

Submission

1. This short submission is confined to high-level comment on just three aspects of the Commission's terms of reference. It is confined to:
 - the possibilities for drawing on the national income accounting methodology for measuring productivity;
 - suggestions for framing the measurement and monitoring of 'productivity' in the state sector; and
 - some observations on promoting the capability, culture and systems that can support agencies better to measure, understand and improve productivity.

The National Income Accounting approach to measuring productivity

2. I have considerable reservations about whether a line of inquiry by the Commission that seeks to use national income accounting-based concepts of productivity will be productive.
3. It seems to me that the national income accounting framework, in the general, is coming under increasing strain. This suggests that, before seeking to use it for measuring productivity in the state sector, some quite major methodological issues will first need to be resolved (or, if they cannot be, alternative approaches to measuring productivity be developed).
4. Existing methods for measuring labour and multifactor productivity are founded on what seems to be, essentially, an 'engineering' view of the economy. That is, they are founded on the notion that economic value is created by combining capital (factories and machines) and labour(ers) in what is essentially an industrial process. This process often is represented by a Cobb Douglas production function:

$$Q = AK^{\alpha}L^{\beta}$$

where Q represents output, K capital, L labour, and α and β are the respective shares of capital and labour income in national income. A is a 'wash-up' parameter, typically understood as 'technology' or as 'multi-factor productivity'.

5. This formulation may have worked reasonably well when economies were more predominantly industrial in character. But in recent decades, it has come under increasing strain. Output has become increasingly 'intangible' and difficult to measure in real, or 'volume' terms. For products – both goods and services – that rapidly are changing in character and quality it is very difficult to know how to split changes in market value between price and volume. Your *Issues Paper* recognises these challenges, and work already undertaken at the Commission (Gemmell, Nolan, and Scobie (2017) has highlighted the wide range of estimates that can be arrived at for 'quality-adjusted' levels of education sector outputs.
6. There are also similar challenges in measuring inputs. For example, the boundary between capital and labour has become increasingly blurred – where does 'human capital' fit in? Capital these days increasingly comprises intangible capital (e.g., software); and labour increasingly is employed to produce ideas rather than things, using 'production technologies' very different from those used for manufacturing things. The nature of the production constraint has changed insofar as replication of an idea, once created, need not involve the use of any further resource. Even the

boundary between labour and leisure has become more blurred – sport and the arts these days are a significant ‘industries’.

7. Some of these challenges are less where productivity is measured as labour productivity, i.e., as output per hour worked. But measures of labour productivity do not tell us all that much. They do not tell us whether changes in output per hour worked stem from more use of capital resources; from employment of people who embody more (human) capital (which does not come free); or from the kinds of advances in technology we associate with multi-factor productivity. To be sure, an increase in labour productivity tells us that there is more output per person, but we do not know whether that is welfare enhancing. If it comes from greater use of capital, that will have to have been financed from additional saving, i.e., foregone consumption.

8. None of this is to suggest that national income accounting based measures of productivity are of no value. But it does seem to me that the methodological challenges are real and increasing – and are likely to be more pronounced in the state sector, which, overwhelmingly, produces services rather than goods. I think that Statistics New Zealand, in a thorough review in 2010 of the measurement of government sector productivity (Statistics New Zealand (2010), got it right where it concluded that:

A cautious approach should be taken in combining measures of quantity and quality change in health care and education output, with wide and transparent discussion of options and careful building of a consensus before decisions on methods are adopted. Until then, quality change should not be incorporated into measures of quantity change in output (page 14).

How then to frame a state sector productivity/efficiency measurement and monitoring regime?

9. If a national income accounting approach to measuring state sector productivity is not the way to go, what might be? In my view, a better way forward is to frame things more in terms of ‘cost effectiveness’ rather than ‘productivity’. This would allow for a more eclectic approach, that:

- recognises the difficulties in measuring outcomes/outputs, and that there is unlikely to be any single measurement methodology that will be appropriate for all, or even most, government agencies/programmes.
- cuts through many of the complexities inherent in measuring different kinds of input (capital, labour, technology, intermediate inputs¹), by recognising that they are all encapsulated in ‘cost’.

Measuring and monitoring the government agency outputs/results

10. Under this kind of approach, the logical, and in my view critical, starting point is to establish as clearly as possible what each state sector agency (or each of its programmes) is seeking to achieve. It is only from that point that meaningful measures of output/results/effectiveness, and of efficiency in delivering those, can be developed. Measures of efficiency that are devoid of connection to a sense of purpose are quite ‘empty’. There is no gain from doing something very efficiently if the something is pointless. In that case, state agencies will appear to be ‘busy’, but without being in any sense effective. And, in this connection, it is worth bearing in mind that, in a lot

¹ The production function shown in para. 4 is for the economy as a whole, within which intermediate inputs and outputs net out and therefore can be ignored. However, at the sectoral level that is not the case.

