

Estimating state and territory performance in Australia

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Australia's federal system

- Eight jurisdictions
 - Six states
 - Two territories
- Uneven size
 - 22 million people
 - 7 million New South Wales,
 - 5 million Victoria
 - 0.5 million Tasmania
 - 0.2 million Northern Territory

Australia's federal political system

- Education
 - constitutionally a state responsibility
 - trend toward greater federal roles
 - Financial power
 - Special purpose grants
 - Coordination through councils of ministers
- Increased national monitoring
 - National education reform agenda
 - Reporting on performance
 - National partnership initiatives

National assessment program

- Annual population testing
 - Literacy and numeracy
 - Grades 3, 5, 7, 9
- Triennial sample assessment programs
 - Civics and citizenship (Grade 6 and 10)
 - ICT literacy (Grade 6 and 10)
 - Grade 6 science
- International assessment studies
 - TIMSS (and from 2010 PIRLS)
 - PISA

Current approaches to sampling

- Disproportionate sampling
 - Of jurisdictions
 - Similar sample size for mainland states
 - Aim for similar precision for state estimates
- Weights to generate national estimates

Current issues



- Small sub-national entities
 - Northern Territory
 - Issues of very remote schools
 - Wide variation
 - Dispersed among small schools
 - Australian Capital Territory
 - Tasmania
- Conflicting goals
 - Assessment overload – too many, too often
 - Limiting sample size
 - Achieving greater precision

TIMSS 2007

Australian Sample

State	Grade 4	Grade 8
	Popn%	Popn%
NSW	35	32
VIC	25	24
QLD	21	20
SA	8	7
WA	6	11
TAS	3	3
NT	1	1
ACT	2	2
TOTAL	100	100

TIMSS 2007

Designed Australian Sample

State	Grade 4		Grade 8	
	Schools	Popn%	Schools	Popn%
NSW	40	35	40	32
VIC	35	25	35	24
QLD	35	21	35	20
SA	30	8	30	7
WA	30	6	30	11
TAS	30	3	30	3
NT	15	1	15	1
ACT	15	2	15	2
TOTAL	230	100	230	100

TIMSS 2007

Australian Sample

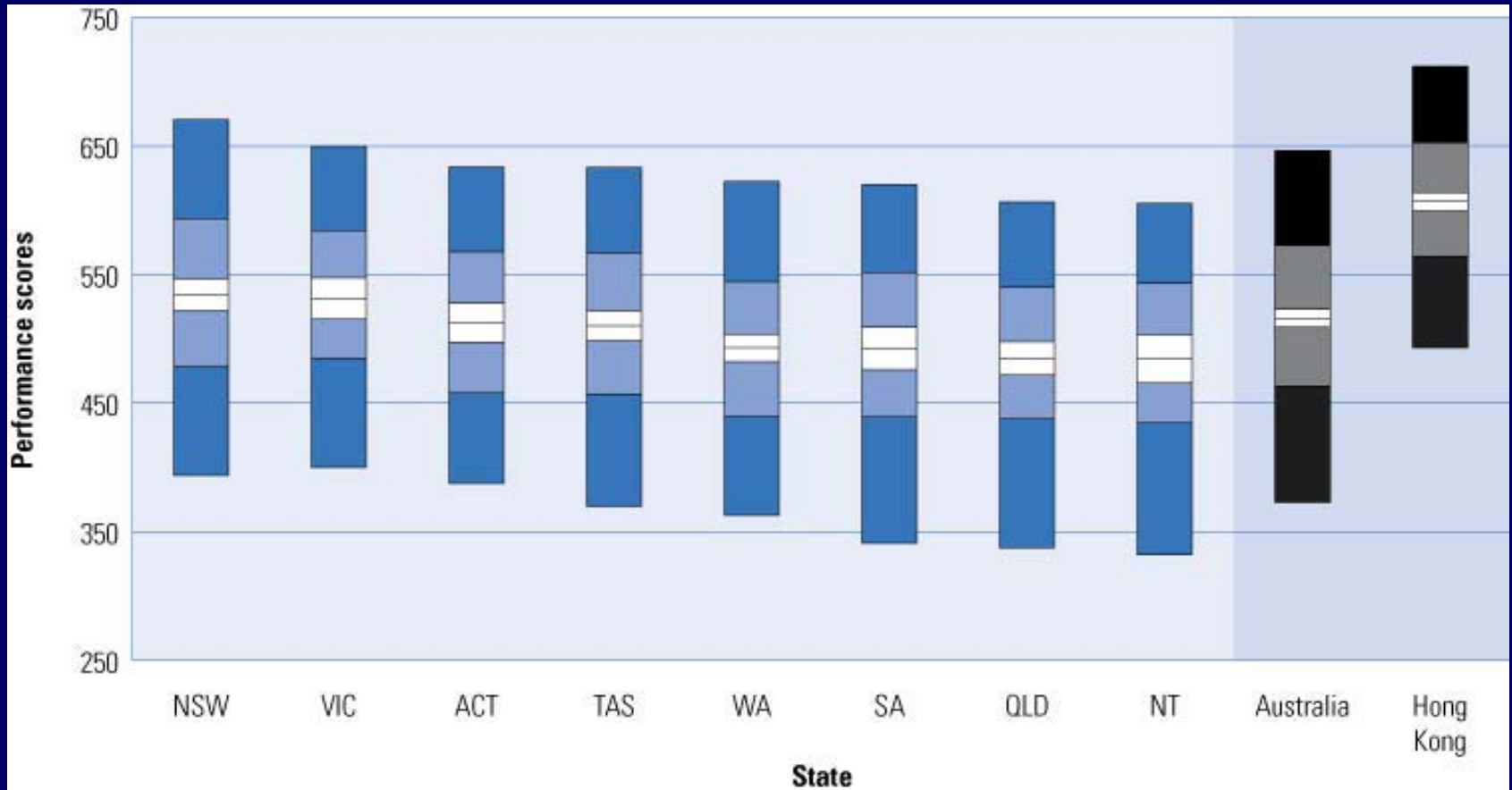
State	Grade 4			Grade 8		
	Schools	Students	Popn%	Schools	Students	Popn%
NSW	40	832	35	40	716	32
VIC	35	558	25	35	598	24
QLD	35	849	21	35	648	20
SA	30	493	8	30	540	7
WA	30	477	6	30	548	11
TAS	30	446	3	30	510	3
NT	15	191	1	15	238	1
ACT	15	271	2	15	271	2
TOTAL	230	4117	100	230	4069	100



