Agenda paper: 2016-10

Purpose: Discussion

Inquiry: 2020 Review

Prepared for meeting of: 18 May 2016

CONTEMPORANEITY — ALTERNATIVES FOR DEALING WITH PSPS AND MINING REVENUE

REASON

The Commission asked staff to prepare material on a contemporaneity approach for dealing with unpredictable revenues, in particular mining revenue and Commonwealth payments for specific purposes. This paper provides that material.

ISSUES

- Should the Commission apply the absorption approach to unpredictable revenues?

RECOMMENDATIONS

Staff recommend the Commission note the paper and identify whether there are particular issues relating to contemporaneity on which they wish to receive further advice from staff.

Contact officer/s Tony Nichols, Dermot Doherty

References

Agenda papers: AP 2016-15 *Contemporaneity — an overview*
AP 2016-08 *Contemporaneity — a projections approach*
AP 2016-06 *Contemporaneity — a completion approach*
AP 2015-37 *Contemporaneity — alternative approaches*
AP 2015-24 *Can a State be financially worse off accepting a payment for specific purposes?*

Other papers: Commission Report on GST Revenue Sharing Relativities 2015 Review, Volume 1, Chapter 2, pages 67-75.

Commission advice to the Treasurer on the treatment of large and volatile State revenues.

Confidentiality statement

This document does not contain confidential material.

Statement provided by Tony Nichols.

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BACKGROUND

1 As discussed in Agenda Paper 2016-15 *Contemporaneity — an overview*, the Commission asked staff to provide additional material on:

- an approach using budget forecasts for the application year, also incorporating error correction once final budget outcomes are known
- an approach to dealing with unpredictable revenues, such as Commonwealth payments for specific purposes (PSPs) and mining revenue
- a completion only approach, which explicitly does not attempt to reflect conditions in the application year.

2 This paper provides information on whether there is another way of assessing unpredictable revenues (specifically, PSPs and mining revenue).

What are the implications of the current relativities approach?

3 Agenda Paper 2016-15 *Contemporaneity — an overview* discussed how the circumstances States face in the application year have diverged from those they faced in the years of assessment. The difference is called the completion gap. These gaps have existed (and remained uncorrected) since the move to comprehensive equalisation following the 1981 Review. A completion gap means States' fiscal capacities are not fully equalised in the application year.

4 Under the (current) relativity approach, the Commission derives its relativities using information from historical years. Doing so builds lags into the HFE system and it is these lags that cause the completion gaps. The lags gave rise to over or under estimates of States' fiscal capacities[1] when:

- a State was experiencing a long term structural trend
- a State was experiencing a sudden change in its fiscal capacity (as can occur with a volatile expense or revenue).

5 Agenda Paper 2015-24 *Can a State be financial worse off accepting an SPP?* showed the relativity approach was equivalent to inflating States' fiscal capacities in the years of assessment by the growth in the pool[2] between those years and the application year. Were States' circumstances to grow in line with growth in the pool then the lags would not give rise to completion gaps. Unpredictable revenues and expenses (such

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[1] Agenda Paper 2016-15 *Contemporaneity — an overview* showed the aggregate completion gaps for the last five years exceeded $9 billion.

[2] Agenda paper 2015-24 showed what mattered was the growth in the pool and the differential growth in State populations between the years of assessment and the application years. However, the growth in the pool was the much bigger influence.

as transaction taxes, natural disaster expenses and PSPs) do not grow commensurately with the GST pool, giving rise to completion gaps.

DEALING WITH PSPS

Treating PSPs by inclusion

6 Currently, the Commission treats most PSPs by inclusion. Under inclusion, PSPs are treated like State own source revenue — they are revenues available to finance a State's assessed expense in the years of assessment. A State's inclusion relativity in a year of assessment is derived by:

- calculating its assessed GST requirement by subtracting the sum of its assessed revenues and PSPs received from the sum of its assessed expenses and assessed capital
- dividing its GST requirement by its population share of the GST pool.

7 Inclusion means:

- the interstate distribution of PSPs in the years of assessment affects a State's GST distribution
- a bigger share of PSPs in those years reduces its GST requirement.

8 Table 1 shows the PSPs included in the last year of the assessed budget in each of the last 7 inquiries. The table shows how unpredictable PSPs can be[3]. This volatility is a reason why historical PSP distributions are a poor indicator of application year distributions and why treating PSPs by inclusion can generate completion gaps.[4]

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[3] PSPs comprise three National Specific Purpose payments (Skills and Workforce Development, Disability Services and Affordable Housing), National Health Reform and Students First funding and National Partnership Payments (NPPs). There can be large variations in the size and distribution of PSPs, especially infrastructure related NPPs.

[4] Agenda Paper 2016-08 *Contemporaneity — a projections approach* confirmed PSPs were a major contributor to completion gaps.

Table 1 PSPs treated by inclusion (a)

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
2008-09	13 883	9 742	9 285	4 196	3 363	991	583	775	42 819
2009-10	16 706	12 041	11 364	5 502	4 471	1 388	752	948	53 172
2010-11	16 202	11 692	10 047	5 367	3 913	1 529	777	1 144	50 670
2011-12	16 284	12 257	10 916	5 475	4 361	1 131	733	1 114	52 271
2012-13	13 967	10 893	9 126	4 810	3 229	1 050	698	752	44 524
2013-14	11 876	10 147	7 625	4 026	2 644	863	639	692	38 511
2014-15	12 690	9 412	8 315	4 343	2 710	865	617	767	39 718

(a) These are the total PSPs included in the last assessment year of each inquiry from the 2010 Review to the 2016 Update.

Source: Commission reports.

9 There are two PSP treatments that would break the nexus between a State's GST and the PSPs it received in the years of assessment:

- exclusion (that is, no impact)
- absorption.