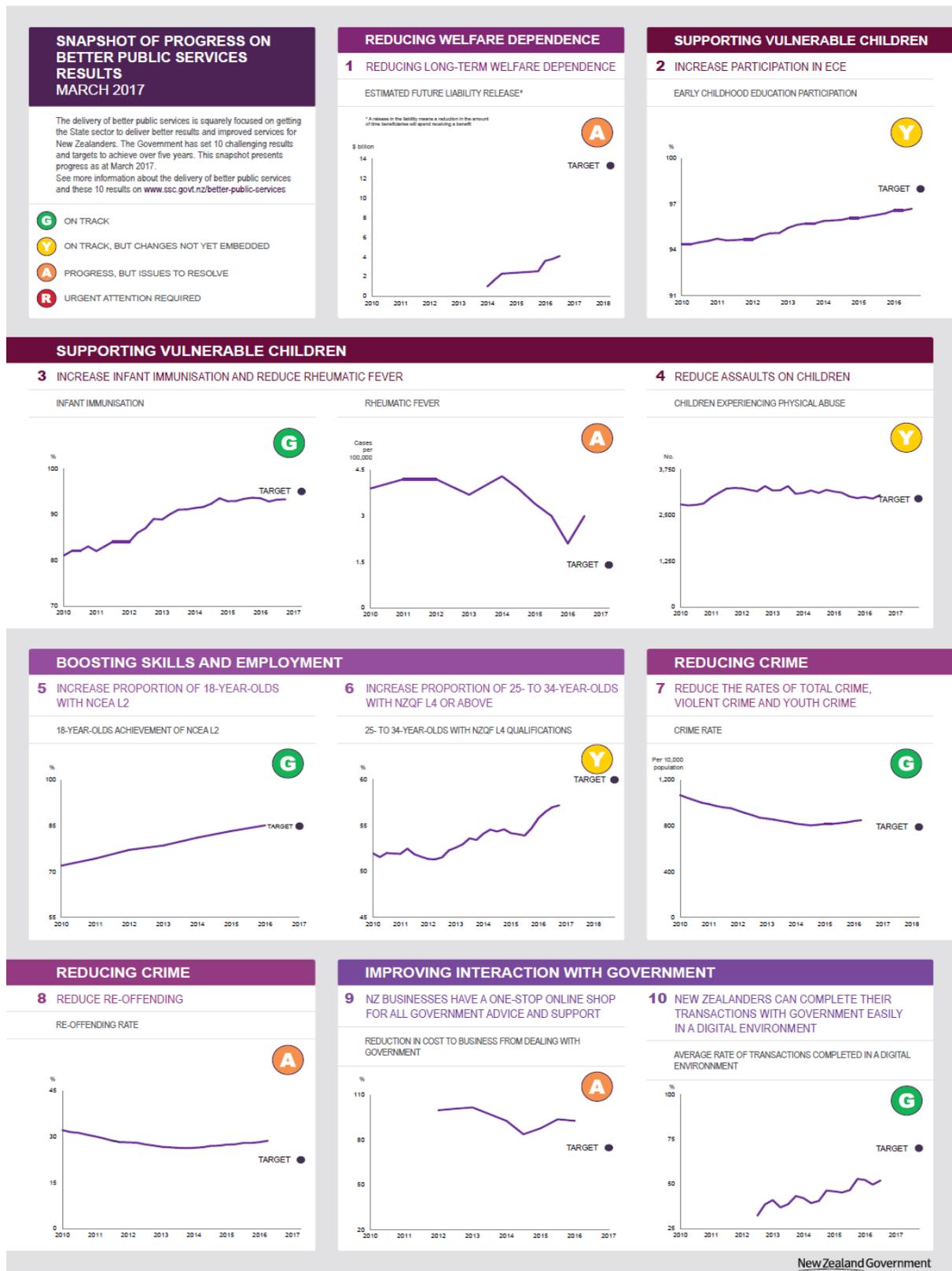
of what the state sector does, 'less can be more'. Social welfare and corrections agencies, for example, may be delivering more if they are doing less, at least less of certain things.

11. That said, equally important is that whatever yardsticks are used, must also be capable of meaningful measurement. Bland specification of desired outputs or results, against which it is difficult or impossible to assess whether or not the programmes purpose is being met, also does not serve a useful purpose. That suggests, realistically, that results measures may often need to relate as much to 'outputs' as to 'outcomes'. Or perhaps measures that combine elements of both, as seems to be the case with most of the 'results' measures that feature in the 'Better Public Services' (BPS) framework. Take, for example, the quantitative target for infant immunisation. That results measure seems to fall between an outcome (less spread of contagious disease) and an output (the number of vaccinations administered).

