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Dear Dr Nugent

REVIEW OF FINANCIAL SUSTAINABILITY REPORT

This letter reports on my review of the fifth annual Financial Sustainability Report (FSR) prepared by the scheme actuary, dated September 2018.

Introduction

Subsection 180B(1) of the *National Disability Insurance Scheme (NDIS) Act 2013* provides that the scheme actuary will prepare an annual FSR.

Part 3 of the *NDIS Rules for the Scheme Actuary* (attached) sets out certain requirements in respect of the contents of the FSR.

Under subsection 180E(2) of the NDIS Act, the reviewing actuary is required to review and report on each annual FSR.

FSR in context

This fifth FSR provides, for the first time, projections of scheme cost using assumptions which have been significantly informed by the actual experience of the scheme during trial and transition. This approach is consistent with Productivity Commission (PC) recommendations in its 2017 review of the NDIS but represents a fundamental change in approach from previous FSR's[1].

The FSR is one of a suite of reports prepared by the scheme actuary during the course of any given year.

[1] Previous FSR's have adopted so-called benchmark assumptions which were informed to a significant extent by the work of the Productivity Commission in 2011.

Quarterly monitoring reports provide contemporary actuarial analysis of recent scheme experience. These quarterly reports, therefore, have a short-term focus, and are intended to support dynamic and responsive scheme management.

On the other hand, the annual FSR is intended to support longer term strategic planning. For example, this year's FSR identifies issues which require a strategic response. In line with a control cycle approach, I note that a preliminary management response has been prepared. It will, of course, be important to ensure that suitable metrics are developed to monitor the effectiveness of the management response to the issues raised in the FSR.

This review

In this review, I have concentrated on the baseline cost projection presented in the FSR. I have done this because of the fundamental change in the nature of the baseline projection in this year's FSR referred to above. I have:

- compared the baseline cost projection presented in this FSR with that presented in last year's FSR, briefly noting the main reasons for the different trajectories;
- considered the philosophical basis which underpinned the choice of assumptions used in this FSR;
- considered the reasonableness of and uncertainty around the assumptions that have been adopted for the current projection;
- discussed how the baseline projection in this FSR could be interpreted; and
- briefly highlighted some areas of risk identified in the FSR.

Comparison of cost projections: last year's FSR, this FSR

The table below compares the cost projections in selected future years presented in this fifth FSR with those presented in last year's FSR.

	Last year's FSR	This year's FSR	Difference
2019-20	$21.9bn	$17.1bn	-22%
2022-23	$27.5bn	$28.4bn	+3%
2024-25	$31.3bn	$33.6bn	+7%
2029-30	$42.6bn	$47.1bn	+11%

In 2019-20, the cost estimates in this year's FSR are significantly lower than those in last year's FSR. This year's FSR assumes continuation of the speed at which participants have entered the NDIS so far during transition; last year's FSR ignored the actual speed at which participants were entering the scheme during transition and assumed that the phasing would be completed in line with bilateral agreements.

In 2022-23, the cost estimates in this year's FSR are very similar to those in last year's FSR. This is despite the fundamentally different approaches taken: the assumptions used to project costs in this year's FSR have relied heavily on actual scheme experience whereas last year's FSR largely ignored actual scheme experience.

After 2022-23, the cost estimates in this year's FSR increase faster than those in last year's FSR. A number of factors are relevant here: notably, the younger participant population observed so far and assumed in this year's FSR together particularly with lower assumed non-mortality rates of exit for participants with autism mean that the participant population (0-64 year olds) is projected to increase faster than the Australian population (0-64 year olds). In last year's FSR, scheme prevalence (0-64 year olds) was "forced" to increase in line with the Australian population (0-64 year olds). Other factors are less significant and/or largely offsetting but should not be ignored and are discussed below.

Philosophical basis underpinning the choice of assumptions

The main assumptions underpinning the cost projections in the FSR can be categorised as:

- Demographic assumptions. These include assumed new incidence and exit rates by age/gender/primary disability/level of function/SSA[2] status which, in combination in the very long run, determine the shape[3] of the projected participant population. There are also assumptions around the shape of the participant population at steady intake[4] and site-specific assumptions around the speed at which phasing will continue between now and steady intake.
- Financial assumptions. These include the set of average payment assumptions in 2018 dollars – broken down by age/primary disability/level of function/SSA status/duration[5]. They also include assumptions around superimposed inflation.
- Economic assumptions. These include assumptions around the underlying rate of increase in average payment amounts, GDP and the Australian population.

