



Response to 2010 Review Draft Report

Capital

Department of Treasury and Finance

September 2009

Tasmanian position

Commission's intent

- Tasmania remains opposed to a direct assessment of capital.
- As we have argued previously, we consider that equalisation is about equalising services and we do not think that the Commission's intent to equalise capital acquisition achieves this.

Net lending assessment

- We have concerns about the net lending assessment because:
 - states have not been given equal capacity to acquire financial assets in the past, and so are not starting from an equal point; and
 - the assessment does not capture revaluation disabilities.
- Tasmania has proposed a modification/addition to the net lending assessment to capture equity revaluation disabilities. This method is derived entirely from empirical evidence in GFS data and we consider that it 'completes' the net financial worth assessment.

Investment assessment

- We do not support the application of a 50 per cent discount to capital stock use disabilities. We consider that most use disabilities would apply fully to capital stock.
- Where there is good reason to believe that a specific use disability does not apply fully to capital stock, the Commission should make an appropriate adjustment on a case-by-case basis.
- We support the application of a three-year moving average to disabilities if this reduces volatility.
- We consider that National Network Roads payments should affect the relativities, as should any other payments which are for 'national' infrastructure but from which recipient jurisdictions benefit.

Depreciation assessment

- We do not support a 50 per cent discount of depreciation disabilities.
- For simplicity and for presentational reasons, we would urge the Commission to assess depreciation in expenditure categories rather than as a stand-alone category.
- We do not think it is necessary to apply a three-year moving average to depreciation disabilities because the needs are not volatile.

1. The Commission has indicated, in its 2010 Review Draft Report, that it is comfortable with its approach to assessing states' capital needs.
2. Nevertheless, at the meeting with Heads of Treasuries on 13 August 2009, the Commission asked states to comment on whether its 'intent' was appropriate in relation to capital.
3. Tasmania has previously expressed strong views on the Commission's intent, and its proposed approach to capital. We continue to disagree with the Commission's preferred approach.
4. In this submission we have concentrated on providing constructive suggestions for improving the Commission's proposed assessments of net lending, investment and depreciation in the event the proposed approach is adopted in practice. If the Commission is to proceed with this approach, we would like to ensure that the assessments are implemented appropriately.
5. Some further comments on the Commission's intent are included later in this submission.

Net lending assessment

6. We have some fundamental concerns with the net lending assessment. In its current form, we do not believe that it provides states with equal capacity to accumulate net financial worth because:
 - the method implies that states have been given capacity in the past to accumulate equal per capita net financial worth, but this is not the case; and
 - the assessment does not capture the impact of revaluation disabilities.
7. Further details, including suggestions as to how the assessment could be improved, are provided below.

Equal starting point

8. In assessing how much net lending each state needs to hold average levels of net financial worth, the Commission's method implies that each state is starting with the average level of net financial worth. The Commission does not assume that each state actually holds average shares of NFW, but the method does imply that each state has been given the capacity to do so. Or, put another way, there appears to be an assumption that any differences in state holdings of NFW would be the result of state policy differences alone.

9. In fact, this is not the case, because net financial worth has not been fully equalised in the past. We accept that physical capital has been equalised, but financial assets have not. This means that, even under the average policy, all states start with an unequal net financial worth, and therefore have unequal capacity to earn or pay net interest.
10. We believe that this is a major flaw in the net lending assessment, because it means that from now on the Commission's method will permanently entrench any differences. We are not sure that this provides a better equalisation outcome than the much-maligned debt charges assessment.

Revaluation disabilities

11. A state's net financial worth in any given year can be calculated as follows:

$$NFW_t = NFW_{t-1} + \text{net lending}_t + (\text{the net result of}) \text{ other economic flows}_t$$

12. That is, closing net financial worth is equal to opening (previous year) net financial worth, plus net acquisitions or disposals of net financial assets during the year, plus other economic flow effects, such as revaluations, during the year.
13. Currently, the Commission's proposed direct assessment captures disabilities that affect the net lending component only. This approach intentionally removes within year revaluation gains in net financial worth through the Commission's formula. Revaluations and other economic flows are implicitly assessed equal per capita.
14. The Commission's method assumes that, once population dilution has been assessed, states have equal capacity to accumulate net worth. But if there are disabilities that affect revaluations, this would not be the case.
15. Tasmania has found empirical evidence in the GFS that revaluation impacts of disabilities do exist and that, on average, states with faster population growth tend to accumulate net financial worth per capita at a greater rate than slower population growth states.
16. GFS data reveal that the major reason for this is the impact of annual state equity revaluations. Equity revaluations are the largest component of annual changes in net financial worth – in most years they are far more significant than net lending results. This means that even if any revaluation disabilities are small, the impact on state needs is likely to be large. As for net financial worth, we found that equity revaluations per capita increased as population growth increased.
17. Fortunately, the GFS data provide us with the basis we need for developing a policy neutral equity revaluation assessment.