12. This causes me to wonder whether the traditional distinction in New Zealand between outcomes and outputs has been overstated, and that what we should be looking for is measures that, as much as possible, straddle both. Or at least that a reasonably eclectic approach to specification of 'results' indicators is needed. In some cases, reasonably direct measures of outcome may be feasible e.g., recidivism rates may provide a reasonable indicator of the effectiveness of the Corrections Department's role in 'correcting'. In other cases, the desired outcome may be less amenable to direct measurement, with proxies having to be used in their place. However, all the latter are almost inevitably partial measures. This makes them inherently susceptible to 'gaming', and to incentivising perverse behaviours. For example, is it possible that some of the increase in the BPS NCEA level II results measure, from 72% in 2010 to 85% in 2016, is the result of students having been encouraged to take 'easier to pass' subjects?

13. Be that as it may, it seems to me that the BPS approach may provide about as good a framework for measuring state sector outputs/outcomes as any other currently available –at least for providing the equivalent of the 'numerator' in 'productivity' measures. (Figure 1 reproduces summary details from the SSC's website.) To be sure, most of the BPS results measures may be considered to be at too high a level to provide a basis for measuring 'technical' or 'operational' performance. But there seems to be no 'in principle' reason why the same approach could not be taken to a lower level, including, for example, by requiring state agencies' *Statements of Intent*, and of *Statements of Performance Expectations*, to include output or results measures that are directly linked to BPS-type results. (Statements of Intent and of Performance Expectations as currently compiled appear to be receive little attention.)

Figure 1: Better Public Service result areas and measures



Source: <http://www.ssc.govt.nz/bps-snapshot>

The denominator – measuring and monitoring inputs/costs

14. Productivity is about the ratio of results (whether conceived of in terms of outcomes or outputs) to inputs. The above discussion is concerned with the ‘numerator’ in this relationship. What about measuring the inputs? On that, I cannot see any compelling reason for moving away from a relatively simple approach based on capturing and measuring agency/programme costs. As above, that cuts through the complexities arising from variable use of labour and capital, and the blurring of boundaries between those – provided, that is, that the cost of both capital and labour (and of intermediate inputs) is brought to account. My understanding is that under current government accounting practices that generally is the case, in particular that agencies’ use of capital (e.g., of buildings and equipment) subject to a capital charge.

15. But there are also some challenges. One involves the need to allocate, or match, costs to the appropriate result areas. While many costs are ‘direct costs’ and can easily be attributed directly to a particular activity, e.g., the cost of the vaccine used in the child immunisation programme is directly attributable to that programme. But many other costs are attributable to multiple result areas, e.g., the cost of the fire service is part attributable to fire prevention, part to putting out fires, and part to provision of recovery and paramedic services at road accidents. To a large extent, the same people and equipment are used across all three activities. If we wish to measure and monitor the efficiency of delivery of those services, we need to allocate shared costs to each activity, or ‘cost centre’.

16. Moreover, in most organisations a significant proportion of cost is indirect cost, or ‘overhead’ (including ‘head office’ costs). These costs also need to be taken into account when considering ‘productivity’ or ‘efficiency’. It requires that overheads are allocated to the outputs or outcomes to which they relate. Even if that allocation is done in a somewhat arbitrary manner, it is better than overlooking completely the need for overhead costs appropriately to be allocated. In principle, all costs should be allocated to defined programmes. Overheads, if not allocated, are much too prone to become a ‘kitchen sink’ into which all sorts of costs escape the attention they should receive.

17. However, a word of warning. The process of allocating costs can result in the ‘silo walls’ going up. Business units, naturally, do not wish to be allocated costs ‘from the outside’, over which they have little or no control. There can be a tendency for business units to seek to become more self-contained, which can also be less efficient and result in reduced effectiveness and reduced efficiency. Those tendencies need to be managed/countered.

Bringing the two parts – result and cost measures – together

18. Clearly it makes no sense to assess state sector entity results (whether conceived in terms of outcomes or outputs) without regard for the costs incurred in generating those results. The two need to be considered side by side.

19. Economists do that by calculating productivity ‘ratios’ – either the ratio of output to labour input (labour productivity) or of output to a weighted measure of capital and labour and, when measuring productivity at the sector or agency level, also of intermediate inputs (multi-factor productivity). But, as above, multi-factor productivity measures have become increasingly subject to measurement difficulties – given the difficulties in defining and measuring quality change (in inputs as well as outputs), and in incorporating human capital into the calculus. And labour productivity measures are inherently limited because they do not take account of any change in the composition

of factor inputs. Hence my suggestion that the Commission, in this inquiry, not go down the 'economic productivity' measurement track.