10 Exclusion would sever the link between PSPs and a State's GST share. If exclusion were used, PSPs would remain outside the equalisation process and States receiving a larger share of them would be able to finance a higher level of services than other States. This would be inconsistent with terms of reference and the Commission's traditional approach, which is to treat PSPs as revenue available to finance assessed expenses. For that reason, this approach is not discussed further.

Treating PSPs by absorption

11 When we use the absorption approach, we change the composition of the application year pool. In this case, we expand it to include PSPs. Consequently, we need to change the composition of the pool in the years of assessment.[5]

12 Like inclusion, absorption creates a link between PSPs and a State's GST share. Unlike inclusion, the link is to a State's application year share of PSPs rather than its PSP share in the years of assessment. Thus, absorption is a more contemporaneous approach to PSPs.

13 Absorption treats PSPs as revenue available to finance a State's assessed expenses in the application year. A State's absorption relativity in a year of assessment is derived by:

[5] Terms of reference would need to be changed to allow the use of the absorption approach.

- calculating its assessed PSP-GST pool requirement by subtracting its assessed revenues from the sum of its assessed expenses and assessed capital
- dividing its PSP-GST pool requirement by its population share of the combined PSP-GST pool.

14 Absorbing PSPs into the pool makes the assessment year pools bigger and means absorption relativities tend to be closer to the average relativity (1.000) than their inclusion counterparts. This could reduce criticism of the HFE system based on 'outlier' GST relativities.

15 Absorption means:

- the interstate distribution of PSPs in the application year affects a State's GST distribution
- a bigger share of PSPs in that year reduces its GST requirement.

What changes are required?

16 For the Commission, the change is simple. It would add PSPs to the GST in the years of assessment.[6]

17 For Treasury, absorption imposes additional work. It needs to apply the absorption relativities to a combined pool of GST and PSPs in the application year and then deduct each State's share of PSPs to determine its GST (as it did with Health Care Grants prior to the 2009 Update). This can be done in a simple way (by treating all PSPs by absorption) or a complex way (by determining which individual PSPs should be treated by absorption).[7]

18 A similar outcome to absorption could be achieved by the Commission backcasting the application year 'absorbed' PSPs into the years of assessment. This approach would not impose additional work on Treasury, as it could apply the resulting relativities to the GST pool.

What is the impact of changing treatment of PSPs

19 Attachment A provides an example of changing the treatment for a single PSP. It recounts the changed treatment of Health Care Grants in the 2009 Update. Attachment B provides an indication of the aggregate impact of changing the treatment of all included PSPs to absorption in each inquiry since the 2010 Review. Table 2 shows New South Wales would have received $958 million less over the last

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[6] Any PSP quarantined by terms of reference would not, however, be added to the pool.

[7] The two approaches should produce similar GST outcomes if the range of PSPs (in the assessment and application years) remains the same. If the range of PSPs in the application way is very different from those in the assessment year(s), the simple way could produce a materially different answer. For example, a materially different answer would have arisen in the years when the Commonwealth ramped up PSPs in response to the Global Financial Crisis.

seven years had the absorption approach been used. The aggregate impact for all States was just under $2 billion.[8]

Table 2 Aggregate impact of changing treatment of PSPs

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Redistribution	-958	383	292	1 041	241	29	-249	-779	1 986

Source: Table B-2.

20 In most cases, the States gaining from absorption were those receiving proportionally less PSPs in the application year compared with the years of assessment and vice versa.

A CASE STUDY — 2011-12[9]

21 The purpose of this case study is to determine whether the inclusion or the absorption approach produces a smaller completion gap. The baseline is the total assistance each State should have received in 2011-12. We determine this amount using information for 2011-12 year in the 2014 Update.

22 Table 3 shows the total assistance each State received comprising:

- the PSPs each State received in 2011-12 (these are the PSPs the Commission treated by inclusion in that year in the 2014 Update)[10]
- the GST each State required to be equalised in 2011-12 (as calculated in the 2014 Update).

8 Care needs to be taken with these figures as a number of assumptions were made to derive 'absorbed' PSPs in the application year.

9 We had three criteria for choosing a year. First, it had to be a recent year. Secondly, the year had to be subject to the same assessment methods when it was the application year and an assessment year. This limited the choice to 2010-11 to 2014-15. Finally, when it was an assessment year, we did not want it to be subject to revisions. So, we wanted it to be the second last assessment year of an inquiry. The latest year matching all three criteria was 2011-12.

10 This approach generates a different result for 2011-12 than that shown in Table B-2. The reason is a different level of PSPs is being used. The PSPs shown in Table 3 are the unadjusted PSPs from the 2011-12 year of the 2014 Update, they total to $55.5 billion. The application year PSPs used in Attachment B were derived by staff. We examined each individual payment in 2011-12 to determine whether to include it or not. Our intention was to align the application year payments with those paid in the years of assessment. That approach produced a smaller PSP estimate ($50.2 billion). The smaller estimate is the reason for the differing GST outcomes.

Table 3 Assessed Commonwealth assistance, 2011-12

	2011-12 PSPs (a)	2011-12 GST (b)	Total assistance
	$m	$m	$m
NSW	17 205	14 825	32 030
Vic	13 078	10 346	23 423
Qld	11 626	9 305	20 932
WA	5 817	2 058	7 874
SA	4 571	4 073	8 644
Tas	1 210	1 822	3 032
ACT	786	969	1 756
NT	1 172	2 642	3 814
Total	55 465	46 040	101 505

(a) 2011-12 PSPs received by States, which the Commission treated by inclusion.
(b) Given the PSPs they received, this is GST each State required to be equalised in 2011-12.
Source: 2014 Update.

23 We can determine whether the inclusion or absorption approach produces the smaller completion gap by calculating the total assistance in 2011-12 (in the 2014 Update) using both the inclusion and absorption relativities.

24 Table 4 shows the GST distribution that would have been generated using the 2011 Update (inclusion) relativities. A State's total assistance is obtained by adding its 2011-12 PSPs (from Table 3).