18. In Attachment A – *Improving the net lending assessment: a proposed modification*, Tasmania has developed a discussion paper that investigates equity revaluations in more detail, outlines a conceptual case for a disability, and proposes a way to assess this based on differential population growth. This discussion paper has been previously circulated among the states and Commission staff.
19. If the Commission is to proceed with its proposed direct assessment of net financial worth, it is critical that the impacts of revaluation disabilities are also assessed. The attached discussion paper suggests that revaluation disabilities outweigh population dilution disabilities many times over.
20. We have circulated our discussion paper to give the Commission and states a proper opportunity to examine it and critique it. It represents Tasmania's thoughts only and could possibly be improved through input from the Commission and other states. We are open to feedback on how it could be best implemented but consider that the review forum is the appropriate place for such open discussion to take place.
21. In early discussions with Commission staff, it emerged that one possible concern with Tasmania's proposal is that, even if faster growing states can accumulate equity per capita at a faster rate, this does not necessarily translate into higher dividends for these states. It was intimated that Tasmania had not necessarily demonstrated that revaluation disabilities affected a state's capacity to earn income from financial assets.
22. However, the Draft Report is very specific about the Commission's intent in the direct capital assessment:

'The Commission favours an assessment of investment in infrastructure when it occurs and giving states the capacity to hold the same net financial worth per capita.' (Attachment 20, paragraph 26)

'...the Commission seeks to give states the capacity to have the same net financial worth per capita.' (paragraph 31)

'...States have the same fiscal capacity when, after providing the same level of services and infrastructure and making the same effort to raise revenue, they have the same net financial worth per capita. By providing states with the same per capita net financial worth they are given the same capacity to earn revenue from those assets.' (paragraph 56)
23. Therefore, the entire basis of the Commission's method is that it is the stock, rather than the flows, that need to be adjusted through an assessment in order to equalise fiscal capacity.

24. We consider that equity revaluation disabilities affect a state's capacity to accumulate and hold the same net financial worth per capita. If the Commission considers that it does not matter whether states have a different capacity to hold per capita equity in government assets, on the basis that this will not affect their income, then this undermines the entire basis of the Commission's approach.
25. Incidentally, Tasmania has no doubt that increases in the value of a state's holding of equity assets would translate in higher dividends. However, we have developed a method based on asset stocks rather than dividend flows because it was our understanding that it was the Commission's intent to give states equal net financial worth per capita rather than equal interest income per capita.
26. Whilst we accept that we have not provided empirical evidence that lower equity revaluations translate to lower dividend income, we also note that no evidence has been provided to show that population dilution of net financial worth translates to lower interest income. Tasmania has no doubt that, all other things being equal, population dilution will reduce a state's interest income. However, for consistency, we think that the Commission should apply the same burden of proof to both the net lending assessment and our proposed revaluation assessment.
27. If the Commission has further concerns about the concept or design of our method, we would be grateful to learn of these before the Final Report is finalised, so that we have a chance to consider and, if necessary, address these concerns. We believe that our approach is valid and our method robust, and we would be concerned if it was dismissed without strong justification.

Investment assessment

28. In addition to the major conceptual concerns that Tasmania has with a direct assessment of investment, we are concerned about some of the new proposals introduced in the Draft Report.
29. Firstly, we should note that the terminology in the Draft Report has been improved in a way that makes the method easier for a layman to understand – 'investment' is a more meaningful term than 'non-replacement capital expenditure'. Likewise, the greater use of the word 'infrastructure' rather than 'physical assets' may make the meaning clearer to a non-specialist, although we note that some physical assets – such as plant and equipment – aren't really infrastructure as such.

Discounting and averaging of disabilities

30. Tasmania does not agree with the Commission's intention to discount disabilities in usage by 50 per cent before applying them to capital stock. This is not consistent with the Commission's previous analysis in the Capital Position Paper around the relationship between usage and stock disabilities. This analysis suggested that most disabilities in usage would apply to capital stock, and in most cases there is no reason to think that they would not apply to the same extent as they do for recurrent activities.
31. To some extent, discounting the disabilities in usage contradicts the rationale behind the investment assessment. The investment assessment starts with the assumption that states need equal per capita shares of infrastructure (prior to applying disabilities). This would suggest that the capital stock needs are directly proportional to the number of people who use government services (ie the population). Under the Commission's method, a state in which population increases by one additional person is assessed as needing to provide 100 per cent of that person's EPC share of stock needs.
32. If the Commission believes that there is not generally a one to one relationship between usage and stock needs, this would suggest that an additional person (ie an additional 'user') in a state's population does not need their full EPC share of stock – that they need only 50 per cent of an EPC share, for example. Applying a general discount to use disabilities, therefore, tends to undermine the entire investment assessment.
33. There will certainly be some select disabilities that would not apply fully to capital stock. However, a 'one-size-fits-all' 50 per cent discount is a crude way to reflect this. Furthermore, there are only a small minority of disabilities that it would be appropriate to discount.
34. If the Commission considers that a particular disability does not fully apply to physical stock, then it should make an adjustment to this disability only. Because of the sensitivity of the investment assessment to the application of disabilities, this adjustment needs to be as informed as possible.
35. In summary, we consider that if the Commission considers that a usage disability applies to capital stock, then it should apply in full. If there is good reason to believe that it should not apply in full, then the Commission should make its best judgement as to what would be an appropriate discount. A 50 per cent discount of all disabilities appears in this case to be arbitrary and would not improve equalisation.

