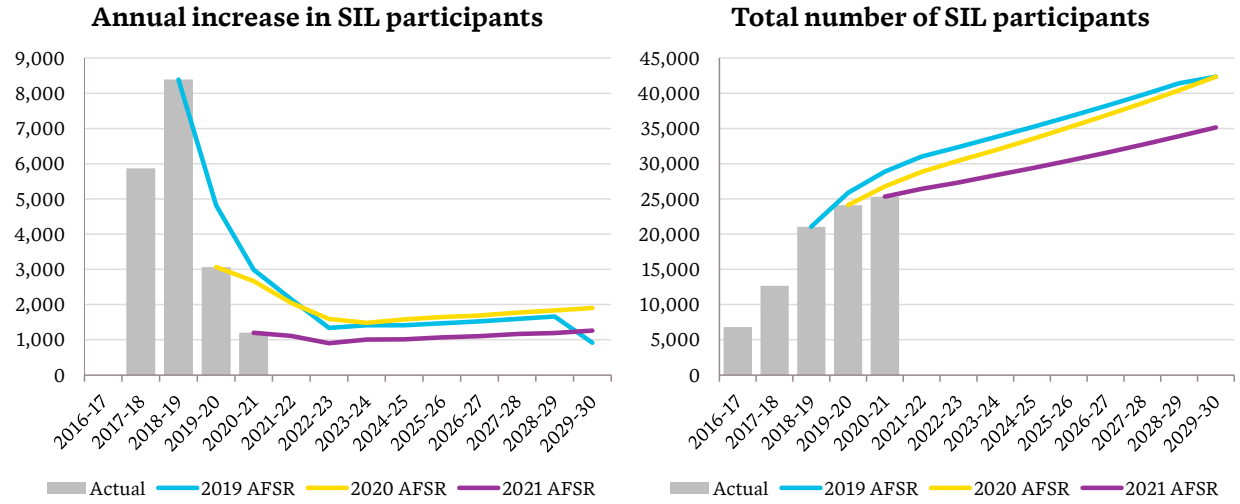

Without deliberate management action, we regard the long-term exit rates as **potentially optimistic**, as they are nearly three times the current rate. Assuming a lower exit rate would increase 2024-25 costs by $0.5B and 2029-30 costs by $2.8B (see Section 6.2).

We have not reviewed, but another risk is that those exiting are disproportionately those with lower levels of payments; if so, this would slightly increase average participant costs for the remainder.

## 4.4 Number of participants accessing SIL

At 30 June 2021 about 25,000 participants accessed SIL. This group has high support costs so the projected number of people in SIL has a material impact on the forecasts. The net increase in the number of people accessing SIL has reduced from about 3,000 additional people in 2019-20 to 1,200 in 2020-21, with experience below the previous AFSR estimates. Net increases in SIL over the past year were relatively stable across each of the four quarters and the 2020-21 AFSR mirrors this experience with a large reduction in assumed growth in SIL numbers. Actual numbers and changes to projections are shown in Figure 4.6.

Figure 4.6 – Number of SIL participants



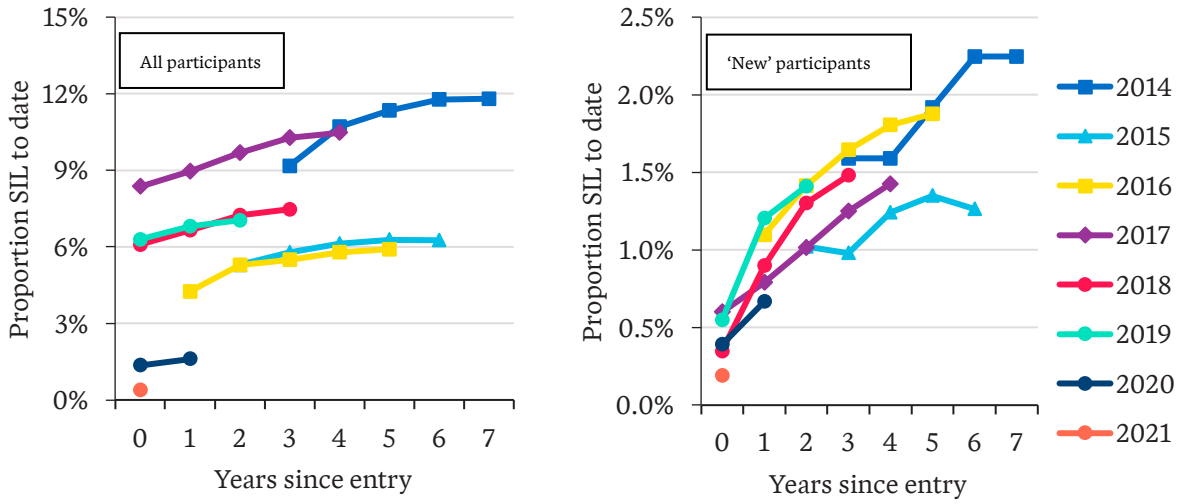

By June 2030 the model projects there will be approximately 35,000 people in SIL compared to 42,000 from the 2018-19 and 2019-20 AFSRs. The impact is a $3.5B reduction to 2029-30 costs, as discussed in Section 5. Compared to the current estimates, if transitions into SIL were 1,200 per year this would increase the number of people in SIL by 761 at June 2025 (+$200M) and 966 by June 2030 (+$300M), still well below the previous AFSR estimates.

SIL numbers are driven by both people entering the Scheme and into SIL from the outset (primarily a subset of people transferring from state schemes), and NDIS participants transitioning into SIL over time. The first component has largely subsided and is a key driver of the lower numbers seen in 2020-21. The latter component includes people who were living in residential aged care, and we understand there may be a further 3,000 to 4,000 participants that could transfer to SIL in the future. Although forecast growth in SIL participants is slightly below recent experience, as the number of people living in aged care reduces this should put downward pressure on the number of people moving into SIL.

Figure 4.7 shows the proportion of participants accessing SIL, split by their (financial) year of entry and their duration in the Scheme. It shows that, particularly for those entering the Scheme who were not in state schemes, there is still an upward trend as more people move to SIL arrangements. The slopes taper in 2020-21 compared to previous years. This may reflect a partial saturation of demand for SIL, but could reflect temporary factors too (for example, people delaying until after the height of COVID concerns).

Based on the considerations above, we believe that SIL assumptions carry both upside and downside risks. However, we would give some weight to the trends prior to 2020-21 which would imply slightly higher forecasts of SIL participants and the magnitude of the change implies that there remains significant uncertainty in this assumption.

Figure 4.7 – Rate of SIL access by duration in Scheme and entry year




## 4.5 Cost assumptions

The Scheme Actuary sets average payment size assumptions (i.e. average starting level of payments) for each support category, age group, disability type and level of function based on recent experience. In total, the Scheme Actuary sets starting level of average payments for 2,052 cohorts.

Given the number of assumptions, this section will focus on overall trends for Core, Capacity Building and Capital supports as well as cohorts with high payments. In Section 5.3, we will further discuss cohorts with large increases in projected payments compared to the 2018-19 AFSR.

### 4.5.1 Analysis of trends over time[9] and projected payments

In this section we analyse the trends in average size assumptions for daily activities, other core services, capacity building supports and capital expenditure. The projected amounts are the outworking of more granular analysis and projections performed by age and disability, but the analysis shows how the overall projections have changed over the past three AFSRs and how they compare against actual experience.

While there are some aspects, such as non-SIL capital costs, where projected average sizes appear to be low, in aggregate the projected average size assumptions for 2021-22 contain a reasonable allowance for escalation. Thereafter, changes in projected average costs are only due to compositional changes, inflation and superimposed inflation.

#### Core services – Daily Activities

Core services related to Daily Activities were 56% of payments during 2020-21. Figure 4.8 shows the trends for average Daily Activities payments for active participants over time. Payments for residential aged care (RAC) are generally not paid throughout the year which means that relative to the underlying cost, quarters without RAC payments tend to be understated and quarters with RAC payments are overstated.

[9] In this section, average annualised payments were calculated based on all participants who were active as at 30 June each year and entered the scheme on or before payment transaction quarter. Overall average annualised payments for a given year were estimated by summing up quarterly average payments.

Figure 4.8 – Average annualised Daily Activities payments for active participants over time

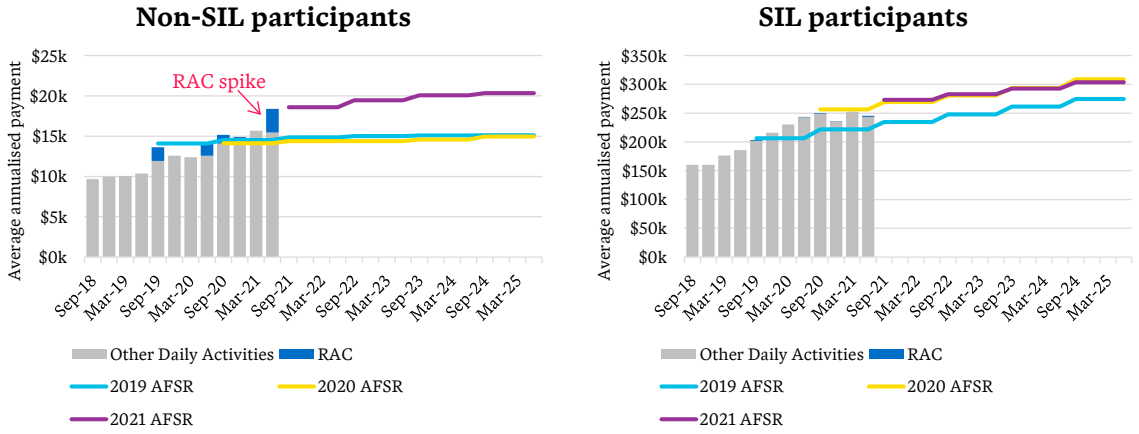



Figure 4.8 shows that average annualised payments for non-SIL participants have been increasing over time. In 2019-20 and 2020-21, average payments increased by over 30% and 20% respectively. As discussed in Section 3.5, cost escalation during this period was driven by higher prices, increased volume and a wider range of supports being provided.

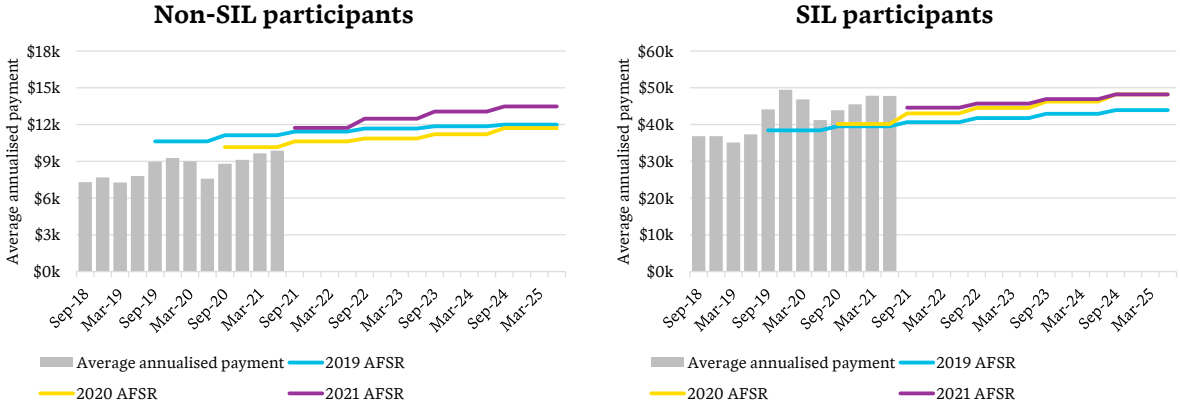
For non-SIL costs, the 2018-19 and 2019-20 AFSR assumptions were broadly in line with observed experience during the three quarters to March 2021, which had minimal RAC payments. The spike in the June 2021 quarter was due to payments relating to RAC supports[10], as shown by the dark blue component of the stacked bar. Therefore, over the course of the year, average Daily Activity payments per participant were nearly 14% higher than was projected from the 2019-20 AFSR. The 2020-21 AFSR assumes that average payments will further increase from the most recent experience over the next four years to 2024-25, at an average rate of around 6% p.a.

For SIL costs, average annualised payments increased by approximately 30% in 2019-20 and a further 10% in 2020-21. Unlike non-SIL costs, average costs were relatively flat during 2020-21 and it was not distorted by RAC related payments. Average payments have been consistently higher than was assumed from the 2018-19 AFSR but were similar to the 2019-20 AFSR projection. The 2020-21 AFSR assumptions are in aggregate close to last year's and implies growth of about 5% p.a. to 2024-25.

## Other Core services

Other Core services (i.e. core services excluding daily activities) were 22% of payments during 2020-21. Figure 4.9 shows average annualised payments for other Core services for active participants over time.

Figure 4.9 – Average annualised payments other Core services for active participants over time




[10] Payments related to RAC supports were $511M or 3.9% of overall Daily Activities payment in 2020-21 of which $365M was paid during June 2021 quarter. 96% of RAC supports payments were non-SIL participants related.

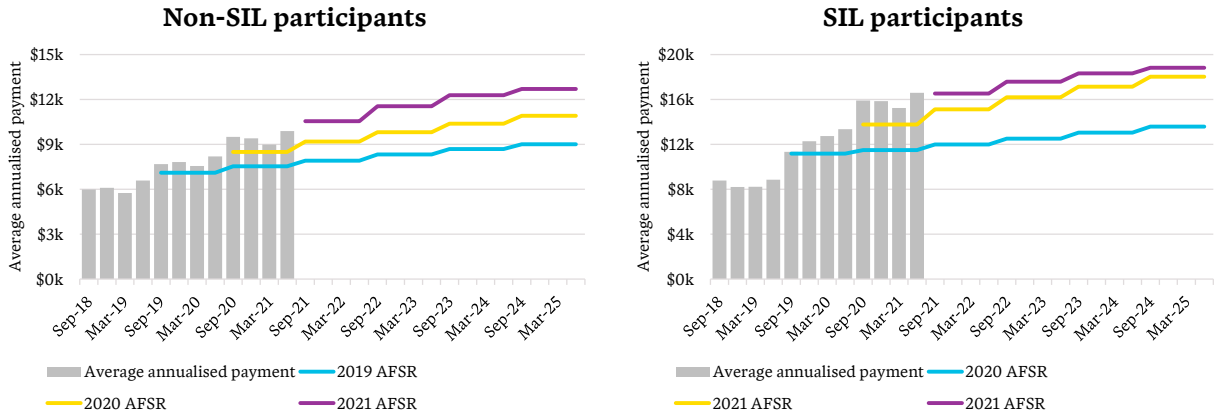
Average annualised payments for other Core services have been increasing steadily over time for both non-SIL and SIL. For non-SIL participants, both the 2018-19 and 2019-20 AFSRs overestimated average payments and the 2020-21 AFSR assumes that there will be a further increase. On the other hand, average annualised payments were higher than was assumed from both the 2018-19 and 2019-20 AFSRs for SIL participants. The 2020-21 AFSR assumptions for this group are only slightly higher than was assumed last year and show a small drop in 2021-22 compared to the average amounts paid over the past six months.

### Capacity Building services

Capacity Building services were 19% of payments during 2020-21. Similar to trends observed for Core services, average annualised payments have been increasing over the last two years. For both non-SIL and SIL participants, average payments were higher than was assumed from the 2018-19 and 2019-20 AFSRs. The current projections show that average payments for non-SIL participants will increase to around $13,000 by 2024-25 compared to $19,000 for SIL participants.

Figure 4.10 shows average annualised payments for Capacity Building services for active participants over time.

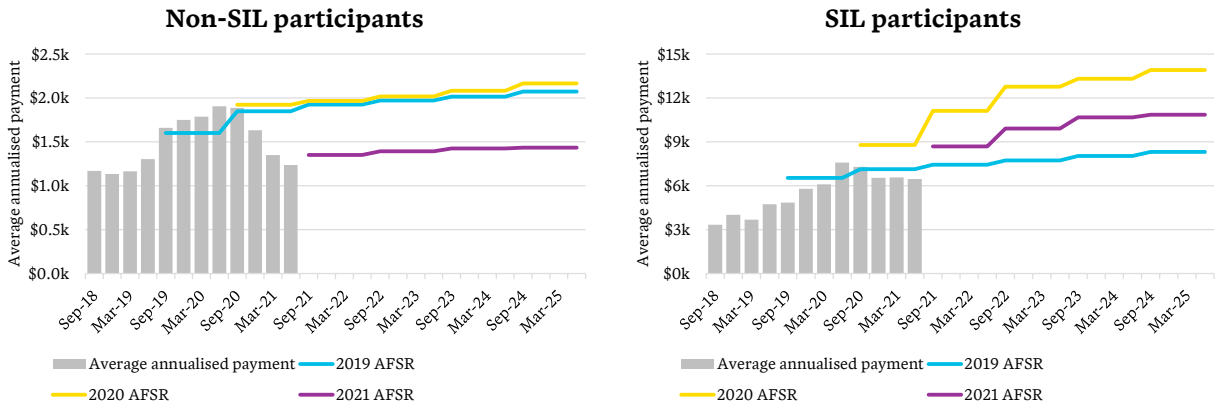
Figure 4.10 – Average annualised payments Capacity Building services for active participants over time




### Capital costs

Capital services were 3.5% of payments during 2020-21. Figure 4.11 summarises average annualised payments for Capital services for active participants over time.

Figure 4.11 – Average annualised payments for Capital costs for active participants over time




For non-SIL participants, average annualised payments were relatively stable during 2018-19 but this was followed by a large increase (approximately 28%) in 2019-20. The increase in 2019-20 could be driven by greater demand for assistive technology or other capital spending associated with new participants. In

2020-21 average costs decreased and by June were close to the amounts paid in 2018-19. It is unclear if 2019-20 was unusually high, but we understand that at least part of the drop over the past six months is due to a slowdown in activity and therefore the projected payments appear to be too low.

In contrast to the trend observed for non-SIL participants, average annualised payments for SIL participants stayed relatively flat in 2020-21, following an increase in 2019-20. While the 2018-19 AFSR assumptions were broadly in line with observed experience, the 2019-20 AFSR basis overestimated average payments during 2020-21. The 2020-21 AFSR assumes average payments which lie between the two previous bases but remains higher than recent experience.

### 4.5.2 Analysis of average costs by age, disability type and level of function

Average size assumptions are set based on annualised payment levels for the three months to 31 May 2021 for participants who were active at both 28 February 2021 and 31 May 2021 with their first plan approved by 29 February 2020. This is then smoothed to remove any statistical noise that occurs between age and functional groups. The average size assumptions are the assumed current cost per participant, which are then assumed to grow over time as a result of inflation and superimposed inflation.

Generally, when projecting future costs over a long-time horizon, it is preferable to base selections on longer-term experience. However, given the rapidly changing environment with costs escalating quickly and limited longitudinal data, the adopted approach is reasonable. If longer-term experience, say over the past year, was adopted then additional loadings would be required to capture the increasing costs per participant.

In addition, when setting payment assumptions for Core services related to Daily Activities, the Scheme Actuary has removed payments relating to RAC supports. This was because, as shown in Figure 4.8, RAC payments are lumpy and can distort the experience over a three-month period. To allow for RAC costs a separate loading is applied. However, this loading is applied uniformly across all ages whereas it should vary by age as almost all RAC costs relate to participants aged 45 and over. Varying the RAC loading does not materially affect total projected payments over the short term, but over the longer term as people age and more people enter RAC it could lead to a small underestimation in payments.

There are several thousand average size assumptions in the projection model, so it is not practical to review all of them in detail in this report. As a check we assumed average size assumptions were based on experience for the three months to May 2021, without applying any smoothing adjustments. This resulted in projected payments for 2024-25 and 2029-30 being within 1% of the AFSR projections. This indicates that the adopted assumptions, which includes smoothing, were set consistently with observed experience. Most support categories have appropriate assumptions, and although in some cases we would have selected different assumptions, in aggregate they are reasonable and capture recent trends.

In this section, we provide some examples which compare the 2020-21 AFSR average size assumptions against actual experience (excluding RAC) costs to 31 May 2021,[11] as well as longer term trends[12].

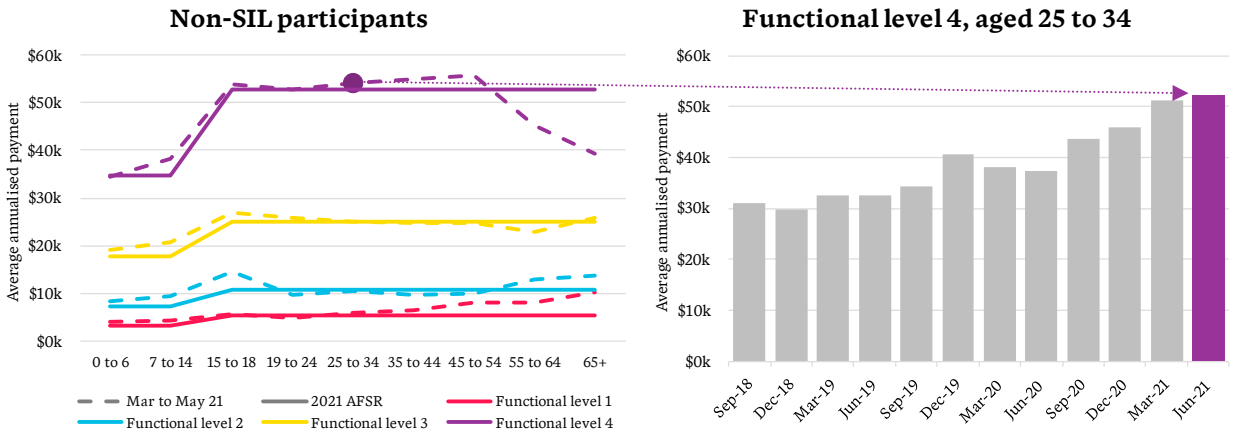
[11] Given data provided, we have based our assessments and calculations using participants who were active as at 30 June 21 with their first plan approved on or prior to 29 February 2020. As there are a small number of exits each month, using active participants as at 30 June 2021 would not have any material impacts on the overall assessments.

[12] Time series charts shown in this section are based on active participants excluding new entrants i.e., participants who were active as at 30 June each year with their first plan approved at least one year prior to payment transaction quarter. E.g., for March 2021 quarter, average annualised payment is calculated based on active participants as at 30 June 2021 with their first plan approved on or before 31 December 2020.

### Example 1: Core services related to Daily Activities for intellectual disability

From the 2020-21 AFSR, in 2024-25 $2.4B will be paid in relation to daily activity cost for non-SIL participants with an intellectual disability, increasing to $3.2B in 2029-30. Figure 4.12 compares the 2020-21 AFSR average size assumptions for Daily Activities with observed experience excluding RAC costs for this cohort.

Figure 4.12 – 2020-21 AFSR starting payment assumptions for Daily Activities and observed experience excluding RAC related costs for non-SIL participants with intellectual disability




The left-hand chart shows the average size assumptions (solid lines) are generally close to the observed experience (dashed lines) for the three months to 31 May 2021. The right-hand chart shows the increasing trend for just those aged 25-34 in functional group 4 and the adopted assumption, but this chart could be created and analysed for each functional and age combination.

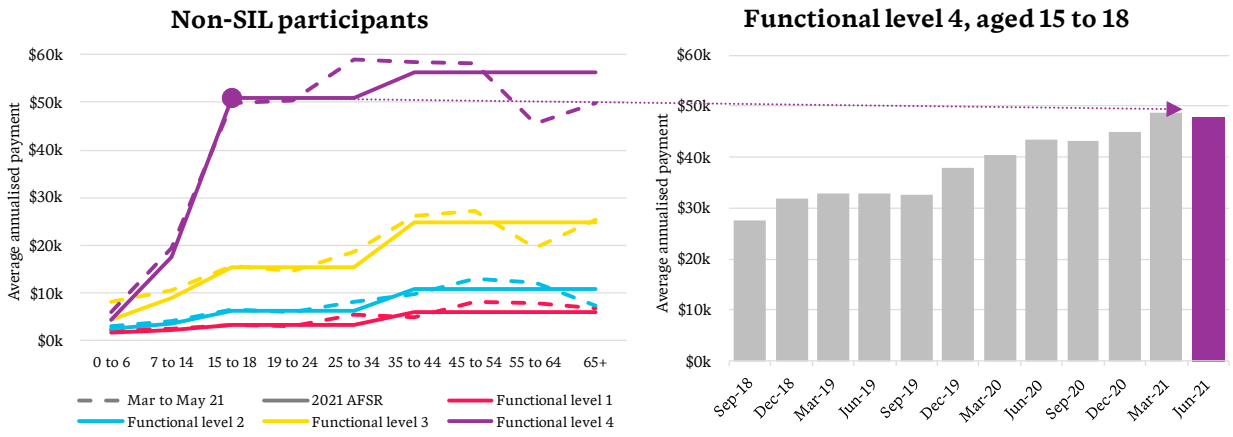
For participants aged 55+ in functional group 4 the observed average cost drops and is below the adopted assumption. This is because this cohort has a large proportion of people in RAC, and these costs may reduce the amount of support required by other providers. If we included the cost of RAC, based on experience across 2020-21, then the average would increase by approximately $20,000 to $65,000 and there would in fact be an increasing trend by age. This is an example of why the uniform RAC loading (discussed in section 4.5.1) can add additional complexity to interpreting the analysis and setting assumptions.

### Example 2: Core services related to Daily Activities for autism

Changes to the average size assumptions have resulted in projected Daily Activity payments in 2024-25 for non-SIL participants with autism increasing by $116M compared to the 2018-19 AFSR. Participants with functional level 4 who are aged between 15 and 18 contributes to about half of this increase.

Figure 4.13 compares the revised assumptions with observed experience for this cohort. It shows the adopted assumptions are consistent with the most recent experience, and that these costs have been increasing steadily over the past three years.

Figure 4.13 – 2020-21 AFSR starting payment assumptions for Daily Activities and observed experience excluding RAC related costs for non-SIL participants with autism




## 4.5.3 Further analysis

In this section we briefly discuss the other key assumptions which drive average participant costs. This includes trends by duration in the Scheme, variation in Core support costs and the impact of investing in improved participant outcomes.

### Changes in payment trends by duration in Scheme

Duration effects are not incorporated into the model but are factored into assumption selection insofar as participants who commenced less than a year ago are excluded from average size analysis. Figure 38 of the AFSR shows that on average plan utilisation grows from 53% during participants' first year in the Scheme to 70% in year three and 78% for years five and later. As assumption setting only excludes data from people during their first year in the Scheme, average size assumptions may be slightly underestimated by not allowing for anticipated utilisation growth during participants' second to fourth years in the Scheme, however this effect is small relative to the other sources of growth and uncertainty in the projections.

The Scheme's brief history combined with potential changes in the rate of future plan growth means that it is difficult to predict where utilisation will ultimately end up. In section 4.6.2 we provide some scenarios of implied future utilisation derived from the projection model.

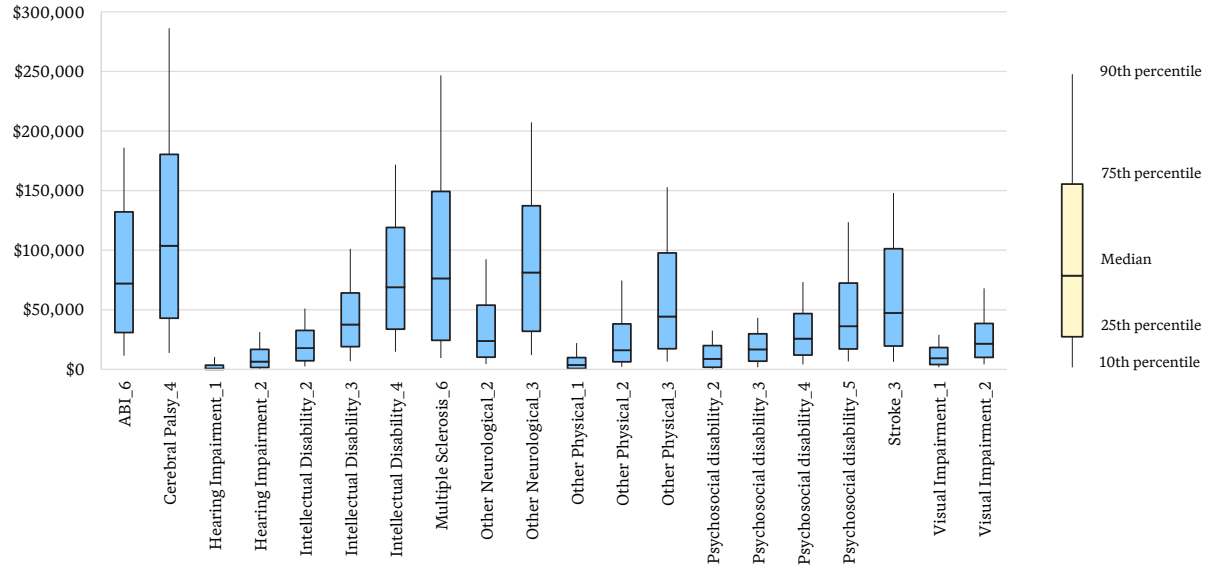
A further complication as one projects further into the future is that the model assumes that people aged thirty in ten years' time (i.e. currently twenty years old) will have the same support needs as those currently aged thirty. This means that current support needs and the impact of capacity building for the younger group are not built into the projections, noting that this is difficult given the limited longitudinal data available. The longer the projection horizon the greater these effects are likely to be.

For some disabilities, such as autism, prevalence is much higher for children than was the case for previous generations. It is uncertain if this will lead to lower average costs than current autistic adults receive either because the additional cases have lower severity, or because the earlier interventions from the Scheme will lead to greater independence once they reach adulthood.

### Variation in per-person Core spending with similar characteristics

People with the same disability and level of function often have very different levels of funded supports. This arises from differences in their individual circumstances but probably also from inconsistency in decision making. Figure 4.14 shows core costs for the disability-functional groups with the most participants covering 80% of non-SIL participants who joined the Scheme by 31 December 2019 and are over 35 (removing potential age-related differences between adults and children).

Figure 4.14 – Variation in core support levels for people with the same disability and functional level




Some disabilities such as ABI 6 and Cerebral Palsy 4 have a high degree of variation in support needs with those at the 90th percentile receiving nearly three times as much support as the median level, noting that 10% of participants have even higher support levels. In contrast, we see for these disabilities that 10% of participants spent less than $15,000 during 2020-21.

For intellectual and psychosocial disabilities, a range of functional levels have been included in the chart, and for these groups generally the higher the level of incapacity the wider the range of support needs. However, one of the key points to take from these disabilities is the high degree of overlap across functional levels. For example, the 75th percentile of payments for Intellectual Disability 3 was about $64,000 which was only slightly below the median spend for Intellectual Disability 4. In other words, the top 25% of people with lower levels of disability received a similar amount of support to the median for the next functional group.