Table 4 Distribution of 2011-12 GST using 2011 Update inclusion relativities

	2011 Update relativities	2011-12 Population	Adjusted population	Share of pool	GST distribution	2011-12 PSPs (Table 3)	Total assistance
		Mill	Mill	%	$m	$m	$m
NSW	0.958	7.3	7.0	30.9	14 237	17 205	31 442
Vic	0.905	5.6	5.1	22.5	10 340	13 078	23 417
Qld	0.929	4.5	4.2	18.7	8 591	11 626	20 217
WA	0.717	2.4	1.7	7.6	3 512	5 817	9 328
SA	1.271	1.6	2.1	9.3	4 284	4 571	8 856
Tas	1.599	0.5	0.8	3.6	1 676	1 210	2 887
ACT	1.116	0.4	0.4	1.8	848	786	1635
NT	5.357	0.2	1.2	5.5	2 552	1 172	3 724
Total		22.5	22.5	100.0	46 040	55 465	101 505

Source: Relativities from the 2011 Update. The pool and populations were from the 2011-12 year of the 2014 Update.

25 Table 5 shows each State's total assistance using the 2011 Update absorption relativities.

Table 5 Distribution of total assistance using 2011 Update absorption relativities

	2011 Update relativities	2011-12 Population	Adjusted population	Share of assistance	Total assistance
		Mill	Mill	%	$m
NSW	0.969	7.3	7.0	31.3	31 735
Vic	0.916	5.6	5.1	22.7	23 061
Qld	0.994	4.5	4.5	20.0	20 264
WA	0.859	2.4	2.1	9.1	9 266
SA	1.172	1.6	1.9	8.6	8 710
Tas	1.333	0.5	0.7	3.0	3 079
ACT	1.002	0.4	0.4	1.7	1 677
NT	3.536	0.2	0.8	3.7	3 712
Total		22.5	22.5	100.0	101 505

Source: Absorption relativities were derived using 2011 Update data. The pool and populations were from the 2011-12 year of the 2014 Update.

26 Table 6 sets out the total assistance under each option and the resulting completion gap. It shows the absorption approach produces a smaller completion gap in total ($1 506 million versus $1 665 million) and for most States. Only Victoria ($6 million

versus $362 million) and the Northern Territory ($90 million versus $102 million) had a smaller completion gap under inclusion.

Table 6 Completion gaps under inclusion and absorption

	Distribution of total assistance			Completion gap	
	2011-12 (from Table 3)	Using 2011 Update relativities (from Table 4)	Using 2011 Update absorption relativities (from Table 5)	Using 2011 Update relativities	Using 2011 Update absorption relativities
	$m	$m	$m	$m	$m
NSW	32 030	31 442	31 735	588	295
Vic	23 423	23 417	23 061	6	362
Qld	20 932	20 217	20 264	715	668
WA	7 874	9 328	9 266	-1 454	-1 392
SA	8 644	8 856	8 710	-211	-66
Tas	3 032	2 887	3 079	145	-47
ACT	1756	1635	1 677	121	78
NT	3 814	3 724	3 712	90	102
Total	101 505	101 505	101 505	1 665	1 506

Source: Table 3, Table 4 and Table 5.

DEALING WITH MINING REVENUE

27 Although not usual, the absorption approach could also be applied to mining revenue, which is what we do in this section. By applying the absorption treatment, we have changed the composition of the application year pool:

- from GST revenue
- to GST revenue plus royalty revenue plus Grants in lieu of royalties.

28 When we use the absorption approach we also need to change the composition of the pool in the years of assessment. For the Commission, the change is simple. It would add royalty revenue and Grants in lieu of royalties to the GST in those years.

29 Table 7 shows the royalty revenue included in the last year of the assessed budget in each of the last 7 inquiries. It shows how unpredictable royalties can be. That volatility is the reason historical royalties are a poor indicator of their application year counterparts and a reason why a royalty assessment using historical data can generate a completion gap.

Table 7 Royalties, excluding grants in lieu of royalties (a)

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
2008-09	1 279	46	3 342	1 399	153	30	0	220	6 469
2009-10	985	47	2 036	1 425	126	39	0	131	4 790
2010-11	1 240	58	2 698	3 182	157	49	0	151	7 536
2011-12	1 464	66	2 766	3 320	177	54	0	144	7 992
2012-13	1 318	45	2 144	3 296	190	29	0	107	7 129
2013-14	1 338	52	2 379	6 018	291	36	0	154	10 268
2014-15	1 254	44	2 009	4 591	237	27	0	162	8 324

(a) These are States' royalties in the last assessment year of each inquiry from the 2010 Review to the 2016 Update.

Source: Commission reports.

30 Table 8 provides the same information for Grants in lieu of royalties. These payments are also unpredictable. The volatility of these payments is the reason historical Grants in lieu are a poor indicator of their application year counterparts and a reason why using the historical payments can generate a completion gap. The table provides a reason why Western Australia has recently sought to change the Commission's treatment of this payment[11] — it has peaked and is declining.

Table 8 Grants in lieu of royalties (a)

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	$m	$m	$m	$m	$m	$m	$m	$m	$m
2008-09	0	0	0	910	0	0	0	4	914
2009-10	0	0	0	876	0	0	0	15	890
2010-11	0	0	0	1 011	0	0	0	4	1 015
2011-12	0	0	0	1 008	0	0	0	2	1 009
2012-13	0	0	0	1 114	0	0	0	5	1 120
2013-14	0	0	0	1 186	0	0	0	5	1 192
2014-15	0	0	0	981	0	0	0	3	984

(a) These are the Grants in lieu paid by the Commonwealth in the last assessment year of each inquiry from the 2000 Update to the 2016 Update.

Source: Commission reports.