36. We do, however, support the Commission's proposal to apply a moving three-year average to the disabilities. Tasmania has long been concerned about the volatility of the capital assessment and we would expect the averaging process to dampen this volatility. However, we do not consider that the averaging process addresses the underlying cause of the volatility – the main problem being that the capital assessment produces volatile results because it is so disconnected from state needs.

National Network Roads and other 'national' infrastructure

37. Tasmania does not support the proposed treatment of National Network Roads in the Investment assessment. In principle, we think that these payments from the Commonwealth should affect relativities because without doubt they relieve states of infrastructure needs.
38. The Commission considers that NNR grants should not affect relativities because 'they reflect the broader transport needs of the nation rather than the circumstances of individual states'. This implies that the Commonwealth decides where and how NNR funding should be allocated and that states effectively have no discretion as to how or where they spend this money.
39. This is completely at odds with reality. States *do* have influence over NNR funds are spent. Under the NNR process, states nominate projects, and the Commonwealth decides which projects it will fund. The funding, therefore, is in line with state priorities.
40. The CGC's position implies that NNR roads do not relieve states of any infrastructure needs – or, alternatively, that NNR roads are not used for internal travel by state residents. This is clearly untrue. It is very difficult to accept that NNR infrastructure is for purely 'national' purposes; in fact in many instances "national" usage is likely to be incidental to "local" usage.
41. In fact, a recipient state is likely to enjoy proportionately much greater benefit from a piece of 'national' infrastructure than other states. If states did not enjoy this benefit, you would not expect states to be the keen 'bidders' that they are for such projects.
42. It is also understood that some funding is directed toward state arterial roads, which states would have ordinarily built and upgraded using their own funds.
43. This principle would apply to other situations where the Commonwealth provides funding for 'nationally significant' infrastructure, but where state governments and/or state residents use the infrastructure in an unrestricted manner, and where state governments played a significant role in attracting that infrastructure. We think it is appropriate that any such payments affect the relativities.

44. An important example of this is the funding that is to be provided under the Commonwealth's Nation Building Plan for the Future. The Draft Report says that these payments are for third parties and proposes that they not impact on relativities. Tasmania considers that the payments should impact on relativities because they are National Partnership Project payments and they clearly contribute to supporting state fiscal capacities. Examples of projects to be funded under the program include:
- Regional Rail Express (Vic)
 - Gold Coast light rail (Qld)
 - Hunter Expressway (NSW)
 - East-West Rail Tunnel (Vic)
 - Ipswich Motorway (Qld)
45. Clearly, funding for these projects will reduce the infrastructure burden on the recipient states. To access these payments, states were required to put a list of their infrastructure priorities to the Commonwealth, and the Commonwealth decided which projects it would fund. States therefore had significant influence over this funding and their nominations were aligned to their own priorities. States are not simply acting as intermediaries passively passing funding onto third parties.
46. Even where a payment is made directly to a third party, such as a government business enterprise, this would relieve states of the need to provide their own capital subsidies or equity injections to these businesses.

Other issues

47. Tasmania accepts the Commission's decision not to assess disabilities in relation to public private partnerships (PPPs), natural hazard mitigation costs, physical environment, cost of borrowing or the Northern Territory's special circumstances.
48. On some of these issues, such as cost savings associated with PPPs, or higher borrowing costs, Tasmania has previously argued that there has been a conceptual case and evidence of a disability. However, in these particular cases we accept, for the 2010 Review, the Commission's decisions not to assess a disability on the basis of materiality or data reliability.