The table below compares the assumption setting basis used in this year's FSR with that used in last year's FSR.

[2] Shared supported accommodation

[3] Shape refers to distribution by age/gender/primary disability/level of function/SSA status

[4] Steady intake is when phasing is essentially complete and new entrants after that time are from new incidence of disability and is estimated in this FSR to occur in 2023. Last year's FSR ignored emerging experience and simply assumed that transition phasing would occur in line with bilateral agreements and that steady intake would occur in 2020.

[5] There are separate assumptions for first and subsequent plans

	Last year's FSR	This year's FSR	Impact
Steady intake	Assumed that phasing would be completed in line with the published policy schedule and that the size and shape of the steady intake population would be in line with the PC's 2011 estimates.	Shape, size and timing of the steady intake population are based on continuation of the speed at which participants are entering the scheme. Some subjective adjustments have been made to emerging experience to reduce the projected number of participants with autism and increase the number of participants with psychosocial disability.	Steady intake is now projected in 2023 rather than 2020. The overall number of participants projected at 2023 is similar in both FSR's, although the projected age, disability and level of function distributions differ significantly.
New incidence rates	Based on external information, eg epidemiological studies.	Based on trial and transition experience.	More new entrants projected in this year's FSR, including with autism.
Exit rates	Mortality rates based on external information. Non-mortality exit rates artificially constructed to result in broadly steady prevalence among 0-64 year olds.	Based on trial and transition experience. Some subjective adjustments particularly to non-mortality exit rates among participants with autism and mortality rates.	Fewer non-mortality exits in this year's FSR, particularly among participants with autism.
Average payment amounts	Assumed that committed supports[6] would equal, on	Based on actual payment experience of participants on at	Similar overall average cost as a result of a

[6] No explicit allowance in committed supports for some items which have since emerged – eg, less than complete implementation of the National Injury Insurance Scheme and school transport costs.

	average, reference packages and that the distribution of level of function would be in line with prior expectations and that utilisation would be 100%.	least second plan between January and June 2018. Reduced average payment amount for participants on their first projected plan.	number of largely offsetting influences – while reference packages and plan amounts are higher than projected last year, utilisation is lower.
Superimposed inflation	Zero[7].	Some allowance made for known sources of superimposed inflation. Subjective assumption around superimposed inflation due to "utilisation". Superimposed inflation in plan amounts observed during trial and transition has been largely discounted in setting this assumption.	No additional impact on projected costs after steady intake is reached.
Economic assumptions	In line with Treasury assumptions.	In line with Treasury assumptions.	-

Last year's FSR used benchmark assumptions based in significant part on the earlier work of the PC; actual scheme experience, including cost items not anticipated by the PC (eg school transport costs), was largely ignored in setting the assumptions.

For this FSR, the philosophical basis underpinning assumption choice has been that, as far as possible, key demographic and financial assumptions should be informed directly by the available scheme experience.

[7] Although note that the assumption of 100% utilisation implicitly allowed for some superimposed inflation in committed supports.

I support the philosophical basis that underpins the choice of assumptions used in this FSR and I am satisfied that the FSR meets the requirements set out in the Rules. The Rules require the scheme actuary to produce “best” estimates of future costs. It can be helpful to think of “best” estimates as estimates which are “most fit for purpose”. There are potentially two main purposes for the baseline projection: first, to inform the agency and government[8] of future budget requirements and, second, to provide a baseline against which to monitor the effectiveness of agency decision making and management initiatives, including any designed to alter the course of the future prevalence and cost trajectories.

There is a tension between these two purposes if the past scheme experience does not provide a realistic basis for setting projection assumptions. In particular, in this circumstance, while a projection based directly on past experience should provide the best available baseline against which to monitor the effectiveness of initiatives designed to alter the course of the cost trajectory, it may not provide a realistic projection of future costs. On the other hand, if the projection does not use experience-based assumptions, then it may be difficult to monitor any changes in the effectiveness of agency decision making. Further, it is important to note that where the experience data is not able to be wholly relied on in the choice of assumptions, the resulting projection is likely to be subject to additional uncertainty.