[11] The Western Australian Treasurer suggested the Commonwealth reduce Western Australia's share of North West Shelf payments from 70% to 50% and, in exchange, treat the payment by exclusion. http://www.perthnow.com.au/news/western-australia/wa-governments-900m-plan-to-rescue-budget/news-story/6903f0651fb78bdeb624bb2f8ab62346.

What changes are required?

31 For the Commission, the change is simple. It would add royalty revenue and Grants in lieu of royalties (that is, mining revenue) to the GST in the years of assessment.

32 For Treasury, absorption imposes additional work. It needs to apply the absorption relativities to a combined pool of GST and mining revenue in the application year and then deduct each State's share of assessed mining revenue to determine its GST. These estimates could be revised over the course of the application way in the same way that revisions are made to populations and the pool in the Final Budget Outcome publication. The Commission could be asked to provide these estimates.

What is the impact of changing treatment of mining revenue

33 This approach requires an estimate of States' assessed mining revenue in each application year. As Attachment C explains, we derived them by:

- estimating each State's share of total value of production in the application year and using it to distribute the royalty revenue they raised in that year
- using Western Australian and Northern Territorian forward estimates of Grants in lieu of royalties.

34 Thus, the absorption approach relies on forward estimates in State budget papers. If a State understated its estimate, this approach would understate its assessed mining revenue and deliver it increased GST in the application year. Therefore, a correction adjustment would be required if this approach were adopted, to remove any incentive for States to game the system.[12]

35 Attachment C provides an indication of the aggregate impact of treating mining revenue by absorption in each inquiry since the 2010 Review. The aggregate impact is over $5 billion.

Table 9 Aggregate impact of treating mining revenue by absorption

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Redistribution	539	1 679	1 854	-5 191	238	282	125	473	5 191

Source: Table B-2.

36 Western Australia would have lost from the change in treatment because, for most of this period, it was experiencing a mining boom with higher revenues in each successive year. Compared with the relativity approach, absorption would have delivered less GST to Western Australia in years of ever rising revenues (from the

[12] This correction adjustment could be incorporated into the Final Budget Outcome (FBO) publication. As the FBO is published more than a year after Budget Paper No 3, it would allow time for more up-to-date mining data to be used.

2010 Review to 2014 Update). In those years its application year mining capacity would have exceeded its historical mining capacity and, by basing its GST on that higher capacity, the absorption approach would have delivered it less GST.

37 However, the recent fall in iron ore prices means absorption would have delivered more GST to Western Australia in the last two inquiries. Its application year mining capacity would have been lower than its assessed capacity in the years of assessment (when iron ore prices were higher) and, by basing its GST on that lower capacity, the absorption approach would have delivered it more GST.

38 It is not clear that changing our approach for one or two revenue streams would produce unambiguously better HFE outcome for all States. When the Commission considered this option in the 2015 Review, it concluded singling out a particular revenue stream would unbalance the system over time. The approach would increase volatility in GST shares and consequently overall revenue for all States except the States assessed to have a strong capacity in that revenue stream.

A CASE STUDY — 2011-12

39 This case study is undertaken using the same approach as for the PSP case study. We compare:

- two separate revenue steams
  - the 2011-12 GST distributed using 2011 Update inclusion relativities
  - an absorbed revenue stream. In this case, the Commission's 2011-12 assessed revenue from the 2014 Update
- one combined revenue stream:
  - a combined total of 2011-11 GST and mining revenue distributed using 2011 Update absorption relativities.

40 The purpose of this case study is to determine whether treating mining revenue by inclusion or absorption produces a smaller completion gap. The baseline is the GST each State received in 2011-12 plus our assessment of mining revenue in the 2011-12 year if the 2014 Update.

41 Table 10 shows the total assistance each State received comprising:

- each State's assessed mining revenue in 2011-12 (in the 2014 Update)[13]

[13] This approach generates a different result for 2011-12 than that shown in Table C-2. The reason is a different level of mining revenue is being used. The mining revenue shown in Table 10 is the assessed mining figures for the 2011-12 year of the 2014 Update, they total to $10.0 billion. The application year mining revenue used in Attachment C was derived by staff, using State projections of royalty revenue and Grants in lieu of royalties. That approach produced a mining revenue estimate ($9.8 billion). The smaller estimate is the reason for the differing GST outcomes.

- the GST each State required to be equalised in 2011-12 (as calculated in the 2014 Update).

42 We can determine whether the inclusion or absorption approach produces the smaller completion gap by calculating the total assistance in 2011-12 (in the 2014 Update) when mining revenue is treated by inclusion and absorption.

Table 10 The combined assistance, 2011-12

	2011-12 assessed mining (from the 2014 Update)	2011-12 assessed GST (from the 2014 Update)	Combined assistance
	$m	$m	$m
NSW	1 546	14 825	16 371
Vic	114	10 346	10 460
Qld	2 776	9 305	12 081
WA	5 110	2 058	7 168
SA	300	4 073	4 373
Tas	62	1 822	1 884
ACT	0	969	969
NT	103	2 642	2 745
Total	10 010	46 040	56 050

Source: 2014 Update.

43 Table 11 shows the GST distribution that would have generated using the 2011 Update (inclusion) relativities. Each State's combined assistance is obtained by adding its 2011-12 assessed mining (from Table 10).

Table 11 Combined assistance using 2011 Update inclusion relativities

	2011 Update relativities	2011-12 Population	Adjusted population	Share of pool	GST distribution	2011-12 assessed mining (Table 10)	Total assistance
		Mill	Mill	%	$m	$m	$m
NSW	0.958	7.3	7.0	30.9	14 237	1 546	15 783
Vic	0.905	5.6	5.1	22.5	10 340	114	10 453
Qld	0.929	4.5	4.2	18.7	8 591	2 776	11 366
WA	0.717	2.4	1.7	7.6	3 512	5 110	8 622
SA	1.271	1.6	2.1	9.3	4 284	300	4 585
Tas	1.599	0.5	0.8	3.6	1 676	62	1 738
ACT	1.116	0.4	0.4	1.8	848	0	848
NT	5.357	0.2	1.2	5.5	2 552	103	2 655
Total		22.5	22.5	100.0	46 040	10 010	56 050

Source: Relativities from the 2011 Update. The pool and populations were from the 2011-12 year of the 2014 Update.

