

The Economic Effects on Regional Australia of RUN-member Universities

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Introduction:

- Details of Commonwealth Government's December 2017 freeze to university funding, made available in June 2018, outline cuts to University funding over 2018-2022 of \$2.35b or

RUN-member University	Decline (%)	Impact of freeze (\$m)
Southern Cross University (SCU)	5.7	33
The University of New England (UNE)	3.2	25
Federation University Australia (FED)	5.9	29
Central Queensland University (CQU)	15.0	147
University of the Sunshine Coast (USC)	8.7	66
University of Southern Queensland (USQ)	3.1	29

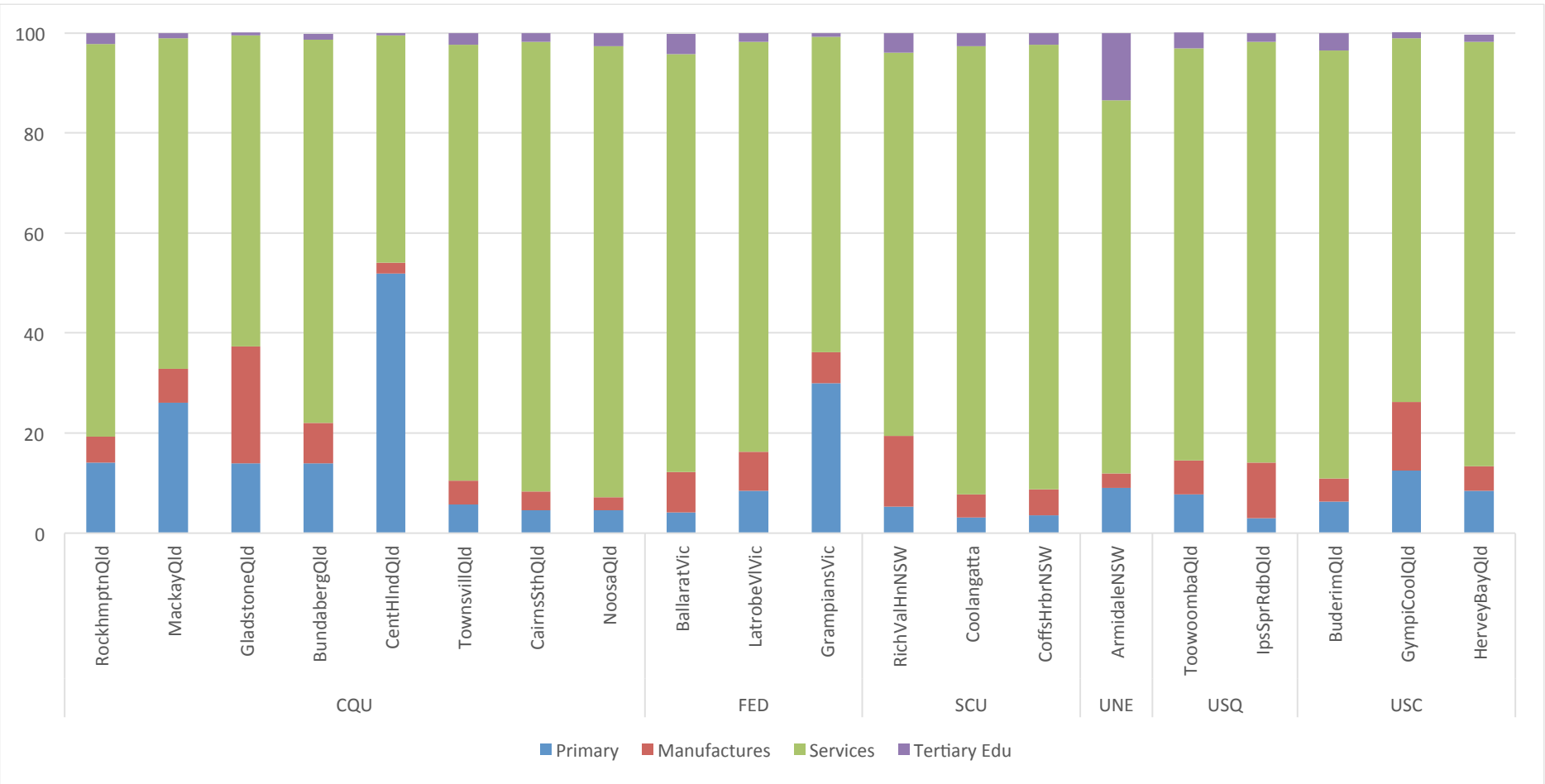
Introduction:

- How important are regional universities to their local economies?
- Conduct a simulated closure of the regional campuses of universities in the RUN (Regional Universities Network)

University	Campus	2016 enrol	University	Campus	2016 enrol
Central Qld U	Rockhampton	12576	Southern Cross U	Lismore	8593
	Mackay	639		Gold Coast	3712
	Gladstone	155		Coffs Harbour	1289
	Bundaberg	817			
	Emerald	16	U New England	Armidale	21789
	Townsville	63			
	Cairns	91	U South Queensland	Toowoomba	24362
Noosa	183	Springfield/Ipswich		2716	
Federation Uni	Ballarat	6579	U Sunshine Coast	Sippy Downs	12852
	Churchill	1598		Gympie	238
	Horsham	21		Fraser Coast	500

Introduction:

industry share of total regional value added, %



Simulation design:

- Use a regional Computable General Equilibrium (CGE) model VU-TERM to simulate the effects of RUN campus closures
- VU-TERM is a detailed 335 region and 192 sector model of the Australian economy in 2015-16
- International students in separate “ExpEdu” sector:
 - in 2015, 645,185 international enrolments
 - of these, 363,421 in tertiary sector
 - of these, 8,522 attended a RUN-member university campus
- To simulate campus closure, we reduce output of commodity “Tertiary Education” and “ExpEdu” in affected regions

Simulation design:

- Two types of effects on the regional economy due to closure of a RUN-member campus:
 - Demand-side effects:
 1. Spending by students attending regional campus
 - Supply side effects:
 2. Improved labour productivity of RUN-member graduates with tertiary qualifications
 3. Research at RUN-member campuses improves overall productivity of industrial activities
- We assume that upon closure of a RUN-member regional campus, $\frac{1}{4}$ of students will study elsewhere, and $\frac{1}{4}$ of labour and research productivity effects will be retained elsewhere

Simulation design:

- Demand-side effects:
 1. Spending by students attending regional campus
- Student's home residence:
 - Intra-region: within campus' SA3 region
 - Intra-state: within state in which campus is located
 - Inter-state: from a state outside of campus location
 - Overseas: outside Australia
- Mode of study:
 - Internal: student studies on-campus
 - External: remote study via on-line courses

Simulation design:

- Begin with Western *et al.* (2005): estimates of weekly spending by international higher education students in Australia
- For overseas students, upon campus closure, regional spending falls by 100% of this amount
- But for intra-region students, regional spending falls by only 10 per cent of living costs
- Likewise for all students studying via external mode
- For inter-state (intra-state) students studying via internal mode, regional spending falls by 80% (60%) of those for overseas students

Simulation design:

				Domestic					
				Intra-region		Intra-state		Inter-state	
				Internal	External	Internal	External	Internal	External
				Overs's	Domest.				
CQU	Rockhampton	160	12416	1520	1110	667	6949	61	2109
	Mackay	6	633	541	18	61	1	11	1
	Gladstone	4	151	149	1	1	0	0	0
	Bundaberg	24	793	680	41	61	6	5	0
	Emerald	0	16	1	0	14	0	1	0
	Townsville	0	63	49	8	5	0	1	0
	Cairns	2	89	64	6	19	0	0	0
	Noosa	1	182	66	4	103	6	3	0
Federation Uni	Ballarat	599	5980	2347	77	2736	374	306	140
	Churchill	46	1552	725	3	802	9	12	1
	Horsham	0	21	20	1	0	0	0	0
Southern Cross	Lismore	174	8419	1081	472	1193	3180	236	2257
	Gold Coast	716	2996	462	45	1029	137	1173	150
	Coffs Harbour	25	1264	715	90	348	78	27	6
U New England	Armidale	1100	20689	621	647	2204	11116	372	5729
U Sth. Queensld	Toowoomba	3645	20717	2499	1889	1587	10700	205	3837
	Springfield/Ipswich	168	2548	1261	0	1260	0	27	0
U Sunshine Coast	Sippy Downs	1568	11284	2573	13	8445	78	163	12
	Gympie	0	238	222	0	16	0	0	0
	Fraser Coast	4	496	351	0	145	0	0	0