The chart also shows that for many cohorts, such as hearing impairment, there is little variation in costs and that a large proportion of participants across most groups have very low levels of support. The chart demonstrates that headline participant numbers by themselves do not drive Scheme costs, but rather it is the types of disabilities that they have and the number requiring high levels of support.

### Review of available evidence of early 'investments' reducing subsequent participant costs.

Capacity building costs are 18% of total payments, with CB Daily Activities alone being 12%. These services are aimed at improving participants' independence or allowing them to meet social, employment or other goals.

It is recognised that it will take time to test whether these ambitions can be achieved, so currently the Scheme is paying for core services to meet existing levels of independence as well as capacity building, which is one reason why costs have increased rapidly over the past few years.

For the vast majority of participants, it is too early to tell if the capacity building services will meet their objectives or not, but it is crucial that the outcomes of these programs are monitored. If the programs are

successful, then this investment should lead to reduced core support costs for many participants and potentially more investment in similar programs. However, if capacity building is not successful then controls need to be implemented to either rein in these costs or to switch to other proven programs. There is a risk that such steps are not adequately managed or that this is not possible as they are really core services masquerading as capacity building.

The projection model assumes growth in both core services and capacity building costs per participant. For the reasons stated above, if the NDIA has the proper controls in place then from around 2025 onwards when capacity building outcomes should be well understood the model is likely to overstate aggregate expenditure in this context.

Capacity building also has the potential to create conflicts of interest if providers of these services also provide support with core services. In this circumstance, they may not have a strong financial incentive to improve independence as this could reduce the need for core services. Having fees for capacity building linked with outcomes may alleviate these potential conflicts, but there are challenges associated with such an approach, including providers only taking on participants where they are confident of getting good outcomes and leaving more challenging participants without the opportunity to improve their independence. Assuming that there are no changes to fee arrangements or restrictions on who can deliver different services, this risk of conflicts further underlines the importance of developing and adhering to suitable controls, collecting information on the quality of provider services, and connecting capacity building services to participants' goals.

## 4.6 Inflation assumptions

There are several reasons why costs may increase over time including:

a. Higher prices
b. Shift towards more expensive services
c. Increases in support plans as people age
d. Higher utilisation of plans, including as a result of family members who may provide some informal care no longer being able to do so
e. Expansion of the types of services that people will expect the Scheme to fund.

The Scheme Actuary allows for these increases via inflation and superimposed inflation allowance. We understand that the allowance for higher prices is mostly captured through a standard inflation allowance while the other sources of cost inflation are captured via superimposed inflation.

The inflation assumptions are applied by type of support and differ for non-SIL and SIL participants.

### 4.6.1 Price inflation

Daily Activities and Social, Community and Civic supports were 73% of total support payments during 2020-21 and prices are assumed to increase by 3.5% p.a. The assumed level of price increase for these services is discussed in more detail below.

Prices for all other services are assumed to increase by 1.75% in 2021-22 then 2.25% the following year and 2.5% p.a. which is based on forecast CPI. The risks related to prices are less material compared to Daily Activities and Social, Community and Civic supports and are likely to largely mirror broader economic wage and price inflation. The CPI assumption of 2.5% is the middle of the RBA target range and as part of this review we are not assessing the reasonableness of RBA's assumption, noting that some economists think that inflation will be lower than this while others believe higher levels of inflation may emerge post-COVID.

Should the demand for specialised services, such as some types of modifications increase, this could put pressure on prices for some support types, but these are likely to be only a very small proportion of total Scheme costs.

#### Daily Activity and Social, Community and Civic supports

The inflation assumption for Daily Activity and Social, Community and Civic supports is 1% higher than forecast CPI largely based on anticipated increases in carer wages as set by Fair Work Australia. Over the past few years, wage increases (excluding the Equal Remuneration Order) for carers have been consistent with minimum wage increases.

For a standard hour of weekday care, the maximum price as per the NDIS price guide increased by less than carer wages in 2020-21 but by more in 2021-22. This followed a 're-basing' of costs at 1 July 2019 where prices rose significantly. Price increases vary by type of service so while the daytime rate in 2020-21 increased by 2.74% the weighted average across all Daily Activity services was approximately 3.1%.

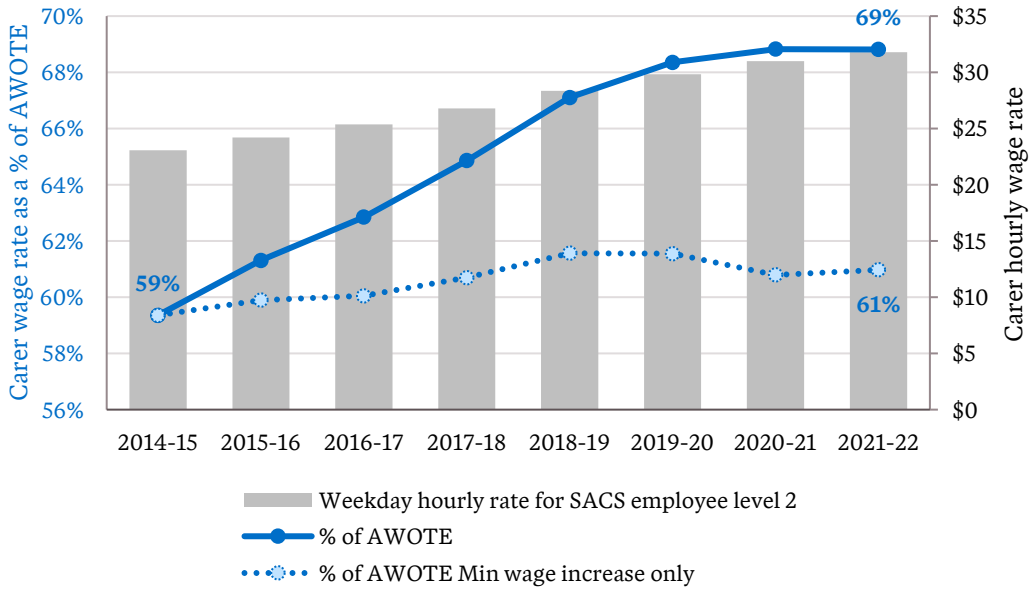
Table 4.4 – Comparison of carer wages increases and NDIS price guide increases

| Financial Year | Carer Wages / Minimum Wage | Equal Remuneration Order increase | Total increase in carer wages | Assistance With Self-Care Standard – Weekday | Difference |
|---|---|---|---|---|---|
| 2019-20 | 3.00% | 2.20% | 5.20% | 9.78% | +4.58% |
| 2020-21 | 1.75% | 2.20% | 3.95% | 2.74% | -1.21% |
| 2021-22 | 2.50% | - | 2.50% | 5.16% | +2.66% |

Taking a longer-term perspective, since 2015 carer wages (weekday rate for social and community services, level 2 employees at pay point 4) have increased from about 59% of Average Weekly Ordinary Time Earnings (AWOTE) to 69%. Of this 2% is attributable to the minimum wage increasing by more than AWOTE, and 8% ($3.62) relates to the Equal Remuneration Order. This is summarised in Figure 4.15. As the final Equal Remuneration Order increase occurred in December 2020 growth in carer wages will depend on whether:

- the minimum wage grows faster or slower than wages more broadly
- at some stage carers receive increases above the minimum wage
- there is a shift to carers either requiring higher qualifications or increasing their level of qualification to move into higher paid wage groups.

Figure 4.15 – Carer wages relative to Average Weekly Ordinary Time Earnings (AWOTE)




It is uncertain where carer wages will end up over the next ten years, but there is a risk that at some stage the growing demand from the aging population and from the NDIS could necessitate a larger increase. This risk could be compounded by supply side pressures if the workforce can't be replenished as baby boomer carers retire or reduce their hours. Should these risks manifest, it is plausible that carer wages increase in the order of 75-80% of AWOTE over the next ten to twenty years.

Wage related costs such as superannuation, leave and other on-costs add a further 37% to the base wage rate and are proportional to the base wage rates[13]. In addition, the NDIA includes in its pricing assessments loadings for supervision, casual employees, breaks, training, overheads and margins. Of these, allowances for overheads and margins are estimated to be 14% of the rates paid to providers. The Disability Support Worker Cost Model 2021-22 report notes that the overhead allowance has increased, which demonstrates that these costs can increase faster than carer wages. The temporary transition payment (TTP) which commenced in 2019 was designed to help some providers build administrative capability and systems to meet the NDIA's requirements. This amount is being wound down over the next four years, but the need for the TTP demonstrates pressure on rates could re-emerge in the future.

As the largest purchaser of care services in Australia, the NDIA has a significant influence on prices in the care market. The current assumption that prices will increase by 3.5% p.a. is 1% p.a. higher than for the

[13] Table 4: National Disability Insurance Scheme – Disability Support Worker Cost Model 2021-22

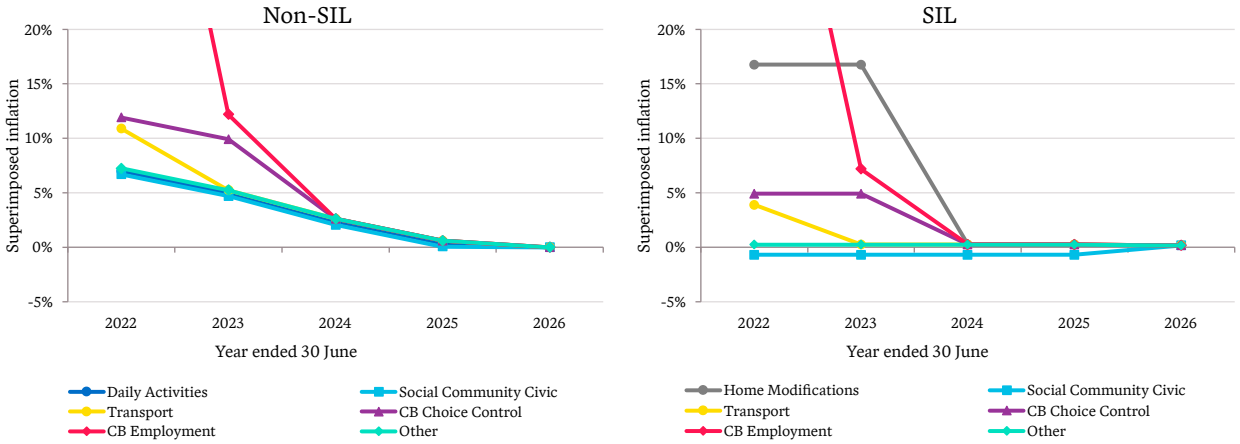
other services which implicitly allows for a combination of minimum wage increases being higher than CPI and potentially broader wage inflation (as capacity building services are only expected to increase by 2.5% p.a.) and/or increased overheads and margins to providers. The price inflation assumptions up to 2024-25 are reasonable, but beyond this we think that there is a non-trivial risk that at some stage over the subsequent five years rates for Daily Activities may increase at a faster pace due to the increasing demand for these services.

Although there is a high degree of uncertainty it would be beneficial if the NDIA were able to design a framework that assessed the long-term risks related to rates paid for Daily Activities. This could consider long-term demand and supply assessments that will drive prices over a ten- or twenty-year horizon. We acknowledge the challenges this poses and that such analysis, especially if it indicates higher prices, must avoid being self-fulfilling.

### 4.6.2 Superimposed inflation

As described above the superimposed inflation allowance captures a range of non-price related effects, these are summarised in Figure 4.16.

Figure 4.16 – Projected superimposed inflation




In total, superimposed inflation contributes $5.0B to payments in 2025 and $7.4B in 2030. More than 70% of these amounts relate to Daily Activities, Community and Civic supports, and Capacity Building for Daily Activities. The non-SIL superimposed inflation allowances for these supports are expected to be more than 5% during 2022 then reduce to around 2.5% by 2024 and 0% from 2026 onwards. This implicitly means that average costs for a given cohort of participants is assumed to stabilise (in real terms) within the next five years.

For most supports, superimposed inflation for people in SIL is less than 0.25% p.a. noting that for Social, Community and Civic supports it is negative (i.e. costs are forecast to reduce) over the next three years (and are zero thereafter). Also of note is that superimposed inflation for CB Employment supports is assumed to be more than 50% in 2021-22 with further large allowances over the following two years. This increase relates to a new pricing framework which introduces an hours-based, per-participant model, the overall impact of which is $0.2B in 2024-25.

We have been provided with a breakdown of the constituent components of the superimposed inflation allowances for each support category. This is shown in Table 4.5.

Table 4.5 – Source of superimposed inflation by support category

| Support Category | Source of superimposed inflation | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Utilisation | | Other additional inflation | | Unwind of TTP | | Support Specific | |
| | Non-SIL | SIL | Non-SIL | SIL | Non-SIL | SIL | Non-SIL | SIL |
| Daily Activities | Yes | Yes | Yes | No | Yes | No | No | No |
| Social Community Civic | Yes | Yes | Yes | No | Yes | Yes | No | No |
| Transport | Yes | Yes | Yes | No | No | No | Yes | Yes |
| Home Modifications | Yes | Yes | Yes | No | No | No | No | Yes |
| CB Choice Control | Yes | Yes | Yes | No | No | No | Yes | Yes |
| CB Employment | Yes | Yes | Yes | No | No | No | Yes | Yes |
| Support Coordination | Yes | Yes | Yes | No | No | No | Yes | Yes |
| All other supports | Yes | Yes | Yes | No | No | No | No | No |

**Utilisation**: All supports are expected to have increased utilisation of 3.75% for non-SIL participants and 1.5% for SIL. This difference reflects that in the June 2021 quarter SIL utilisation is higher than non-SIL (95% vs 74% after respreading residential aged care payments) and hence the superimposed inflation allowance only partly closes this gap. It also means that scope still remains for large increases in non-SIL utilisation. As shown in Figure 37 of the 2020-21 AFSR, over the past year non-SIL utilisation has increased by approximately 11% compared to 6% for SIL. The growth in non-SIL utilisation is assumed to occur over the next four years only, whereas the SIL growth is spread over a longer time horizon. In total, growth in utilisation represents an increase of 2.7% in payments in 2024-25 and 3.1% by 2029-30.

**Other additional inflation**: This allowance only relates to non-SIL costs and is largely in response to, at least partially, allowing the high rate of cost escalation to continue for the next three years. As outlined in Section 3.2 this allows for:

- Higher than expected price increases
- A shift towards more expensive services
- Higher volumes of services being purchased. This can arise from:
  - Combinations of increased utilisation and increases in packages
  - Participants becoming less reliant on informal care supports over time
  - Transitions to lower level of functional ability
  - Duration effects (e.g. people see faster increases in payment levels in their first few reviews)
  - Cross-sectional effects (e.g. people transitioning to different age bands but not taking on the assumed payment levels of that new age band)

The Scheme Actuary has a total superimposed inflation allowance of 14% and although this could cover a wide range of sources it seems likely that it will mostly relate to growth in some combination of committed supports and utilisation for non-SIL costs. This implies that underlying support volumes could increase by up to 14% over four years.

If this superimposed inflation allowance does not end up being volume driven it could be used to meet the cost of unforeseen price increases. However, we note that no such allowance is available for SIL costs.

The overall allowance of 14% for non-SIL costs equates to 10% of total costs, with all of this allowance assumed to occur by 2024-25. Given that this additional inflation is in effect a catch-all bucket, should actual superimposed inflation be less than expected it may be necessary to ascertain if this is a delay in when higher costs may emerge (i.e. push out any 'savings' into future payment years) or whether it is a real and sustainable reduction.

**Unwind of the TTP:** The temporary transition payment was a 7.5% increase in 2019/20 which has already been reduce to 6% and this reduction will continue for the next four years until it is completely removed. This allowance is easy to measure and seems uncontroversial with limited judgement required. The main risk attached to this, is if some providers have not fully updated their systems and processes by the end of the TTP period and another similar allowance was applied, but this seems to be a relatively small risk.

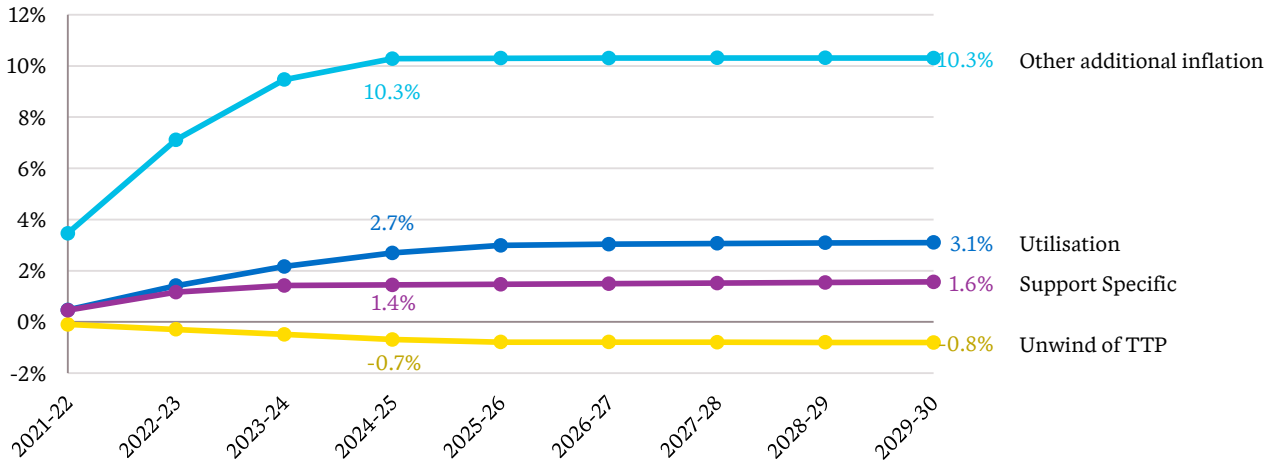
**Support Specific:** There are a number of other targeted superimposed inflation allowances which includes the following:

- Transport: 3.7%
- Plan Management: 9.3%
- Employment: 59%
- Support coordination: 16%
- SDA home modifications for SIL costs only: 33%

Although some of these are very large increases in isolation, they are being applied to smaller support categories which means that they increase overall costs by only 1.4% ($0.5B) in 2024-25 or 1.6% ($0.8B) in 2029-30. Of these amounts about 70% relates to the allowance for support coordination as more people transition to having self-managed plans and high fees for employment services.

The overall impact of the superimposed inflation allowances is to increase payments in 2024-25 by about 13.7% which increases to 14.2% by 2029-30. This is summarised in Figure 4.17.

Figure 4.17 – Cumulative impact of superimposed inflation on total projected payments




The unwinding of the TTP and other support specific allowances are based on relatively well-known changes, while the growth in utilisation and other additional inflation allowances require more judgement. Assuming growth in these last two assumptions based on recent trends would lead to very high projected payments, and therefore the assumptions imply slower growth in the future. Having some degree of lower growth is reasonable, noting that there are a wide range of plausible assumptions.

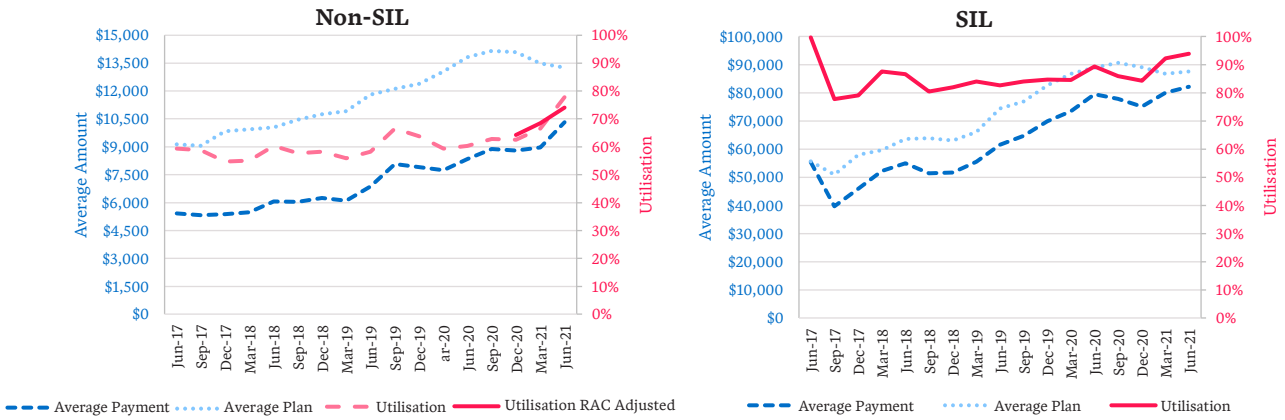
As shown in Figure 4.17, almost all of the superimposed inflation is assumed to occur by 2024-25 with minimal amounts assumed over the subsequent five years. While we recognise there is a high degree of uncertainty, but In our opinion, it would take considerable operational effectiveness to avoid

superimposed inflation from 2025 through to 2030 – so one interpretation of the current allowances is that some initiatives are implicitly assumed to occur during this period. The type of superimposed inflation risks from 2026 onwards could relate to general increases in plans or utilisation, or the cost or use of specific support services, similar to those driving the 'support specific' increases over the next two years.

## Scenario Testing: Implied levels of utilisation

Figure 4.18 shows that over the past year non-SIL utilisation has increased, and after respreading the cost of residential aged care, we calculate that in the June 2021 quarter utilisation was 74%. For SIL participants it was 95%.

### Figure 4.18 – Historical utilisation




For non-SIL costs one can make a judgement as to the likely theoretical maximum level which utilisation may reach. To test the reasonableness of the projections, we have assessed the upper bound for utilisation implied in the projections which can be measured against what one presumes the theoretical maximum to be. If the upper bound is below the theoretical maximum, it provides one check that the projected payments are not unreasonably high.

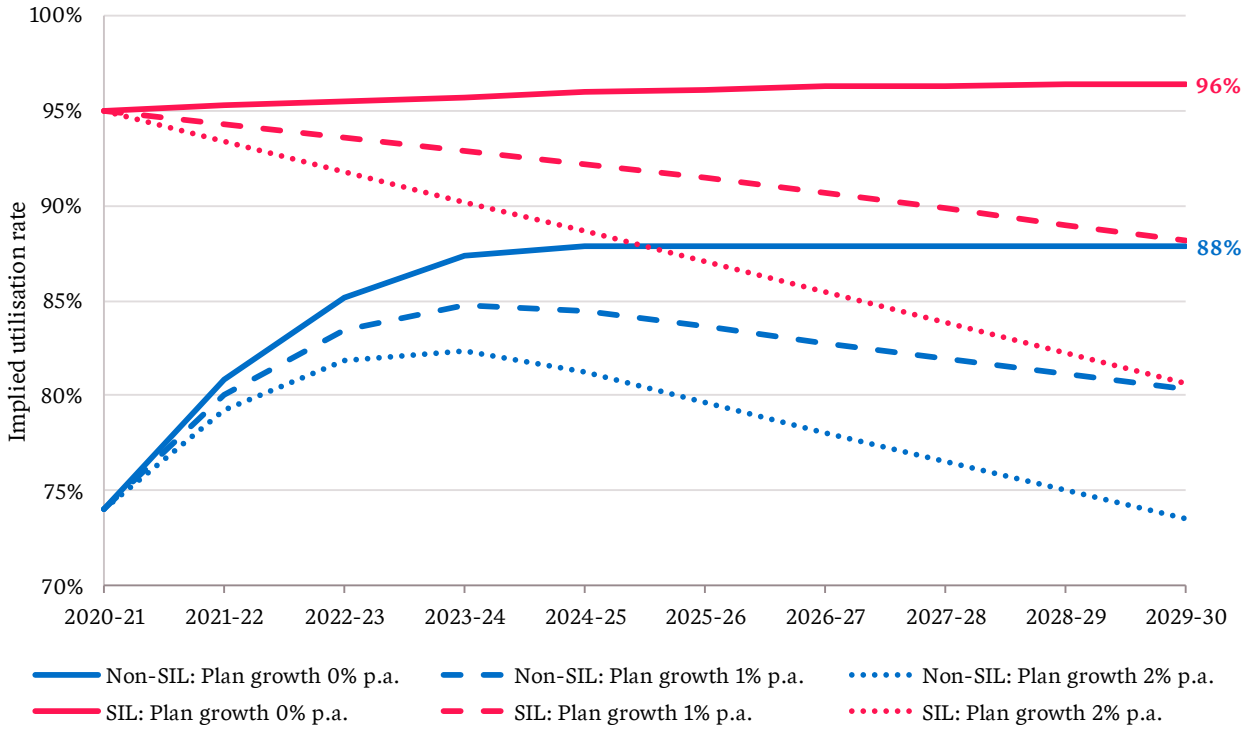
In order to test the upper bound levels of utilisation implied in the projections we assume that:

- future payments are consistent with the AFSR projections
- price increases are as per Section 4.6.1
- age-related changes in support costs match the projection model assumptions
- the unwind of the TTP and support specific cost increases match their superimposed inflation allowances
- there are no other changes to functional levels, no duration effects etc

In making these assumptions it means that the only reason why payments will increase is from a combination of higher packages and utilisation. This effectively means that the superimposed inflation allowances for 'utilisation' and 'other additional inflation' will be used to meet the growth in support volumes.

On this basis, Figure 4.19 shows the implied utilisation from three scenarios with different levels of increase to average packages, noting that projected payments are the same as the AFSR projections in all three scenarios.

Figure 4.19 – Projected utilisation based on growth in committed support scenarios




If committed supports remain stable, then the model implies utilisation from 2024-25 onwards of 86% for non-SIL and 96% for SIL participants. Although we do not have a view as to what the theoretical maximum level of utilisation may be, having an upper bound for non-SIL utilisation of 88% does not appear to be unreasonably high. If one thought that utilisation would not exceed 85%, then in this case it this would mean that projected non-SIL payments could be overstated by a maximum of 3 percentage points, equivalent to $1.0B in 2024-25 and $1.4B in 2029-30.

If non-SIL packages increased by 1% p.a. then the higher plans would mean that utilisation in 2029-30 would drop to 80%, leaving greater scope for subsequent utilisation growth and potentially higher payments. This demonstrates the importance of monitoring and containing aggregate growth in committed supports for a sustained period and the implications if this cannot be achieved.

## 4.7 Other assumptions that we have reviewed

### Mortality assumptions

People with disabilities have higher mortality rates than the average population. The model allows for this by applying a mortality multiplier to the base population-wide mortality rates (Australian Life Tables 16-18). The mortality multiplier varies by age, gender, disability groups and functional levels to capture the differences in mortality experience between the various sub-cohorts. For example, the average mortality relativity for a participant with other neurological disabilities is 23.5 times that of an average Australian.

While the applied relativities are mostly unsmoothed, the approach to mortality and the aggregate mortality assumptions seem reasonable. Experience has broadly been in line with assumptions set in the 2018-19 AFSR, as shown in the table below. In the two years to June 2021, overall mortality rates were 8% lower than expected compared to projections from the 2018-19 AFSR. The largest contributors are lower than expected deaths for participants with Intellectual Disability or Other Neurological disability. Some of this difference has been reflected in the latest assumptions.

Table 4.6 – Comparison of actual and expected mortality over the past two years

| Year | Expected (2018-19 AFSR) | Actual | Ratio |
|---|---|---|---|
| 2019-20 | 3,455 | 3,281 | 95% |
| 2020-21 | 4,030 | 3,605 | 89% |

### Population growth assumptions

The model is relatively insensitive to population growth assumptions, which we show in Section 6. The main action of population growth assumptions is to gradually increase the number of entries over time. While relatively simple, the current approach is fit for purpose and assumptions reasonable.

The assumptions have been updated in the 2020-21 AFSR to reflect a short-term slowdown in population growth (primarily driven by lower immigration during the pandemic).

# B

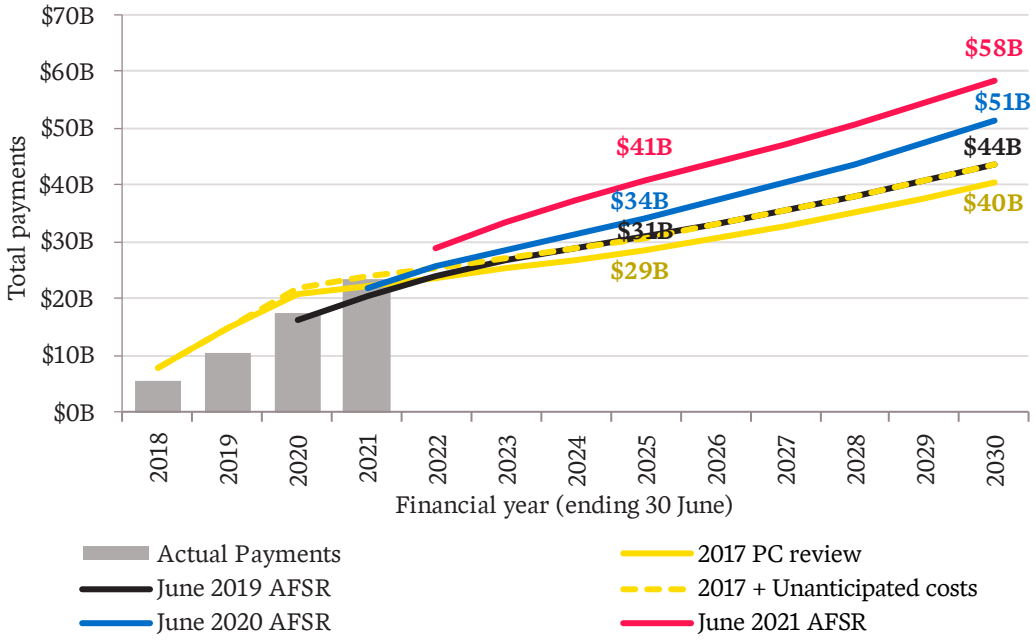
# Drivers of Scheme cost and changes since 2017

# 5 Quantification of changes in projected payments since 2017

Figure 5.1 shows that from the June 2017 PC review to the 2018-19 AFSR there was minimal change in projected payments from 2024-25 onwards, aside from the inclusion of unanticipated costs (difference between the two yellow lines), whereas since 2019 projected payments have increased significantly.

Given these two distinct phases, combined with changes in the modelling approach at June 2019, we have separately assessed the changes in projected costs from the 2017 to 2019 estimates and then from the 2019 to 2021 projections. The analysis is performed based on projected cash payments rather than the accrued cost which is approximately 1.37% higher.

Figure 5.1 – Change in projected payments from different forecast models




## 2017 Productivity Commission (PC) estimates to 2018-19 AFSR

The 2017 PC estimates of NDIS costs was an update to its 2011 estimates, with inflation adjustments the main component. The original 2011 estimates used existing sources (primarily the ABS Survey of Disability, Aging and Carers) to estimate the numbers eligible for the Scheme and a distribution of functional capacity. Per person costs were then assumed based on the estimated volume and scope of supports, by age and severity. International comparisons were used as a check that the resulting increased spending appeared reasonable.