44 Table 12 shows each State's total assistance using the 2011 Update absorption relativities.

Table 12 Combined assistance using 2011 Update absorption relativities

	2011 Update relativities	2011-12 Population	Adjusted population	Share of assistance	Total assistance
		Mill	Mill	%	$m
NSW	0.894	7.3	6.5	28.8	16 141
Vic	0.791	5.6	4.4	19.6	10 979
Qld	1.042	4.5	4.7	20.9	11 712
WA	1.175	2.4	2.8	12.5	6 987
SA	1.147	1.6	1.9	8.4	4 697
Tas	1.423	0.5	0.7	3.2	1 811
ACT	0.967	0.4	0.4	1.6	892
NT	4.891	0.2	1.1	5.0	2 830
Total		22.5	22.5	100.0	56 050

Note: The difference between Western Australia's absorption relativity (1.175) and its inclusion relativity (0.717) is an indication of the influence of the mining assessment on its inclusion relativity.

Source: Absorption relativities were derived using 2011 Update data. The pool and populations were from the 2011-12 year of the 2014 Update.

45 Table 13 sets out the total assistance under each option and the resulting completion gap. It shows the absorption approach produces a smaller completion gap in total ($929 million versus $1 665 million) and for most States. Only Victoria ($6 million versus $520 million) and the South Australia ($324 million versus -$211 million) had a smaller completion gap under inclusion.

Table 13 Completion gaps under inclusion and absorption

	Distribution of total assistance			Completion gap	
	2011-12 (from Table 10)	Using 2011 Update relativities (from Table 11)	Using 2011 Update absorption relativities (from Table 12)	Using 2011 Update relativities	Using 2011 Update absorption relativities
	$m	$m	$m	$m	$m
NSW	16 371	15 783	16 141	588	-230
Vic	10 460	10 453	10 979	6	520
Qld	12 081	11 366	11 712	715	-369
WA	7 168	8 622	6 987	-1 454	-181
SA	4 373	4 585	4 697	-211	324
Tas	1 884	1 738	1 811	145	-72
ACT	969	848	892	121	-77
NT	2 745	2 655	2 830	90	86
Total	56 050	56 050	56 050	1 665	929

Source: Table 10, Table 11 and Table 12.

CONCLUSIONS

46 The current HFE system uses historical data to assess States' GST requirements in the application year. This builds lags into the Commission's recommendations.

47 If there are big changes in State circumstances between the years of assessment and the application year (and they differ from the changes to the pool), these lags can result in States receiving less (or more) GST in the application year than they require. The difference is called the completion gap. Revenues and expenses which change at different rates to the pool (such as transaction taxes, natural disaster expenses and PSPs) generate completion gaps.

48 In this paper, we explored a different approach to dealing with PSPs and mining revenue. We treated them both by the absorption approach. This is a more contemporaneous approach, one that makes States' GST dependent on their shares of PSPs or assessed mining revenue in the application year (as opposed the years of assessment).

49 Had the Commission implemented this change in the 2010 Review, over the last 7 years, it would have redistributed $2 billion in the case of PSPs (see Table 6) and $5 billion in the case of mining (see Table 9). The size of the redistribution is an indication of how the lags in the HFE system are affecting States' GST distributions.

ATTACHMENT A: CHANGING THE TREATMENT OF HEALTH CARE GRANTS

1 In the 2008 Update, the Commission was asked for relativities appropriate for distributing a pool of GST revenue and Health Care Grants (HCGs). In the 2009 Update, the Commonwealth changed the treatment of HCGs and asked the Commission for relativities appropriate for distributing a pool of GST revenue only.

2 In its 2009 Update report, the Commission provided information on the impact of this change in treatment. It calculated the impact for the 2008-09 year. This attachment sets out the derivation of these amounts.

Treating HCGs by inclusion

3 When HCGs are treated by inclusion, GST revenue and HCGs are treated as separate revenue streams in the years of assessment. The resulting (inclusion) relativities are applied to an application year pool comprising GST revenue only.

4 Table A-1 shows:

- the distribution of GST revenue
- State's HCGs
- the combined assistance appropriate for each State.

Table A-1 Combined assistance, inclusion relativity

	2008 Update inclusion relativity (a)	2008-09 population	Adjusted population	Distribution of GST revenue	2008-09 Health Care Grants	Total
		Mill	Mill	$m	$m	$m
NSW	0.887	7.0	6.2	12 184	3 084	15 268
Vic	0.913	5.3	4.9	9 545	2 248	11 793
Qld	0.962	4.3	4.2	8 157	1 811	9 968
WA	0.858	2.2	1.9	3 667	935	4 602
SA	1.232	1.6	2.0	3 885	760	4 645
Tas	1.663	0.5	0.8	1 629	197	1 827
ACT	1.256	0.3	0.4	853	119	971
NT	5.258	0.2	1.2	2 280	106	2 386
Total		21.5	21.5	42 199	9 259	51 459

(a) Inclusion relativities are relativities appropriate for distributing a pool of GST revenue only.
Source: As published in the 2009 Update.

Treating HCGs by absorption

5 When we use the absorption approach, we change the composition of the application year pool. In this case, Treasury expanded it to include HCGs. Consequently, we needed to change the composition of the pool in the years of assessment.

6 When HCGs are treated by absorption, the GST revenue and HCGs are combined as a single revenue stream in the years of assessment. The resulting (absorption) relativities are applied to an application year pool comprising GST revenue and HCGs.

7 Table A-2 shows the assistance the Commission would have recommended for each State. This table also shows the difference between this distribution and the distribution in Table A-1. The difference was small.