Estimates at jurisdiction level

Examples of results

Grade 4 Maths: TIMSS 2007



Grade 8 Maths: TIMSS 2007



Grade 4 Maths: TIMSS 2007

			NSW	VIC	ACT	TAS	WA	SA	QLD	NT
	Mean	SE	534	532	513	510	493	493	485	484
	Mean	SE	(6.4)	(8.2)	(7.7)	(6.0)	(5.4)	(8.5)	(6.7)	(9.6)
New South Wales	534	(6.4)		●	▲	▲	▲	▲	▲	▲
Victoria	532	(8.2)	●		●	▲	▲	▲	▲	▲
Australian Capital Territory	513	(7.7)	▼	●		●	▲	●	▲	▲
Tasmania	510	(6.0)	▼	▼	●		▲	●	▲	▲
Western Australia	493	(5.4)	▼	▼	▼	▼		●	●	●
South Australia	493	(8.5)	▼	▼	●	●	●		●	●
Queensland	485	(6.7)	▼	▼	▼	▼	●	●		●
Northern Territory	484	(9.6)	▼	▼	▼	▼	●	●	●	

Note: Read across the row to compare a state's performance with the performance of each state listed in the column heading.

▲ Average performance statistically significantly higher than in comparison state.

● No statistically significant difference from comparison state.

▼ Average performance statistically significantly lower than in comparison state.

Grade 8 Maths: TIMSS 2007

			ACT	VIC	NSW	QLD	SA	TAS	WA	NT
	Mean	SE	518	503	500	491	490	485	485	483
	Mean	SE	(22.4)	(8.5)	(10.0)	(4.9)	(6.7)	(6.8)	(8.3)	(13.9)
Australian Capital Territory	518	(22.4)		●	●	●	●	●	●	●
Victoria	503	(8.5)	●		●	●	●	●	●	●
New South Wales	500	(10.0)	●	●		●	●	●	●	●
Queensland	491	(4.9)	●	●	●		●	●	●	●
South Australia	490	(6.7)	●	●	●	●		●	●	●
Tasmania	485	(6.8)	●	●	●	●	●		●	●
Western Australia	485	(8.3)	●	●	●	●	●	●		●
Northern Territory	483	(13.9)	●	●	●	●	●	●	●	

Note: Read across the row to compare a state's performance with the performance of each state listed in the column heading.

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Two approaches to improving precision for state estimates

- Increased sample size
- Use of stratification

Increase sample size

State	Grade 4	Grade 8
	Sample schools 2007	Sample schools 2007
NSW	40	40
VIC	35	35
QLD	35	35
SA	30	30
WA	30	30
TAS	30	30
NT	15	15
ACT	15	15
Total Schools	230	230
Total Students	4117	4069

Increase sample size: TIMSS 2011

State	Grade 4		Grade 8	
	Sample schools		Sample schools	
	2007	2011	2007	2011
NSW	40	45	40	45
VIC	35	45	35	45
QLD	35	45	35	45
SA	30	40	30	40
WA	30	40	30	40
TAS	30	30	30	30
NT	15	15	15	15
ACT	15	30	15	30
Total Schools	230	290	230	290
Total Students	4117	6090	4069	7250

Stratification

- Factors more closely related to achievement
- For 2011 use school socioeconomic index
 - Based on census data for area
 - Aggregated to school
 - Form groups
- For future use NAPLAN achievement data
 - Numeracy
 - Literacy
 - Grade 3, 5, 7, 9
 - Form groups

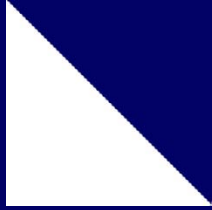


THANK YOU

**Questions
Comments
Discussion**

TIMSS 2007

Australian Sample



State	Population 1		Population 2	
	Weight	Popn%	Weight	Popn%
NSW	2.01	35	1.87	32
VIC	1.64	25	1.56	24
QLD	1.38	21	1.30	20
SA	0.61	8	0.53	7
WA	0.46	6	0.84	11
TAS	0.23	3	0.23	3
NT	0.15	1	0.16	1
ACT	0.31	2	0.30	2