Depreciation

49. Tasmania has always supported the Commission's original approach to depreciation – that is, we supported allocating depreciation expenses across categories and applying category disabilities to these expenses. This was highly appealing in a presentational sense, and it was consistent with the GFS treatment of depreciation, which allocates depreciation to its relevant GPC category rather than reporting it as a separate purpose in itself.
50. We are therefore disturbed by the Commission's proposal to apply a 50 per cent discount to depreciation disabilities, and to assess this as a separate category.
51. As mentioned above, we do not believe that there is justification for applying a general discount to capital stock usage disabilities, and we cannot see why depreciation disabilities should be discounted either. All states have supported the Commission's original depreciation proposal, and no state has previously argued for any discount to be applied.
52. We noted above that we would consider it reasonable for the Commission to discount a particular capital stock usage disability where they felt that there was a good reason for doing so. In principle, the same approach should probably apply to depreciation, but we note that this would make it more difficult to assess depreciation in expenditure categories. Our firm preference, therefore, would be for the Commission to proceed with its depreciation assessment as originally planned, to present the depreciation assessment within categories, and to apply all category disabilities without adjustments.
53. We acknowledge that this could create some asymmetry with the investment assessment if some disabilities are not fully applied to physical asset stock. However, we believe that the depreciation assessment will be much simpler and easier to understand if it is assessed as the Commission originally intended, and we do not expect that adjusting any of the depreciation disabilities will improve HFE.
54. One advantage of assessing depreciation as originally planned is that this will maintain symmetry with the treatment of leasing costs. We note that where an asset is leased, the leasing costs ordinarily flow through to the relevant expenditure category, and full disabilities are assessed. Depreciation is, of course, an expense which is passed on in the leasing cost of the asset, so we think that it is important that a state's own depreciation costs are assessed on the same basis. If they are not, the depreciation assessment may introduce grant design incentives.

55. Because the depreciation assessment is unlikely to be volatile from year to year, we do not believe that a three-year averaging is necessary as, once again, this would make depreciation more difficult to assess in expenditure categories. We do not consider that there is a symmetry issue here, since the averaging process does not produce any particular bias, so no state would be advantaged or disadvantaged through not applying an average to disabilities.

Commission's intent

56. The Commission's intent, as we understand it, is to assess each state's physical and financial investment in the year that these occur – to assess assets when they are acquired, rather than when they are used or consumed, or when they impact on the operating statement.
57. Is this approach reasonable? To the extent that capital acquisition is genuinely related to service delivery and revenue-raising, yes, this is a reasonable approach. But as Tasmania and other states have consistently argued, the major problem with the Commission's approach is that capital acquisition in any given year has little to do with service delivery needs in that year.
58. When states invest in infrastructure, they are not normally responding to current needs, but are instead responding to future anticipated needs, and, to some extent, delayed past needs. The actual timing of a capital purchase is so arbitrary, so accidental, that there is no way of assessing when it 'needs' to happen. This is why capital is so lumpy by nature.
59. In this respect, it does not make sense to refer to annual needs in respect of capital acquisition. States have annual needs in capital *use*, and these change, very gradually, from year to year, but they don't have any underlying capital *acquisition* needs.
60. Each of us can relate to this at a personal level. We each have our own capital use needs – we need ongoing accommodation and transport, for example. But when do we 'need' to invest in a house or a vehicle? How would we predict these needs?
61. The reality is, of course, that we can't – our decision to invest in a house or a car at a particular time is more or less arbitrary, the result of a combination of many complex factors. Chances are, unless there is some sort of major disruptive event in our lives, we can choose to invest in capital when it suits us – not when our 'needs' suddenly change.
62. When we look at total capital expenditure or net lending in any particular year, we are looking at an aggregation of many arbitrary and randomly timed decisions by states. Is it logical to try to equalise these just as we would any recurrent expenditure category? We would argue that it is not logical at all, that there is no ultimate purpose or meaning in the net lending or capital expenditure numbers.

63. In defence of the Commission's approach, we would acknowledge that the proposed investment and net lending assessments try to capture needs in a way that is policy neutral. In trying to provide states with the capacity to hold equal levels of physical and financial stock, we would not necessarily argue that the Commission's method is trying to do something that is conceptually wrong. Rather, we would argue that what the Commission's method is trying to do is not related to state needs, and hence does not improve HFE.
64. There are clearly other ways of assessing capital, methods that could work within an operating statement framework and hence could be properly linked to service delivery. We think it is somewhat unfortunate that more resources have not been dedicated to developing a potential alternative assessment method, whether in the form of an improved debt charges assessment or a fresh approach. We think that an alternative method is certainly conceivable, but it needs (and deserves) more than one state's attention to develop it to a point where it can be properly debated.
65. There is something else that the Commission may not have thought about a lot yet, but which we think is important to consider. If the Commission introduces a direct assessment of capital, it disturbs the concept of equalisation over time and it leaves a legacy of unequalised debt charges.
66. Leaving some debt charges unequalised is one thing (and the Commission has indicated that it is not concerned by this), but if the Commission decides at a future date that it wants to cease a direct capital assessment, and wants to return to some sort of assessment of capital needs over time, this will be very difficult to do. It will be difficult because the Commission will have provided states with the capacity to acquire assets that will deliver a flow of services for many years to come.
67. In this sense, some future needs will already have been equalised, and it will be very difficult for the Commission to return to a recurrent-based assessment of capital without once again disturbing equalisation over time. Under the circumstances, we think it is appropriate to cite the following old adage: 'do not be in a hurry to tie what you cannot untie'.
68. Other than these comments, there is not much we can say about the Commission's approach that we have not said previously. We have been strongly opposed to a direct assessment of capital from the time that it was first proposed. Our opposition has always been predominantly on conceptual grounds, but practical considerations have also been significant.