Simulation design:

Table 2.4: Expenditure multipliers	Intra-region			Intra-state		Inter-state	
	overseas	internal	external	internal	external	internal	external
Housing	1	0.0	0.0	0.6	0.0	0.8	0.0
Utility Costs	1	0.0	0.0	0.6	0.0	0.8	0.0
Telephone Costs	1	0.0	0.0	0.6	0.0	0.8	0.0
Health Costs	1	0.1	0.1	0.6	0.1	0.8	0.1
Food and Groceries	1	0.1	0.1	0.6	0.1	0.8	0.1
Alcohol and Cigarettes	1	0.1	0.1	0.6	0.1	0.8	0.1
Car Costs	1	0.1	0.1	0.6	0.1	0.8	0.1
Transport	1	0.1	0.1	0.6	0.1	0.8	0.1
Entertainmt & Recreat'n	1	0.0	0.0	0.6	0.0	0.8	0.0
Clothing	1	0.1	0.1	0.6	0.1	0.8	0.1
Household Goods	1	0.1	0.1	0.6	0.1	0.8	0.1
Travel	1	0.1	0.1	0.6	0.1	0.8	0.1
Children's Course Fees	1	0.1	0.1	0.6	0.1	0.8	0.1
Course Related Expenses	1	0.1	0.1	0.6	0.1	0.8	0.1
Other Expenses	1	0.1	0.1	0.6	0.1	0.8	0.1
Other Major Expenses	1	0.1	0.1	0.6	0.1	0.8	0.1

Simulation design:

- Supply side effects:
 2. Improved labour productivity of RUN-member graduates with tertiary qualifications
- Graduate Outcomes Survey shows number of RUN graduates by award category employed by postcode over 2013-2016
- multiply the number of intra-region employees by
 - SA3-region-specific average wage
 - wage premium earned according to award type
- large differences between RUN-member Universities in the share of graduates who remain to work within region

Simulation design:

Table 2.5: RUN-member graduates employed by region, 2013-2016

	intra-region		intra-state	
	# of students	share	# of students	share
CQU	1702	0.564	1315	0.436
Federation Uni	733	0.327	1509	0.673
Southern Cross	847	0.374	1415	0.626
U New England	457	0.128	3111	0.872
U Sth. Queensld	1291	0.302	2979	0.698
U Sunshine Coast	618	0.204	2409	0.796

Simulation design:

- Supply side effects:
 3. Research at RUN-member campuses improves overall productivity of industrial activities
- contribution of university research activity is the sum of:
 - a) value of research income (data from HERDC)
 - b) the value of the time spent undertaking research activity (estimated using share of “general university funds” out of total Higher education expenditure on R&D)
- Calculate value of research activity over '92-'16, presuming:
 - Stock of research knowledge depreciates at 10%
 - 25% rate of return (see Madden (2017), section 3.2.2)

Model closure:

- Simulations provide the long-run effects of a hypothetical closure and partial relocation of RUN-member regional campuses
- Aggregate level of Australian employment is unaffected by the presence of any RUN-member University's regional campus
 - national real wage adjusts to keep national employment fixed
- At the regional level, labour is imperfectly mobile - as a region's labour market weakens relative to other regions, regional adjustment occurs through a combination of migration and lower real wages than other regions in the long run
- Rate of return on capital for each regional industry is modelled as being dependent on the world interest rate level - unaffected by location of RUN-member regional campuses in long-run
- Investment in individual regional industries moves in line with changes in their long-run capital stocks

Results:

Central Queensland University	Rockhampton	Mackay	Gladstone	Bundaberg	Emerald	Townsville	Cairns	Noosa
Real private consumption	-3.782	-0.408	-0.312	-0.922	-0.097	-0.084	-0.122	-0.511
Real private investment	-3.175	-0.209	-0.125	-0.615	-0.037	-0.058	-0.096	-0.510
Average real wage	-1.914	-0.209	-0.161	-0.467	-0.053	-0.047	-0.066	-0.260
Agg. employment	-1.903	-0.198	-0.150	-0.456	-0.042	-0.035	-0.054	-0.249
Agg. employment (units)	-870	-97	-38	-133	-5	-29	-22	-39
Capital stocks	-2.886	-0.173	-0.121	-0.402	-0.053	-0.061	-0.066	-0.327
Real GDP	-4.068	-0.245	-0.156	-0.546	-0.045	-0.051	-0.063	-0.373
Real GDP (\$million)	-327.79	-22.31	-9.46	-21.94	-1.28	-7.21	-3.69	-7.78
GDP price index	0.467	-0.112	-0.105	-0.387	-0.030	-0.046	-0.072	-0.164
GNE price index	0.151	-0.059	-0.040	-0.220	-0.004	-0.021	-0.035	-0.091
Real disposable income	-3.751	-0.298	-0.220	-0.714	-0.070	-0.076	-0.100	-0.445

Results:

- Large decrease in real GDP at main Rockhampton campus (-4.1%); real GDP decreases by much less at other campuses
- Due to:
 - primary factors: 1.8% [=0.53 · -1.9% + 0.28 · -2.9%]
 - labour product: 1.7% [=0.53 · -3.3%]
 - remainder due to a fall in productivity of tertiary and residual capital education specific labour
- House prices in Rockhampton fall by 3.4%; housing stock falls by 4.8% relative to base
- Similar pattern across other RUN-member campuses: larger decrease at main campus; smaller decrease at smaller campuses;

- **UNE is an outlier**

Results:

	real GDP		employment			real GDP		employment	
	\$m	%Δ	units	%Δ		\$m	%Δ	units	%Δ
CQU - Rockhampton	-327.8	-4.1	-870	-1.9	SCU - Lismore	-137.3	-4.2	-639	-2.5
Mackay	-22.3	-0.2	-97	-0.2	Gold Coast	-64.5	-2.1	-271	-1.2
Gladstone	-9.5	-0.2	-38	-0.2	Coffs Harbour	-25.3	-0.6	-108	-0.3
Bundaberg	-21.9	-0.5	-133	-0.5					
Emerald	-1.3	0.0	-5	0.0	U of New England	-243.7	-12.9	-1412	-9.6
Townsville	-7.2	-0.1	-29	0.0					
Cairns	-3.7	-0.1	-22	-0.1	USQ - Toowoomba	-351.8	-3.7	-1243	-2.0
Noosaville/Noosa	-7.8	-0.4	-39	-0.2	Springfield/Ipswich	-35.9	-0.3	-133	-0.2
Fed U - Ballarat	-197.8	-3.5	-875	-2.0	USC - Sippy Downs	-170.2	-5.4	-646	-2.8
Churchill	-32.1	-0.7	-172	-0.6	Gympie/Amamoor	-2.5	-0.1	-15	-0.1
Horsham	-1.4	0.0	-3	0.0	Fraser Coast/WideBay	-6.8	-0.3	-38	-0.2

Results:

Table 5.1: Aggregate effects of closures of all RUN-member campuses on macroeconomic variables

	All RUN campus regions		All Australia	
	% change	\$ million	% change	\$ million
Real private consumption	-1.945	-1269.7	-0.063	-609.2
Real public consumption	-1.631	-496.1	-0.067	-205.0
Real private investment	-1.689	-408.9	-0.068	-284.9
Average real wage	-0.968		-0.056	
Agg. employment	-0.913	-6221 (FTE)	0	0
Capital stocks	-1.335	-401.6	-0.066	-1080.4
Real GDP	-1.575	-1697.0	-0.073	-1210.8

Conclusions:

- RUN-member universities provide an important contribution to their regional economies, especially where their dominant campus is located
- Important to note that we did not account for intangible contributions that the presence of a University makes in a region:
 - Co-location of businesses which partner with specialist departments in a university
 - Provides career development opportunities which would otherwise only be available in a major centre
 - Knowledge spillovers from local regional university