I am satisfied that, for the most part, the assumptions used for the baseline projection are not inconsistent with the scheme experience observed to date. I note, however, that a number of adjustments to the assumptions that would be implied directly by the available experience have been made. Some of these adjustments relate to known phasing biases while others are more subjective. As indicated in the table above, the main areas include:

- The assumed exit rates for participants with autism are higher than the rates observed so far.
- The assumed steady intake participant population includes fewer participants with autism and more participants with psychosocial disability than implied by the experience to date.
- Assumed mortality rates are lower than the available experience suggests.
- The assumed rate of increase in average payments is lower than the available experience suggests.

The rationale for these adjustments reflects the scheme actuary’s opinion that aspects of the available historical experience do not provide a realistic basis for projecting future costs. I note that, had the assumptions been directly based on the available experience without adjustment, the projected baseline costs would have been higher. I accept the rationale for the adjustments that have been made. However, I expect that, as transition continues, the baseline projection in future FSRs will increasingly use assumptions that are based directly on actual scheme experience (adjusting only for known biases). That is, the need for, and use of, subjective adjustments should diminish.

[8] As recommended by the PC in its 2017 review of the NDIS

Reasonableness of main assumptions

Demographic assumptions

I am satisfied that the assumed shape and size of the participant population at steady intake are reasonable, although both have been estimated using relatively little experience data. Further, although known biases have been taken into account, the possibility of other biases in the data should not be ignored. Both of these issues cause unavoidable uncertainty in the estimated population at steady intake; the actual participant population at steady intake could easily turn out to be up to 10 to 20 thousand either side of the projected population[9]. This source of uncertainty should have reduced by the time of next year's FSR.

New incidence rates assumed in this year's FSR are significantly higher than those assumed last year. More than half of the increase is in respect of sensory disability with more than a third relating to autism. In my view, it is likely to be difficult to form reliable estimates of underlying new incidence rates during transition, particularly among older new entrant ages. This is because it is hard to separate genuine new incidence from unmet need amongst participants phasing in during transition. If anything, in my tentative view, actual new incidence is more likely to be less than assumed rather than more than assumed.

Mortality rates assumed in this year's FSR are higher than those assumed last year. However, the assumed rates remain below the observed experience. I am not uncomfortable with the revised mortality assumptions but further adjustments may be appropriate if the experience continues to differ from that assumed.

Assumed rates of non-mortality exit for participants with sensory disability (including visual and hearing impairment) are high; in effect, substantially negating the impact on prevalence of the increased assumed new incidence rates for these disabilities. This does not seem unreasonable.

Relative to last year's FSR, more participants with autism are projected at steady intake and, thereafter, higher new incidence rates and much lower exit rates are assumed. The autism cohort is therefore projected to have a large and increasing impact on scheme costs. As noted above, the projected impact would have been even larger, had all of the experience been reflected in the assumptions. I agree that the approach taken and the assumptions adopted around autism are not unreasonable, even though the baseline projection assumes a higher rate of exits among participants with autism than has been observed so far.

The number of participants in shared supported accommodation at steady intake is estimated to be around 35,000 or around 7.1 per cent of the steady intake population. This is slightly down from around 7.3 per cent currently. Since the adjustment here relates to

[9] Similarly, the actual cost at steady intake could be up to perhaps $1bn either side of the estimate due solely to statistical uncertainty in the projected steady intake population.

known phasing bias, I am comfortable with the assumption. Uncertainty in the assumptions around shared supported accommodation have a geared impact on uncertainty in the total cost estimates. For example, if 8 per cent of participants are in shared supported accommodation rather than 7.1 per cent at steady intake, then total costs would be around $1bn higher, all else equal.

Assumptions around level of function are significantly different from last year's FSR with a higher proportion of participants projected to be assessed with low level of function and a lower proportion projected to be assessed with high level of function. The assumptions adopted reflect the experience and, as such, will provide a good baseline against which to monitor the impact and effectiveness of the move towards independent assessment of level of function that is envisaged.

Financial assumptions

The approach taken in respect of average cost assumptions in this year's FSR focusses on actual payments rather than committed supports or reference packages. The payment assumptions, before superimposed inflation, are based directly on the experience of participants in the scheme during the 6 months to June 2018. In other words, the average payment assumptions, before superimposed inflation, have been derived directly from the experience.

I support this approach since it results in a projection of actual costs. However, it will be important for the scheme actuary to continue to monitor and report on plan amounts and reference packages. The agency has direct control over both of these items. On the other hand, it has only indirect control over actual payments.