69. While we accept that the meaning and interpretation of HFE can change over time – indeed, it would be unhealthy if it was not reviewed from time to time – we do not believe that a direct assessment of capital can deliver any reasonable form of equalisation on an annual basis. We do not consider that the Commission’s approach provides states with equal capacity to provide services. We expect that implementation of a direct approach will create disparities in service delivery between states, and these disparities will accumulate and worsen over time.
70. As a general statement, and aside from our more fundamental concerns about the Commission’s intent, we are still concerned at how abstract and artificial the investment assessment remains, even after the length of time the Commission has spent refining it. The method is built on a number of notional concepts. For example, the derived opening capital stock used in the assessments is a very notional construct, and cannot be reconciled back to GFS opening stock.
71. Likewise, the idea that GST revenue is used to fund *decreases* in physical or financial assets, in the case that investment or net lending is negative, seems irrational. Any observer has to suspend a certain amount of disbelief in order to follow the Commission’s method. This raises the question – once you implement this abstract method, does the result you end up with retain any meaning or connection to reality?

Attachment A



Improving the net lending assessment: a proposed modification

Department of Treasury and Finance

August 2009

Background

The current net lending assessment is intended to provide each state with equal capacity to accumulate net financial worth. This implies that, once the Commission assesses population dilution needs for net financial worth, each state can accumulate financial assets at the same rate.

Tasmania has found evidence that this is not the case, and proposes a modification of the way that net financial worth is equalised to capture other disabilities.

We note that a state's net financial worth changes from year to year due to:

- Net acquisition or disposal of financial assets (net lending/borrowing); and
- Other economic flows.

Under the CGC's proposed direct assessment of capital, other economic flows are implicitly assessed equal per capita for both the investment and net lending categories.

For convenience, we will refer to other economic flows as revaluations, though in truth not all other economic flows are necessarily revaluations.

The revaluations that are most relevant to changes in net financial worth are equity revaluations. On average, over the past five years, equity revaluations comprised 87 per cent of the annual change in states' net financial worth.

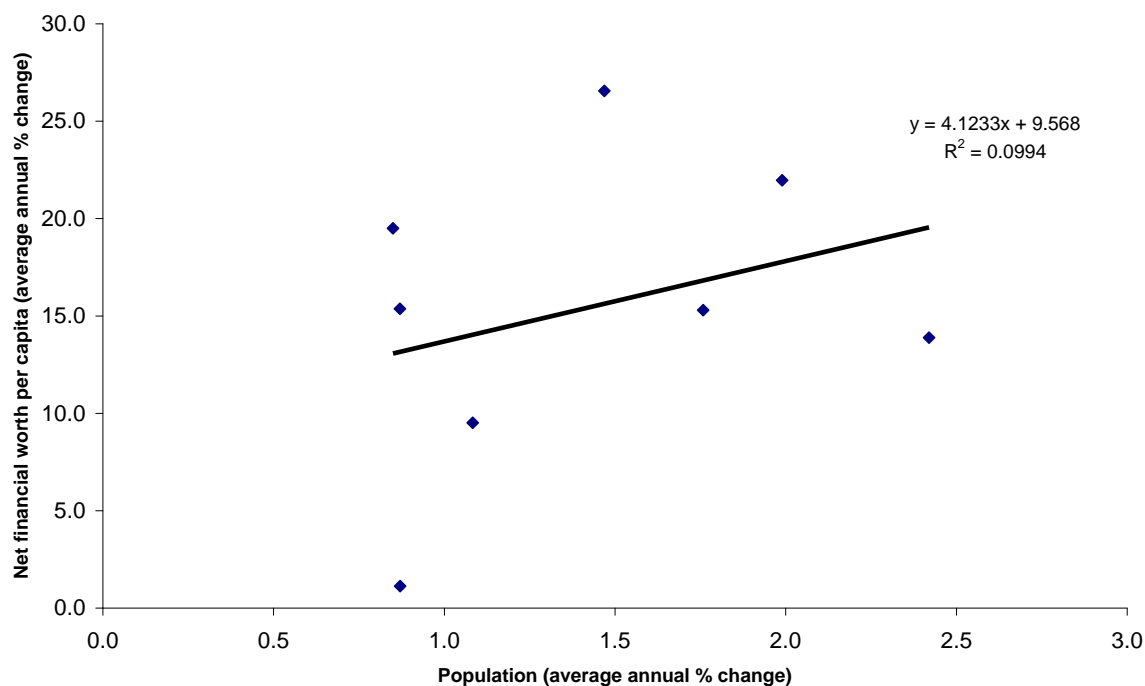
If there are disabilities associated with equity revaluations or non-equity revaluations, this would mean that states do not have the same capacity to accumulate net financial worth on a per capita basis. If the Commission's intent is to equalise capacity to accumulate net financial worth, it is important that these disabilities are assessed. If they are not, states will not have the same per capita capacity to earn or pay net interest.

