

# Regional activity of universities

## New Zealand universities economic footprint

NZIER report to Universities New Zealand - Te Pōkai Tara

24 January 2023



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## Authorship

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## Key points

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This report provides an estimate of the economic contribution of individual universities to their regions. The contribution is calculated by assessing the impact on the economy of the region if the services currently provided by the university were not available in that region and the students using those services went to other universities outside the region.

For this report we have considered three types economic of contribution:

- direct effects - comprising expenditure;
  - by universities on salaries and purchasing goods and services according to the audited 2021 annual accounts of each of eight universities
  - by domestic and international students on things like accommodation, entertainment, food, travel and other living expenses
- Indirect effects - first round of purchases by the industries that supply the goods and services purchased by universities and students
- Induced effects - these are the flow on effects of university related activity beyond direct and indirect effects.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis<sup>1</sup> approach (used in the mid-2000s but now discredited) overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

Though indirect and induced effects are estimated in this report they should be seen as indicative only. See Appendix A for further caveats and comments on indirect and induced effects.

Table 1 shows the calculated direct spending and multiplier estimates of indirect and induced spending of each of New Zealand's eight universities. Direct university spending is all university expenditure on personnel, operating expenses and an estimate of capital spending. Student spending is separated into three groups:

- domestic students whose home address before enrolment was in the university region
- domestic students who came from out of region to study at the university
- international students.

<sup>1</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.



**Table 1 Estimates of direct university spending and indirect and induced footprint**

University spending (2021 annual reports) and estimated student spending in \$ million

Description	University of Auckland	Auckland University of Technology	University of Waikato <sup>1</sup>	Massey University <sup>2</sup>	Victoria University of Wellington	University of Canterbury	Lincoln University	University of Otago <sup>3</sup>
University direct spending	1,181	408	274	545	495	440	123	782
Domestic students from the region	492	313	112	182	110	138	8	137
Domestic students outside the region	164	49	42	129	215	141	18	243
International students <sup>3</sup>	96	47	24	39	21	18	8	20
Total student expenditure	752	409	179	351	345	296	35	400
<b>Total direct expenditure</b>	<b>1,933</b>	<b>817</b>	<b>453</b>	<b>895</b>	<b>840</b>	<b>736</b>	<b>158</b>	<b>1,182</b>
<b>Economic footprint</b>								
Estimated Indirect footprint <sup>4</sup>	3,092	1,307	724	1,433	1,344	1,177	253	1,891
Estimated induced footprint <sup>5</sup>	4,252	1,797	996	1,970	1,848	1,619	347	2,601

**Note:**

1. Nearly all of the 'direct' spending attributable to the University of Waikato occurs in Hamilton.
2. The 'direct' spending attributable to Massey University is spread across its three campuses: Palmerston North, Wellington and Auckland.
3. Estimated spending by international students living in New Zealand.
4. The 'Total direct' spending attributable to Otago University occurs mainly in Dunedin with some expenditure in Wellington, Christchurch and Invercargill.
5. Estimated direct university and student expenditure plus estimated indirect effects on regional expenditure using a multiplier of 1.6.
6. Estimated direct university and student expenditure plus estimated indirect and induced effects on regional expenditure using a multiplier of 2.2

Source: NZIER analysis of data provided by Universities New Zealand and from university annual reports for 2021 and university accommodation information webpages.



Table 2 shows the contribution of activity to attributable to the universities to regional GDP. University activity that contributes to regional GDP is spending on people and capital (as the maximum of depreciation or net capital additions) plus operating surplus and student spending less GST. This is a different measure of contribution to the regional economy from the expenditure footprint measure shown in the previous table.

For those universities with campuses in multiple regions:

- University salary wages, depreciation and operating surplus are allocated to campuses in proportion to the share of university FTE at each campus as reported by the universities to Universities New Zealand – Te Pokai Tara
- Spending by domestic students is allocated to campuses in proportion to domestic student headcount at each campus<sup>2</sup> as reported by the universities to Universities New Zealand – Te Pokai Tara In 2018<sup>3</sup>. Spending by international students is allocated to the ‘home’ campus. We estimate student spending by multiplying the number of equivalent full-time students (EFTS) by the estimated expenditure per student.

<sup>2</sup> This approach is applied to Massey University distance learning students.