Superimposed inflation in plan amounts has been observed during trial and transition[10]. The likely flow-on impact to payments is hard to assess. Accordingly, forming a reliable experience-based assumption regarding future superimposed inflation in payments is difficult. Superimposed inflation totalling 8 per cent is assumed between now and 2023. No superimposed inflation has been assumed after 2023. In my view, the risk here is on the upside. Thus, significant effort will be needed to ensure that actual costs are kept to those projected, even if prevalence is no higher than the projected levels.

Economic assumptions

I am satisfied with the reasonableness of the economic assumptions.

Operating expenses

[10] Plan reviews have consistently resulted in large changes to committed supports, both up and down. The overall net impact has, however, been ongoing increases in plan amounts over and above what would have been expected from inflation and participant ageing.

Operating expenses are assumed to be 6 per cent of participant costs after steady intake. This represents a reduction of around 15 per cent from last year's FSR (which assumed 7 per cent of participant costs).

While I understand that this assumption has been developed from an activity-based costing model, it is lower than the experience of somewhat comparable accident compensation schemes. It is also lower than the range (7 – 10 per cent) suggested by the PC in its 2017 review of the NDIS as likely to provide reasonable confidence of adequacy.

The change in operating cost assumption has relatively little impact on the baseline projection (around 1 per cent). This is because it has been assumed that an operating expense budget of 6 per cent will be adequate to ensure quality agency decisions are made and high quality agency decision making systems are maintained. It is important to appreciate that underinvestment in operations presents a much bigger risk to financial sustainability than overinvestment.

Finally, it is not clear whether the change in operating expense assumption may have an impact on the agency's operating budget. The agency's operating cost budget is determined separately from its participant cost budget.

Other

The baseline projection does not assume any further costs not anticipated by the PC in its original costings of the NDIS apart from those which have already been confirmed as being in scope – eg school transport. I agree that this is the right approach for the baseline projection.

More generally, the baseline projection depends on a large number of assumptions.

Although this means that the projection model is complex, I am satisfied that the approach is reasonable. The NDIS is, after all, a complex system. The baseline projection uses a cohort approach – participants are assumed to behave like average participants in one of several thousand cohorts. Eventually, I envisage an individual projection model for existing participants, with only new incidence being modelled using a cohort approach. However, this is several years away.

Interpretation of the baseline projection

Actual future costs will inevitably be either lower or higher than the projected costs.

In part, this is because of inherent unavoidable statistical uncertainty in the projection. In particular, the scheme is still in transition and so assumptions have been based on relatively little data.

Next, it should also be noted that participant behaviour could contribute significantly to the difference between actual and projected future costs. For example, even if there is no further real change in average plan amounts, achieving the projected cost in 2023 relies on

there being at least $5bn in unspent money in plans. If superimposed inflation in plan amounts that has been observed during trial and transition continues, then even more than $5bn in unspent money would be needed to achieve the 2023 cost projection.

It is not desirable that achieving a cost outcome should rely on participant behaviour. A real reduction in the average plan amount is needed to reduce reliance on unspent money in plans to achieve a cost outcome.

Finally, the size and direction of the difference between actual and projected future costs will depend, in significant part, on the quality of the agency's decision making systems. Unless future access and planning decisions are sound, there is a clear risk that actual future costs will be higher than the projected costs. Relevantly, the management response to the draft FSR focusses on the quality of agency decision making around access and planning.

Other sources of risk to sustainability

Autism

The difference between this year's projected trajectory of total scheme costs and last year's is significantly influenced by the assumptions around the autism cohort. Further, as noted above, the baseline projection does not incorporate all of the available experience, arguably adding to the uncertainty in the cost projection and justifying a close focus on the emerging autism experience.

Shared supported accommodation

As the FSR points out, the costs associated with participants in shared supported accommodation are disproportionately high. As noted above, uncertainty in the assumptions around shared supported accommodation have a geared impact on uncertainty in the total cost estimates. Put simply, shared supported accommodation represents a financial sustainability risk. It is therefore appropriate that a key component of the management response is in relation to shared supported accommodation.

Reference packages, planning and level of function

I noted earlier the importance of continuing to monitor and report on plan amounts and reference packages, even though these are not directly incorporated into the baseline cost modelling.

The reference package system is intended to support the objective that plan amounts are allocated in line with need. The FSR highlights that the reference package system and planning system are not working as intended. Plan amounts are currently around 20 per cent less than reference packages in aggregate[11] and (implicitly) projected to be about 20

[11] The relationship differs significantly, though, by level of function. For participants with high assessed level of function, committed supports are 50% more, on average, than reference packages. For participants with low assessed level of function, committed supports are 35% less than reference packages, on average.

per cent more than total payments at steady intake. These systems are important financial sustainability tools and need to work properly.