Empirical evidence for disabilities in GFS

Net financial worth has not been fully equalised in the past. If population dilution was the only disability that applied in the past, we would expect that a state with higher rates of population growth would have lower rates of annual growth in the value of their net financial worth per capita relative to other states.

However, GFS data over the past five years do not support this. Instead, in Chart 1, we see that, broadly speaking, as population growth amongst the states increases, net financial worth per capita tends to increase at a greater rate. We get an upwards-sloping curve, rather than the downwards sloping curve that we would expect to see under population dilution.

Chart 1 – Growth in state population and net financial worth per capita, 2003-04 to 2007-08



Source: GFS

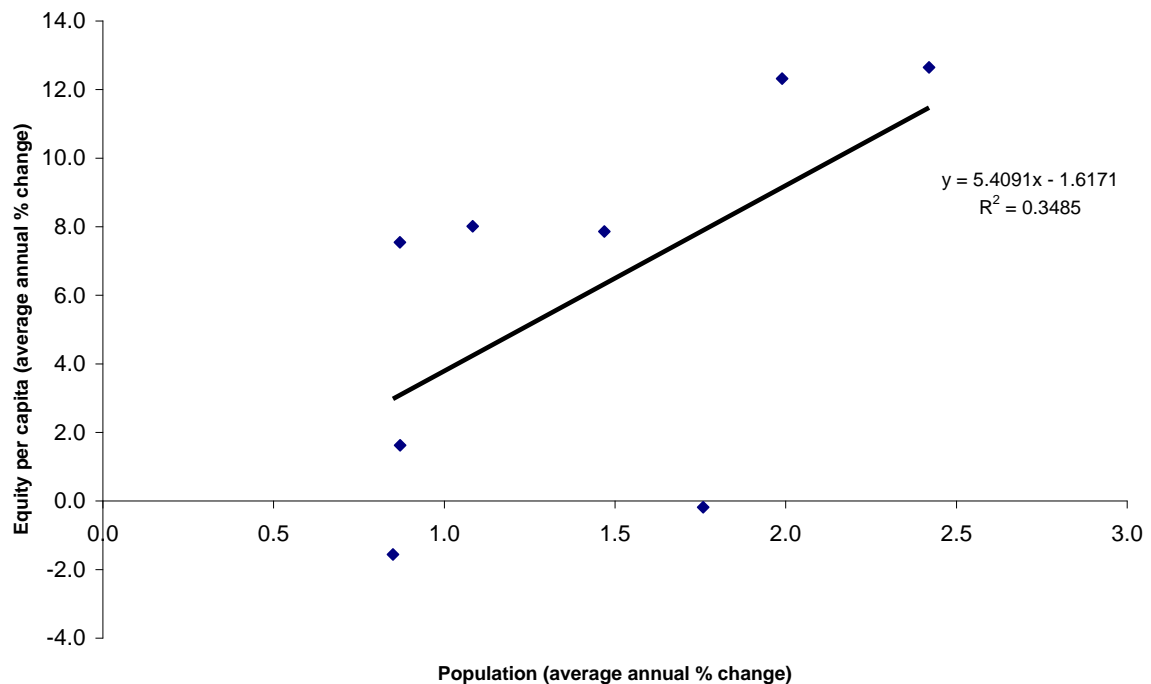
The results in Chart 1 can be easily explained – they are predominantly driven by equity revaluations.

Several states have argued that states with higher population growth enjoy greater increases in the value of their equity, particularly their equity in public non-financial corporations. There are several possible reasons for this:

- PNFCs tend to be natural monopolies, so that increases in the size of their market (ie state population), and associated increases in customer demand, are likely to lead (all other things being equal) to higher profits, and hence increases in the value of these businesses;
- Higher population growth increases the relative scarcity of some of the assets of PNFCs – particularly land – which leads to greater increases in the revaluation of these assets; and
- Population growth and economic growth are historically closely related.

Evidence for this 'equity benefit' can be seen in the GFS data in Chart 2 below:

Chart 2 – Growth in population and equity per capita, 2003-04 to 2007-08



Source: GFS

We consider that the GFS data above can be used to develop a differential assessment of state equity revaluations. We are aware that the data in Charts 1 and 2 are to some degree policy influenced – however the slope in this chart represents the average policy of states, and so can still be used to derive weights. This is analogous to the method used to derive operating subsidy weights in the Transport assessment.