20. In my view, a more productive way forward is to frame state sector productivity assessment more in terms of cost-effectiveness – what value or benefit is being provided and what does it cost to provide it? Arguably the two elements in this kind of framework – cost and results – can also be expressed as a ratio of one to the other (as in cost-benefit ratio calculations). But I think caution is needed to avoid something that ends up being quite 'reductionist'. For many publicly-provided services, elements – and potentially large and important elements – of cost and benefit are not easily captured and quantified. There is a risk that these end up being left out of the calculus. By way of examples, the *Issues Paper* identifies voluntary labour as a cost that needs to be taken into account. On the other side of the equation, it is difficult to assign monetary value to conservation and bio-diversity benefits, but few would deny that they are important. Even for services for which there are market values, we have little or no idea of the amount of consumer surplus – what people would have been prepared to pay, but did not have to. Arguably, is element of benefit should also be taken into account when assessing the over contribution of state sector activities to consumer welfare.

21. For these kinds of reason, I would be wary about attempting to reduce measures of state sector productivity into a single quantitative measure (ratio). There is a risk is that that users lapse into thinking such measures encapsulate more than they do, or possibly can. I think more useful is a framework that presents managers and ministers with the information needed to help them think, in a structured way, about the choices and trade-offs they face, not to provide them with a 'ready-made' answers. Sometimes the available quantitative information will be sufficient to provide a clear picture, but often qualitative considerations will also be relevant. The key thing is that all the factors – quantitative and qualitative – are made as explicit as possible.

22. The same, I think, goes for monitoring productivity – or I'd prefer to say, changes in cost effectiveness – over time. Provided information on outputs/outcomes/results and on costs is compiled in a reasonably consistent manner over time, it should be possible to make informed judgments about where, and why, productivity/efficiency gains are, or are not, being achieved in the state sector.

Making effective use of information on the cost=effectiveness of state sector activities

23. Your terms of reference require the Commission to consider the capability, culture and systems that can support agencies better to measure, understand and improve productivity. I have two points to make in this context, which follow from the discussion above.

24. The first is that for any organisation, 'culture' comes from the top. That points to chief executives (and Ministers) have a key leadership role to play. Experience, I think, tells us that we can over-rely on performance incentives. Performance measurement frameworks, unavoidably, are nearly always incomplete, and prone to 'gaming' – not least in terms of how pursuit of short-term results can end up with delivering bad outcomes. Illustration of how badly things can go wrong when short-run performance measures are not well aligned with desired long-run outcomes has amply been provided by the finance sector.

25. An important element of the 'culture' needed for achieving improved productivity, I think, is a quest for continuous improvement. In that connection, something that seems to be playing an increasing role in segments of the market economy is on-line customer feedback. In the accommodation, restaurant, airline, banking and other sectors, customer feedback plays a powerful

role in signalling customer experience/satisfaction. Government agencies, which predominantly are service providers, could similarly make effective use of customer/user feedback.

26. It seems that some steps have been taken in that direction; see, for example, <http://www.ssc.govt.nz/sites/all/files/kiwis-count-technical-report-jul-dec-2016.pdf>. But there also appears to be a lot of scope for state sector agencies much more actively to seek feedback on the services they provide. If it is not already happening, is there any reason, for example, why the Ministry of Education should not periodically seek on-line feedback on the services provided to schools (principals/boards of trustees), and also from students, parents and employers? This is not to say that customer feedback necessarily is right, or fair; just that, as for any service provider, there is usually something one can learn from feedback, including pointers to future opportunities for improvement and mis-perceptions/irritants to customers that need to be addressed. Online channels provide much expanded scope for accessing this kind of information at very low cost (for both respondents and the agency seeking feedback). The potential for IT innovations to enable the gathering of the information needed to measure state sector service delivery results seems to receive much less attention than does the potential for IT to deliver the services themselves.

27. A final observation relates to the use that could be made of improved information on state sector 'productivity'. Much of the focus appears to be on 'internal use' i.e., by 'executive government' (state agencies and their Ministers). Another use, I think, is by review agencies, in particular the Audit Office (as an office of Parliament). The Audit Office appears already to play something of a performance audit role (see, for example, <http://www.oag.govt.nz/2017/msd-follow-up> for a recent report). But it seems not to be a prominent role. Perhaps that is because performance auditing is not considered a core Audit Office role? Or perhaps it is because, at least in part, of the unavailability of the information needed robustly to evaluate state sector agencies' capabilities and performance? Either way, it seems to me that a step-up in the role of the Audit Office in reviewing state agencies 'productivity could help with "developing the capability, culture and systems that can support agencies to better measure, understand and improve productivity".

References

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