Reference packages depend on assessed level of function. As noted earlier, the distribution of level of function assumed in this year's FSR is very different from what was assumed last year but close to what has been observed. I note the intention identified in the management response to the FSR to move to independent assessment of level of function for new and existing participants. I see this as perhaps the single most important financial sustainability initiative in the period immediately ahead.

S180E(3)

Finally, in accordance with subsection 180E(3) of the NDIS Act, I note that the Agency has taken the steps necessary for me to undertake this review.

Yours sincerely

Peter Martin
Reviewing Actuary

Part 3 Content of annual financial sustainability report

8. GENERAL ASSESSMENT AND RECOMMENDATIONS

The scheme actuary must include the following matters in an annual financial sustainability report:

(a) an overall assessment of the financial sustainability of the NDIS that identifies the key risks and issues impacting on the financial sustainability of the NDIS;

(b) a discussion of the key risks and issues identified and, where these have an adverse impact on financial sustainability, recommendations designed to manage the risks or address the issues.

9. RECENT EXPERIENCE

The scheme actuary must include the following matters in an annual financial sustainability report:

(c) a summary of the participant data at the effective date of the annual financial sustainability report;

(d) a section that identifies and comments on significant features or trends in the recent experience of the NDIS, including any impacts due to external factors, and covers the following:

(i) changes in the number and characteristics of participants (including in relation to access criteria and assessed support needs);

(ii) changes in the distribution of support package costs;

(iii) participant outcomes;

(iv) the Agency's operating expense experience;

(v) the total cost of the NDIS;

(vi) deviations in actual experience from expected experience, and the reasons for the deviations;

(vii) any other relevant experience, including the use of innovative approaches;

(e) comments on any steps taken or proposed by the Board and senior management of the Agency to address areas of deviation and adverse experience;

(f) any recommendations of the scheme actuary in relation to areas of deviation and adverse experience.

10. PROJECTIONS

The scheme actuary must include the following matters in an annual financial sustainability report:

(g) projections of future experience in the form of the best estimates of the following matters, with discussions of the projections:

(i) future expenditure on care and support—presented as a set of cashflow projections over the long run, both in future dollar terms and as a percentage of GDP;

(ii) lifetime cost of care and support to standardised new entrant cohorts—presented in the form of net present values, both in discounted dollar terms and as a percentage of GDP;

(iii) future expenditure on care and support to current participants on the assumption of no change in the scheme design—presented in the form of a projection of net present values, both in discounted dollar terms and as a percentage of GDP;

(h) a discussion of any changes in the projections since the previous annual financial sustainability report or other more recent set of projections provided by the scheme actuary to the Board, including the reasons for the change and any implications for the financial sustainability of the NDIS;

(i) any recommendations of the scheme actuary in relation to any adverse changes in the projections;

(j) a justification of the methodology and key assumptions used to prepare the projections;

(k) comments on the extent to which the valuation assumptions are based on the historical experience of the NDIS and, if the assumptions have changed since the previous annual financial sustainability report, the reasons for that change and the consequences of the change;

(l) a practical discussion of the level of uncertainty that surrounds the projection, including sensitivity or scenario analysis, a discussion of the main drivers of uncertainty, and any recommendations of the scheme actuary for managing uncertainty.

11. ADMINISTRATIVE INFRASTRUCTURE, PROCESSES AND RISK MANAGEMENT

The scheme actuary must include the following matters in an annual financial sustainability report:

(m) a discussion of the Agency's administrative infrastructure, its administrative processes and risk management arrangements (***risk management arrangements*** are defined in section 3);

(n) comments on the adequacy of the Agency's processes, including on the suitability and adequacy of:

(i) any decision support tools; and

(ii) its data and information systems; and

(iii) its processes for monitoring emerging experience and responding to adverse movements in emerging experience;

(o) any recommendations of the scheme actuary in relation to any inadequacies.

12. OTHER MATERIAL MATTERS

The scheme actuary must include the following matters in an annual financial sustainability report:

(p) a section identifying and discussing any other matters that the scheme actuary believes are material to the financial sustainability of the NDIS;

(q) comments on the extent to which any previous recommendations have been acted on by the Agency.