At this stage we propose that non-equity revaluations continue to be assessed equal per capita, although these could also be incorporated under a total net financial worth assessment. See the section ‘further possible improvements’ below.

Developing an equity assessment

As discussed above, we consider that the main driver of differences in equity accumulation amongst the states, apart from population dilution, is relative population growth. We can determine each state’s assessed equity revaluations using weights derived from Chart 2.

The trend line in Chart 2 shows a gradient of 5.4. That is, on average, for every one per cent increase in population growth, states experience a 5.4 per cent increase in the value of their equity per capita. We can apply these weights to an assessment to determine each state’s equity revaluations under the average policy.

Our proposed method is based on the reasoning that a state’s relative equity accumulation from one year to the next will depend on its relative population growth. If a state’s population growth is one percentage point below the

Australian average for a particular year, then its assessed capacity to accumulate equity would be 5.4 percentage points below the average for that year. If a state's population grew by two percentage points faster than the average, its assessed equity accumulation would be 10.8 percentage points above the average.

Before using these weights in our calculations, we have applied a 50 per cent discount to the gradient to take into account the following:

- The weights are derived from five years worth of GFS data (to reduce volatility), rather than for each individual assessment year;
- There may be some state policy actions (such as equity injections or asset sales) that affect the gradient at the margins; and
- there may be other non-policy factors that influence a state's capacity to accumulate equity.

Applying a 50 per cent discount to the gradient of 5.4 gives us a revised gradient of 2.7. This discount can be easily modified as appropriate.

Method

Under Tasmania's proposed method, each state's assessed per capita rate of equity accumulation for a given year is calculated as:

$$= (p_i \delta + P) * (E / P)$$

where

p_i = state population change (%) less average population change (%);

P = average population change (%);

E = average per capita equity change (%); and

δ = disability weighting (in this case 2.7)¹.

The method is implemented as follows:

1. Calculate average value of equity per capita for each assessment year;
2. Calculate average equity accumulation per capita each year;
3. Calculate average rate of equity accumulation per capita each year;
4. Calculate each state's rate of population growth each year;
5. Divide average rate of equity accumulation by average rate of population growth for each year to calculate the average relationship between equity accumulation and population growth;

¹ The disability weighting is positive where average equity accumulation is positive. If equity accumulation becomes negative for a particular year (unlikely based on past history), the sign of the disability weighting becomes negative (since, conceptually, faster growing states would experience lesser decreases in their equity under average policy).

6. Subtract each state's actual population growth from average population growth to determine its difference from the average;
7. Apply the disability weight (2.7) to this difference from the average;
8. Calculate weighted populations by adding the weighted difference to average population growth;
9. Multiply weighted populations by the average ratio in (5) to determine each state's assessed equity per capita growth rate;
10. Multiply this assessed growth rate by average equity per capita in the previous year in (1) to determine each state's assessed equity accumulation per capita; and
11. Subtract assessed equity accumulation per capita from average equity accumulation to determine needs.

The main calculations for three assessment years are included in Table 1 below. For the full calculations, see the attached spreadsheet.

Population dilution

Because the method captures the per capita amount of equity accumulation each state needs each year to hold the average per capita stock of equity, we consider that it automatically captures population dilution effects relevant to equity. The assessed needs that the method produces are net of dilution effects.

The method could be calculated in a different way, so that population dilution effects are not captured, but the needs would be much larger, and it would be necessary to undertake a separate population dilution assessment.

Analysis

Several states have long argued that the Commission's net lending assessment ignores the significant benefits associated with higher population growth in terms of equity accumulation. They have argued that these benefits fully or partially offset any population dilution effect.

The analysis in this paper suggests that not only do the equity benefits of population growth offset any dilution effects, but that they do so many times over – even when a conservative disability weight is used. More importantly, it is the net effect of the two that matters and if the Commission is going to include an explicit impact in the assessments for population dilution, this will produce a biased result unless the equity accumulation effect is also included.

In fact, we have found that a disability weight as low as 0.165 – less than *one thirtieth* of the gradient in Chart 2 – still fully offsets the dilution impacts in the net lending assessment for 2007-08.

Therefore, if the Commission is determined to undertake a direct assessment of net financial worth, it is critical that revaluation disabilities are also assessed. Tasmania has set out a method for doing this. We are happy for any feedback on how our proposed method could be improved.

Some issues that may need to be discussed include:

- Whether a discount should be applied to the gradient derived from the GFS data, and, if so, the appropriate size of the discount;
- Whether equity in public financial corporations should be excluded from the assessment;
- Whether the assessment should be restricted to equity revaluation effects, and exclude other economic flows that affect equity values; and
- Whether there are other revaluation disabilities that should be assessed.