Following the 2017 PC review additional unanticipated costs relating to such things as school transport and including children with developmental delay were covered by the Scheme and were not factored into the PC report. The Scheme Actuary has separately estimated these costs (Table 36 of the 2020-21 AFSR which is reproduced below) and added them to the original PC projections. We understand that there are ongoing discussions regarding who will ultimately be responsible for some of these costs. We discuss the reasonableness of these allowances in Section 7.6.

Table 5.1 – Projected 'unanticipated' costs ($B)[14]

| Nature of unanticipated cost | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|
| National Injury Insurance Scheme offset not fully operational | 0.5 | 0.5 | 0.6 | 0.6 |
| Children with developmental delay | 0.5 | 0.5 | 0.6 | 0.6 |
| School transport | 0.4 | 0.4 | 0.4 | 0.4 |
| Personal care in schools | 0.3 | 0.3 | 0.3 | 0.3 |
| Disability related health supports | 0.2 | 0.3 | 0.3 | 0.3 |
| **Total** | **1.8** | **2.0** | **2.2** | **2.3** |

Note: Components may not sum to totals due to rounding.

Given that the Scheme only commenced in 2016, the PC and initial Scheme Actuary projections estimated average support needs derived mostly from external sources. From June 2019 onwards more weight was placed on observed Scheme experience.

The 2017 projections had steeper growth than actually occurred, however, from 2024 onwards the two forecasts are almost identical. This means that even after allowing for the $5.7B increase in payments observed over the past year, payments for 2020-21 remain below the adjusted PC estimate but are $2.7B higher than the 2018-19 AFSR projections.

The main difference between the 2017 and 2019 projections relates to the speed at which people were expected to join the Scheme, but with both estimates having similar participant numbers by June 2024.

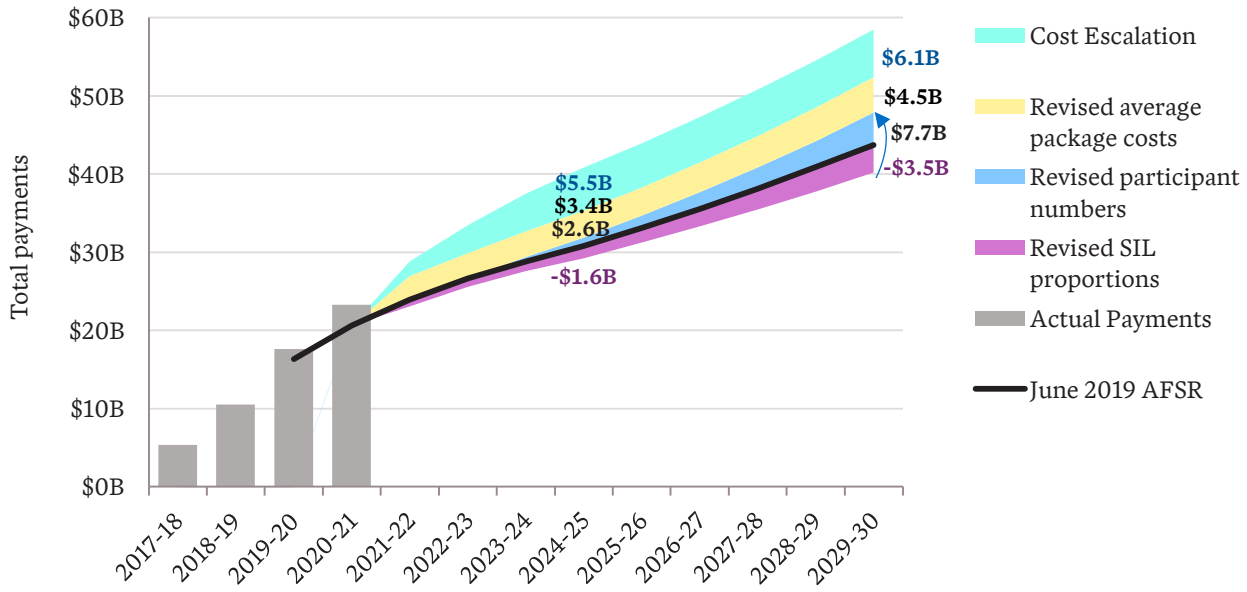
The PC estimates are made using high-level assumptions, many of which were based on their original 2011 analysis. For this reason, a reconciliation between current projections and PC estimates is difficult. Since the PC estimates align well with the 2018-19 AFSR, which is more amendable to comparison, we focus much of the remaining discussion on this comparison.

### 2018-19 AFSR to 2020-21 AFSR

Since June 2019 there have been increases in projected costs relating to a combination of more participants, larger average support packages and higher inflation. The reasons for the changes are consistent across different projection years and therefore we focus on quantifying the changes in payments during 2024-25 and 2029-30 between the two AFSRs.

[14] We understand that separate bilateral negotiations are being undertaken to determine whether student transport, along with personal care, continue to be within scope of the scheme, with proposed changes, if agreed multilaterally, to be effective from 1 January 2023.

Figure 5.2 – Change in projected payments from 2018-19 to 2020-21 AFSR estimates




Note: Because the SIL proportion (purple area) is a reduction, the increase relating to revised participant numbers needs to be measured from the bottom of the purple area

To produce this attribution we have used the following method. Starting with the 2018-19 AFSR model assumptions and structure we:

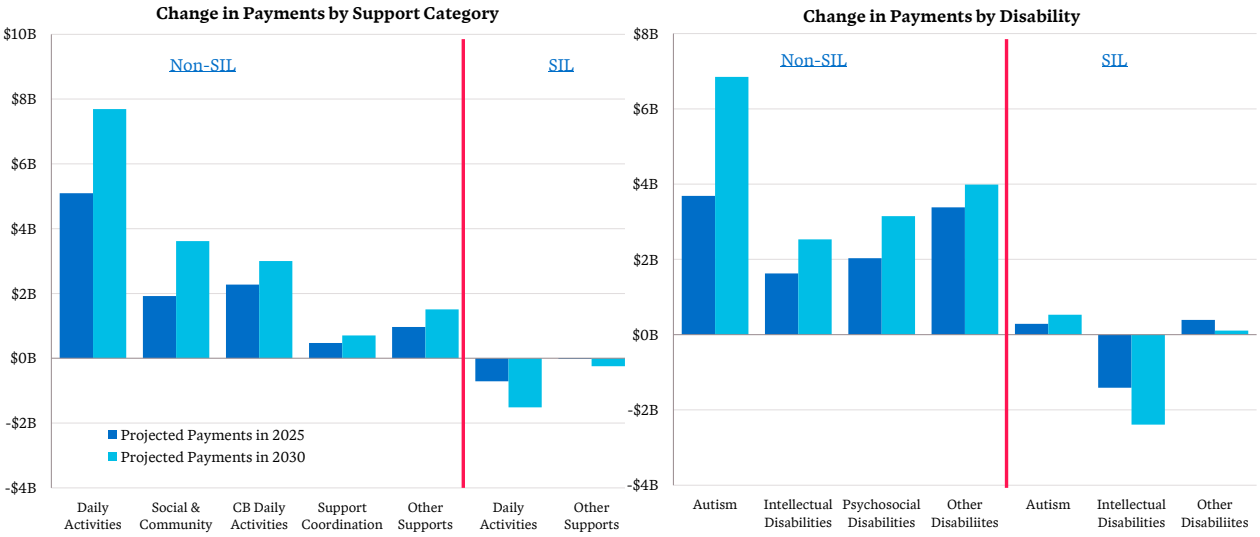
- Substitute in the 2021 starting number of participants and the assumptions around entrants, transitions and exits
- Substitute in the 2021 assumptions of initial and future SIL rates
- Substitute in 2021 average cost assumptions for each cohort
- Substitute in inflation assumptions.

The average cost assumptions used by the Scheme Actuary are the assumed support costs at June 2021 for different participant cohorts. In quantifying the impact of how these have changed since the 2018-19 AFSR we took the 2019 assumptions and indexed them in accordance with the cost escalation assumptions from the 2019 report for the first two projection years. Therefore, the changes in the cost escalation assumptions measure the change in the rate of growth in costs (both from price and non-price factors) from 1 July 2021 onwards between the 2018-19 and 2020-21 AFSRs.

The differences between the 2018-19 and 2020-21 AFSRs are explored in more detail in the following sections. It is worth noting that due to the interaction between assumptions, the order in which changes are made affects how the increase in costs is attributed.

Over the next four years to 2024-25, higher average package cost is the main reason for the increase relative to the 2018-19 AFSR, whereas by 2029-30 it is the ongoing growth in participant numbers which is the largest driver of the increase.

Figure 5.3 – Difference in projected payments between 2018-19 and 2020-21 AFSR forecast models, selected support types and disability categories




For non-SIL costs, most of the increases in payments relate to Daily Activities, Social and Community access as well as capacity building for daily activities. These services are spread across most disabilities, with autism, intellectual and psychosocial disabilities having the largest shares. Autism costs in particular are projected to increase significantly. Total daily activity costs for SIL participants, especially those with intellectual disabilities, are forecast to increase slower than the 2018-19 AFSR estimates as fewer participants are now expected to be in SIL.

## Comparisons to other AFSR estimates

Between June 2019 and June 2021 there have been other forecasts made, most recently the 2019-20 AFSR and the December 2020 interim AFSR. We have reproduced the NDIA's summary table of comparisons for convenience.

Table 5.2 – NDIS projected costs, accrual basis ($B)

| | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|---|---|
| Actual Costs (accrual) | 5.4 | 10.5 | 17.6 | 23.2 | | | | |
| 2017 PC estimates (including unanticipated costs) | | | 21.9 | 23.8 | 25.5 | 27.2 | 29.0 | 30.8 |
| June 2019 AFSR | | | 16.7 | 21.1 | 24.2 | 26.9 | 28.9 | 30.8 |
| June 2020 AFSR | | | | 22.3 | 26.1 | 28.9 | 31.4 | 34.3 |
| Dec 2020 AFSR | | | | | 28.1 | 32.9 | 36.9 | 40.7 |
| June 2021 AFSR | | | | | 29.2 | 33.9 | 38.0 | 41.3 |

Note: All numbers except final row taken from the June 2021 quarterly update. June 2021 numbers taken from the 2020-21 AFSR.

The June 2020 and December 2020 forecasts take values between the June 2019 and June 2021 levels, indicating that assumption changes have been made over time. We have not performed a detailed analysis attributing assumption changes for the intermediate AFSR, but in broad terms:

- Most of the increase related to future **participant numbers** was applied in the December 2020 interim update; the long-term number of entrants was increased by roughly 50% and the short-term lowering of exit rates was applied.
- The increase related to rising **average package costs** has been recognised incrementally. These assumptions are tied to actual levels, which have generally been higher than expected at each timepoint.
- While individual components of **cost escalation** (inflation plus superimposed inflation) have varied over time, the largest increase was applied in the (June) 2020-21 AFSR, with smaller increases in the preceding reports.
- Much of the reduction related to **future SIL number assumptions** is concentrated in the 2020-21 AFSR, where a much lower growth trajectory is assumed.

In particular, this means that compared to the December 2020 interim report, the 2020-21 AFSR has a reduction in SIL numbers, increases to average package costs, and strengthened cost escalation assumptions.

We note other forecasts exist, such as those related to budget estimates and those from the Parliamentary Budget Office. We have not reviewed these in detail but understand that recent estimates lie between 2018-19 and 2020-21 AFSR numbers, so likely reflect gradual recognition of emerging experience.

## 5.1 Number and characteristics of participants

| | 2024-25 | 2029-30 |
|---|---|---|
| Change due to assumptions around number & characteristics | +$2.6B | +$7.7B |

There are several factors which contribute to the increase associated with participant numbers and characteristics. Similar to the overall attribution, we started with the 2018-19 AFSR model and then:

- Substituted in the revised number of projected participants, assuming the mix was the same as per the 2018-19 AFSR model
- Applied the projected 2021 disability mix but maintained the functional mix from 2019
- Within each disability we then applied the 2021 functional mix
- Applied the 2021 age distribution, which after all the changes above results in the projected participants being the same as the 2020-21 AFSR model.

Table 5.3 – Breakdown of increase in projected payments: Participant number and characteristics ($B)

| Change in assumption | 2024-25 | 2029-30 |
|---|---|---|
| Number of participants | 6.8 | 15.0 |
| Disability mix | -3.5 | -4.0 |
| Functional Level / Severity mix | -0.9 | -4.0 |
| Age Mix | 0.3 | 0.7 |
| **Total** | **2.6** | **7.7** |

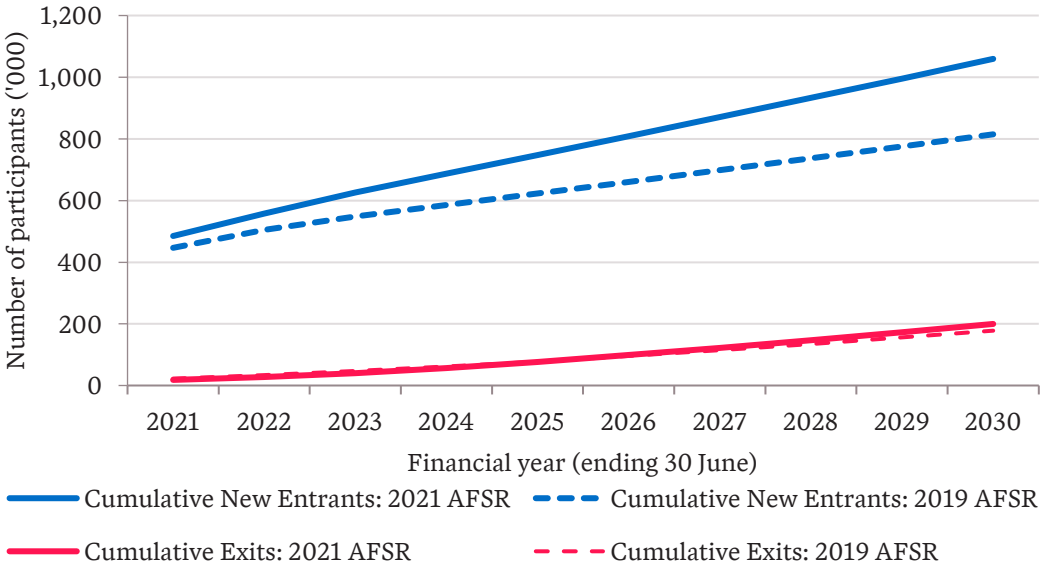
Note: Components may not sum to totals due to rounding.

### 5.1.1 Number of participants

The number of participants in the Scheme at June 2025 is projected to be 23% higher than the 2018-19 AFSR forecast which, all else being equal, increases the projected payments in 2025 by $6.8B. Under the revised projections, the number of participants at June 2025 is about the same as was expected to be in the Scheme in 2030 under the 2018-19 AFSR assumptions.

Growth is expected to continue after 2025 with the Scheme expected to have more than 850,000 participants by 2030. The growth in the number of participants in the Scheme at any point is a combination of the number of new entrants and the number of exits. These are discussed in more detail below, but it is more new entrants that is the main reason why projected participant numbers are so much higher than the estimates from 2019.

Figure 5.4 – Comparison of projected cumulative entrants and exits




#### New entrants

The staggered nature of the roll-out means that some sites have been operating longer than others. These older sites are not seeing the number of new entrants slow down and this level of growth has been assumed to continue for all sites. As shown in Figure 5.4 the number of people who have entered the Scheme to date is only about 40,000 (10%) higher than was forecast in 2019 but this is expected to increase to 125,000 by 2025, and nearly 250,000 (30%) by 2030.

By 2030 the Scheme is expected to have accepted 1.1 million people which equates to 3.6% of the forecast population.

#### Exits

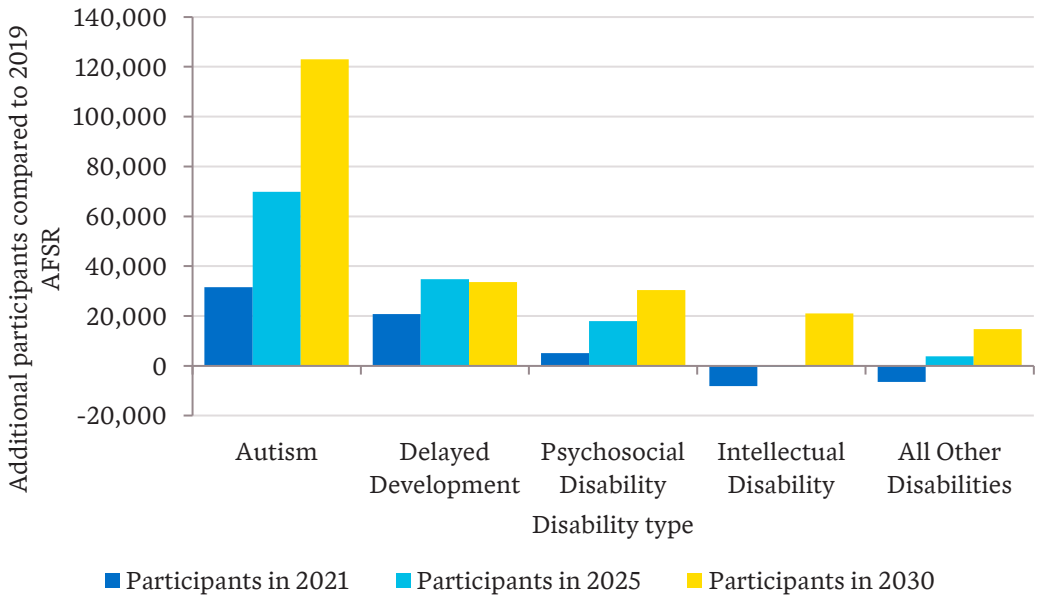
Despite having significantly more new entrants, the number of exits is expected to be similar to the 2018-19 AFSR forecast. This means that the proportion of participants in the Scheme in 2030 will be 81% of all entrants to that point, compared to 78% forecast from 2019.

There are several reasons why people will exit the Scheme. In the model, the main distinction are exits due to death (mortality) and other exits. The reduction in non-mortality exit rates, reflecting continued experience, is one factor which means that 2020-21 AFSR exits are close to 2019 levels despite the higher number of participants in the Scheme.

### 5.1.2 Type of disability

The amount of support required varies significantly depending on the type of disability that people have. The growth in the number of participants is concentrated toward less severe disabilities and hence this results in a $3.5B reduction in payments during 2024-25, just over half of the increase attributable to having more participants.

Figure 5.5 – Breakdown of additional participants by disability compared to 2018-19 AFSR




By 2025 the Scheme is expected to have an additional 126,000 participants compared to the 2019 projections, of which more than half are expected to have autism. There are also expected to be a lot more people with delayed development and psychosocial disabilities. While the number of participants with delayed development is projected to stabilise after 2025, participants with autism, psychosocial and intellectual disabilities are assumed to grow to 2030 and beyond.

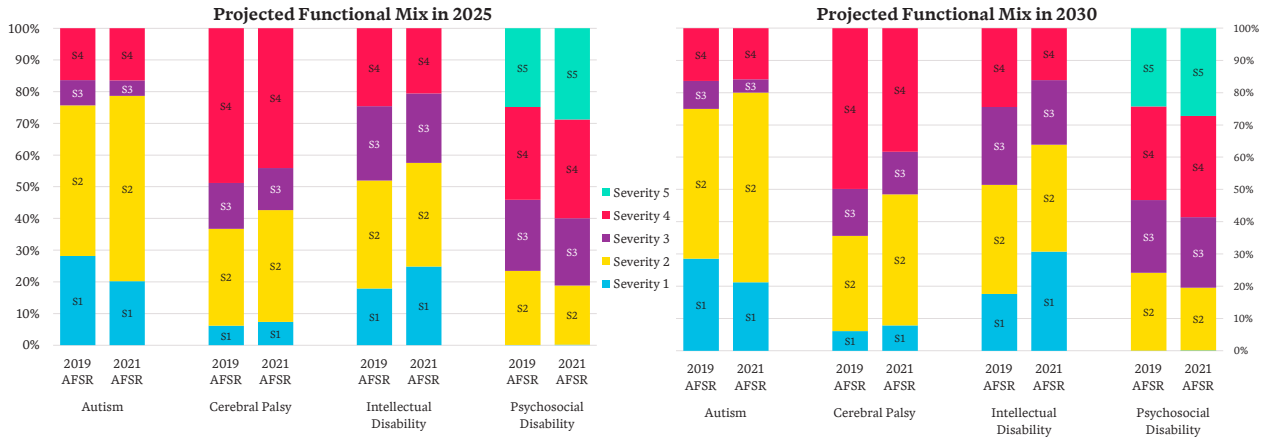
### 5.1.3 Functional Level (Severity of disability)

Within each type of disability, the Scheme Actuary segments participants into different functional groups, which range from two groups for people with visual impairment up to nine for spinal cord injuries. These subgroups allow the Scheme Actuary to reflect different levels of disability and associated supports.

We have noted in section 3.3 some of the difficulties around the disability-severity groupings; comparisons between 2019 and 2021 have not explicitly allowed for transitions between different levels of function, even though this is present in the recorded data. Our discussion here focuses on the mix of severity bands as projected in the AFSR models.

As discussed above, most of the increase in participant numbers relates to a small number of disabilities. Within these groups the additional participants are expected to have higher levels of function and require less support. This shift to higher levels of function reduces the projected payments by $0.9B in 2025 and $4B in 2030. The disabilities where changes in the functional mix which have the largest impact on projected payments are summarised in Figure 5.6, with severity 1 participants having the highest level of function and hence the lowest average cost.

Figure 5.6 – Comparison of the severity mix within disability groups




The mix of participants with an intellectual disability is now projected to be much more weighted towards severity 1 and 2, resulting in a reduction to the average size (using 2019 cost assumptions) of 8% in 2025 and 17% by 2030. This large shift means that there are expected to be fewer severity 3 or 4 participants compared to the 2018-19 AFSR, despite having 17% more total participants in 2030. This has contributed to projected payments being $0.85B lower in 2025 and $3B lower in 2030. Therefore, should such a change in mix not occur there could be upward pressure on costs.

Cerebral palsy exhibits a similar change while autism has a larger proportion of participants in severity 2 with fewer people in both severity 1 and 3. In 2025 the change in mix for these two disabilities reduces payments by $0.13B which is forecast to increase to a $0.54B reduction by 2030.

Psychosocial disability is one of the few categories where the mix is expected to be more severe on average than the 2018-19 AFSR projection.

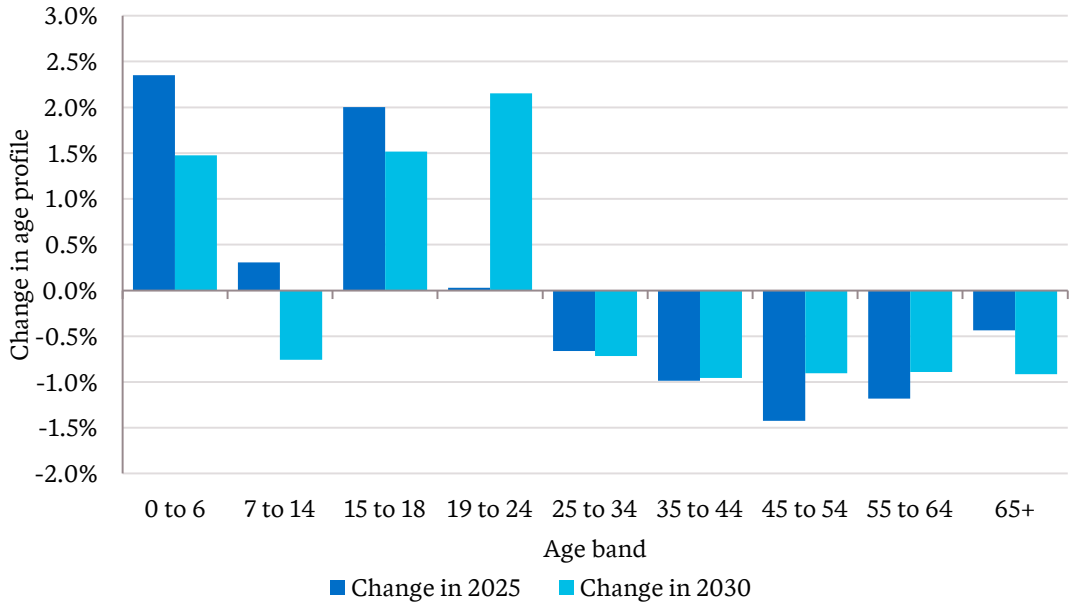
### 5.1.4 Age mix

After allowing for changes in the disability and functional mix, the remaining impact for changing the age mix within each disability-severity cohort results in a relatively small increase in projected payments. About 80% of the higher cost relates to changes in the age profile of autism, cerebral palsy and delayed development participants where more people are expected to be aged 15 to 24 and over 55, with a smaller proportion aged 7 to 14.

The Scheme provides limited access to new participants once they are over 65, but as those who entered at younger ages get older there will be a natural increase in the number of participants who are older than 65. Currently there are about 16,600 participants who are over 65, which equates to 3.6% of total participants. By June 2025 this is forecast to grow to nearly 37,000 participants (5.5% of total participants) and by 2030 there are forecast to be more than 60,000 people over 65 (7.1% of total participants). Payments in 2029-30 relating to people over 65 have increased from $5.1B to $7B. This is consistent with the increase in total Scheme payments between the 2018-19 and 2020-21 AFSRs and remain around 12% of total payments in 2029-30.

Relative to the 2018-19 AFSR projections there are expected to be approximately 4,500 more participants over 65 in 2025 and nearly 10,000 more in 2030, but they will represent a smaller proportion of total participants. This implies growth in younger participants will exceed the impact of aging.

Figure 5.7 – Change in age profile between the 2018-19 and 2020-21 AFSR




## 5.2 Number of people in SIL

| | 2024-25 | 2029-30 |
|---|---|---|
| Change due to assumptions around number of people in SIL | -$1.6B | -$3.5B |

As part of the 2020-21 AFSR, the Scheme Actuary has reduced the expected number of people in SIL following only 1,201 new SIL participants during the past year compared to 3,834 in 2019-20 when there was a large transfer from State/Territory and Commonwealth programs. At June 2021 there are 3,541 fewer SIL participants compared to the 2018-19 AFSR projections and this gap is expected to grow to 5,819 by June 2025 and 7,183 by June 2030.

Table 5.4 – Change in the number of people in SIL

| | Number at June 2021 | | Projected at June 2025 | | Projected at June 2030 | |
|---|---|---|---|---|---|---|
| **Participants** | 2018-19 AFSR | 2020-21 AFSR | 2018-19 AFSR | 2020-21 AFSR | 2018-19 AFSR | 2020-21 AFSR |
| Living in SIL | 28,861 | 25,320 | 35,179 | 29,359 | 42,337 | 35,154 |
| Total | 423,889 | 466,619 | 544,617 | 670,400 | 636,645 | 859,328 |
| Proportion in SIL | 6.8% | 5.4% | 6.5% | 4.4% | 6.7% | 4.1% |

The difference in the number of SIL participants is magnified when assessed as a proportion of the total number of participants, being about 6.5% in the 2018-19 AFSR to just above 4% under the latest estimates. About half of this difference can be attributed to changes in the mix of participants and more new entrants having less severe disabilities, but the remainder is accounted for by participants generally being less likely to move into SIL.

As the cost for people living in SIL is so much higher than those who do not, getting reliable and preferably stable estimates for the number of SIL participants is important. In Appendix B.5 we suggest some refinements which can be made to how SIL participants are projected.

## 5.3 Amount of support provided (actual experience to June 2021)

| | 2024-25 | 2029-30 |
|---|---|---|
| Change due to assumptions around amount of support provided | +$3.4B | +$4.5B |

In estimating the cost of changes in the volume and intensity of support provided, we have adjusted for the number and mix of participants, including changes in functional capacity and assuming that prices were as per the 2018-19 AFSR.

Changes in assumptions for the amount of support provided results in an overall increase of $3.4B in 2025 and $4.5B in 2030.

Table 5.5 – Breakdown of increase in projected payments: Amount of support provided ($B)

| | 2025 | 2030 |
|---|---|---|
| Average support assumptions | 4.1 | 6.3 |
| Cost for new entrants | -0.7 | -1.8 |
| **Total** | **3.4** | **4.5** |

### 5.3.1 Average support assumptions

Changes in average support assumptions have increased projected payments in 2025 by $4.1B and by $6.3B in 2030. Approximately 65% of these increases relate to supports for Daily Activities and are assumed to affect both non-SIL and SIL participants. Furthermore, participants with Autism, Intellectual Disability and Psychosocial Disabilities are expected to experience the largest increase in amount of support provided. Table 5.6 and Table 5.7 show a breakdown of the increase in projected payments in 2025 and 2030 respectively by support category and type of disability.

Table 5.6 – Breakdown of increase in projected payments in **2025**: Support category and disability ($B)

| | Autism | Intellectual Disability | Psychosocial Disability | Other disabilities | Total |
|---|---|---|---|---|---|
| Daily Activities – non-SIL participants | 0.1 | 0.4 | 0.4 | 0.6 | **1.5** |
| Daily Activities – SIL participants | 0.3 | 0.3 | 0.1 | 0.4 | **1.2** |
| CB Daily Activities – non-SIL participants | 0.4 | 0.2 | 0.1 | 0.5 | **1.2** |
| Other supports | -0.1 | 0.1 | 0.2 | 0.1 | **0.2** |
| **Total** | **0.7** | **1.0** | **0.8** | **1.6** | **4.1** |

Table 5.7 – Breakdown of increase in projected payments in **2030**: Support category and disability ($B)

| | Autism | Intellectual Disability | Psychosocial Disability | Other disabilities | Total |
|---|---|---|---|---|---|
| Daily Activities – non-SIL participants | 0.3 | 0.5 | 0.6 | 0.8 | **2.2** |
| Daily Activities – SIL participants | 0.7 | 0.5 | 0.2 | 0.5 | **1.8** |
| CB Daily Activities – non-SIL participants | 0.8 | 0.3 | 0.2 | 0.6 | **1.9** |
| Other supports | -0.2 | 0.1 | 0.3 | 0.1 | **0.3** |
| **Total** | **1.5** | **1.3** | **1.3** | **2.2** | **6.3** |

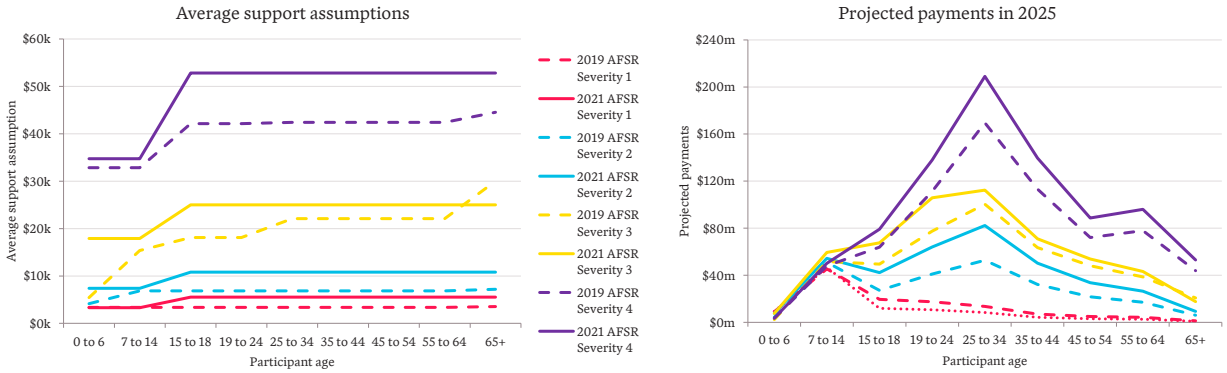
Note: Components may not sum to total due to rounding

### Functional level and age

Within each type of disability, the Scheme Actuary makes assumptions about the average payment size for each functional and age group, reflecting different level of support needs for each subgroup.