Table A-2 Combined assistance and difference, absorption relativity

	2008 Update absorption relativity	2008-09 population	Adjusted population	Distribution of combined pool (b)	Difference
		Mill	Mill	$m	$m
NSW	0.911	7.0	6.4	15 248	20
Vic	0.925	5.3	4.9	11 793	0
Qld	0.965	4.3	4.2	9 981	-13
WA	0.883	2.2	1.9	4 602	0
SA	1.209	1.6	1.9	4 648	-3
Tas	1.530	0.5	0.8	1 827	-1
ACT	1.172	0.3	0.4	970	1
NT	4.518	0.2	1.0	2 390	-4
Total		21.5	21.5	51 459	21

(a) These absorption relativities are relativities appropriate for distributing a pool of GST revenue and Health Care Grants.
(b) The 2008-09 combined pool comprised $42 199 million of GST revenue and $9 259 million of HCGs.
Source: As published in the 2009 Update.

8 The figures in Table A-1 and Table A-2 invite three questions:

- Why did the relativities change?
- Why was the difference small?
- What would happen if we applied absorption more widely?

Why did the relativities change?

9 When we change the treatment of a PSP (in this case, HCGs), we produce different relativities.

10 When inclusion is used:

- HCGs are assumed to be available to meet States' expense needs in the year of assessment. The greater the share of HCGs a State receives in these years, the lower its inclusion relativity.
- Inclusion relativities are net of the contribution of HCGs to States' fiscal capacities.

11 When absorption is used:

- HCGs are treated as part of the combined pool to be distributed. A State's share of the HCGs in the years of assessment is not relevant.
- The distribution of HCGs in the years of assessment plays no role in the calculation of absorption relativities.

12 Under absorption, the combined pool is bigger. So, absorption relativities tend to be closer to the average relativity (1.000).

Why is the difference small?

13 There are two factors that determine whether a State benefits from changing the treatment of a PSP from inclusion to absorption:

- the interstate distribution of the PSP in the application year compared to its distribution in the years of assessment. If its application year share is bigger, it benefits from using the lower historical PSPs (inclusion) and vice versa
- the rate of growth of the PSP compared to the rate of growth of the GST. If the PSP is growing faster, State's with an above average share of the PSP benefit from using the lower historical PSPs (inclusion) and vice versa.

14 Changing the treatment of a PSP would have no effect if the rates of growth of the PSP and the GST were the same and the interstate distribution of the PSP did not change.

15 In our example, the impact of changing the treatment of HCGs was small because HCGs grew at about the same rate as the GST (6.6% versus 6.7%) and their interstate distribution changed marginally — a little more to New South Wales and a little less to Queensland and the Northern Territory.

What would happen if we applied absorption more widely

16 Changing the treatment of all PSPs to absorption is likely to be big because:

- many PSPs grow at different rates than the GST. For example, some PSPs may be discontinued.
- the interstate distribution of all PSPs can change markedly over time (for example, transport PSPs).

17 Attachment B provides information on the impact of changing the treatment of all (included) PSPs since the 2010 Review.

ATTACHMENT B: TREATING ALL PSPS BY ABSORPTION

1 Attachment A provided an example of changing one PSP (Health Care Grants). In this attachment, we report on the impact of changing the treatment of all PSPs from inclusion to absorption. We have changed their treatment for each inquiry since the 2010 Review.

2 The PSPs paid in the application year can differ from those paid in the years of assessment because:

- new PSPs are created
- previous PSPs are discontinued
- the Commonwealth can change the interstate distribution or rate of growth of PSPs
- some PSPs are subject to backcasting.[14]

3 For that reason, we cannot simply use the PSPs paid in an application year. The absorption approach requires us to align the PSPs in the application year with those that existed in the assessment years. At the time we are constructing the absorption relativities, we need to consider the application year PSPs that correspond to those existing in the years of assessment.[15]

Treating PSPs by inclusion

4 Table B-1 shows:

- the distribution of GST revenue using the inclusion relativities
- our estimate of State's PSPs in the application year
- the combined assistance appropriate for each State.

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14 The new *Intergovernmental Agreement on Federal Financial Relations 2008* (the IGA) changed the way National SPPs were distributed amount the States. These SPPs were to be transitioned to an EPC distribution over five years commencing 2010-11. The Commission responded to these changes by determining the proportion to be assessed EPC in the application year and treating that proportion of National SPPs in the assessment year(s) EPC. For the absorption exercise, we undid this backcasting. We ensured the proportion assessed EPC in an application year was the same as in the relevant years of assessment.

15 The application year PSPs for each inquiry were estimated by comparing the payments in the years of assessment with those in the corresponding application year. If the PSP existed in the application year, those amounts were used. If the PSP had ceased, the amount of the PSP in the last year of assessment was used. New PSPs were omitted from the analysis. We addressed the backcasting of National SPPs by ensuring the proportion assessed EPC in an application year was the same as in the relevant years of assessment.

5 The number of PSPs changes from year to year. The PSPs shown in Table B-1 are not the same as those reported in Budget Paper No 3. We derived these PSP amounts because, for this analysis, we are interested in PSPs paid in the application year that were:

- paid in the years of assessment
- treated by inclusion in the years of assessment.