Further possible improvements

We note that this method could be applied not only to equalise equity accumulation, but also to equalise total per capita net financial worth accumulation. This would mean that all financial assets would be captured in the assessment.

The method would simply need to incorporate the relevant weight, in this case the gradient in Chart 1, into the formula:

$$(p_i \delta + P) * (NFW / P)$$

where

NFW = average per capita net financial worth change (%)

As mentioned, we consider that this approach implicitly captures population dilution already. If this is the case, the Commission would be able to apply the formula above and discard the net lending calculation. This would significantly simplify the current assessment method.

Table 1 – Equity revaluation assessment calculations

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
1 Equity per capita (\$)									
2004-05	10,187	7,534	4,389	9,950	8,664	7,804	12,220	9,289	8,228
2005-06	9,588	7,402	5,457	10,735	9,100	6,242	12,693	10,748	8,293
2006-07	10,044	7,903	5,441	13,696	9,765	7,288	14,118	5,039	8,895
2007-08	10,827	8,735	6,079	14,908	9,839	7,515	15,447	5,399	9,638
2 Equity accumulation per capita (\$)									
2005-06	-599	-133	1,067	785	435	-1,562	473	1,459	65
2006-07	457	502	-15	2,961	665	1,046	1,425	-5,709	602
2007-08	782	831	638	1,212	74	228	1,329	360	744
3 Equity accumulation per capita (%)									
2005-06	-5.9	-1.8	24.3	7.9	5.0	-20.0	3.9	15.7	0.8
2006-07	4.8	6.8	-0.3	27.6	7.3	16.8	11.2	-53.1	7.3
2007-08	7.8	10.5	11.7	8.8	0.8	3.1	9.4	7.1	8.4
4 Change in population (%)									
2005-06	0.9	1.4	2.5	1.9	0.9	0.8	1.3	2.3	1.4
2006-07	1.1	1.7	2.4	2.3	1.1	0.7	1.4	1.9	1.6
2007-08	1.2	1.8	2.5	2.6	1.1	0.7	1.5	2.4	1.7
5 Rate of equity change relative to population change (ratio)									
2005-06	-6.9	-1.2	9.8	4.1	5.6	-25.2	3.0	6.9	0.5
2006-07	4.5	4.0	-0.1	11.8	6.7	24.9	7.9	-28.2	4.5
2007-08	6.3	5.9	4.7	3.5	0.7	4.3	6.3	3.0	4.8
6 Change in population - difference from average (%)									
2005-06	-0.6	0.0	1.0	0.5	-0.5	-0.6	-0.2	0.8	0.0
2006-07	-0.5	0.1	0.8	0.7	-0.5	-0.9	-0.2	0.3	0.0
2007-08	-0.5	0.0	0.7	0.8	-0.7	-1.0	-0.3	0.7	0.0
7 Weighted difference from average (%) (weight = 2.7)									
2005-06	-1.6	0.0	2.8	1.3	-1.5	-1.7	-0.4	2.2	0.0
2006-07	-1.5	0.2	2.1	2.0	-1.4	-2.5	-0.5	0.8	0.0
2007-08	-1.4	0.1	2.0	2.2	-1.8	-2.7	-0.7	1.8	0.0
8 Weighted change in population (%)									
2005-06	-0.1	1.4	4.2	2.8	0.0	-0.3	1.0	3.7	1.4
2006-07	0.1	1.8	3.7	3.6	0.2	-0.9	1.1	2.4	1.6
2007-08	0.4	1.8	3.8	3.9	-0.1	-1.0	1.0	3.5	1.7
9 Assessed change in equity per capita (%)									
2005-06	-0.1	0.8	2.3	1.5	0.0	-0.2	0.6	2.0	0.8
2006-07	0.6	8.1	16.6	16.1	1.1	-4.1	4.9	10.7	7.3
2007-08	1.9	8.7	18.0	18.9	-0.3	-4.8	5.0	16.9	8.4
10 Assessed change in equity per capita (\$)									
2005-06	-6	63	189	123	-1	-14	46	164	65
2006-07	53	672	1,368	1,327	89	-345	409	883	602
2007-08	168	778	1,590	1,666	-23	-428	443	1,490	744
11 Difference from average per capita (needs) (\$)									
2005-06	71	2	-124	-58	66	79	19	-99	0
2006-07	549	-70	-766	-725	513	947	193	-281	0
2007-08	576	-34	-846	-922	767	1,171	301	-746	0
12 Difference from average (needs) (\$m)									
2005-06	485	9	-503	-119	104	38	6	-21	0
2006-07	3,763	-360	-3,171	-1,512	809	466	65	-60	0
2007-08	3,996	-179	-3,590	-1,971	1,222	580	103	-162	0