As discussed in section 3.1 there are 2,052 cohorts for which average size assumptions are set. For example, as shown in Table 5.6 payments in 2025 for non-SIL participants with intellectual disabilities are projected to be $0.4B higher than the 2018-19 AFSR estimate. Figure 5.8 summarises the impact of changes in average size assumptions for different functional and age groups on the overall projected payments in 2025.

Figure 5.8 – Average payment assumptions and projected payments in 2025 for Daily Activities support: non-SIL participants with Intellectual Disabilities




The Scheme Actuary has increased the average support assumptions for participants across all age groups and severity levels compared to the 2018-19 AFSR, except for Severity 3 participants aged 65+. For people with the same severity level, the Scheme Actuary has also maintained the assumption that costs for people aged 18+ will stay constant as they age. Combining the assumption changes with the number of participants in each subgroup, for people with intellectual disabilities, participants aged 19 to 34 have the largest influence on projected payments.

## 5.3.2 Cost for new entrants

The Scheme Actuary has analysed the amount of support that new entrants have been receiving relative to existing participants at the same time after they joined. They have concluded that even after adjusting for functional and age effects, new entrants are requiring less support and hence they have reduced projected payments for new entrants by 8.4% relative to existing participants.

## 5.4 Cost Escalation (beyond June 2021)

| | 2024-25 | 2029-30 |
|---|---|---|
| Change due to assumptions around cost escalation | +$5.5B | +$6.1B |

Changes in cost escalation assumptions (incorporated in the model as inflation, superimposed inflation and other adjustments) are a significant contributor to the higher projected payments leading to a $5.5B increase in 2024-25 and $6.1B in 2029-30. Table 5.8 shows that most of this relates to Daily Activities and Social, Community and Civic supports.

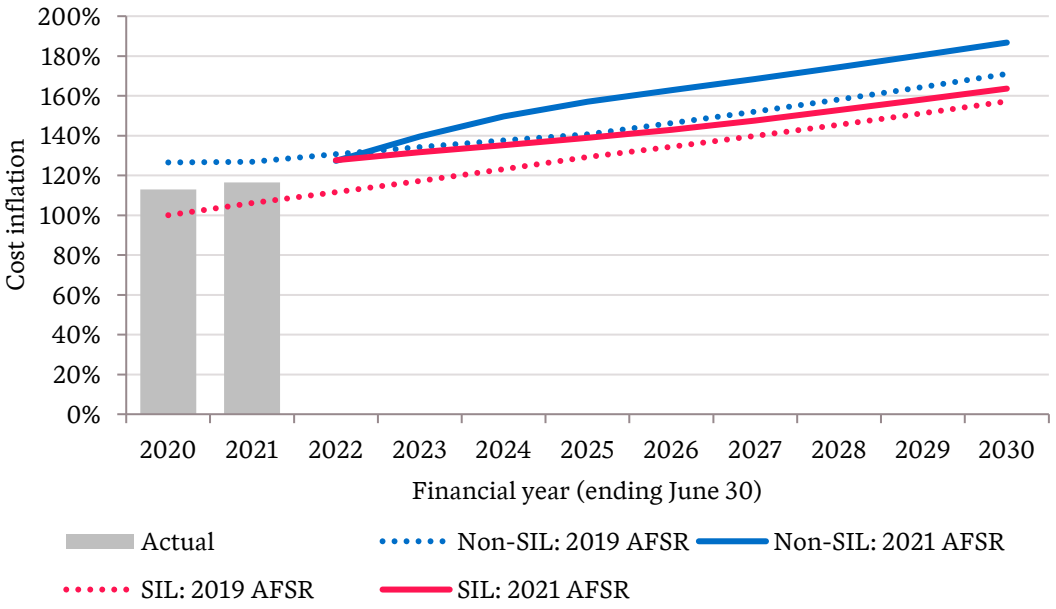
Table 5.8 – Breakdown of increase in projected payments: Cost inflation ($B)

| Support Category | Payments in 2024-25 | Payments in 2029-30 |
|---|---|---|
| Daily Activities | 2.7 | 3.1 |
| Social, Community and Civic | 1.3 | 1.8 |
| CB Daily Activities | 0.5 | 0.2 |
| CB Employment | 0.3 | 0.4 |
| Support Coordination | 0.2 | 0.3 |
| Other supports | 0.5 | 0.3 |
| **Total** | **5.5** | **6.1** |

As discussed in section 4.6 only part of the assumed cost escalation assumptions relates to price inflation, but for the purposes of measuring the impact of changes in escalation we have assumed that over the past two years price inflation is the only source of cost escalation. As the superimposed inflation allowance in the 2018-19 AFSR included both above inflationary price increases and non-price related increases, in order to compare the projections we have had to combine both base and superimposed inflation allowances.

Price inflation over the past two years is based on the change in prices as per the NDIS price guide, which are then weighted by the mix of services to derive an overall level of inflation. We have compared the overall projected inflation (base and superimposed) for Daily Activities and Social, Community and Civic supports in the charts below.

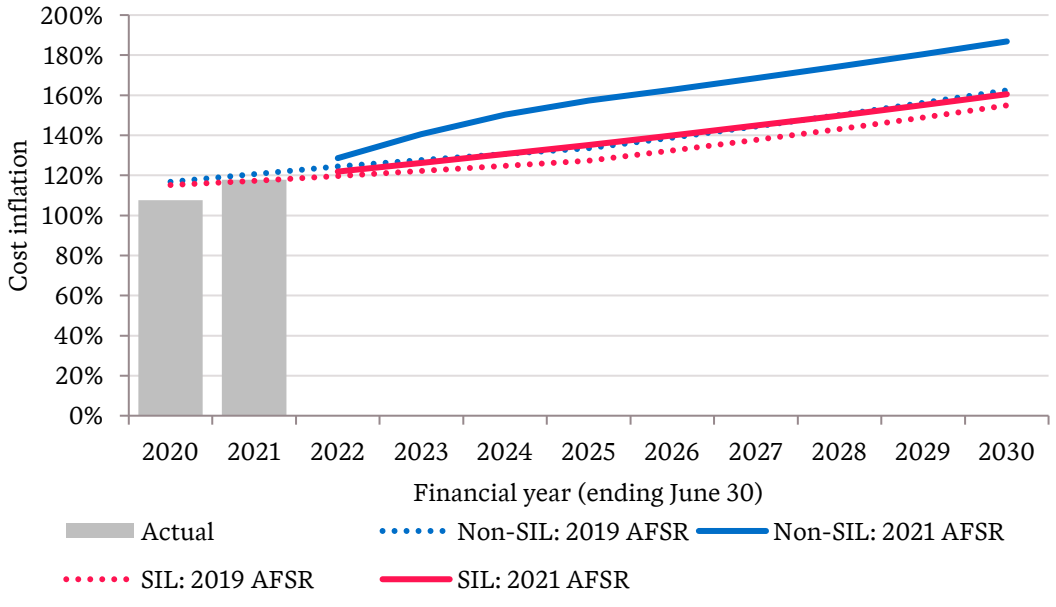
Figure 5.9 – Cost inflation assumption comparison: Daily Activities




Over the past two years non-SIL inflation has been lower than was projected but this may be partly attributable to the 2019 assumptions including non-price related increases. Although total non-SIL inflation for Daily Activities is expected to be similar during 2022, there has been a significant strengthening in assumptions for later years compared to the 2018-19 AFSR assumptions.

We understand that over the past two years increases in SIL have been similar to non-SIL costs. In contrast to non-SIL inflation, the gap relative to the 2019 assumptions is expected to narrow and be only 5% higher.

Figure 5.10 – Cost inflation assumption comparison: Social, Community and Civic




Inflation for Social, Community and Civic supports over the past two years has been slightly higher than was projected, but the allowance for future escalation for non-SIL costs from 2024 onwards is much higher than the 2019 assumptions.

## 5.5 Growth in projected payments

The changes in projected payments described above reflect the changes compared to previous projection bases. An alternative approach is to show the increase relative to the amount paid in a given year.

Table 5.9 – Breakdown of growth in projected payments

| | 2020-21 to 2024-25 | | | 2024-25 to 2029-30 | | |
|---|---|---|---|---|---|---|
| | Amount ($B) | Total % change | Annualised % change p.a. | Amount ($B) | Total % change | Annualised % change p.a. |
| **Payments in start year** | **23.3** | | | **40.8** | | |
| Average size (Aging etc) | 0.1 | 0.6% | 0.2% | -1.5 | -3.7% | -0.8% |
| Number of participants | 8.2 | 35.2% | 7.8% | 10.5 | 26.7% | 4.8% |
| Inflation | 4.2 | 13.2% | 3.1% | 8.5 | 17.1% | 3.2% |
| Superimposed inflation | 4.9 | 13.7% | 3.3% | 0.3 | 0.5% | 0.1% |
| **Payments in final year** | **40.8** | **75.0%** | **15.0%** | **58.5** | **43.3%** | **7.5%** |

Note: the total percentage changes are greater than the sum of the individual changes due to the effect of compounding. For example: (1+0.6%) x ( 1+35.2%) x ( 1+13.2%) x (1+13.7%)-1 = 75.0%

Inflation is expected to be stable at about 3.2% p.a. until 2029-30, whereas superimposed inflation is assumed to be 13.7% over the next four years (3.3% p.a.) but only be 0.5% during the five years to 2029-30. Although total payments in 2020-21 were $23.3B, we note that annualised payments in the June 2021 quarter (after spreading residential aged care costs across the whole year) was $25.4B.

The main source of growth is from participant numbers which are projected to increase by 44% from 2021 to 2025, followed by a further 28% increase to 2030. These additional participants are weighted towards lower support disabilities, especially over the next four years, and hence costs are projected to increase by 35.2% and 26.7% respectively as a result. This is the largest contributor to the increase in payments during these two periods. In section 5.1, the impact of participant numbers was smaller, in particular during the four years to 2024-25, which arises because the baseline estimates in those calculations was the 2018-19 AFSR which had some growth in participant numbers incorporated into the forecasts.

More than half of the increase in costs from participant numbers comes from autism and intellectual disabilities with psychosocial disabilities the third largest source. Developmental delay is expected to add more than 40,000 participants by 2029-30 but it has a relatively small impact on projected payments.

Table 5.10 – Growth in payments due to participant numbers ($B)

| | 2020-21 to 2024-25 | 2024-25 to 2029-30 |
|---|---|---|
| Autism | 2.7 | 4.5 |
| Intellectual Disability | 1.9 | 2.5 |
| Psychosocial disability | 1.1 | 1.2 |
| Developmental delay | 0.4 | 0.1 |
| Other Neurological | 0.5 | 0.5 |
| Cerebral Palsy | 0.3 | 0.3 |
| Stroke | 0.3 | 0.3 |
| All other disabilities | 1.2 | 1.0 |
| **Total** | **8.2** | **10.5** |

Note: Components may not sum to total due to rounding

# 6 Sensitivities and uncertainty

## 6.1 AFSR 2020-21 sensitivity and scenarios

Table 6.1 reproduces the combined effect of scenarios included in AFSR 2020-21.

The AFSR contains a range of scenarios. Based on our assessment and discussions with the Scheme Actuary the scenarios indicate more potential for higher costs than lower relative to the base case (that is, there is more upside risk to the baseline estimates).

The largest impacts are attributed to the high or low inflation scenarios. High rates of new incidence also have large impacts on the longer-term 2029-30 estimate.

Table 6.1 – Projected payments (accrual basis): AFSR 2020-21 scenarios ($B)

| Scenario – all participants | 2024-25 | 2029-30 |
|---|---|---|
| **Baseline projection** | **41.4** | **59.3** |
| | | |
| **Cost increase scenarios** | | |
| Two additional years of high inflation | 5.2 | 10.2 |
| Higher long term new incidence assumptions | 1.3 | 6.3 |
| Lower non-mortality exit rates | 0.5 | 2.7 |
| Higher cost of new entrants | 0.8 | 1.9 |
| Other | 1.3 | 3.3 |
| **Total of cost increase scenarios** | **9.1** | **24.3** |
| **Plausible high case (variance)** | **6.5** | **14.9** |
| **Plausible high case total (Baseline + High case variance)** | **47.8** | **74.2** |
| | | |
| **Cost reduction scenarios** | | |
| One year less of high inflation | -2.0 | -3.7 |
| Lower long term new incidence assumptions | 0 | -1.8 |
| Lower cost of new entrants | -0.8 | -1.9 |
| Other | -0.3 | -1.9 |
| **Total cost decrease scenarios** | **-3.1** | **-9.4** |
| **Plausible low case (variance)** | **-2.4** | **-6.1** |
| **Plausible low case total (Baseline + Low case variance)** | **39.0** | **53.2** |

The choice of scenarios and the way they have been combined to construct a plausible range are reasonable, although we note that the NDIS does not give a formal definition of plausible such as a percentile range.

## 6.2 Model sensitivity to assumptions

We have conducted further sensitivity and scenario testing to further understand how variations to assumptions could affect long-term cost. Table 6.2 shows the projected payment impact of changing a selection of key assumptions.

Table 6.2 – Breakdown of increase in projected payments: Sensitivities ($B)

| Scenario | 2024-25 | 2029-30 |
|---|---|---|
| **Participant number assumptions** | | |
| New incidences are as per the 2018-19 AFSR projections | -2.0 | -5.3 |
| Previous unmet need to continue into the future at the projected level for 2021/22 based on 2020-21 AFSR | +1.3 | +5.9 |
| Future non-mortality exit rates are consistent with the actual experience observed in 2020 & 2021 | +0.5 | +2.8 |
| From 2025-26 onwards, the number of new participants reduces to 40,000 per year | 0.0 | -3.8 |
| If prevalence rates for autism and developmental delay remain at levels observed at June 2021 | -3.6 | -10.1 |
| Number of people in SIL is 10% higher | +2.1 | +2.6 |
| **Average support assumptions** | | |
| Daily Activities payments grow by an additional 2% p.a. | +1.8 | +5.9 |
| Daily Activities payments for people aged 55+ increase by 10% | +0.7 | +1.0 |
| No variation by age for average support assumptions for people in SIL (i.e., people's future support levels will be the same as current assumed levels) | +0.3 | +0.7 |
| **Price change assumptions** | | |
| Daily Activities and Social Community Civic prices increase by an additional 1% p.a. | +1.1 | +3.8 |
| Prices for all other support costs increase by an additional 1% p.a. | +0.5 | +1.5 |
| Baseline Scheme long-term inflation is 4%, rather than 3.2% | +1.3 | +4.2 |

We observe that:

- The sensitivity testing makes clear that the 2029-30 cost estimates are far more uncertain than the 2024-25 estimates. This also relates to the increasing challenge of setting longer-term assumptions.
- Both New Incidence and SIL assumptions have a material impact on 2024-25 costs, in the order of $1B-$2B. The impact of the non-mortality exit scenarios is smaller than new incidence.
- Relatively same changes to support levels and price changes still have material impacts on 2024-25 costs, particularly for the larger payment categories. The compounding effect of having an additional 2% growth in Daily Activity costs means that it would add $1.8B to payments in 2024-25 increasing to $5.9B by 2029-30.

## 6.3 Other model inputs

The projection model also makes use of economic parameters. These tend to have a smaller overall impact on the model but are still worth highlighting. Table 6.3 summarises our results.

Table 6.3 – Breakdown of increase in projected payments: Sensitivities ($B)

| Scenario | 2024-25 | 2029-30 |
|---|---|---|
| Population growth follows latest Treasury projections[15] | +0.0 | +0.3 |
| Population growth follows ABS Series B[16] (medium) | +0.1 | +0.3 |
| Population growth follows ABS Series C (low growth) | +0.0 | +0.1 |
| Core inflation remains low at 1.5% (1% p.a. reduction in growth in all base inflation scenarios) | -1.6 | -4.9 |

Population growth assumptions have been reduced in the 2020-21 AFSR, reflected short-term drops in net migration. Alternative population growth rates generate only small changes to cost estimates.

A 1% change to a core inflation assumption has a much larger impact. While CPI is unlikely to remain 1% below long-term averages, the sensitivity of a 1% flex in cost growth is relevant to cost escalation considerations.

The AFSR also estimates the cost of the NDIS as a proportion of GDP. This is made up of inflation and additional growth. Table 6.4 shows a selection of alternative Gross Domestic Product (GDP) assumptions, including the 2020-21 Commonwealth Budget.

Table 6.4 – Alternative GDP assumptions

| | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Beyond 2024-25 |
|---|---|---|---|---|---|
| AFSR 2020-21 | 3.5% | 2.0% | 4.3% | 5.0% | 5.0% |
| Budget 2020-21[17] | 3.5% | 2.0% | 4.8% | 5.0% | 5.0%[18] |
| Low scenario (1% lower GDP growth than AFSR) | 2.5% | 1.0% | 3.3% | 4.0% | 4.0% |

Table 6.5 shows projected NDIS costs[19] as fraction of GDP under these corresponding alternatives. The results show that NDIS costs are expected to grow strongly as a fraction of GDP, and that this would be particularly acute if GDP growth slowed (but Scheme cost escalation did not).

[15] Growth rate is estimated based on entire Australian population (i.e., includes all ages). Source: https://population.gov.au/research/research-australias-future-population.html

[16] ABS series from https://www.abs.gov.au/statistics/people/population/population-projections-australia/2017-base-2066

[17] https://budget.gov.au/2021-22/content/bp1/download/bp1_2021-22.pdf

[18] Assumed GDP growth is 5.0% p.a. beyond 2024-25

[19] Scheme payments after efficiency dividend

Table 6.5 – NDIS costs as a fraction of GDP

| | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2029-30 |
|---|---|---|---|---|---|
| AFSR 2020-21 | 1.4% | 1.6% | 1.7% | 1.8% | 2.0% |
| Budget 2020-21[20] | 1.4% | 1.6% | 1.7% | 1.8% | 2.0% |
| Low scenario (1% lower GSP growth) | 1.4% | 1.7% | 1.8% | 1.9% | 2.2% |

## 6.4 Uncertainty in model forecasts

All forecasts carry uncertainty, and we have highlighted some of this throughout our discussion and sensitivity testing. One aspect of this that the sensitivity testing makes clear is that the 2029-30 cost estimates are far more uncertain the 2024-25 estimates. This also relates to the increasing challenge of setting longer-term assumptions. Participant numbers may continue growing strongly or could conceivably plateau; cost escalation may eventually revert to the forecast 3.2% or could see further unanticipated increases.

[20] https://budget.gov.au/2021-22/content/bp1/download/bp1_2021-22.pdf

# 7 Further analysis on key assumptions

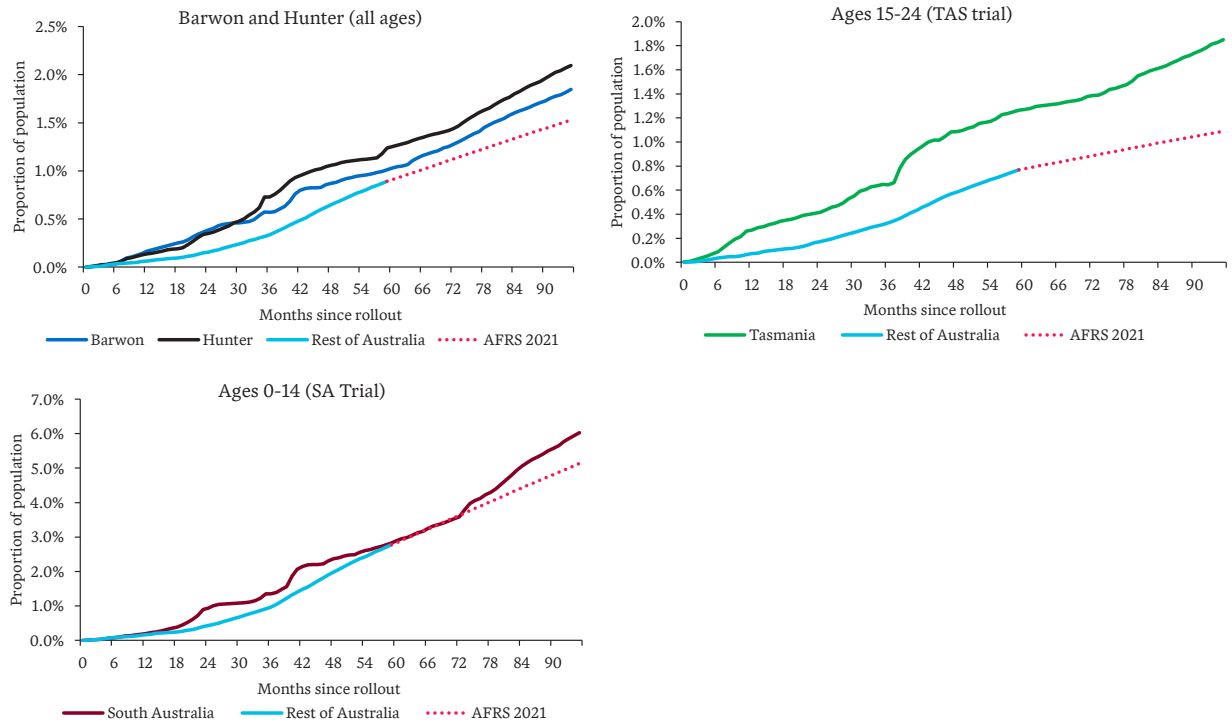
## 7.1 Further analysis on participant numbers

### 7.1.1 Experience of participant numbers in trial regions

The key trial regions started about three years before the general Scheme rollout, albeit with some specific timing and operational variations. These can be used as evidence for what the broader Scheme numbers might look like in the future. In particular, whether there is any evidence of a plateau in entries from outside existing State and Commonwealth Schemes.

We have expressed growth in participant numbers (for those entering from outside existing schemes) as a proportion of the relevant population in Figure 7.1. Strikingly, in all the trial regions numbers have continued to grow linearly beyond year 4 and 5. In most cases the actual growth in trial regions is outpacing the projected growth in the 2020-21 AFSR assumptions too. The figure shows that a full 6% of children aged 0-14 in South Australia are participants in the Scheme.

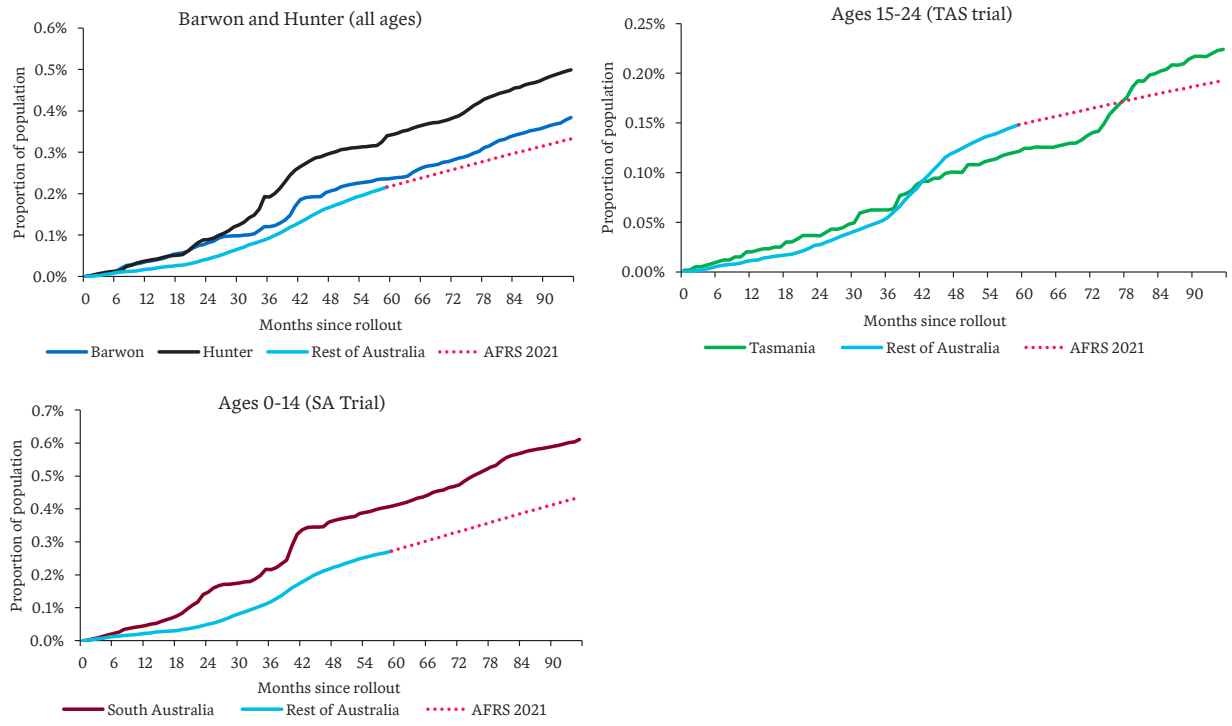
Figure 7.1 – Cumulative participant entries for those entering from outside existing State and Commonwealth schemes for trial regions compared to broader Scheme




There are reasons why some regions may differ from others in the prevalence of disability and the rate of enrolment in the NDIS. However, we regard the results from the trial regions as evidence of potential future growth rates similar or higher to those allowed for in the AFSR.

Similar patterns remain even if we exclude the types of disability growing fastest in the Scheme.

Figure 7.2 – Cumulative participant entries for those entering from outside existing State and Commonwealth schemes for trial regions compared to broader Scheme; excluding high-growth disabilities




Notes: Included disability types are acquired brain injury, spinal cord injury, visual impairment, other physical, Other sensory / speech, multiple sclerosis, Other, and stroke. Excluded disability types are autism, developmental delay, intellectual disability, other neurological, cerebral palsy and psychosocial disability.

### 7.1.2 Steady state participant numbers by disability type

In determining when the number of participants in the NDIS will reach maturity (i.e. a relatively stable fraction of the Australian population), it is important to recognise that the NDIS is at different stages across different disability types and age bands.

We illustrate this in Table 7.1. where the columns show the current and projected numbers of participants, as well as the number of people entering and leaving the group (leaving is a combination of deaths, non-mortality exits and aging out of the 0-64 age bracket). The final column shows the ratio of the AFSR 2021 projected number of entries (including people aging and transferring in) divided by the average flow out. If this is close to 100% this means that numbers growth in the group is relatively low and participant numbers will be relatively stable.

While there are some large ratios (e.g. autism, developmental delay, and intellectual disability being most prominent), other groups are at or approaching maturity. For instance, spinal cord, other neurological, Multiple Sclerosis and stroke victims will see much lower rates of growth and appear relatively stable.

The second last column in the table shows the ratio between AFSR assumptions and the recent history of entrants (excluding State and Commonwealth transfers). As discussed in Section 4.2, the current assumption-setting approach admits some variances from the recent past.

Steady state calculations can also be shown for smaller age bands. These are provided in Appendix C.

Table 7.1 – Flows of participant numbers in and out of disability types, for participants aged 0-64

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected ÷ past | Ratio entries ÷ steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 13,677 | 14,995 | +10% | 14,797 | 461 | 422 | 883 | 0 | 0 | 1,206 | 1850 | 65% | 137% |
| Autism | 151,308 | 236,630 | +56% | 337,310 | 55 | 1,120 | 1,175 | 0 | 7,497 | 15,009 | 20236 | 74% | 1915% |
| Cerebral Palsy | 16,265 | 18,225 | +12% | 20,313 | 112 | 139 | 251 | 0 | 0 | 740 | 572 | 129% | 295% |
| Hearing Impairment | 21,495 | 29,996 | +40% | 37,817 | 344 | 455 | 799 | 0 | 0 | 2,920 | 2790 | 105% | 365% |
| Intellectual Disability | 89,044 | 111,085 | +25% | 137,082 | 772 | 1,082 | 1,853 | 0 | 2,961 | 4,394 | 5174 | 85% | 397% |
| Multiple Sclerosis | 7,426 | 8,638 | +16% | 9,191 | 340 | 104 | 444 | 0 | 0 | 745 | 982 | 76% | 168% |
| Delay | 47,233 | 80,867 | +71% | 89,250 | 0 | 6,015 | 6,015 | 0 | -10,458 | 24,881 | 19308 | 129% | 240% |
| Other | 3,473 | 6,349 | +83% | 7,450 | 261 | 220 | 481 | 0 | 0 | 1,193 | 2164 | 55% | 248% |
| Other Neurological | 16,616 | 19,618 | +18% | 21,821 | 1,014 | 895 | 1,908 | 0 | 0 | 2,637 | 2544 | 104% | 138% |
| Other Physical | 16,345 | 19,867 | +22% | 22,153 | 837 | 872 | 1,709 | 0 | 0 | 2,573 | 2032 | 127% | 151% |
| Other Sensory/Speech | 2,768 | 3,084 | +11% | 3,050 | 2 | 371 | 372 | 0 | 0 | 451 | 98 | 460% | 121% |
| Psychosocial disability | 46,007 | 62,942 | +37% | 75,072 | 1,226 | 868 | 2,094 | 0 | 0 | 6,316 | 8632 | 73% | 302% |
| Spinal Cord Injury | 4,522 | 4,800 | +6% | 4,674 | 168 | 94 | 262 | 0 | 0 | 330 | 436 | 76% | 126% |
| Stroke | 5,698 | 7,152 | +26% | 8,078 | 528 | 172 | 700 | 0 | 0 | 1,058 | 1184 | 89% | 151% |
| Visual Impairment | 8,161 | 9,347 | +15% | 10,283 | 267 | 136 | 403 | 0 | 0 | 697 | 726 | 96% | 173% |
| Total | 450,038 | 633,596 | +41% | 798,341 | 6,385 | 12,965 | 19,350 | 0 | 0 | 65,150 | 68,728 | 95% | 337% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

### 7.1.3 Comparison of Scheme numbers to secondary data sources

A fundamental consideration in estimating participant numbers is the prevalence of disability in the Australian population and ensuring that long-term NDIS numbers are in alignment. This is a surprisingly challenging task, as the level of information around disability is far from comprehensive:

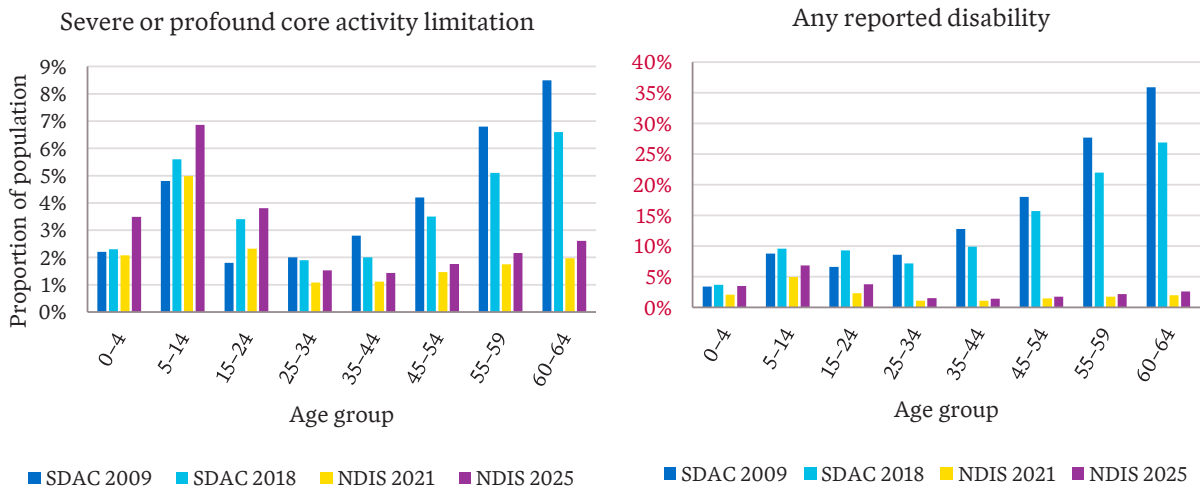
- One of key surveys, the ABS Survey of Disability, Aging and Carers, is size limited so that statistical uncertainty is material. Further, severity classifications will not align directly to NDIS eligibility.
- Other disability-related services, including the Disability Support Pension, will have different eligibility criteria to the NDIS.
- Other sources are also not as up to date as our NDIS data.