<sup>3</sup> We have not been able to obtain updated data for 2021.

**Table 2 University and student spending that contributes directly to regional GDP – 2021**

University salary and wages, the maximum of depreciation or net capital additions and operating surplus plus estimated student spending (excluding GST) in \$ million

Description	Auckland	Waikato	Bay of Plenty	Manawatu-Wanganui	Wellington	Canterbury	Otago	Southland
University of Auckland	1,642							
Auckland University of Technology	728							
University of Waikato <sup>1</sup>		351	28					
Massey University <sup>2</sup>	225			430	126			
Victoria University of Wellington					682			
University of Canterbury						607		
Lincoln University						119		
University of Otago <sup>3</sup>	6				51	54	824	2
<b>Total direct contribution</b>	<b>2,600</b>	<b>351</b>	<b>28</b>	<b>430</b>	<b>860</b>	<b>780</b>	<b>824</b>	<b>2</b>
Regional GDP	121,740	29,173	19,319	12,758	41,041	41,138	14,003	6,730
Total direct contribution/GDP	2.1%	1.2%	0.1%	3.4%	2.1%	1.9%	5.9%	0.0%

**Note:**

1. University of Waikato's direct contribution is allocated between its Hamilton (Waikato region) (92.7%) and Tauranga (Bay of Plenty) (7.3%) campuses.
2. Massey University's direct contribution is allocated between its Palmerston North (Manawatu-Wanganui region) (55.1%), Auckland (28.8%) and Wellington (16.1%) campuses.
3. Otago University's direct contribution is allocated between its Dunedin (88.0%), Auckland (0.6%) Christchurch (6.7%), Wellington (5.5%) and Invercargill (Southland) (0.2%) campuses.

Source: NZIER analysis of data provided by Universities New Zealand, and gathered from university annual reports and university accommodation information webpages

Table 3 shows the number of staff universities employ in each territorial local authority (TLA) compared to the number of filled jobs numbers in the TLA. (This measure will potentially understate the universities share of full time equivalent jobs in the TLA as the total for the TLA may include part-time jobs.)

### Table 3 Universities as local employers – number employed

University employment (full time equivalent - FTE) compared to jobs filled by salary and wage earners in the territorial local authority (TLA) where the university is located

Description	Auckland	Hamilton	Tauranga	Palmerston North	Wellington <sup>1</sup>	Christchurch	Selwyn district	Dunedin	Invercargill
University of Auckland	5,986								
Auckland University of Technology	2,401								
University of Waikato <sup>1</sup>		1,320	95						
Massey University	661			2,057	460				
Victoria University of Wellington					2,329				
University of Canterbury						2,043			
Lincoln University							534		
University of Otago	35				251	271		3,475	12
<b>Total university employment</b>	<b>9,083</b>	<b>1,320</b>	<b>95</b>	<b>2,057</b>	<b>3,040</b>	<b>2,314</b>	<b>534</b>	<b>3,475</b>	<b>12</b>
Filled jobs by TLA	773,753	92,790	66,358	50,995	244,985	206,748	19,085	56,625	26,585
<b>University FTE/TLA Filled jobs</b>	<b>1.2%</b>	<b>1.4%</b>	<b>0.1%</b>	<b>4.0%</b>	<b>1.2%</b>	<b>1.1%</b>	<b>2.8%</b>	<b>6.1%</b>	<b>0.0%</b>

**Note:**

1. Wellington includes the TLAs of Wellington City, Lower Hutt City, Upper Hutt City, Porirua City and the Kapiti Coast District.

Source: NZIER analysis of data provided by Universities New Zealand and the 'Linked Employer Employee Database' from Statistics New Zealand



### Table 4 Universities as local employers – salary and wages paid

University salary and wages (\$m from 2021 annual reports) compared to estimated salary and wage payments (\$m) in the TLA where the university is located