Table B-1 Treating PSPs by inclusion

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
GST revenue	$m	$m	$m	$m	$m	$m	$m	$m	$m
2010-11	14 158	10 736	8 494	3 236	4 337	1 688	853	2 385	45 887
2011-12	14 232	10 341	8 592	3 511	4 286	1 678	849	2 552	46 040
2012-13	14 734	11 004	9 551	2 866	4 492	1 704	956	2 754	48 061
2013-14	15 850	11 508	10 892	2 500	4 652	1 824	1 031	2 834	51 090
2014-15	17 020	11 990	11 824	2 241	5 027	1 944	1 106	3 190	54 342
2015-16	17 311	12 755	13 046	1 935	5 525	2 236	1 040	3 351	57 200
2016-17	17 598	13 881	14 348	2 037	6 110	2 299	1 155	3 291	60 720
PSPs (a)									
2010-11	15 564	11 157	9 799	5 241	3 799	1 501	751	1 150	48 962
2011-12	15 705	11 814	10 336	5 276	4 184	1 084	713	1 111	50 223
2012-13	13 404	10 282	8 613	4 587	3 097	986	660	728	42 355
2013-14	16 575	12 642	11 075	5 421	4 106	1 169	824	1 124	52 936
2014-15	15 019	11 294	9 898	5 102	3 248	1 040	735	867	47 204
2015-16	13 185	10 113	8 662	4 576	3 027	950	700	775	41 988
2016-17	14 656	10 506	9 550	4 894	3 236	980	754	758	45 334
Combined									
2010-11	29 721	21 893	18 293	8 477	8 135	3 189	1 605	3 535	94 849
2011-12	29 937	22 155	18 928	8 786	8 469	2 762	1 562	3 664	96 263
2012-13	28 137	21 285	18 164	7 453	7 589	2 690	1 616	3 482	90 416
2013-14	32 425	24 150	21 967	7 921	8 758	2 993	1 855	3 957	104 026
2014-15	32 039	23 284	21 723	7 343	8 275	2 984	1 841	4 057	101 546
2015-16	30 496	22 868	21 709	6 511	8 552	3 186	1 740	4 126	99 188
2016-17	32 254	24 388	23 898	6 931	9 346	3 279	1 909	4 049	106 054

(a) These are not the PSPs reported in Budget Paper No 3. Footnote 15 explains how they were derived.

Source: Commission calculation.

Treating PSPs by absorption

6 When PSPs are treated by absorption, the Commission treats GST revenue and PSPs as if they are one revenue stream in the years of assessment. It applies its (absorption) relativities to the combined revenues in the application year.

7 Table B-2 shows the assistance the Commission would have recommended for each State. It also shows the difference between these amounts and the combined distribution in Table B-1.

Table B-2 Treating PSPs by absorption

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Combined	$m	$m	$m	$m	$m	$m	$m	$m	$m
2010-11	29 804	22 218	18 690	8 038	8 225	2 885	1 579	3 410	94 849
2011-12	30 085	21 872	19 221	8 786	8 263	2 923	1 591	3 521	96 263
2012-13	28 140	20 699	18 493	7 751	7 685	2 746	1 559	3 344	90 416
2013-14	32 353	23 804	21 901	8 490	8 788	3 108	1 798	3 784	104 026
2014-15	31 704	23 330	21 466	7 774	8 512	3 027	1 788	3 946	101 546
2015-16	30 155	23 246	21 592	6 687	8 657	3 134	1 699	4 019	99 188
2016-17	31 810	25 236	23 611	6 938	9 236	3 290	1 865	4 069	106 054
Difference (a)									
2010-11	82	325	397	-439	90	-304	-26	-125	894
2011-12	149	-283	293	-1	-206	161	29	-143	633
2012-13	3	-586	329	298	96	56	-57	-138	781
2013-14	-72	-345	-66	569	30	115	-57	-174	714
2014-15	-335	46	-257	431	237	43	-53	-112	757
2015-16	-341	378	-116	176	104	-53	-42	-107	658
2016-17	-444	848	-287	7	-109	10	-44	20	885
Total	-958	383	292	1 041	241	29	-249	-779	1 986

(a) This is the difference between the combined assistance shown in this table and the combined assistance shown in Table B-1.

Source: Commission calculation.

8 Table B-2 shows that had the Commission treated PSPs by absorption since the 2010 Review around $2 billion would have been redistributed with:

- Victoria, Queensland, Western Australia, South Australia and Tasmania receiving more
- New South Wales, ACT and the Northern Territory receiving less.

9 In most cases, States gaining from absorption were those receiving proportionally less PSPs in the application year compared to the years of assessment.

ATTACHMENT C: TREATING MINING REVENUE BY ABSORPTION

1 Under the relativity approach, States' shares of assessed mining revenue in the years of assessment influence their relativities and, therefore, their share of GST.

2 Attachment B illustrated how the Commission could change the treatment of PSPs by absorbing them into the pool. This created new relativities, which were applied in the application year to a combined pool of GST revenue and PSPs. States' GST revenue would be derived by subtracting the PSPs they were to receive in the application year.

3 In this attachment, we apply the same treatment to mining revenue. We add mining revenue to the GST in the assessment years. This creates new relativities, which would be applied in the application year to a combined pool (of GST revenue and mining revenue). States' GST revenue would be derived by subtracting its assessed mining revenue in the application year.

Calculating States' assessed mining revenue in the application year

4 States mining revenue comprises two parts:

- Royalty revenue. We assess States' capacity to raise royalties using their share of value of production. While there are eight separate mineral assessments, for this attachment we use total value of production only.[16]
- Grants in lieu of royalties. They are revenue sharing payments made by the Commonwealth to Western Australia (for North West Shelf) and the Northern Territory (for uranium). These States publish forward estimates of these grants.

5 When revenue base data are unavailable for the final assessment year, the Commission estimates the missing data by grossing up the revenue base data in the second last year by the growth in State's actual revenue:

$$RevenueBase_i^t = RevenueBase_i^{t-1} * \frac{Revenue_i^t}{Revenue_i^{t-1}}$$

Where:

[16] This will produce similar GST outcomes if States' composition of value of production does not change much between the last year of assessment and the application year.

i	=	An individual State
RevenueBase	=	Data used to assess States' revenue capacity (for example, value of production)
t and t-1	=	The last and second last year of assessment respectively.

6 We have applied this approach to estimate total value of production data for the application year.

$$ValueOfProduction_i^{AY} = ValueOfProduction_i^t * \frac{Revenue_i^{AY}}{Revenue_i^t}$$

Where:

AY	=	Application year

7 If a State understates (overstates) its forward estimate of royalty revenue, this approach would understate (overstate) its assessed mining revenue in the application year. A correction adjustment (such as a completion grant) is likely to be required if this approach were adopted, to remove any incentive for States to game the system.