We still believe that comparisons to secondary data sources are instructive in assessing the reasonableness of projected NDIS participant numbers.

#### Survey of Disability, Aging and Carers (SDAC)

The SDAC formed much of the basis for the original Productivity Commission work on NDIS numbers and mix. The survey collects disability identification for members of a household, as well as a severity measure. The charts below show both the general disability rate and the rate of 'severe or profound core activity limitation'. The latter is likely most relevant to the NDIS population.

Figure 7.3 – Comparison between NDIS current and project numbers with the ABS SDAC disability rates

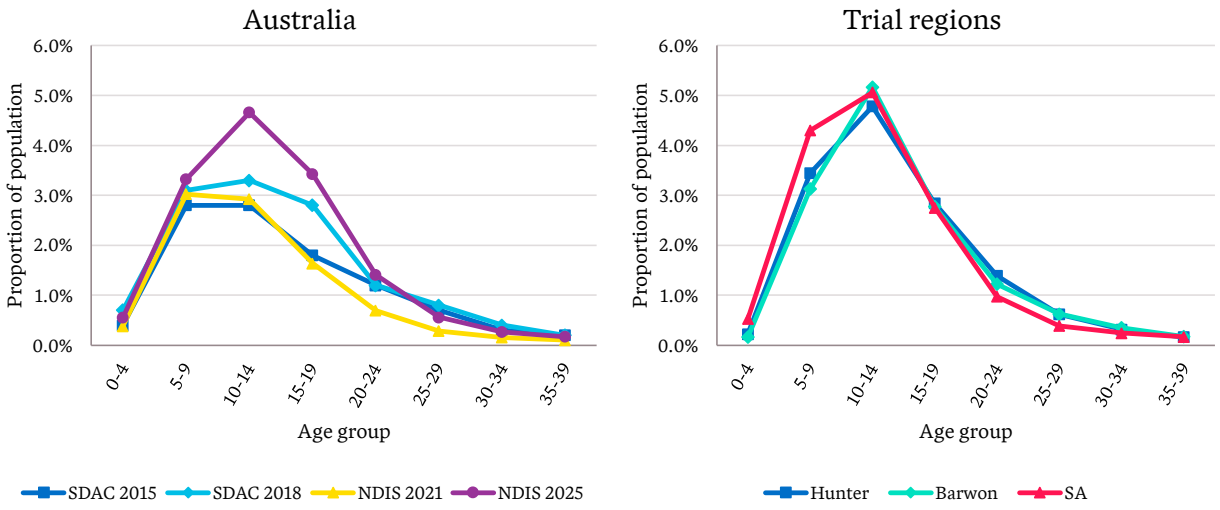



The comparison shows that:

- There is some evidence of an increase in disability rates in the 5-14 and 15-24 age groups between 2009 and 2018. Rates have decreased in older age bands
- NDIS enrolments are similar to the SDAC 'severe and profound' estimates for age groups under 25 and are projected to be much higher again by the end of 2024-25.
- NDIS enrolments are lower than SDAC 'severe and profound' estimates for ages over 25.

The ABS offers limited information publicly on disability type, but does provide a comparison of autism prevalence between 2015 and 2018, shown in Figure 7.4

Figure 7.4 – Autism incidence in SDAC and the NDIS.




We observe that:

- When comparing 2015 and 2018 SDAC distributions, there is evidence of a 'right shift' effect, with higher prevalence of autism in the 10-14 and 15-19 age groups. This is consistent with the dynamic observed in NDIS data where people tend to enter at a younger age but then remain. There is also an increase in prevalence in the 5-9 and 10-14 age groups in successive SDAC surveys.
- The NDIS rates exceed the rates observed in the SDAC; 2021 levels are higher than SDAC 2018, particularly in the 15-19 age group, and are projected to increase further by the end of 2024-25.
- Trial region areas, where there has been additional time for participant entries, match the projected NDIS 2025 age distribution; they suggest that the project increase in autism numbers is plausible.

### The Australian Early Development Census (AEDC)

The AEDC is performed every three years, where teachers answer a series of development questions about every child in their first year of school.

Teachers report a disability or other developmental difficulty across a series of categories. If a diagnosis is present this is reported, otherwise a teacher can also identify a condition with a diagnosis and indicate whether it impedes learning.

Table 7.2 – Comparison of AEDC and NDIS numbers of students with a disability[a]

| | AEDC 2015, rounded | AEDC 2018, rounded | NDIS 2021 | NDIS 2025 | NDIS 2021 ÷ AEDC 2018 |
|---|---|---|---|---|---|
| Autism | 6,500 | 8,100 | 8,497 | 8,485 | 105% |
| Delay[b] | 8,000 | 7,600 | 9,188 | 14,546 | 121% |
| Cerebral Palsy | 550 | 500 | 438 | 458 | 88% |
| Vision impairment | 2,300 | 2,400 | 89 | 86 | 4% |
| Hearing Impairment | 2,400 | 2,100 | 652 | 806 | 31% |

(c) AEDC numbers are for children in their first year of school. NDIS numbers are for children aged 6.

(d) For the AEDC a broader delay category has been defined as either a global development delay flag, or other delay

We note that:

- Overall numbers of children with autism and delay (recognising that there may be some inconsistencies in the definition of developmental delay across the two) reconcile relatively well, although the growth in developmental delay numbers in the NDIS forecasts from 2021 to 2025 is likely to be overestimated (see Section 4.2).
- The AEDC reflects a significant increase in autism numbers between 2015 and 2018. This appears consistent with the continued strong growth in NDIS numbers in the category and the SDAC findings.

### 7.1.4 Disability Support Pension (DSP)

The DSP is the welfare benefit for people with a long-term impairment that prevents a person from working. The eligibility is broader than the NDIS, but generally we'd expect a high degree of overlap between the two. Some conditions recognised for DSP will not be included in the NDIS. Similarly, participants in the NDIS may not meet DSP conditions (e.g. age requirements or the assets test).

The table below compares the number of people receiving DSP benefits and NDIS participants. Without a more detailed exploration of the intersection the comparison is limited; however, the headline observation is that the number of people receiving DSP is significantly larger than those aged 16-64 in the NDIS. The ratio of NDIS numbers as a fraction of 2021 DSP numbers is projected to increase from 37% to 51%; at face value, not unreasonable.

Table 7.3 – Comparison of DSP and NDIS participant numbers at June 2021

| Group | Source | 16-20 | 21-24 | 25-34 | 35-44 | 45-54 | 55-64 | Total 16-64 |
|---|---|---|---|---|---|---|---|---|
| **Psychological/ Intellectual / Learning** | DSP, 2021 | 17,132 | 22,248 | 61,964 | 68,832 | 90,185 | 97,318 | 357,679 |
| | NDIS 2021 | 34,197 | 20,118 | 32,377 | 27,142 | 29,087 | 26,257 | 169,178 |
| | NDIS 2025 | 60,042 | 29,753 | 46,640 | 35,728 | 35,755 | 34,126 | 242,044 |
| | NDIS 2021 ÷ DSP 2021 | 200% | 90% | 52% | 39% | 32% | 27% | 47% |
| **Physical / Nervous** | DSP, 2021 | 1,101 | 1,682 | 6,495 | 12,606 | 36,086 | 86,412 | 144,382 |
| | NDIS 2021 | 2,702 | 2,003 | 4,712 | 6,292 | 9,658 | 16,260 | 41,627 |
| | NDIS 2025 | 3,622 | 2,358 | 5,591 | 7,118 | 10,940 | 19,557 | 49,187 |
| | NDIS 2021 ÷ DSP 2021 | 245% | 119% | 73% | 50% | 27% | 19% | 29% |
| **Other** | DSP, 2021 | 2,589 | 3,489 | 11,189 | 18,145 | 39,162 | 74,562 | 149,136 |
| | NDIS 2021 | 2,669 | 1,671 | 3,589 | 4,052 | 6,822 | 10,801 | 29,604 |
| | NDIS 2025 | 4,691 | 2,559 | 5,089 | 5,399 | 8,539 | 14,853 | 41,130 |
| | NDIS 2021 ÷ DSP 2021 | 103% | 48% | 32% | 22% | 17% | 14% | 20% |
| **Total** | DSP, 2021 | 20,822 | 27,419 | 79,648 | 99,583 | 165,433 | 258,292 | 651,197 |
| | NDIS 2021 | 39,568 | 23,792 | 40,678 | 37,486 | 45,567 | 53,318 | 240,409 |
| | NDIS 2025 | 68,356 | 34,671 | 57,320 | 48,245 | 55,234 | 68,535 | 332,360 |
| | NDIS 2021 ÷ DSP 2021 | 190% | 87% | 51% | 38% | 28% | 21% | 37% |

## 7.2 Further analysis of predictors of Scheme cost

When several things are changing simultaneously, it can be helpful to fit a multivariate model to break down different effects. We have fit a generalised linear model of individual-level quarterly support costs[21]. Results complement other summaries present throughout the report. The model had terms related to:

- (Calendar) payment quarter
- Duration – the number of quarters a participant has been in the Scheme
- Entry date
- SIL status
- Disability type
- Disability severity (and grouped severity interacting with disability type)
- Age (and age-disability type interactions)
- Type of plan management

Some effect sizes are presented in Figure 7.5. While effects vary as layers of detail are added, at a broad level we have found:

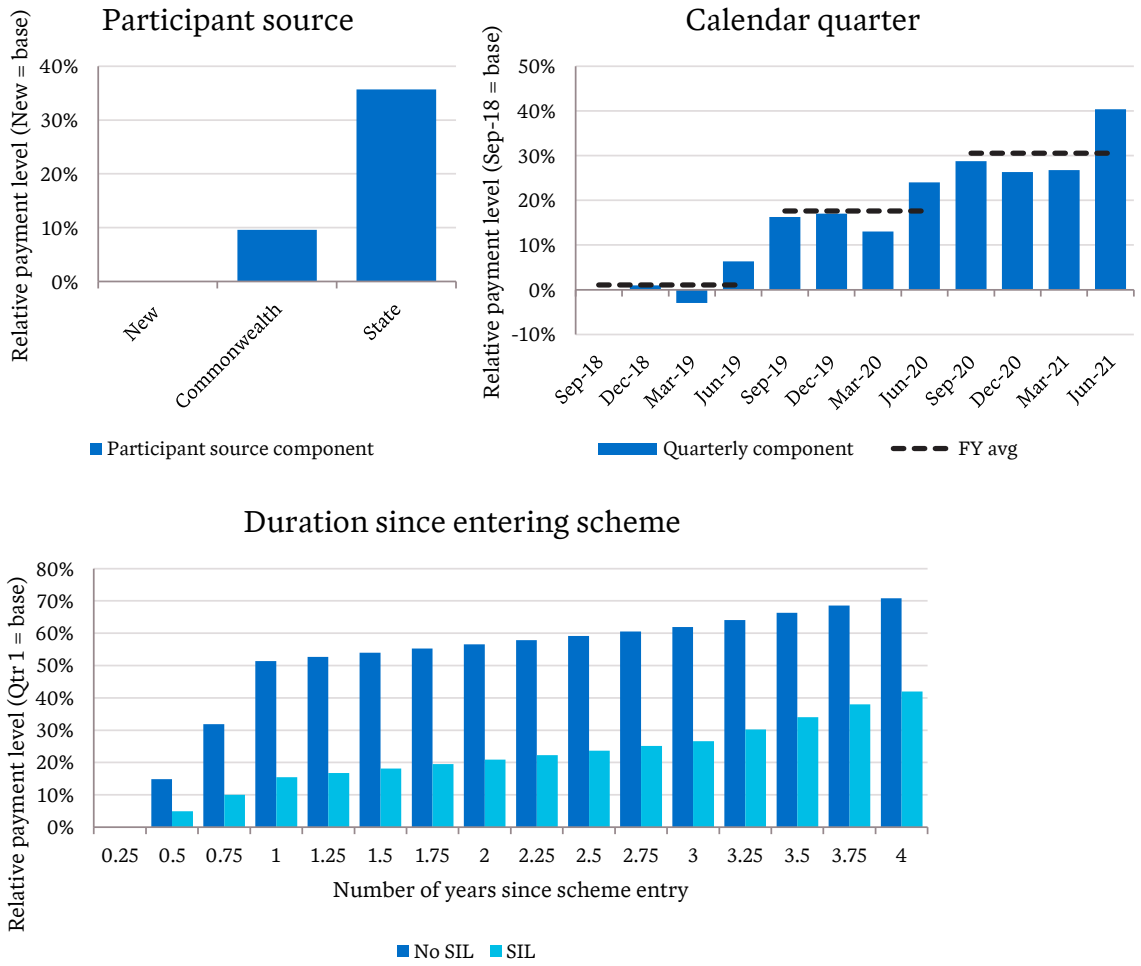
- A significantly higher payment rate for those entering from state schemes, after controlling for other factors. In aggregate, the payment is estimated as 36% higher. Part of this factor may be reasonable; those in existing schemes may have higher support needs which are not captured in NDIS participant characteristic data that led to them being in state schemes beforehand.
- There has been limited entry quarter effects in the past two years. That is, after controlling for entry source (state or new), duration, broader inflation and disability severity effects, people entering in 2021 are receiving similar amounts of support to people two years earlier.
- Conversely, both duration and calendar quarter effects are large. Duration effects are the tendency for payments to increase the longer a participant is in the scheme, all else equal. Calendar quarter effects are general cost increases seen over time (so that a cohort today will cost more than an equivalent cohort in the past).
  - Payment levels in 2020-21 are about 30% higher than 2018-19 after controlling for other factors. This combines both price inflation and general growth in supports seen across the scheme over time.
  - For those not in SIL, costs at 51% higher at quarter 4 (relative to the first full calendar) and 71% at quarter 16. For those in SIL, the corresponding factors are 15% and 42%. Duration effects appear to persist into a participant's 4$^{th}$ and 5$^{th}$ years. Duration effects are generally unrelated to price effects, so reflect some of the growth in support provided to people over time (e.g. as they better navigate the system).

The growth in payments seen in the reported effects is larger than the overall average increase in per participant Scheme payments. This is because other compositional effects offset some of these increases. Examples include a growing proportion of people entering from outside state schemes and a lower level of disability severity for new entrants.

Other effects are naturally present too, such as large differences by disability type, severity and age, although these are generally well-captured in the existing model methodology.

[21] A gamma distribution model, with log link, on all quarters since September 2018.

Figure 7.5 – Isolated model relative effects on participant payments, from GLM fit

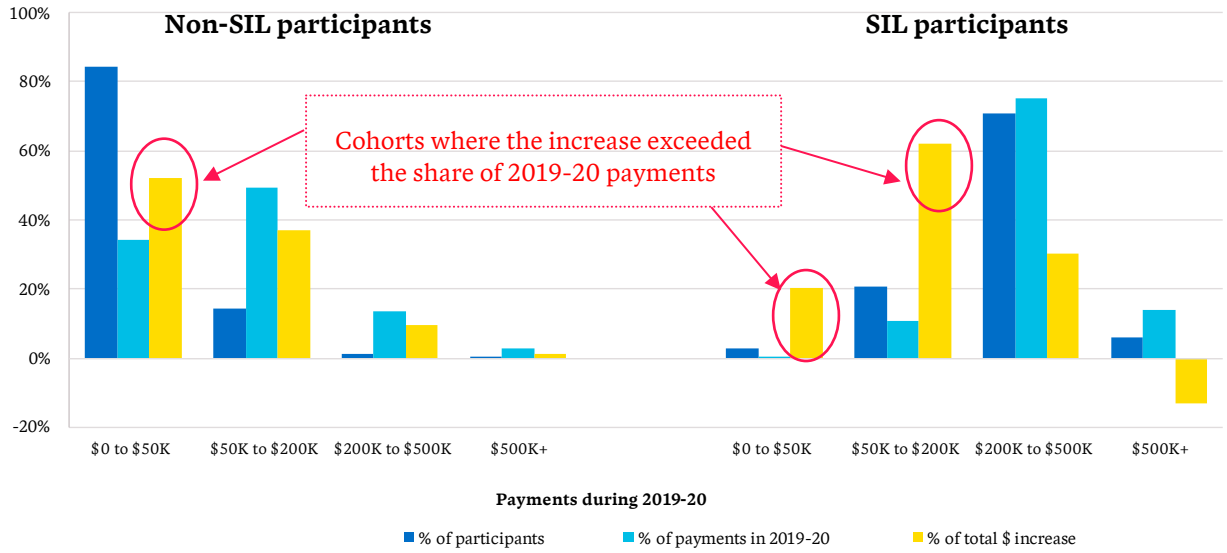



The average duration in the Scheme at 30 June 2021 is only about 10 quarters, which is likely to increase to 20 quarters by June 2025. Based on the current duration trend alone, we would expect about 10-12% increase in payments, representing a large proportion of the existing AFSR inflation allowance.

## 7.3 Further analysis on Scheme payments

Core supports represent the majority of overall supports. Once people have been in the Scheme for more than a year these supports should be fairly stable, however this has not been the case. Substantial increases are visible, particularly for participants that had lower costs in 2019-20. Figure 7.6 shows the contribution to the increase in supports relative to the amount received in 2019-20.

Figure 7.6 – Increase in Core payments relative to the proportion of participants




Note: Figure excludes recent joiners to the Scheme and people who have transitioned to or from SIL over the past year – these would be expected to result in large changes in support needs.

Figure 7.6 shows the proportion of participants and their share of payments during 2019-20 by size group, split between non-SIL and SIL. If each person had the same increase in dollar terms, then the share of the increase would match the participant number (dark blue) column, whereas if each person had the same percentage increase the share of the increase would match the participant payments (light blue) column.

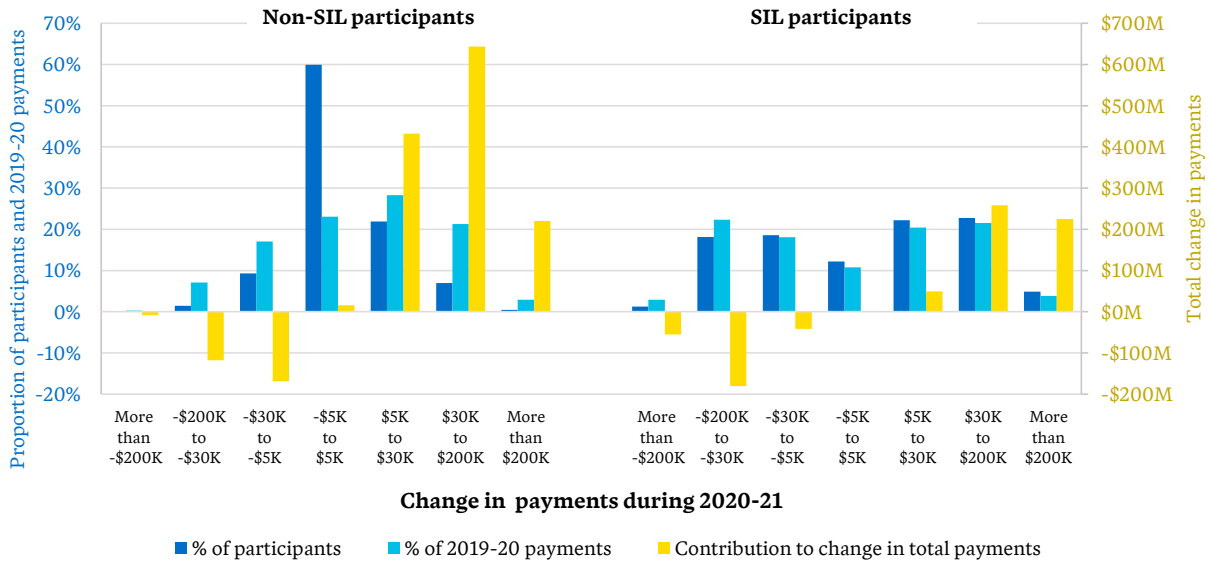
Over the past year for both non-SIL and SIL participants the increase (yellow column) was weighted towards lower cost participants with those already receiving higher amounts in 2019-20 having smaller increases, or in the case for the very high cost SIL participants, some reductions. This pattern is typical of what we would expect as those who spent less in 2019-20 are converging to some degree with what other participants spend. This could arise through either higher utilisation or increases in plans, and is especially evident for SIL participants, although significant variation remains at an individual level.

Figure 7.7 shows similar information but looking at the size of the changes in individuals' payments over the past year. It shows that 11% of non-SIL participants had reductions in supports of at least $5,000 which represented 24% of payments during 2019-20 and resulted in savings of $294M. There is a significant group of participants who had minimal changes in supports, noting that many of these people had no funded supports in either of the past two years. The largest contributor to growth in payments over the past year was the 7% of participants who had increases of between $30,000 and $200,000 each, which resulted in an overall increase of more than $600M.

In total 29% of non-SIL participants had increases of more than $5,000 totalling around $1.3B. This equates to an average increase of $30,000 each or 61% compared to the amounts they received in 2019-20.

For SIL participants the changes were more evenly spread. In aggregate, changes of less than $30,000 were minimal with decreases roughly offsetting increases. For changes which exceeded $30,000, 19% of participants had reductions of this size, averaging $86,000 compared to 28% of participants who averaged an increase of $124,000 which was about 48% more than they received in 2019-20.

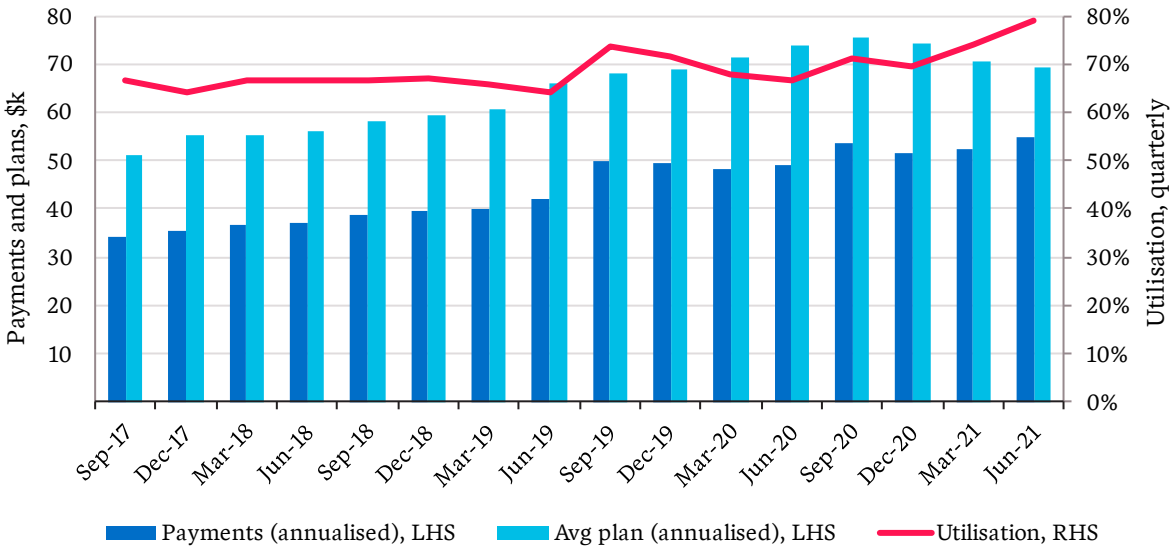
Figure 7.7 – Distribution of changes in Core payments during 2020-21




## 7.4 Packages and utilisation

For much of the past two years average packages have increased rapidly, in line with the increase in payments. This pattern has changed in 2020-21, where payments continued to increase but packages have stabilised. This increased the plan utilisation rate to over 82% in the June 2021 quarter (79% after spreading residential aged care across the year) with utilisation over the whole year being 74%[22].

Figure 7.8 – Quarterly payments, plan and utilisation rate



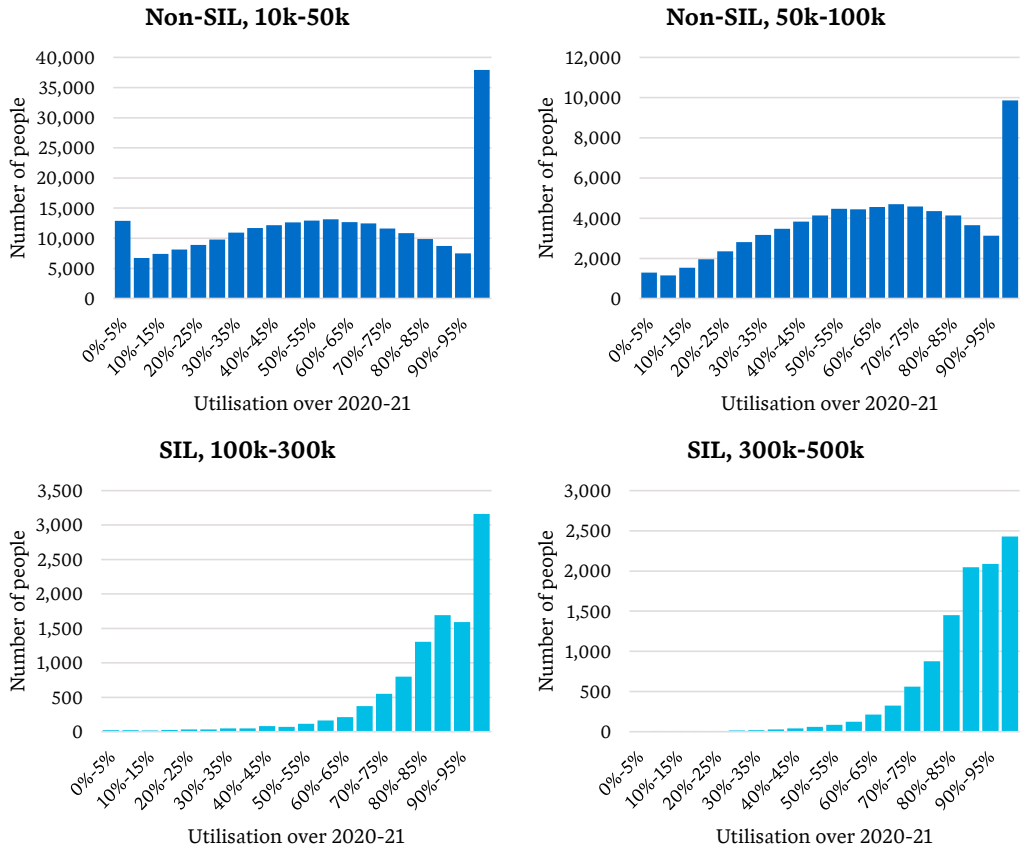

Note: Quarterly payments have been seasonally adjusted.

Utilisation rates vary across the Scheme. Non-SIL utilisation was only 68% for the 2020-21 year, compared to 89% for SIL. For the non-SIL component this implies that payments could increase by 48% without breaching the current committed support total. In total, from the June quarter, the gap between payments

[22] This is consistent with the AFSR 2021 report, although we note that theirs is calculated on an accrual basis, whereas we have analysed using payment date.

and plan (i.e. a utilisation rate of 100%) is about $7B. Even after dividing into non-SIL and SIL groups, utilisation rates vary markedly, as shown in the figure below.

Figure 7.9 – Distribution of 2020-21 utilisation rates[23] by SIL status and annual plan amount for some key subgroups



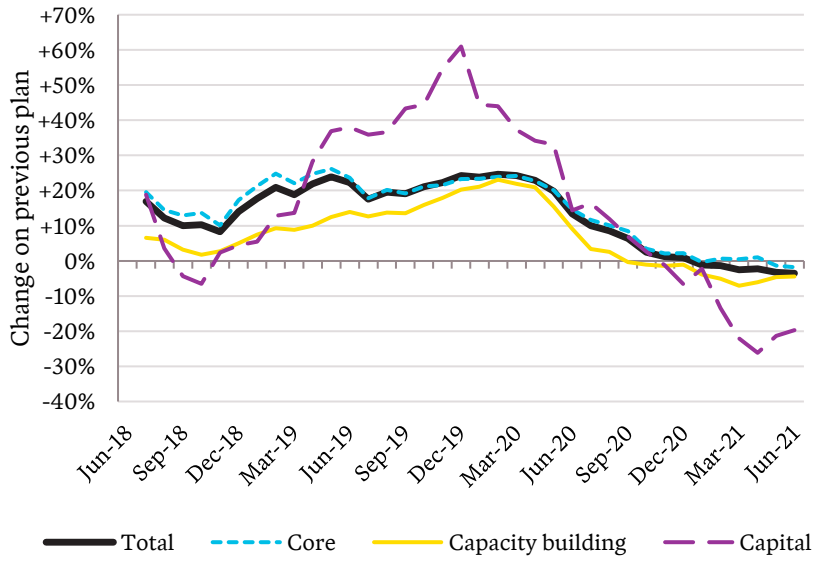

As shown in Figure 3.11, plan increases largely halted in the latter part of 2020-21. Within this trend we note:

- Of the three broad payment categories, committed supports for capital items has been most dramatically affected, as shown in Figure 7.10. After peaking with average increases in excess of 30% in late 2019, average reductions in capital plans have been about 20% in the second half of 2020-21. This perhaps reflects that capital spending is more discretionary than core supports, or it could be partly due to COVID-related impacts, both of which have implications for sustainability. Another possible explanation is that one-off initial capital spending permanently subsides; but there is little evidence of this for longer-duration clients prior to 2020-21.
- Decreases have been largest for people whose previous plan had the lowest utilisation. We estimate that people who had a prior utilisation rate below 40% saw a reduction 7 percentage points greater than those with prior utilisation of above 40%. This means that the impact of flattened plan growth will be smaller than the aggregate number suggests, since the plans with the largest reductions are less likely to approach the 100% utilisation limit.
- Results are relatively uniform across states and territories, with markedly slowed plan growth in all jurisdictions.