Description	Auckland	Hamilton	Tauranga	Palmerston North	Wellington <sup>1</sup>	Christchurch	Selwyn district	Dunedin	Invercargill
University of Auckland	631								
Auckland University of Technology	257								
University of Waikato <sup>1</sup>		134	10						
Massey University	64			198	44				
Victoria University of Wellington					268				
University of Canterbury						216			
Lincoln University							62		
University of Otago	4				27	29		378	1
<b>Total salary and wages</b>	<b>955</b>	<b>134</b>	<b>10</b>	<b>198</b>	<b>340</b>	<b>245</b>	<b>62</b>	<b>378</b>	<b>1</b>
Salary and wages (by TLA)	55,744	6,121	4,116	3,198	18,464	13,256	1,162	3,406	1,597
<b>University salary and wages/TLA salary and wages</b>	<b>1.3%</b>	<b>2.2%</b>	<b>0.2%</b>	<b>6.2%</b>	<b>1.8%</b>	<b>1.9%</b>	<b>5.3%</b>	<b>11.1%</b>	<b>0.1%</b>

**Note:**

1. Wellington includes the TLAs of Wellington City, Lower Hutt City, Upper Hutt City, Porirua City and the Kapiti Coast District.

Source: NZIER analysis of data provided by Universities New Zealand and the 'Linked Employer Employee Database' from Statistics New Zealand



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# 1 Introduction

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The purpose of this report is to present a short profile of the size and shape of university activity relative to the region and territorial authority in which it is located. The profiles summarise:

- direct economic impacts of spending on staff, research, facilities and suppliers
- effects of retaining local students in the region and attracting domestic and international students to the region including:
  - spending on goods and services in the region
  - share of the housing rental market.

In addition to the profiles we have also included a summary of the main sources of data that we have used to assess the size and shape of the university activity relative to the region in which it is located.

In the presentation of this analysis for the six universities outside Auckland we have used both a broad definition of the area affected by the university – ‘region’ and a narrower definition of the area affected by the university – territorial local authorities (TLA) – as the comparators for university activity. For University of Auckland and Auckland University of Technology we have used the Auckland TLA as the area affected by the university.

The tables in this note mainly use data from 2021 (with some data from 2020 depending the availability of data from Statistics New Zealand).

We have also included an example of how a multiplier analysis could be applied to estimate university and student expenditure and we have described the issues and challenges in using this approach in Appendix A.

## 2 University of Auckland

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We have estimated the contribution of the University of Auckland (UoA) to the economy of the Auckland region (or territorial local authority (TLA)) in 2021 compared to a situation where the services offered by the UoA were not available in Auckland. UoA makes a direct contribution to the economy of the Auckland region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Auckland region)
- retention of university students in the Auckland region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$1,975m made up as follows:

- direct UoA spending<sup>4</sup> \$1,181m in 2021 including:
  - \$631m on staff and contractors.
    - UoA employed 5,986 full time equivalent staff which is about 0.8 percent of the estimated filled jobs in the Auckland TLA
    - salary and wages paid to UoA staff account for about 1.1 percent of the salary and wages paid in the Auckland TLA
  - operating and occupancy spending of \$392m, most of which is spent on service providers in the region
  - estimated capital spending of \$158m based on depreciation and amortisation
- UoA attracted student spending<sup>5</sup> (excluding tuition fees) to the region of up to \$752m made up as follows:
  - \$492m by an estimated 23,517 domestic equivalent full time students (EFTS) from within the Auckland region
  - \$164m by an estimated 7,839 domestic EFTS from outside the Auckland region
  - \$96m by an estimated 3,741 international EFTS resident in New Zealand. (UoA had total international enrolments of 5,391 EFTS, but about 30.6<sup>6</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

<sup>4</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from UoA to regional GDP would be spending on staff, capital and operating surplus, a total of \$890m (0.7 percent of regional GDP). Estimated spending by UoA students (less GST) was \$794m (0.7 percent of regional GDP).

<sup>5</sup> The gross estimated expenditure per student excluding fees per year is \$22,500 for domestic students and \$27,500 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>6</sup> 'In 2020, offshore students made up 19.2% of all internationally funded students, rising to 30.6% in 2021;' See 'University-of-Auckland-Annual-Report-2021' p44.'



- UoA acts as attractor for research spending<sup>7</sup> in the region that would otherwise be allocated to other parts of the country. UoA also provides a bridge between academic research and the application of this research to local innovation through the Auckland Uniservices.
- UoA also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by UoA and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to UoA
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>8</sup>) to the direct UoA expenditure and spending by UoA students and estimated the 'indirect' and 'induced' footprint of UoA in the Auckland region as:

- indirect footprint – direct spending plus estimated indirect effects – \$3,092m
- induced footprint – direct spending plus estimated indirect and induced effects – \$4,252m.