8 Two States receive Grants in lieu of royalties (Western Australia and the Northern Territory). These States provided forward estimates of these grants, so they did not have to be estimated.

Treating mining revenue as own source revenue

9 Table C-1 shows:

- the distribution of GST revenue in the application year using the existing approach (these are the same numbers as in Table B-1)
- our estimate of States' assessed mining revenue in the application year
- the combined revenue appropriate for each State.

10 A States' assessed mining revenue was derived by adding their:

- Royalty revenue. We estimated each State's share of total value of production in the application year and used it to distribute royalty revenue in that year.
- Grants in lieu of royalties. This was based on forward estimates published by Western Australia and the Northern Territory.

Table C-1 Treating mining revenue as own-source revenue

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
GST revenue	$m	$m	$m	$m	$m	$m	$m	$m	$m
2010-11	14 158	10 736	8 494	3 236	4 337	1 688	853	2 385	45 887
2011-12	14 232	10 341	8 592	3 511	4 286	1 678	849	2 552	46 040
2012-13	14 734	11 004	9 551	2 866	4 492	1 704	956	2 754	48 061
2013-14	15 850	11 508	10 892	2 500	4 652	1 824	1 031	2 834	51 090
2014-15	17 020	11 990	11 824	2 241	5 027	1 944	1 106	3 190	54 342
2015-16	17 311	12 755	13 046	1 935	5 525	2 236	1 040	3 351	57 200
2016-17	17 598	13 881	14 348	2 037	6 110	2 299	1 155	3 291	60 720
Assessed mining revenue in the application year (a)									
2010-11	1 308	122	1 462	4 129	188	17	0	90	7 316
2011-12	1 481	41	2 878	5 066	239	35	0	145	9 883
2012-13	2 022	41	3 148	6 420	394	56	0	119	12 200
2013-14	1 992	77	3 153	7 419	375	59	0	94	13 169
2014-15	1 652	75	2 989	7 507	382	78	0	109	12 792
2015-16	1 462	73	2 729	6 393	354	33	0	168	11 213
2016-17	1 563	67	2 362	5 201	373	41	0	117	9 723
Combined									
2010-11	15 466	10 858	9 956	7 365	4 524	1 705	853	2 475	53 203
2011-12	15 713	10 381	11 470	8 576	4 524	1 713	849	2 697	55 923
2012-13	16 755	11 045	12 700	9 286	4 886	1 760	956	2 873	60 261
2013-14	17 841	11 585	14 045	9 919	5 027	1 883	1 031	2 928	64 259
2014-15	18 672	12 066	14 813	9 748	5 409	2 021	1 106	3 299	67 134
2015-16	18 773	12 828	15 776	8 328	5 880	2 270	1 040	3 519	68 413
2016-17	19 161	13 949	16 710	7 238	6 483	2 340	1 155	3 408	70 443

(a) Estimated by grossing up value of production in the last year of assessment by the change in State's royalty revenue between that year and the application year. States' forward estimates of grants in lieu of royalties were used unchanged.

Source: Commission calculation.

Treating mining revenue by absorption

11 For this option, we added the royalty revenue and Grants in lieu of royalties to the GST revenue in the years of assessment. This generated new relativities. These relativities were applied to an application year pool comprising GST revenue, royalty revenue and Grants in lieu of royalties.

12 Table C-2 shows the combined revenue the Commission would have recommended for each State. It also shows the difference between these amounts and the combined distribution in Table C-1.

Table C-2 Treating mining revenue by absorption

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Combined	$m	$m	$m	$m	$m	$m	$m	$m	$m
2010-11	15 351	11 004	10 966	6 122	4 594	1 755	866	2 546	53 203
2011-12	16 099	10 955	11 688	6 970	4 688	1 809	890	2 824	55 923
2012-13	16 958	11 690	13 261	7 497	4 968	1 851	1 007	3 030	60 261
2013-14	18 180	12 223	14 435	8 045	5 196	1 981	1 083	3 116	64 259
2014-15	19 055	12 351	15 138	8 543	5 477	2 049	1 128	3 392	67 134
2015-16	18 673	12 634	15 544	9 080	5 773	2 253	1 022	3 434	68 413
2016-17	18 605	13 535	16 290	9 014	6 276	2 277	1 118	3 329	70 443
Difference (a)									
2010-11	-115	145	1 010	-1 243	69	50	13	72	1 359
2011-12	386	574	218	-1 607	163	96	42	127	1 607
2012-13	203	645	561	-1 789	82	91	51	157	1 789
2013-14	338	638	390	-1 874	169	98	52	188	1 874
2014-15	382	285	325	-1 205	68	28	23	93	1 205
2015-16	-100	-194	-231	752	-107	-17	-19	-85	752
2016-17	-556	-413	-420	1 776	-207	-63	-37	-79	1 776
Total	539	1 679	1 854	-5 191	238	282	125	473	5 191

(a) This is the difference between the combined assistance shown in this table and the combined assistance shown in Table B-1.

Source: Commission calculation.

13 Table C-2 shows that had the Commission treated mining revenue by absorption since the 2010 Review around $5 billion would have been redistributed from Western Australia to the other States.

14 Absorption is a more contemporaneous approach. Compared with the current approach, it would have delivered less GST to Western Australia in the 2010 Review to 2014 Update.[17] The recent fall in iron ore prices, however, means absorption would have delivered more GST to Western Australia in the last two inquiries. In those inquiries, its application year mining capacity would have been lower than its assessed capacity in the years of assessment (when iron ore prices were higher).

[17] In these inquiries, its GST would reflect its mining capacity in the application year rather than its lower assessed capacity in the years of assessment (when its mining revenue was increasing).