[23] Where more than one plan has applied over the year, we have combined pro-rata to cover the financial year.

- Changes for first review plans are about 5 percentage points higher than later reviews in the second half of 2020-21 (and indeed are higher across the whole time series).
- After excluding SIL, reductions appear a little larger for the Hearing Impairment, Spinal Cord Injury and Other Physical disability groups.

Figure 7.10 – Change on previous plan for participants, split by broad payment type



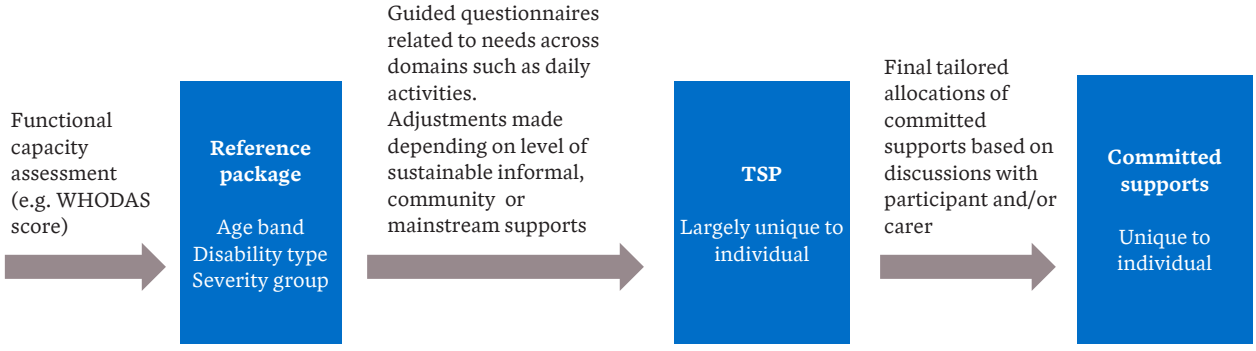

Note: Figures are similar to, but don't exactly match, those provided in Figure 70 in the NDIS September 2021 quarterly report due to slight differences in rules applied to compare successive plans. Specifically, NDIS business rules exclude plan auto-extensions and additional checks to exclude revoked or pending plans. NDIS estimates of capital changes are materially higher in Mar-21 and Jun-21 quarters, closer to zero.

A further risk is if it becomes widely believed that package decreases are more likely for people who underspent their package the previous year. This could potentially create a behavioural response where people attempt to fully utilise their packages, using more services than they would otherwise do, in order to reduce the risk of subsequent plan reductions.

## 7.5 Typical support packages

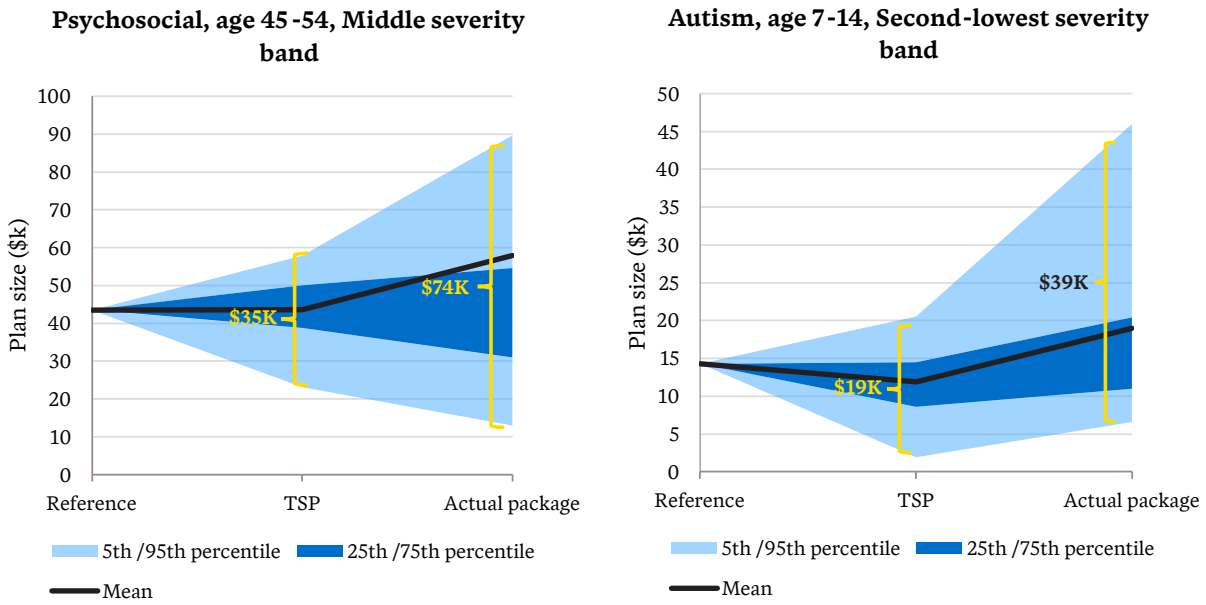
While most of our analysis focuses on payments and costs, the role of packages and how they affect Scheme costs is also important. The planning process and the interaction between committed supports and typical support packages (TSP) is one of the main operational levers available to the NDIS. TSPs are an intermediate estimate of plan costs that reflect some of the circumstances of the individual such as level of informal care being provided.

Figure 7.11 – Simplified view of the planning process



As shown in Figure 4.14, there is considerable variability of supports within cohorts. We can see this 'fanning out' emerge in the planning process, as illustrated in Figure 7.12 for two cohorts. Each person in the cohort has the same reference package. For the psychosocial cohort 90% of TSPs lie between $23K and $58K, this $35K range is equivalent to about 80% of the $43K reference package. This doubles when looking at the range of committed supports. Similarly for the autism group, the width of the 90% band for TSPs is $19K which is 130% of the reference package, with committed supports double.

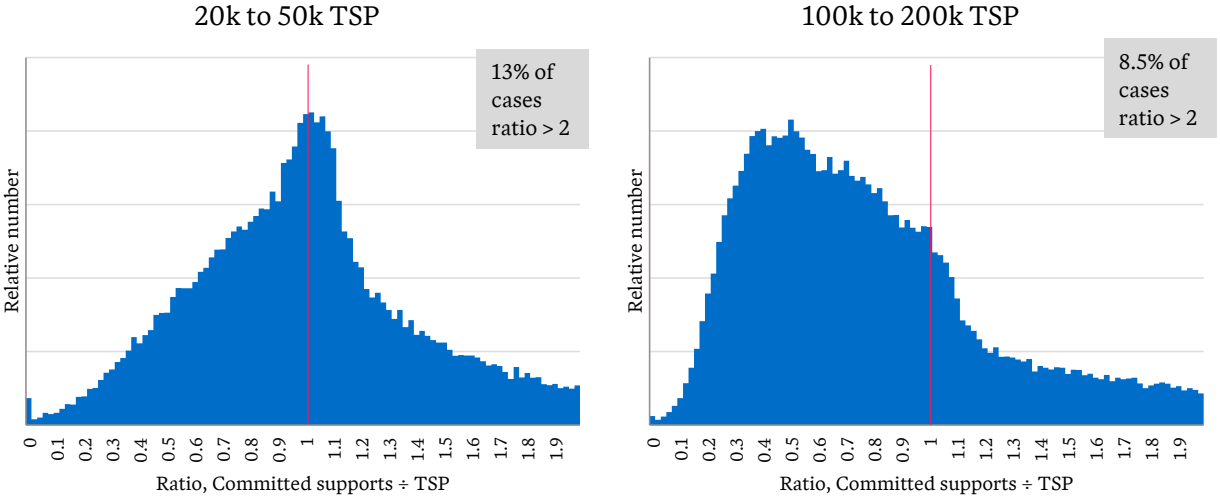
Figure 7.12 – Relationship between reference packages, TSPs and committed supports




This fanning out reflects a large variation between TSP and committed supports. Ratios are shown in the figure below for different ranges of TSP. We understand that there is an additional approval process required for packages more than 10% higher than a TSP, a 'cliff' is visible at 1.1 in both the charts, reflecting some likely behavioural factors in the approval process.

Committed supports as a ratio of TSP tend to be higher in NSW and Queensland, and lower in Victoria and Western Australia.

Figure 7.13 – Ratio of committed supports to TSP




In understanding longitudinal changes over time, we can track increases in both committed supports and the related TSPs. The aggregate results are shown in Table 7.4. It shows that substantial increases in

committed supports in 2019 and 2020 have been largely mirrored by substantial increases in the average TSP.

Table 7.4 – Increase in value of Committed plans and TSPs at 30 June each year, for those participants that had plans in force a year earlier. Dollar-weighted

| | 2019 | 2020 | 2021 |
|---|---|---|---|
| TSP | 12% | 10% | 6% |
| Committed supports | 19% | 26% | 2% |

We return to differences in increases in Section 8 where we discuss consistency but it is clear that there are large variations in TSPs. It is less clear the degree to which differences in TSPs reflect differences in needs compared to differences in decision making.

On the aggregate results:

- Significant increases in TSPs over time come from both increases in the underlying reference packages (as people move to a lower level of function – see Section 3.3) and the responses to the guided questions around support needs. For example, the Scheme Actuary has shared information showing the decline in informal supports being claimed over time, which will have the impact of increasing the TSP. Some transfer from informal to formal support is might to be reasonable to expect over time, so some of this pattern may reflect genuine changes in circumstance.
- A very large proportion of packages sit above TSPs. The average plan is 15% above that of TSPs. Some of this will be expected (for example, participants with SIL will have specific costs that may not be fully reflected in a TSP), but it does suggest a gap between the 'norm' implied by a TSP and the supports deemed appropriate for many participants.
- Behavioural aspects appear to be present. Often the planner is performing all stages of Figure 7.11, including the assessment of disability severity. So, information that can change the early stages of the process provides a greater range of options for committed supports.
- Some reversion behaviour appears present in the data too. For example, for people with a reference package between $10,000 and $20,000, a substantial proportion of packages have a TSP that is 70% or less as a fraction of the reference package. Of these, the average TSP is $5,300 but the average committed supports are $16,300, which is above the reference package average. This is shown in Table 7.5. It suggests (at least at an aggregate level) that the process of establishing a relatively low TSP does not necessarily translate into a correspondingly low plan.

Table 7.5 – Committed supports for people with low and high levels of TSP relative to the reference package. For all participants at 30 June 2021 with a reference package between $10,000 and $20,000.

| | Number | Avg ref. package | Avg TSP | Avg committed supports |
|---|---|---|---|---|
| TSP < 70% of ref. package | 52,500 | $14,200 | $5,300 | $16,300 |
| TSP between 70% and 130% of ref. package | 45,100 | $14,200 | $13,700 | $19,100 |
| TSP >130% of ref. package | 45,100 | $13,900 | $60,400 | $75,900 |

## 7.6 Trends for participants over age 65

The two tables below summarise the number and cost of participants aged 65 and above. People above this age cannot enter the Scheme – it is driven by people in the Scheme before age 65 aging into the older age group.

Numbers are expected to grow, both in absolute terms and as a fraction of the total. This is to be expected since the aging-in process accumulates over time. In the 2020-21 AFSR numbers are expected to increase from 3.7% to 7.6% by 2029-30. Payments are forecast to grow from 6.5% to 13.6%.

The model structure is a reasonable way to reflect the growing number of people in the older age bracket, since individual age cohorts are pushed through each age as part of the model. Similarly, the estimates of cost appear reasonable; they are subject to slightly greater uncertainty since payment levels do not 'follow' participants as they move age bands (see Appendix B.2).

Table 7.6 – Future participant numbers (end of year), split by age

| Age group | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2029-30 |
|---|---|---|---|---|---|---|
| 0-64 | 450,038 | 508,974 | 559,846 | 598,491 | 633,596 | 798,341 |
| 65+ | 16,581 | 21,483 | 26,587 | 31,835 | 36,804 | 60,987 |
| **Total** | 466,619 | 530,457 | 586,433 | 630,327 | 670,400 | 859,328 |
| **% >65+** | 3.7% | 4.2% | 4.7% | 5.3% | 5.8% | 7.6% |

Table 7.7 – Future participant costs (cash basis) split by age, $B

| Age group | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2029-30 |
|---|---|---|---|---|---|---|
| 0-64 | 21.9 | 27.0 | 31.0 | 34.3 | 37.1 | 51.5 |
| 65+ | 1.4 | 1.8 | 2.5 | 3.1 | 3.7 | 7.0 |
| **Total** | 23.3 | 28.8 | 33.4 | 37.5 | 40.8 | 58.5 |
| **% >65+** | 6.5% | 6.8% | 8.0% | 9.1% | 10.1% | 13.6% |

## 7.7 Additional scope of the NDIS compared to original design

After the 2017 PC review, as discussed in Section 5, additional services were funded by the NDIS and costs associated with these services were not allowed for in the PC report. Under the revised projections, payments arising from these additional services will be $2.3B in 2024-25 (shown in Table 5.1) and $3.0B in 2029-30, representing 5% of overall projected payments. In this section, we discuss the reasonableness of these allowances.

### National Injury Insurance Scheme (NIIS) offset as not fully operational

The 2017 PC estimates assumed the establishment of a NIIS in each jurisdiction to support people seriously injured in accidents, regardless of the cause. As medical misadventure and general injuries components were not ultimately implemented, costs arising from these injuries would need to be covered by the NDIS for those participants that meet the NDIS eligibility criteria.

The 2020-21 AFSR estimates that the additional costs arising as a result of the NIIS not being fully implemented are $0.6B and $0.9B in 2024-25 and 2029-30 respectively. These are about half of the total NIIS adjustments used in the 2017 AFSR which are based on observations from the New Zealand Accident Compensation Corporation. Overall, the Scheme Actuary's projections and the approach adopted are reasonable.

### Children with developmental delay and school transport

The allowance for children with development delay is $0.6B in 2024-25 and $0.8B in 2029-30, while the cost for delivering specialist school transport services is projected to be $0.4B in 2024-25 and $0.5B in 2029-30. Using information provided by the NDIA and from the 2011 Productivity Commission costing report, we independently projected payments for these costs and our estimates were very close to the Scheme Actuary's allowances.

### Personal care in schools

Payments for personal care in schools are expected to be $0.3B in 2024-25 and $0.4B in 2029-30. These estimates are consistent with recent experience and emerging trends.

### Disability related health support

Projected payments for disability-related health support are assumed to be approximately 1% of total payments. This is consistent with Scheme experience over the three years to 30 June 2019.

# 8 Consistency across aspects of the Scheme

## 8.1 Overall comments on consistency

The NDIS is characterised by individual-level variability. Much of this is by design; an uncapped suite of tailored supports is supposed to vary to reflect individual circumstances. This contrasts to other government schemes where, subject to eligibility criteria, payments are broadly comparable across participants.

The variability in the Scheme means conclusions based on averages need to be treated with some care. Changes over time might be due to changes in participants' circumstances, or it could be a compositional effect as the mix of participants change.

A natural question is whether, despite the participant-level variability, there is consistency of decision-making. This can be asked across time (e.g. is it easier to gain access to the NDIS today than two years ago?) and across geography (e.g. do similar people in different areas have substantially different outcomes?). This section explores these aspects of variability.

## 8.2 Variation over time

Assessing consistency over time is hampered by not having an established objective baseline for different participants. For instance, we cannot easily tell whether the severity ratings for new entrants have remained stable over time; if a cohort entering in 2018 has a similar severity rating as another cohort entering in 2021, but the 2018 cohort has been re-rated to a higher level, we do not have enough information to conclude if there is a difference between the two groups.

We have already discussed in this report:

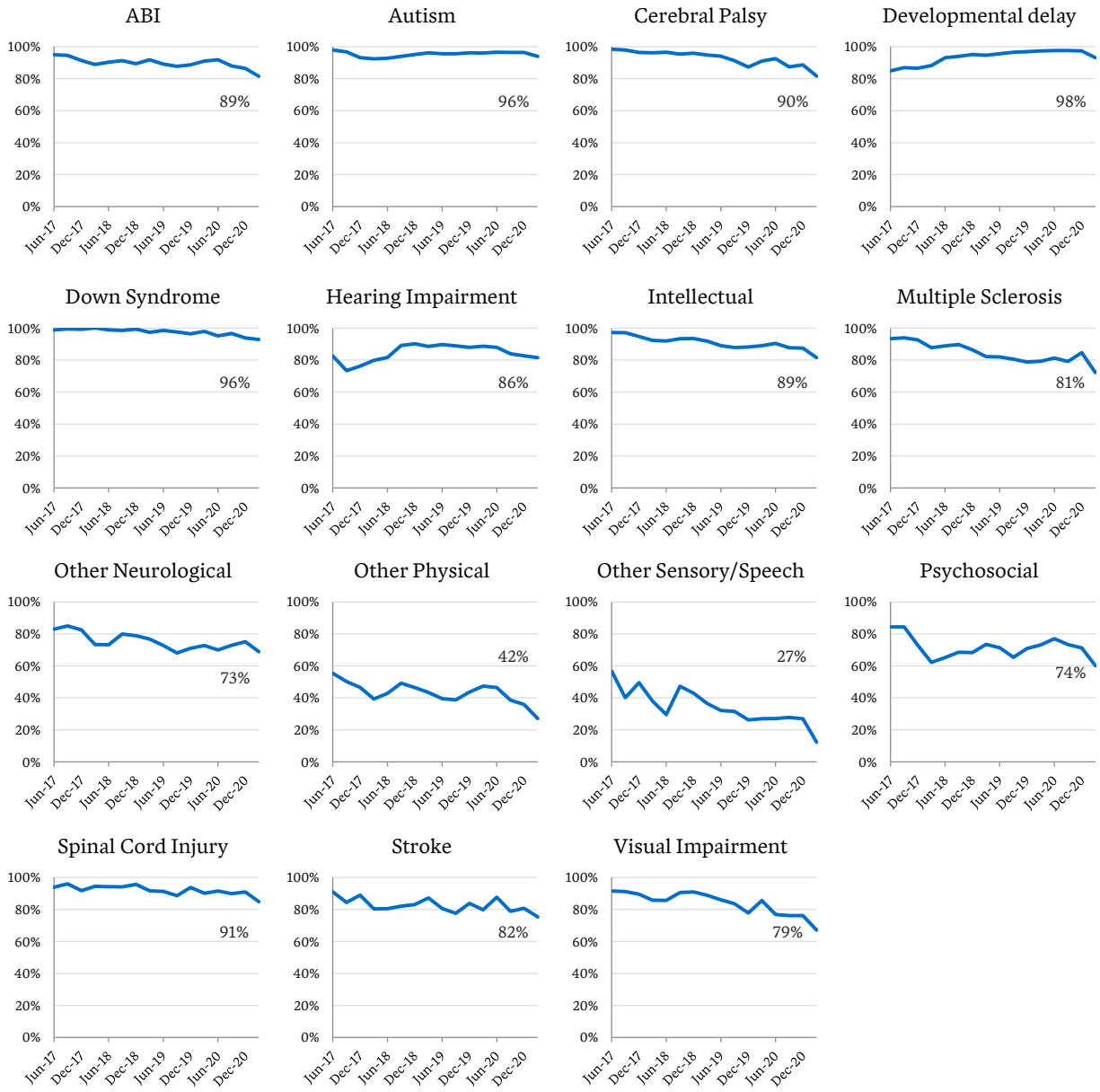
- High rates of transition to higher severity ratings (Section 3.2). For instance, we see 12% of participants moving to a higher severity band each year, including 30% of people starting in the lowest severity band for autism and intellectual disability (Figure 3.5).
- Substantial increases to Typical Support Packages (TSPs) over time, reflecting both increased severity and increased support needs (such as falling rates of informal support) (Section 7.5). TSPs increased 12% in 2018-19 and 10% in 2019-20 for ongoing participants.
- Increases to payments over time, much of it driven by increasing the volume and breadth of supports (Section 3.5). We estimate that of the 16-percentage point increase in costs for ongoing participants in 2020-21, only 2.5 percentage points relate to price effects, with the bulk attributed to supports that were not previously in a participant's plan.

Increasing volume and breadth of committed supports over time has translated to higher payments and a wider range of support categories being accessed by many participants, even for those whose functional level was unchanged. This may suggest a change in how 'reasonable and necessary supports' is being interpreted and how support needs are assessed. Some of this change might be appropriate (e.g. appropriate additional supports that participants were not previously aware of), but we are not in a position to make this assessment using current data.

We can also look at access rates to the Scheme. Access is a combination of the number of applications and the corresponding acceptance rate. Figure 8.1 shows the acceptance rate over time by disability group. Some movement in the curve is natural over time; specifically, we expect the average severity to drop over time (as most ongoing high-severity cases have moved into the Scheme already) which may then lead to a fall in acceptance rates. This effect may already be visible in some disability types (e.g. cerebral palsy, intellectual disability).

The acceptance rates for many disability types are very high – above 80% overall[24]. During 2020 the acceptance rate for an autism diagnosis was 96%, and developmental delay was 98%. In contrast 'other physical' and 'other sensory' tend to have quite low acceptance rates. The acceptance rate for both autism and developmental delay has increased since 2018, although many of these qualify under automatic eligibility rules. While this is not necessarily evidence of drift (caution is needed around potential behavioural patterns in deciding to apply), it does suggest that if more people choose to seek a diagnosis for a mild-severity disability and apply for the Scheme, acceptance rates are sufficiently high that this will translate into increased numbers.

Figure 8.1 – Application acceptance rate over time by disability group. Acceptance rate for calendar year 2020 shown on each chart




[24] This compares to an acceptance rate for the Disability Services Pension (DSP) of 40%, although we acknowledge this comparison is not like-for-like as eligibility rules are substantially different.

## 8.3 Variation in cost across geographical regions

We have looked at various geographic splits and found that much of the variation is explained by socioeconomic status and remoteness. For this section we have looked at Statistical Area 4 (SA4) regions: these divide Australian into about 90 regions, each with about 100,000 to 500,000 people. We also separate capital cities from other regional areas, although we note that further results could be reported for very remote regions. We have used the ABS's Socio-Economic Indexes for Areas (SEIFA) index of relative advantage and disadvantage for comparing regional socioeconomic effects.

Figure 8.2 – Application rate (as a percentage of population) and Scheme acceptance rate, by SEIFA and location type

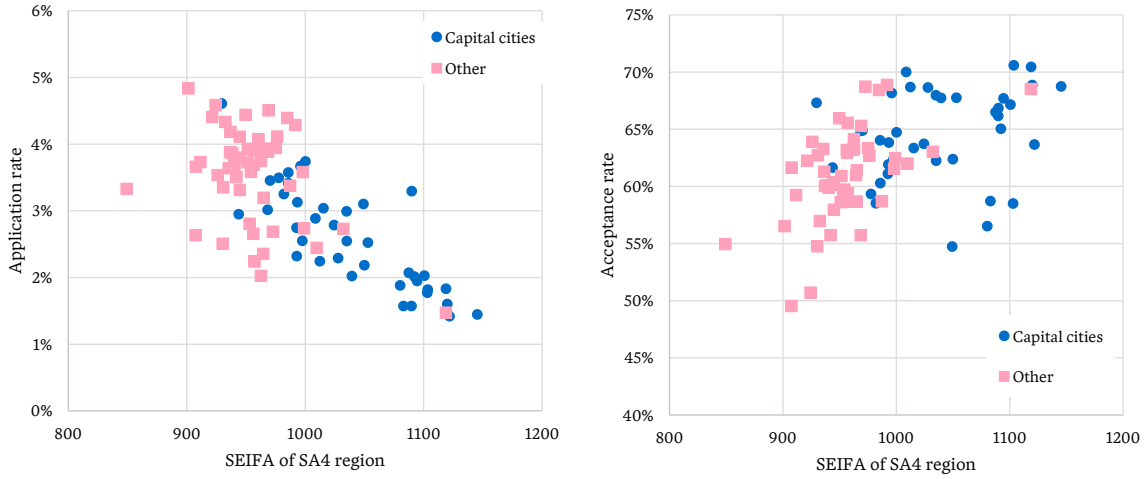



Figure 8.2 indicates a strong relationship between the socioeconomic status of an area and the rate of application to the NDIS. Generally, people with a disability are more likely to have low incomes, which is consistent with the figure. There may also be behavioural effects; those with lower financial means may have less ability to fund supports privately and have a greater economic incentive to access the Scheme. It also indicates that areas outside capital cities, which tend to have lower socioeconomic ratings, have higher rates of application. Trends appear consistent across different types of disability.

Acceptance rates tend to be negatively correlated with access request rates; higher rates are seen in higher socioeconomic areas, which in turn have lower application rates.

In contrast, average plan sizes do not appear to systematically vary for most regions by SEIFA score or capital/regional areas; this is shown in the figure below. The NDIS has previously found a small to moderate relationship between the socioeconomic rating of a region and plan size[25]. The work found the top socioeconomic decile has plan amounts 7% higher than the broader population, with little trend in other deciles. We find a similar effect (a higher average for the cluster of 15 SA4 regions above a SEIFA score of 1065 in Figure 8.3), but note the effect is small relative to the broader SA4-level variation.

We have also tested the influence of regional socioeconomic scores in the multivariate testing described in Section 7.2, which controls for factors such as age, duration, disability type and severity. It confirms:

- A material effect (but small compared to some other effects) for **payments**. On average, 100 SEIFA points adds 7% to average payments. For $55k of spending this equates to $3,800 in additional annual payments.
- A small (but still statistically significant) effect for **committed supports**. On average, 100 SEIFA points adds 0.4% to committed supports. For an $80k plan, this equates to $300 in additional supports.

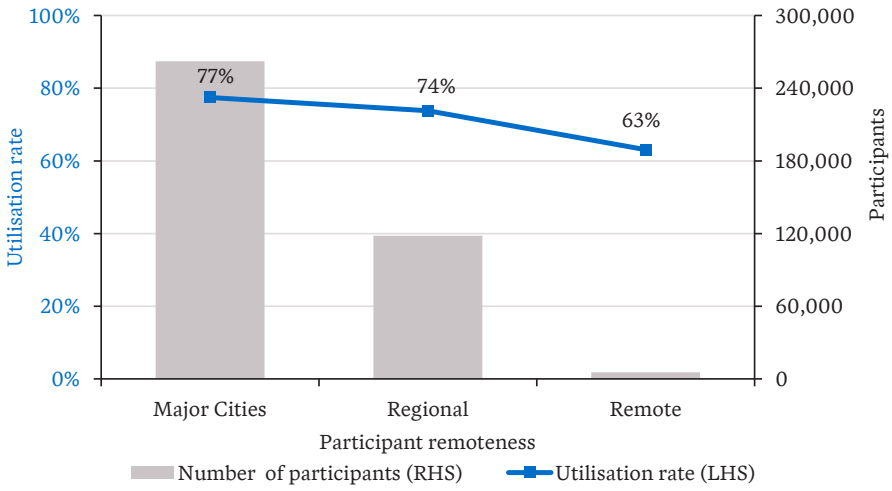
[25] See https://data.ndis.gov.au/reports-and-analyses/other-analyses#plan-budgets-and-socio-economic-status-report

Figure 8.3 – Average package size at 30 June 2021


Plan utilisation varies hugely at an individual level (see Figure 7.9 and surrounding discussion). At a geographic level, plan utilisation sees significant variation by remoteness (with some implied variation by SEIFA score as a result). Capital cities generally have higher utilisation than regional and remote areas. Access to services is an obvious possibility for the difference. Prices for services may also have a role; in regions with higher provider prices it may be easier to reach higher levels of utilisation (although there are some regional variations allowed for in the NDIS price guides).

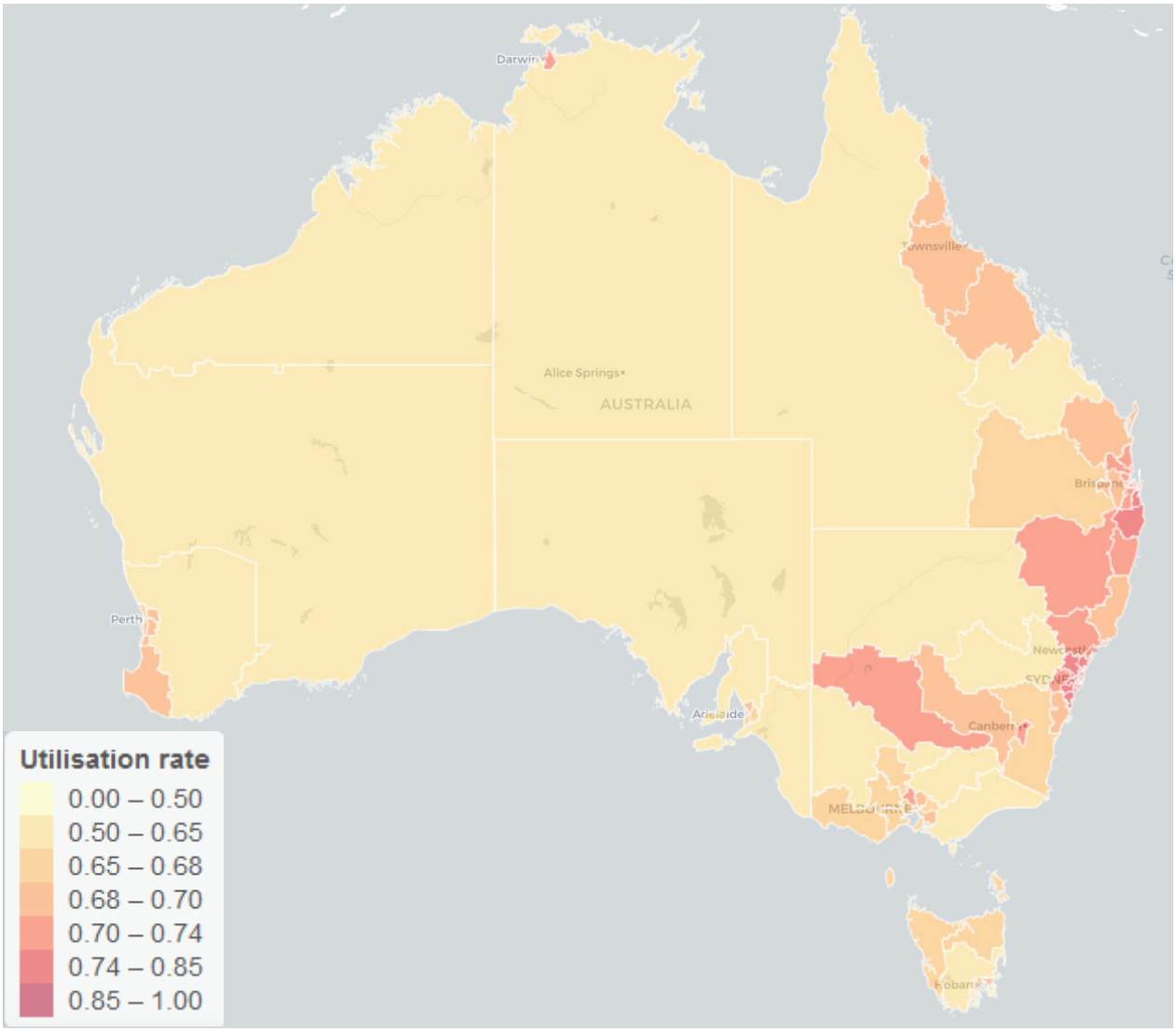
Figure 8.4 shows plan utilisation for 2020-21 by remoteness. In 2020-21, plan utilisation for major cities (MMM[26] 1 and 2) was 3 percentage points higher than for regional area (MMM 3 to 5) and 14 percentage points higher than for remote (MMM 6 and 7). If utilisation for regional and remote areas were going to rise to the same level as major cities, this would result in a 2% (or $394M) increase in overall payments. Despite having the lowest utilisation, remote areas had relatively high average plan amounts which likely reflects higher prices being charged in these areas. Participants in regional areas had the lowest average plan and payment amounts, noting that this has not been adjusted for potential differences in the age and disability mix of participants.

Figure 8.4 – Plan utilisation for 2020-21 by remoteness




[26] MMM is the Modified Monash Model of remoteness

Figure 8.5 – Average utilisation by SA4 region

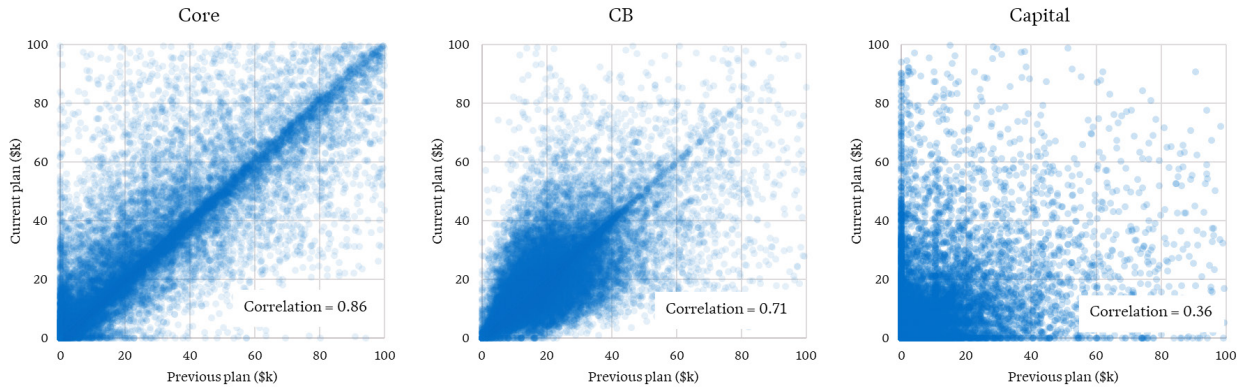



## 8.4 Variation across package review outcomes

There is significant variation in plan amounts over time. Some of this relates to the increases and changing inclusions seen over time (see for example Figure 3.10 in section 3.5). But beyond the aggregate trends there is significant variation at the individual level too. Changes in 2020-21 are shown below, split between Core, Capacity Building and Capital.

- The largest variability (in terms of lowest correlation over time) is the Capital component; this makes sense, given it often has a significant one-off investment component.
- Capacity building components vary significantly, particularly for people with larger capacity building amounts allocated in a particular year.
- Core payments show the most stability. About 20% of people have a change in the core supports of at least $20,000 on plan review.

Figure 8.6 – Change in supports between successive plan changes, 2020-21




Another dimension of package reviews is planner-level variability; it may be the case that some planners tend to favour higher or lower packages for certain groups of people. Our data does not have a planner ID and so we have not undertaken this analysis. We understand that the NDIS has examined this question in 2018 and found reasonable levels of planner-level variation.

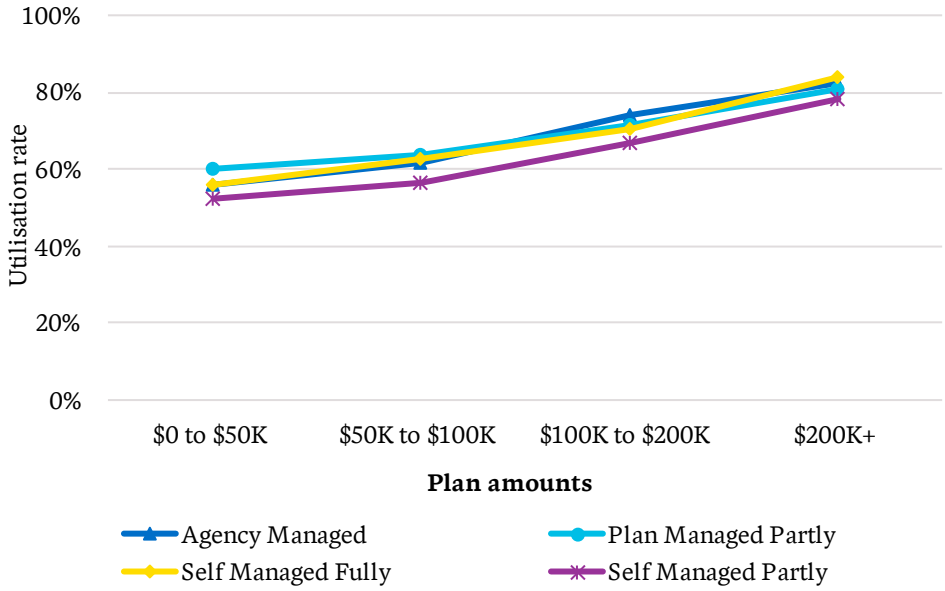
Much of the variation in packages translates into payments too, where variation can be even greater. This is shown in Figure 4.14, where the boxplot demonstrates the significant variation of payments within groups.

## 8.5 Variation in utilisation by type of plan management

We have examined utilisation across plan management methods. The analysis focused on active participants aged over 35 who had the same type of plan management throughout 2020-21, thereby removing potential differences between adults and children and impacts arising from a change in management. In 2020-21, nearly 60% of non-SIL participants have their funds managed by plan managers and around 26% were agency managed. As shown in Figure 8.7, plan utilisation was similar across all management methods.

Figure 8.7 shows plan utilisation for 2020-21 by plan management method.

Figure 8.7 – Plan utilisation for 2020-21 by plan management method



# 9 Implications

## 9.1 Key considerations

Although this report does not attempt to make policy recommendations that go beyond what we can see in the data, we take this opportunity to highlight a few areas that we believe are relevant to the question of long-term Scheme costs.

### 9.1.1 The value of objective data

A key limitation of our work, and one echoed in comments by the Scheme Actuary, is that it is hard to comment on aspects of the Scheme on the 'shifting sand' that is the current data collection. Much of this is related to reliable assessments of functional capacity over time.

- Much of the cost escalation seen per participant over time could be justified if the apparent deterioration observable in the data (see for example the rates of movement in Figure 3.5, p15) was legitimate. However, if the movement is more due behavioural effects in the planning process, then there is reduced ability to judge whether supports are appropriate.
- Similarly, the average level of payments at entry into the Scheme, after allowing for Scheme-wide cost escalation, does not look unreasonable. However, if there has been drift in severity assessment this may also represent an upward drift in supports.
- Tying severity and supports to outcomes (e.g. employment and community participation) requires estimation of a baseline counterfactual rate. This is difficult if initial severity is uncertain.

We support the collection of more robust objective data on functional capacity and participant support needs. Ultimately this is needed to ensure consistency in the provision of reasonable and necessary supports over time.

### 9.1.2 Entry into the Scheme and Scheme numbers

Half of Scheme entrants in 2020-21 were children with autism or developmental delay[27] – 40,000 in total. This compares to a long-run assumption of 20,000 in the 2018-19 AFSR, which was also twinned by a much higher rate of exits. Many of these entrants are joining under early intervention rules.

This will significantly change the nature of the population over time, away from the original expectations of the Scheme. For instance, 2015 research on the inclusion of developmental delay estimated an additional 11,600 children annually with a cost of $155M[28]. Current numbers are three times as large. More generally, overall 2025 Scheme numbers are comparable to the Productivity Commission 2011 estimates for older Australians, but twice as high for the 0-14 age group.

[27] We have grouped developmental delay with global developmental delay, similar to treatment by the Scheme Actuary

[28] See p 156 of the 2017 PC cost report, https://www.pc.gov.au/inquiries/completed/ndis-costs/report/ndis-costs.pdf

Table 9.1 – Comparison of Productivity Commission 2011 estimates of participant numbers to actual and projected NDIS numbers

| | 0-14 | 15-49 | 50-65 | 65+ | Total |
|---|---|---|---|---|---|
| PC 2011 | 120,960 | 196,750 | 93,540 | n/a | 411,250 |
| PC 2011, +17% pop adjusted | 141,523 | 230,198 | 109,442 | n/a | 481,163 |
| Participants in June 2021 quarter | 192,870 | 176,547 | 80,621 | 16,581 | 466,619 |
| Ratio to PC | 136% | 77% | 74% | | 97% |
| Participants in June 2025 | 275,599 | 256,182 | 101,816 | 36,804 | 670,401 |
| Ratio to PC | 195% | 111% | 93% | | 139% |

The original NDIS costing did not foresee the high number of child entrants into the Scheme. Further, it was implicitly assumed many of these people would exit the Scheme, since the SDAC 2009 (on which participant estimates were based) had lower prevalence rates for autism in older age groups, whereas we do not see the corresponding exits.

There is a natural question as to whether the increased scope of the NDIS for children compared to the original design is consistent with the current intent of the Scheme (noting that more recent SDAC surveys recognise higher rates of autism), which in turn has direct cost implications.

### 9.1.3 The planning stage

While this report is not focused on the operational realities of planning, we note that the planning process will have direct implications for package sizes and spending.

- Individual planners are responsible for multiple steps in the planning process including updating the disability severity rating, assessing the typical support package amount, and assessing required mainstream and informal supports, ultimately leading to the final committed support package. This creates efficiency but reduces the level of cross-checking as to why the packages are changing and the justification for those changes. The link between higher severity and higher packages suggests the planning process has contributed to some of the recent joint trends in increasing severity and committed supports.
- Previous NDIA work[29] has identified slightly larger rates of recorded severity increase when a generic assessment tool (such as WHODAS) was used, rather than specific tools. While there will be compositional effects that may contribute to the differences, improving consistency of assessment is a potential response.
- We understand the current IT system makes it difficult for planners to directly compare participant information (e.g. plans and question responses) from the previous year. This may increase variability in assessment and TSPs.

Such operational elements could be considered by the NDIS and its governing partners.

### 9.1.4 The benefits of investment and early intervention

The NDIS insurance principles state that:

[29] See Addendum 1 of the June 2021 quarterly report

*The NDIS takes a lifetime approach (i.e. seeks to minimise support costs over a participant's lifetime) by investing in people early to build their capacity to help them pursue their goals and aspirations resulting in greater outcomes later in life*

Similarly, the earlier intervention requirements of from Section 25 of the *National Disability Insurance Scheme Act 2013* states that one criterion for entry is:

*the CEO is satisfied that provision of early intervention supports for the person is likely to benefit the person by reducing the person's future needs for supports in relation to disability*

However, while there is a large amount of variability in longitudinal payments across the Scheme, we have found little obvious evidence of increased supports leading to reductions in needs in subsequent years, although it may be too early to expect to see such reductions.

Further, the process by which such future savings could be measured and assessed is unclear, even when more data accumulates. While some outcomes are tracked (e.g. rates of employment), other outcomes are potentially more subjective (e.g. achieving goals for community participation) and it is difficult to tie these to specific interventions. Similarly, decreases in committed supports are difficult to attribute to earlier upfront spending. Work to better understand the effectiveness of early intervention and capacity building in the NDIS would be valuable.

One implication is to consider if measurement of this investment dynamic needs attention and that costs are being correctly attributed to support categories.

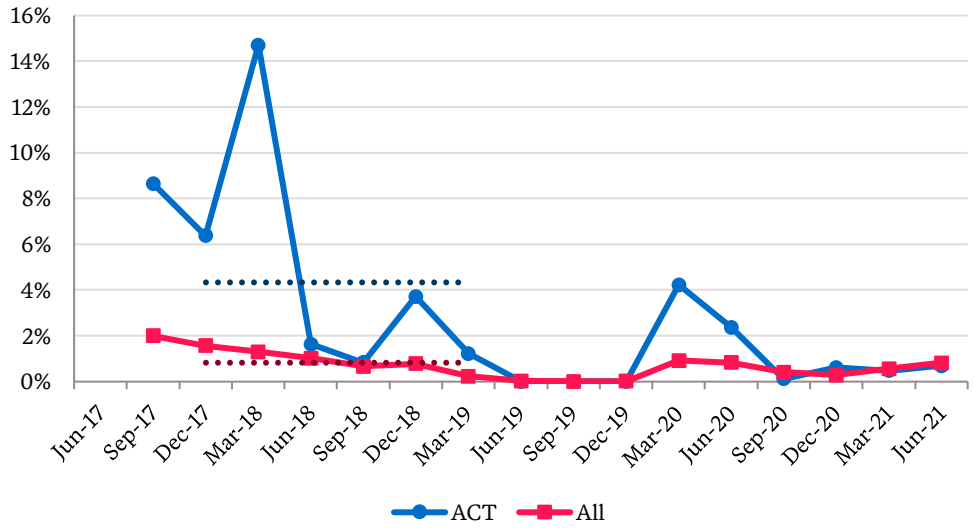
### 9.1.5 Scheme exits

Another dynamic, consistent with the idea of early intervention, is that many people would exit from the Scheme.

There is a question as to whether the current level of exit is appropriate – in particular, that most children entering under early intervention remain in the Scheme for an extended period of time.

We note that faster exits are possible. The ACT early in the Scheme (2018 and 2019) saw an exit rate five times higher than the national average for children with developmental delay, as shown below. We understand this reflected an explicit 'transition out' policy.

Figure 9.1 – Exits under the code 'Early Intervention and Disability Not Met' for children with Developmental delay, ACT versus all Australia



## 9.2 Additional work

### 9.2.1 Questions not answerable with the current data provided

Ultimately, the payment data cannot assess whether:

- A payment represents good 'value for money'; the quality of a service delivered is not visible, nor the rate of non-compliant payments or the direct benefits flowing from the service. Therefore we cannot make any comments on the quality of services and the resulting benefits gained from those services.
- An additional support is 'reasonable and necessary'. As supports have increased, presumably new supports either represent areas where a participant needed a service but previously was not accessing it, or it represents an expansion of what is judged reasonable and necessary. Again, this is not visible to us.

Additional research, including qualitative work, would be valuable to explore these areas.

### 9.2.2 Further exploration of SDAC and prevalence

Accessing the SDAC 2019 microdata would potentially allow better reconciliation of NDIS coverage relative to reported prevalence. Similarly, broader prevalence studies, such as those commissioned by disability group peak bodies, may offer some value in understanding trends in disability visible in the Scheme data.

# Appendix A Additional results

## A.1 Full participant number backtest results

| Disability group - band | Back-test predicted numbers at Jun-21 using model structure | Actual population Jun-21 | Difference |
|---|---|---|---|
| ABI_1 | 417 | 323 | -94 |
| ABI_2 | 1,832 | 1,307 | -525 |
| ABI_3 | 1,770 | 1,528 | -242 |
| ABI_4 | 455 | 447 | -8 |
| ABI_5 | 3,206 | 3,437 | 231 |
| ABI_6 | 5,903 | 7,217 | 1,314 |
| ABI_7 | 433 | 657 | 224 |
| Autism_1 | 37,603 | 28,369 | -9,234 |
| Autism_2 | 71,480 | 85,405 | 13,925 |
| Autism_3 | 9,255 | 9,370 | 115 |
| Autism_4 | 19,862 | 28,197 | 8,335 |
| Cerebral Palsy_1 | 1,028 | 1,097 | 69 |
| Cerebral Palsy_2 | 5,572 | 4,948 | -624 |
| Cerebral Palsy_3 | 2,193 | 2,204 | 11 |
| Cerebral Palsy_4 | 6,395 | 8,318 | 1,923 |
| Hearing Impairment_1 | 17,639 | 17,186 | -453 |
| Hearing Impairment_2 | 5,284 | 5,168 | -116 |
| Intellectual Disability_1 | 24,245 | 16,431 | -7,814 |
| Intellectual Disability_2 | 31,315 | 29,171 | -2,144 |
| Intellectual Disability_3 | 19,553 | 21,908 | 2,355 |
| Intellectual Disability_4 | 19,272 | 23,726 | 4,454 |
| Multiple Sclerosis_1 | 29 | 18 | -11 |
| Multiple Sclerosis_2 | 1,021 | 844 | -177 |
| Multiple Sclerosis_3 | 1,681 | 1,438 | -243 |
| Multiple Sclerosis_4 | 1,462 | 1,480 | 18 |
| Multiple Sclerosis_5 | 1,737 | 1,878 | 141 |
| Multiple Sclerosis_6 | 2,202 | 2,869 | 667 |
| Developmental delay_1 | 53,905 | 46,000 | -7,905 |
| Developmental delay_2 | 1,518 | 1,172 | -346 |
| Other_1 | 2,815 | 3,758 | 943 |
| Other Neurological_1 | 6,936 | 4,751 | -2,185 |
| Other Neurological_2 | 4,806 | 4,312 | -494 |
| Other Neurological_3 | 7,904 | 10,429 | 2,525 |
| Other Physical_1 | 9,755 | 7,882 | -1,873 |
| Other Physical_2 | 5,009 | 4,627 | -382 |
| Other Physical_3 | 5,628 | 6,098 | 470 |
| Other Sensory/Speech_1 | 3,676 | 2,755 | -921 |
| Psychosocial disability_1 | 81 | 96 | 15 |
| Psychosocial disability_2 | 11,118 | 8,443 | -2,675 |

| Disability group - band | Back-test predicted numbers at Jun-21 using model structure | Actual population Jun-21 | Difference |
|---|---|---|---|
| Psychosocial disability_3 | 9,983 | 9,920 | -63 |
| Psychosocial disability_4 | 13,249 | 15,092 | 1,843 |
| Psychosocial disability_5 | 12,255 | 14,878 | 2,623 |
| Spinal Cord Injury_1 | 482 | 487 | 5 |
| Spinal Cord Injury_2 | 324 | 239 | -85 |
| Spinal Cord Injury_3 | 700 | 690 | -10 |
| Spinal Cord Injury_4 | 317 | 391 | 74 |
| Spinal Cord Injury_5 | 1,329 | 1,432 | 103 |
| Spinal Cord Injury_6 | 890 | 1,005 | 115 |
| Spinal Cord Injury_7 | 170 | 222 | 52 |
| Spinal Cord Injury_8 | 430 | 549 | 119 |
| Spinal Cord Injury_9 | 94 | 119 | 25 |
| Stroke_1 | 99 | 76 | -23 |
| Stroke_2 | 1,464 | 1,389 | -75 |
| Stroke_3 | 4,291 | 4,718 | 427 |
| Stroke_4 | 590 | 771 | 181 |
| Visual Impairment_1 | 4,576 | 4,038 | -538 |
| Visual Impairment_2 | 5,036 | 5,018 | -18 |

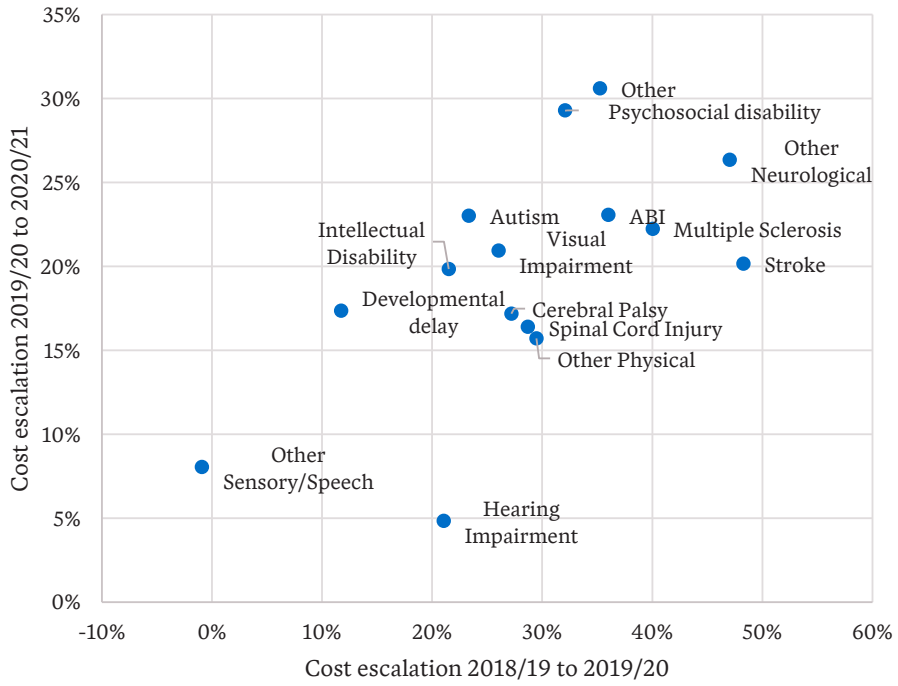
# Appendix B Further discussion of AFSR model structural elements

Other structural items discussed here are issues that affect aspects of the projection, but where the overall impact is either immaterial or unknown.

## B.1 Superimposed inflation (and total cost escalation) assumptions do not vary by disability type

Superimposed inflation assumptions are set by payment category. However, much of the recent increases are not price related and so cost escalation is more likely to vary by disability type. The figure below shows the relationship between 2019-20 and 2020-21 cost escalation by disability type. The correlation implies there's some consistency in the variation and it may be reasonable to assume that some disability types (e.g. psychosocial) will grow faster in costs than average.

Figure B.1 – Annual cost escalation by disability type, excluding SIL.



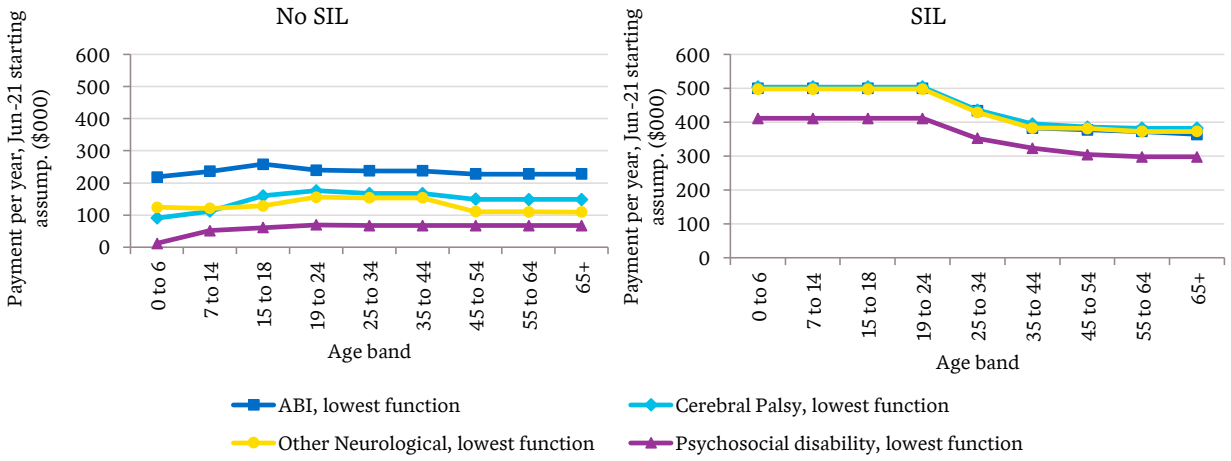

Note: Escalation calculated as percentage increase in payments for people in the Scheme both years and entering six months previous. So the 2021 y-axis calculates those entering before December 2018 and in the Scheme for all of 2019/20 and 2020/21.

## B.2 Future average payment size based on disability, function and age

Payments are defined by the average of that cell – as people move through age bands, they have the corresponding assumption applied. The projected payments do not consider participants' current support levels nor how long they have been in the Scheme, which could be important drivers of future payments.

For many supports, payment assumptions have been set to flat across age bands. However, in some cases higher age bands have lower assumed average costs. For example, the lowest-function group for 'Other neurological' (non-SIL) have costs of $156K in the 19-24 age group, falling to $111K at age 45-54. In such cases the model assumes that participant costs will decrease as they age, although some of this will be negated by the superimposed inflation assumptions. Selected disability types are shown in Figure B.2

Figure B.2 – Starting average costs assumptions for selected disability types, illustrating decreasing average payment assumptions with age




Note: The figure combines all payment types. We note for the No SIL group that the decreases are primarily in the Capacity Building and Capital components (Core costs are flat with care).

There may be some reasons why payment levels could decrease over time. For instance, behaviours of concern may decrease with age and require less intensive care, and Capacity Building supports may be less relevant at older ages. Conversely, effects such as declining health status may drive increases in supports over time. For some payment types, the best predictor of future costs will be participants' current level of support plus potentially an allowance for growth. Current trends indicate that longitudinal payments are increasing rather than decreasing. Some of this effect is incorporated into the superimposed inflation assumptions, but it is potentially optimistic to assume material decreases in packages and payments.

Longitudinal changes to payments represent an alternative guide to trends over time.

## B.3 Partial allowance for transitions between disability groups

The model has some explicit assumptions for the transition from developmental delay to both autism and intellectual disability groups. These are the largest two transitions in the data (about 6,000 people moving in 2020-21).

The next three largest transitions are:

- Intellectual disability to autism
- Autism to Intellectual disability
- Intellectual disability to psychosocial disability.

These represent 1,600 movements in 2020-21. We have not done an analysis of changes to package and costs at transition, but any impact is likely to be relatively small.

## B.4 Unusual projected age distributions for some cohorts

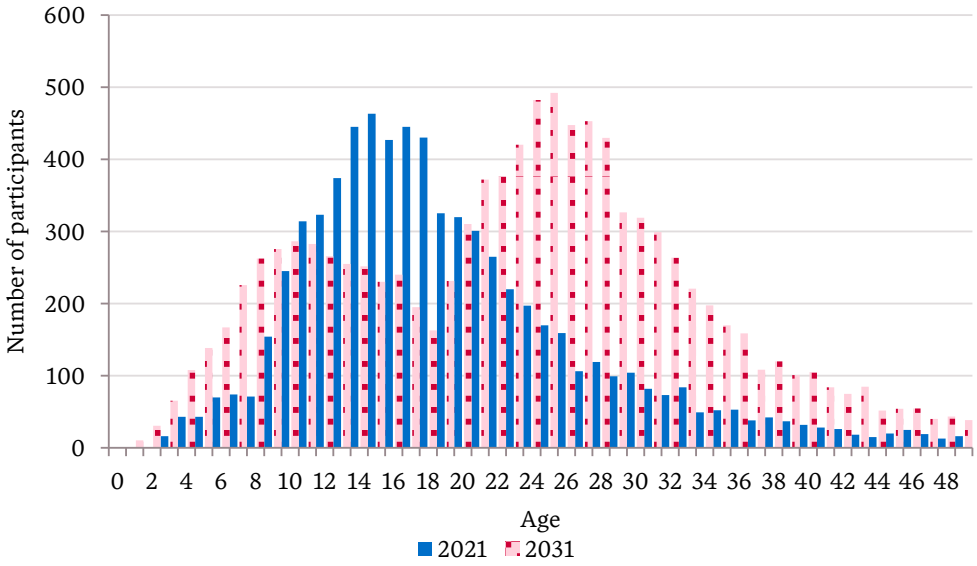
The participant projection is an 'input-output' model, which assumes a distribution of people coming in (age, gender, disability-severity) and a similar rate of exit (mortality and other exits).

In some cases where the entry distribution has been moving rapidly, a fixed distribution of entries and exits can lead to slightly anomalous results. For example, in the 'Autism 3 male' group (the second-lowest functional group level), the current distribution of people is centred on age 14 to 18.

Rolling the assumed numbers, age distribution and progression assumptions together, the model predicts that this group will look very different in ten years' time:

- The peak will have shifted to be centred on 24–28-year-olds
- The number of people with autism in this function group, male aged 14-18, will fall by 50%
- A new, lower subpeak will be centred on ages 10-12.

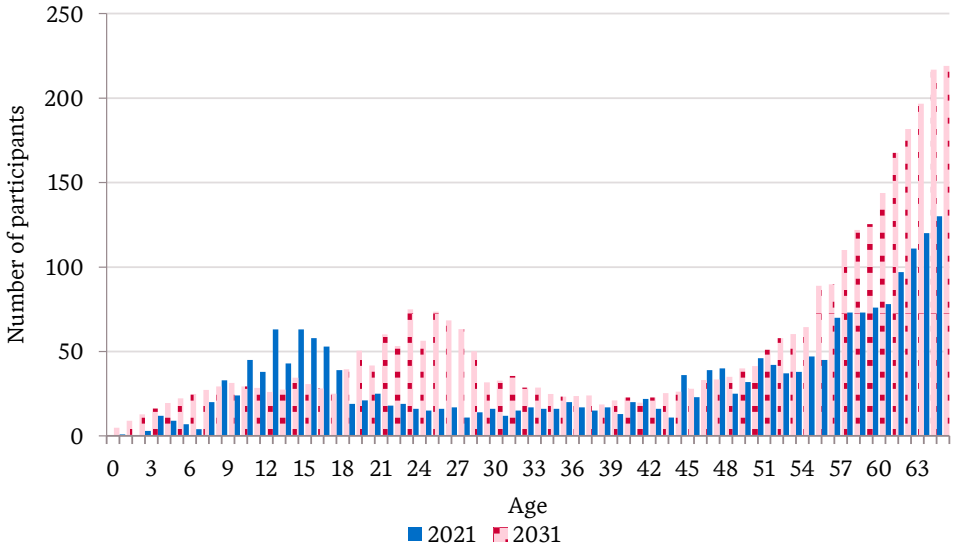
Figure B.3 – Current and 10-year projection of number of people by age for people in the male autism second-lowest function group




We regard the distribution as slightly unrealistic, since it effectively projects a large decrease in the age band that is currently most prevalent. However, rectifying this in an input-output model is difficult, since it involves modifying inflow assumptions in a way that recovers sensible distributions once projected. It also has implications for the future size of the group; for the peak to remain at ages 14-18, significantly more entries would need to be projected.

We also note that many other disability subgroups produce more stable projections or have less drastic changes in distribution. And potential underestimates in some groups may be balanced out by other subgroups. For example, one of the 'Other Neurological Conditions' subgroups is shown in Figure B.4. This has some peak movements, and some strong increases for older people (65% increase in the 55-64 group over 10 years, driven by newer entrants).

Figure B.4 – Current and 10-year projection of number of people by age for people in the male second-lowest function group, for 'Other neurological condition'

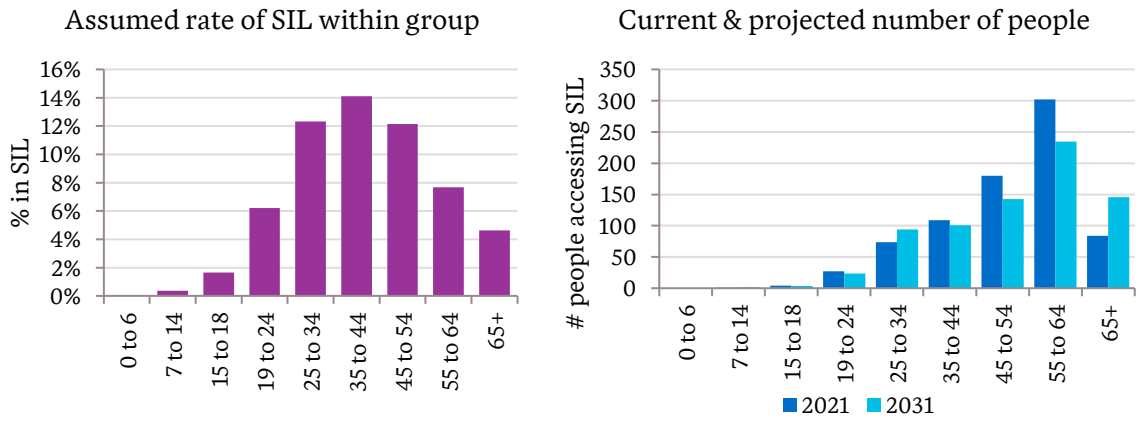



## B.5 SIL status does not follow participants

As with payment size, SIL usage rates do not follow participants, rather a rate is applied for each disability, severity and age combination. Rates are then assumed to largely remain flat over the next 9 years – this compares to a 16% increase in rates assumed in the December 2020 interim review, a marked slowdown.

Since the assumptions are tied to modelling cells rather than people, trends have the potential to be separate to natural development; some groups may be over, others under. To illustrate one of the more extreme examples, the assumed rates and forecast numbers for the highest severity group for 'Other Neurological' group is shown below.

Figure B.5 – Proportion of people assumed to be in SIL, for most severe Other Neurological group




We estimate that about 300 of 4,000 people in the 55-64 age group are in SIL. In 10 years' time (2031), the model projects that most of this group will have aged into the 65+ group (some will have died or left the Scheme), but only 145 people are projected to be in SIL. This assumes a large exit rate from SIL for the group over time, which is potentially unrealistic. Conversely, the model forecasts fewer people aged under 65 to be in SIL in 10 years' time.

Alternative models that model transitions into, and out of, SIL, may yield substantially different estimates.

## B.6 Large variation in costs within modelled groups

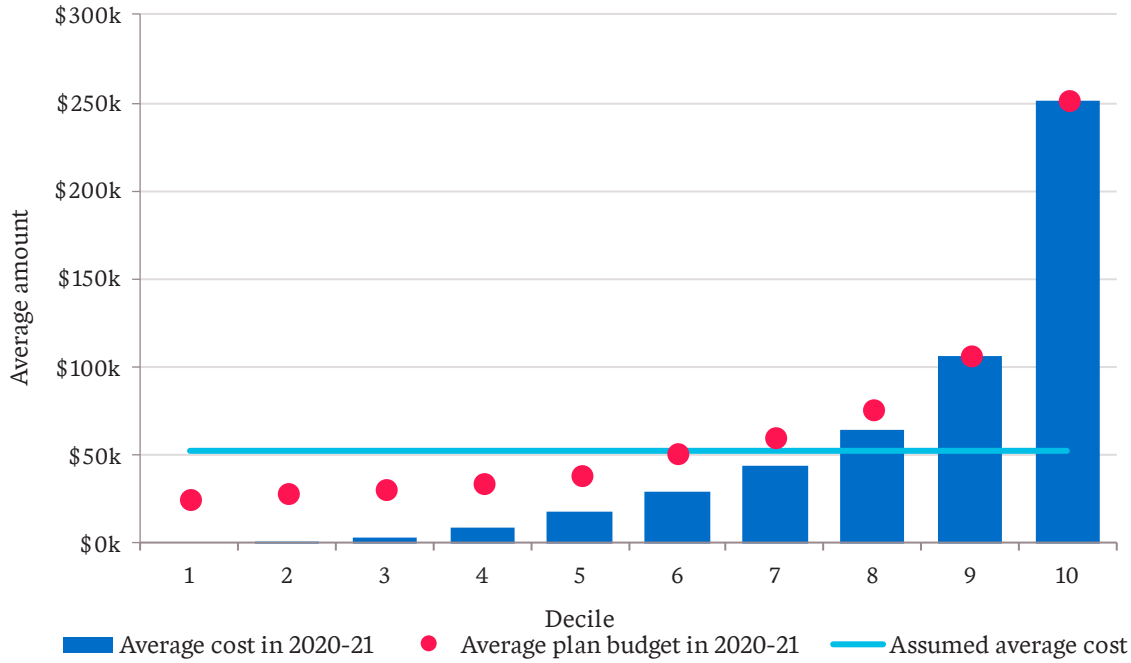
Part of the purpose of segmentation in an actuarial model is to group together cohorts that have similar payment characteristics and will see similar trends over time.

This is challenging for the NDIS population, since:

- The concept of individualised plans means that packages are not standardised. Other factors such as informal supports and access to mainstream services will affect packages.
- Costs vary significantly year-to-year at an individual level, reflecting specific spending on items such as assistive technology or other capital spending.

To illustrate the variability, Figure B.6, shows the variation in 2020-21 daily activity payments for one specific group. This is based on participants who entered the Scheme prior to 1 January 2020 and who were active as at 30 June 2021. As shown in Figure B.6, there is a wide range of supports even for people with the same disability and age profile, including more than 10% who did not receive any funded Daily Activity supports, while others received more than $850K.

Figure B.6 – Variation in Daily Activity payments for participants with a Level 4 Intellectual Disability aged 35-44 who are not in SIL




Note: Data quality issues related to SIL status may mean the figure includes some people who receive some SIL support over the year. The broad conclusion around variability remains.

This level of variability makes setting assumptions more difficult, since there will be different cost drivers at each part of the cost spectrum. The chart also highlights that high-cost participants are using most, if not all, of their plan budgets. In contrast, people in the lowest four deciles are each spending about $25K less than their plans permit, and therefore they have significant scope for higher utilisation in the future.

## B.7 No link between TSPs, plan and payments

In most AFSR models both payments and committed supports are estimated and projected separately, with subsequent checks on implied utilisation trends. In 2021 committed supports are not projected.

We believe this is a reasonable approach since it allows more direct focus on payments, however, it does mean that policy interventions that apply at a package planning level will not directly flow into spending projections. While there could be benefits in having the model incorporate committed support information, during a period where plan and utilisation rates are changing rapidly their inclusion may not end up improving the accuracy of projections and could add complexity by having more assumptions. Nonetheless, monitoring committed support and utilisation trends are important in understanding Scheme experience, and should experience start to stabilise then changes in these factors will become good predictors of changes in future payments.

# Appendix C Further results from steady state analysis

## C.1.1 Flows of participant numbers in and out of disability types, for participants aged 0-6

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 135 | 98 | -27% | 88 | 33 | 1 | 34 | 0 | 0 | 25 | 38 | 66% | 73% |
| Autism | 20,788 | 23,752 | +14% | 27,216 | 8,103 | 68 | 8,170 | 0 | 4,667 | 4,235 | 4,616 | 92% | 109% |
| Cerebral Palsy | 1,903 | 1,950 | +2% | 2,060 | 445 | 7 | 453 | 0 | 0 | 464 | 238 | 195% | 102% |
| Hearing Impairment | 3,760 | 5,065 | +35% | 5,889 | 660 | 32 | 692 | 0 | 0 | 1,017 | 766 | 133% | 147% |
| Intellectual Disability | 3,561 | 4,437 | +25% | 5,041 | 1,150 | 40 | 1,190 | 0 | 871 | 533 | 518 | 103% | 118% |
| Multiple Sclerosis | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Delay | 40,149 | 70,063 | +75% | 75,645 | 7,544 | 3,123 | 10,667 | 0 | -8,297 | 24,804 | 19,248 | 129% | 155% |
| Other | 196 | 272 | +39% | 330 | 55 | 5 | 61 | 0 | 0 | 79 | 114 | 69% | 131% |
| Other Neurological | 534 | 628 | +18% | 727 | 132 | 7 | 140 | 0 | 0 | 163 | 74 | 220% | 117% |
| Other Physical | 564 | 601 | +7% | 680 | 147 | 11 | 157 | 0 | 0 | 165 | 78 | 212% | 105% |
| Other Sensory/Speech | 305 | 432 | +42% | 455 | 180 | 27 | 207 | 0 | 0 | 234 | 30 | 781% | 113% |
| Psychosocial disability | 6 | 22 | +267% | 23 | 8 | 0 | 8 | 0 | 0 | 12 | 4 | 306% | 148% |
| Spinal Cord Injury | 8 | 6 | -26% | 4 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | | 66% |
| Stroke | 24 | 30 | +24% | 28 | 4 | 1 | 5 | 0 | 0 | 7 | 8 | 84% | 126% |
| Visual Impairment | 325 | 386 | +19% | 433 | 81 | 2 | 83 | 0 | 0 | 98 | 42 | 234% | 118% |
| Total | 72,258 | 107,742 | +49% | 118,618 | 18,543 | 3,326 | 21,870 | 0 | -2,759 | 31,837 | 25,774 | 124% | 133% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.2 Flows of participant numbers in and out of disability types, for participants aged 7-14

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 523 | 542 | +4% | 440 | 84 | 5 | 88 | 33 | 0 | 60 | 84 | 72% | 105% |
| Autism | 80,972 | 113,355 | +40% | 129,946 | 10,039 | 491 | 10,530 | 8,103 | 2,829 | 7,684 | 10,116 | 76% | 177% |
| Cerebral Palsy | 3,801 | 3,928 | +3% | 3,968 | 478 | 18 | 496 | 445 | 0 | 82 | 68 | 121% | 106% |
| Hearing Impairment | 4,965 | 6,277 | +26% | 7,447 | 642 | 42 | 684 | 660 | 0 | 352 | 382 | 92% | 148% |
| Intellectual Disability | 16,160 | 25,431 | +57% | 34,954 | 2,420 | 192 | 2,612 | 1,150 | 2,085 | 1,693 | 1,612 | 105% | 189% |
| Multiple Sclerosis | 3 | 0 | -100% | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | | 0% |
| Delay | 7,041 | 10,802 | +53% | 13,605 | 0 | 2,885 | 2,885 | 7,544 | -2,156 | 77 | 60 | 128% | 189% |
| Other | 525 | 754 | +44% | 591 | 49 | 19 | 68 | 55 | 0 | 70 | 154 | 45% | 184% |
| Other Neurological | 1,886 | 1,813 | -4% | 1,463 | 250 | 34 | 283 | 132 | 0 | 132 | 110 | 120% | 93% |
| Other Physical | 1,375 | 1,546 | +12% | 1,410 | 165 | 37 | 202 | 147 | 0 | 98 | 108 | 90% | 121% |
| Other Sensory/Speech | 2,057 | 2,065 | +0% | 1,921 | 139 | 249 | 388 | 180 | 0 | 206 | 44 | 469% | 100% |
| Psychosocial disability | 293 | 363 | +24% | 384 | 57 | 8 | 65 | 8 | 0 | 74 | 36 | 206% | 126% |
| Spinal Cord Injury | 51 | 45 | -12% | 28 | 10 | 0 | 10 | 1 | 0 | 7 | 10 | 70% | 85% |
| Stroke | 59 | 55 | -7% | 51 | 8 | 1 | 9 | 4 | 0 | 4 | 4 | 109% | 89% |
| Visual Impairment | 901 | 882 | -2% | 894 | 126 | 7 | 133 | 81 | 0 | 47 | 50 | 95% | 96% |
| Total | 120,612 | 167,857 | +39% | 197,100 | 14,467 | 3,988 | 18,455 | 18,543 | 2,757 | 10,587 | 12,838 | 82% | 173% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.3 Flows of participant numbers in and out of disability types, for participants aged 15-18

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 334 | 384 | +15% | 392 | 93 | 3 | 96 | 84 | 0 | 25 | 30 | 84% | 113% |
| Autism | 20,752 | 43,671 | +110% | 66,480 | 5,751 | 266 | 6,017 | 10,039 | 1 | 1,706 | 2,646 | 64% | 195% |
| Cerebral Palsy | 1,446 | 1,944 | +34% | 2,029 | 367 | 10 | 377 | 478 | 0 | 24 | 24 | 98% | 133% |
| Hearing Impairment | 1,687 | 2,861 | +70% | 3,754 | 475 | 17 | 492 | 642 | 0 | 144 | 160 | 90% | 160% |
| Intellectual Disability | 9,142 | 11,114 | +22% | 15,347 | 2,578 | 73 | 2,651 | 2,420 | 5 | 720 | 886 | 81% | 119% |
| Multiple Sclerosis | 14 | 5 | -65% | 1 | 5 | 0 | 5 | 1 | 0 | 2 | 4 | 50% | 54% |
| Delay | 18 | 0 | -100% | 0 | 0 | 1 | 1 | 0 | -4 | 0 | 0 | | -593% |
| Other | 94 | 229 | +144% | 469 | 32 | 5 | 37 | 49 | 0 | 22 | 46 | 48% | 192% |
| Other Neurological | 777 | 1,077 | +39% | 1,196 | 207 | 16 | 222 | 250 | 0 | 48 | 40 | 120% | 134% |
| Other Physical | 507 | 697 | +37% | 867 | 133 | 15 | 148 | 165 | 0 | 30 | 58 | 52% | 132% |
| Other Sensory/Speech | 212 | 442 | +109% | 417 | 42 | 37 | 79 | 139 | 0 | 4 | 2 | 175% | 180% |
| Psychosocial disability | 300 | 433 | +44% | 494 | 121 | 8 | 128 | 57 | 0 | 104 | 72 | 144% | 126% |
| Spinal Cord Injury | 45 | 53 | +17% | 47 | 14 | 0 | 14 | 10 | 0 | 7 | 8 | 81% | 113% |
| Stroke | 33 | 35 | +7% | 34 | 9 | 1 | 9 | 8 | 0 | 1 | 0 | | 106% |
| Visual Impairment | 460 | 520 | +13% | 503 | 119 | 4 | 123 | 126 | 0 | 12 | 20 | 61% | 112% |
| Total | 35,821 | 63,466 | +77% | 92,031 | 9,946 | 455 | 10,401 | 14,467 | 2 | 2,848 | 3,996 | 71% | 167% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.4 Flows of participant numbers in and out of disability types, for participants aged 19-24

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 632 | 649 | +3% | 679 | 124 | 7 | 131 | 93 | 0 | 42 | 72 | 58% | 103% |
| Autism | 15,463 | 31,569 | +104% | 66,117 | 2,253 | 175 | 2,428 | 5,751 | 0 | 717 | 1,200 | 60% | 266% |
| Cerebral Palsy | 1,838 | 2,139 | +16% | 2,880 | 306 | 14 | 320 | 367 | 0 | 28 | 36 | 79% | 123% |
| Hearing Impairment | 1,736 | 3,000 | +73% | 4,747 | 321 | 18 | 339 | 475 | 0 | 180 | 196 | 92% | 193% |
| Intellectual Disability | 14,241 | 15,781 | +11% | 18,225 | 2,363 | 137 | 2,500 | 2,578 | 0 | 306 | 466 | 66% | 115% |
| Multiple Sclerosis | 40 | 42 | +4% | 25 | 12 | 0 | 12 | 5 | 0 | 7 | 10 | 71% | 104% |
| Delay | 11 | 0 | -100% | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | | 0% |
| Other | 109 | 250 | +129% | 390 | 27 | 5 | 31 | 32 | 0 | 34 | 70 | 49% | 213% |
| Other Neurological | 940 | 1,283 | +36% | 1,711 | 163 | 23 | 186 | 207 | 0 | 65 | 50 | 130% | 146% |
| Other Physical | 647 | 795 | +23% | 1,037 | 117 | 20 | 137 | 133 | 0 | 42 | 36 | 116% | 127% |
| Other Sensory/Speech | 78 | 133 | +70% | 248 | 8 | 19 | 27 | 42 | 0 | 1 | 6 | 12% | 157% |
| Psychosocial disability | 1,885 | 1,804 | -4% | 1,974 | 482 | 18 | 500 | 121 | 0 | 358 | 424 | 84% | 96% |
| Spinal Cord Injury | 142 | 132 | -7% | 115 | 27 | 1 | 28 | 14 | 0 | 11 | 18 | 64% | 91% |
| Stroke | 61 | 63 | +4% | 61 | 11 | 1 | 13 | 9 | 0 | 5 | 4 | 113% | 105% |
| Visual Impairment | 569 | 728 | +28% | 774 | 97 | 6 | 103 | 119 | 0 | 24 | 26 | 91% | 139% |
| Total | 38,392 | 58,367 | +52% | 98,983 | 6,312 | 445 | 6,757 | 9,946 | 0 | 1,819 | 2,614 | 70% | 174% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.5 Flows of participant numbers in and out of disability types, for participants aged 25-34

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 1,427 | 1,571 | +10% | 1,509 | 178 | 24 | 202 | 124 | 0 | 113 | 216 | 52% | 118% |
| Autism | 8,333 | 15,809 | +90% | 33,993 | 617 | 69 | 686 | 2,253 | 0 | 307 | 834 | 37% | 373% |
| Cerebral Palsy | 2,415 | 2,818 | +17% | 3,281 | 224 | 22 | 247 | 306 | 0 | 42 | 64 | 65% | 141% |
| Hearing Impairment | 2,148 | 3,247 | +51% | 4,556 | 205 | 72 | 277 | 321 | 0 | 230 | 308 | 75% | 199% |
| Intellectual Disability | 15,613 | 20,269 | +30% | 24,830 | 1,433 | 90 | 1,524 | 2,363 | 0 | 330 | 528 | 62% | 177% |
| Multiple Sclerosis | 372 | 428 | +15% | 427 | 76 | 2 | 77 | 12 | 0 | 80 | 82 | 97% | 118% |
| Delay | 7 | 1 | -84% | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | | 28% |
| Other | 209 | 411 | +97% | 511 | 32 | 9 | 41 | 27 | 0 | 65 | 170 | 38% | 222% |
| Other Neurological | 1,249 | 1,658 | +33% | 2,177 | 126 | 34 | 160 | 163 | 0 | 99 | 96 | 103% | 164% |
| Other Physical | 1,199 | 1,420 | +18% | 1,549 | 151 | 45 | 195 | 117 | 0 | 133 | 154 | 86% | 128% |
| Other Sensory/Speech | 33 | 11 | -67% | 9 | 2 | 12 | 14 | 8 | 0 | 1 | 2 | 57% | 64% |
| Psychosocial disability | 6,997 | 8,990 | +28% | 9,126 | 1,013 | 56 | 1,069 | 482 | 0 | 1,085 | 1,560 | 70% | 147% |
| Spinal Cord Injury | 499 | 452 | -9% | 390 | 69 | 5 | 74 | 27 | 0 | 35 | 44 | 80% | 84% |
| Stroke | 177 | 234 | +32% | 252 | 32 | 4 | 36 | 11 | 0 | 39 | 44 | 90% | 139% |
| Visual Impairment | 887 | 1,072 | +21% | 1,304 | 104 | 9 | 113 | 97 | 0 | 62 | 84 | 74% | 141% |
| Total | 41,565 | 58,392 | +40% | 83,914 | 4,263 | 455 | 4,717 | 6,312 | 0 | 2,620 | 4,186 | 63% | 189% |

## C.1.6 Flows of participant numbers in and out of disability types, for participants aged 35-44

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 2,248 | 2,393 | +6% | 2,394 | 294 | 53 | 347 | 178 | 0 | 204 | 294 | 69% | 110% |
| Autism | 2,902 | 5,154 | +78% | 8,459 | 234 | 26 | 260 | 617 | 0 | 207 | 486 | 43% | 317% |
| Cerebral Palsy | 1,889 | 2,160 | +14% | 2,493 | 175 | 21 | 195 | 224 | 0 | 39 | 56 | 69% | 135% |
| Hearing Impairment | 1,689 | 2,410 | +43% | 3,159 | 199 | 48 | 247 | 205 | 0 | 222 | 206 | 108% | 173% |
| Intellectual Disability | 11,060 | 13,491 | +22% | 16,444 | 1,013 | 92 | 1,105 | 1,433 | 0 | 279 | 438 | 64% | 155% |
| Multiple Sclerosis | 1,315 | 1,499 | +14% | 1,534 | 195 | 8 | 203 | 76 | 0 | 173 | 262 | 66% | 123% |
| Delay | 1 | 1 | -22% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 96% |
| Other | 349 | 606 | +74% | 682 | 60 | 18 | 77 | 32 | 0 | 109 | 234 | 46% | 183% |
| Other Neurological | 1,649 | 1,784 | +8% | 1,900 | 197 | 57 | 253 | 126 | 0 | 160 | 248 | 64% | 113% |
| Other Physical | 1,999 | 2,382 | +19% | 2,535 | 257 | 87 | 344 | 151 | 0 | 288 | 258 | 112% | 127% |
| Other Sensory/Speech | 15 | 0 | -97% | 0 | 1 | 6 | 6 | 2 | 0 | 1 | 2 | 52% | 43% |
| Psychosocial disability | 10,931 | 14,690 | +34% | 17,456 | 1,450 | 155 | 1,606 | 1,013 | 0 | 1,528 | 2,030 | 75% | 158% |
| Spinal Cord Injury | 877 | 940 | +7% | 883 | 104 | 12 | 116 | 69 | 0 | 62 | 80 | 78% | 113% |
| Stroke | 562 | 735 | +31% | 847 | 92 | 14 | 106 | 32 | 0 | 116 | 112 | 104% | 140% |
| Visual Impairment | 1,072 | 1,339 | +25% | 1,523 | 119 | 14 | 133 | 104 | 0 | 96 | 96 | 100% | 150% |
| Total | 38,558 | 49,583 | +29% | 60,310 | 4,389 | 610 | 4,999 | 4,263 | 0 | 3,484 | 4,802 | 73% | 155% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.7 Flows of participant numbers in and out of disability types, for participants aged 45-54

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 3,816 | 4,036 | +6% | 3,830 | 456 | 121 | 577 | 294 | 0 | 336 | 536 | 63% | 109% |
| Autism | 1,454 | 2,253 | +55% | 3,426 | 131 | 16 | 147 | 234 | 0 | 113 | 256 | 44% | 236% |
| Cerebral Palsy | 1,678 | 1,808 | +8% | 1,942 | 154 | 21 | 176 | 175 | 0 | 33 | 52 | 64% | 119% |
| Hearing Impairment | 2,434 | 2,991 | +23% | 3,507 | 313 | 92 | 405 | 199 | 0 | 343 | 318 | 108% | 134% |
| Intellectual Disability | 10,316 | 10,675 | +3% | 11,807 | 1,033 | 162 | 1,194 | 1,013 | 0 | 268 | 370 | 73% | 107% |
| Multiple Sclerosis | 2,453 | 2,834 | +16% | 3,015 | 302 | 28 | 330 | 195 | 0 | 230 | 296 | 78% | 129% |
| Delay | 3 | 0 | -100% | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | | 0% |
| Other | 649 | 1,195 | +84% | 1,344 | 120 | 42 | 162 | 60 | 0 | 238 | 454 | 52% | 183% |
| Other Neurological | 2,900 | 3,259 | +12% | 3,461 | 397 | 178 | 575 | 197 | 0 | 463 | 484 | 96% | 115% |
| Other Physical | 3,722 | 4,352 | +17% | 4,858 | 495 | 208 | 703 | 257 | 0 | 598 | 464 | 129% | 122% |
| Other Sensory/Speech | 17 | 0 | -100% | 0 | 0 | 5 | 6 | 1 | 0 | 1 | 4 | 20% | 24% |
| Psychosocial disability | 13,498 | 18,790 | +39% | 22,614 | 1,589 | 260 | 1,849 | 1,450 | 0 | 1,719 | 2,362 | 73% | 171% |
| Spinal Cord Injury | 1,250 | 1,305 | +4% | 1,373 | 154 | 25 | 179 | 104 | 0 | 88 | 142 | 62% | 107% |
| Stroke | 1,377 | 1,734 | +26% | 2,006 | 215 | 38 | 253 | 92 | 0 | 249 | 294 | 85% | 135% |
| Visual Impairment | 1,696 | 1,778 | +5% | 1,939 | 203 | 28 | 231 | 119 | 0 | 132 | 152 | 87% | 109% |
| Total | 47,263 | 57,011 | +21% | 65,122 | 5,563 | 1,226 | 6,789 | 4,389 | 0 | 4,812 | 6,184 | 78% | 136% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.8 Flows of participant numbers in and out of disability types, for participants aged 55-64

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 4,562 | 5,321 | +17% | 5,466 | 461 | 209 | 670 | 456 | 0 | 402 | 580 | 69% | 128% |
| Autism | 644 | 1,068 | +66% | 1,674 | 55 | 11 | 65 | 131 | 0 | 40 | 82 | 49% | 263% |
| Cerebral Palsy | 1,295 | 1,477 | +14% | 1,660 | 112 | 25 | 137 | 154 | 0 | 28 | 34 | 83% | 133% |
| Hearing Impairment | 3,076 | 4,146 | +35% | 4,757 | 344 | 133 | 478 | 313 | 0 | 432 | 454 | 95% | 156% |
| Intellectual Disability | 8,951 | 9,887 | +10% | 10,435 | 772 | 295 | 1,066 | 1,033 | 0 | 265 | 356 | 74% | 122% |
| Multiple Sclerosis | 3,229 | 3,830 | +19% | 4,190 | 340 | 67 | 406 | 302 | 0 | 253 | 328 | 77% | 137% |
| Delay | 3 | 0 | -100% | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | | 15% |
| Other | 1,342 | 2,632 | +96% | 3,133 | 261 | 118 | 379 | 120 | 0 | 576 | 922 | 63% | 184% |
| Other Neurological | 6,681 | 8,117 | +21% | 9,186 | 1,014 | 547 | 1,561 | 397 | 0 | 1,508 | 1,442 | 105% | 122% |
| Other Physical | 6,332 | 8,075 | +28% | 9,217 | 837 | 450 | 1,286 | 495 | 0 | 1,219 | 876 | 139% | 133% |
| Other Sensory/Speech | 51 | 0 | -100% | 0 | 2 | 15 | 16 | 0 | 0 | 3 | 8 | 40% | 22% |
| Psychosocial disability | 12,097 | 17,850 | +48% | 23,000 | 1,226 | 363 | 1,589 | 1,589 | 0 | 1,437 | 2,144 | 67% | 190% |
| Spinal Cord Injury | 1,650 | 1,868 | +13% | 1,834 | 168 | 51 | 219 | 154 | 0 | 119 | 134 | 88% | 125% |
| Stroke | 3,405 | 4,265 | +25% | 4,799 | 528 | 112 | 640 | 215 | 0 | 636 | 718 | 89% | 133% |
| Visual Impairment | 2,251 | 2,643 | +17% | 2,912 | 267 | 65 | 332 | 203 | 0 | 225 | 256 | 88% | 129% |
| Total | 55,569 | 71,178 | +28% | 82,261 | 6,385 | 2,460 | 8,845 | 5,563 | 0 | 7,143 | 8,334 | 86% | 144% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

## C.1.9 Flows of participant numbers in and out of disability types, for participants aged 65+

| Disability Type | 2021 number of people | 2025 projected | % change | 2030 projected | # aging out (4-year proj avg) | Exits (mortality + other) | Steady state number | # aging in (4-year proj) | Transfers (avg next 4 years) | New entries (avg next four years) | Past entries (avg past 6 months from outside CMW state schemes, annualised) | Ratio Projected / past | Ratio projected / steady state |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABI | 1,243 | 2,642 | +113% | 4,088 | 0 | 125 | 125 | 461 | 0 | 20 | 46 | 44% | 385% |
| Autism | 125 | 316 | +153% | 598 | 0 | 8 | 8 | 55 | 0 | 2 | 4 | 45% | 672% |
| Cerebral Palsy | 307 | 663 | +116% | 1,071 | 0 | 23 | 23 | 112 | 0 | 1 | 2 | 70% | 482% |
| Hearing Impairment | 868 | 2,062 | +138% | 3,619 | 0 | 61 | 61 | 344 | 0 | 19 | 26 | 75% | 600% |
| Intellectual Disability | 2,267 | 4,466 | +97% | 6,634 | 0 | 223 | 223 | 772 | 0 | 11 | 16 | 66% | 350% |
| Multiple Sclerosis | 1,102 | 2,196 | +99% | 3,547 | 0 | 79 | 79 | 340 | 0 | 15 | 16 | 95% | 449% |
| Delay | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1811% |
| Other | 287 | 1,218 | +324% | 2,397 | 0 | 50 | 50 | 261 | 0 | 29 | 86 | 34% | 578% |
| Other Neurological | 2,882 | 5,759 | +100% | 8,843 | 0 | 393 | 393 | 1,014 | 0 | 121 | 162 | 74% | 289% |
| Other Physical | 2,272 | 4,877 | +115% | 7,955 | 0 | 248 | 248 | 837 | 0 | 79 | 80 | 99% | 369% |
| Other Sensory/Speech | 10 | 14 | +38% | 10 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | | 275% |
| Psychosocial disability | 2,453 | 6,793 | +177% | 13,107 | 0 | 194 | 194 | 1,226 | 0 | 65 | 110 | 59% | 665% |
| Spinal Cord Injury | 612 | 1,139 | +86% | 1,774 | 0 | 43 | 43 | 168 | 0 | 8 | 26 | 32% | 409% |
| Stroke | 1,257 | 3,003 | +139% | 4,943 | 0 | 124 | 124 | 528 | 0 | 38 | 42 | 91% | 456% |
| Visual Impairment | 896 | 1,657 | +85% | 2,400 | 0 | 87 | 87 | 267 | 0 | 12 | 30 | 41% | 322% |
| Total | 16,581 | 36,804 | +122% | 60,987 | 0 | 1,660 | 1,660 | 6,385 | 0 | 421 | 646 | 65% | 410% |

(a) Steady state number is the sum of exits and the number aging out

(b) The ratio of entries / steady state in the final column is the sum of new entries, transfers and numbers aging in divided by the steady state number.

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