The approach to estimating the size of the footprint and the caveats on their interpretation are explained in detail in Appendix A.

<sup>7</sup> In 2021 UoA earned research and contract revenues of \$295m. The direct contribution from this spend is already included in our estimates through the direct spending by UoA.

<sup>8</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.

### 3 Auckland University of Technology

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We have estimated the contribution of the Auckland University of Technology (AUT) to the economy of the Auckland region (or territorial local authority (TLA)) in 2021 compared to a situation where the services offered by the AUT were not available in Auckland. AUT makes a direct contribution to the economy of the Auckland region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Auckland region)
- retention of university students in the Auckland region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$842m made up as follows:

- direct AUT spending<sup>9</sup> of approximately \$408m in 2021 including:
  - \$257m on staff and contractors.
    - AUT employed 2,401 full time equivalent staff which is about 0.3 percent of the estimated filled jobs in the Auckland TLA
    - salary and wages paid to AUT staff account for about 0.5 percent of the salary and wages paid in the Auckland TLA.)
  - operating and occupancy spending of \$107m, most of which is spent on service providers in the region
  - estimated capital spending of \$44m primarily on university building projects and upgrades
- AUT attracted student spending<sup>10</sup> (excluding tuition fees) to the region of up to \$409m made up as follows:
  - \$313m by an estimated 14,974 domestic equivalent full time students (EFTS) from within the Auckland region
  - \$49m by an estimated 2,346 domestic EFTS from outside the Auckland region
  - \$47m by an estimated 1,819 international EFTS resident in New Zealand. (AUT had total international enrolments of 2,798 EFTS, but about 35.0<sup>11</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

<sup>9</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from AUT to regional GPP would be spending on staff, capital and operating surplus, a total of \$319m (0.3 percent of regional GDP). Estimated spending by AUT students (less GST) was \$434m (0.4 percent of regional GDP).

<sup>10</sup> The estimated expenditure per student excluding fees per year is \$22,500 for domestic students and \$27,500 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>11</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,



- AUT acts as attractor for research spending<sup>12</sup> in the region that would otherwise be allocated to other parts of the country.
- AUT also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by AUT and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to AUT
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>13</sup>) to the direct AUT expenditure and spending by AUT students and estimated the 'indirect' and 'induced' footprint of AUT in the Auckland region as:

- indirect footprint – direct spending plus estimated indirect effects – \$1,307m
- induced footprint – direct spending plus estimated indirect and induced effects – \$1,797m.

The approach to estimating the size of the footprint and the caveats on their interpretation are explained in detail in Appendix A.

<sup>12</sup> In 2021 AUT earned research and contract revenues of \$22m. The direct contribution from this spend is already included in our estimates through the direct spending by AUT.

<sup>13</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.

## 4 University of Waikato

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We have estimated the contribution of the University of Waikato (UoW) to the economies of the areas in which it operates (Hamilton and Tauranga) in 2021 compared to a situation where the services offered by UoW were not provided in these areas. UoW makes a direct contribution to the economies of the two areas in which it operates through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Waikato region)
- retention of university students in the Waikato region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$467m made up as follows:

- direct UoW spending<sup>14</sup> of approximately \$274m in 2021 including:
  - \$144m on staff and contractors. UoW employed 1,251 full time equivalent staff:
    - 1,415 in Hamilton which is about 1.4 percent of the estimated filled jobs in the Hamilton TLA
    - 95 in Tauranga which is about 0.1 percent of the estimated filled jobs in the Tauranga TLA
    - salary and wages paid to UoW staff account for about 2.2 percent 0.3 percent of the salary and wages paid in the Hamilton and Tauranga TLA respectively
  - operating and occupancy spending of \$81m, most of which is spent on service providers in the region
  - estimated capital spending of \$49m primarily on university building projects and upgrades
- UoW attracted student spending<sup>15</sup> (excluding tuition fees) to the region of up to \$179m made up as follows:
  - \$112m by an estimated 6,406 domestic equivalent full time students (EFTS) from within the Waikato and Bay of Plenty regions
  - \$42m by an estimated 2,405 domestic EFTS from outside the Waikato and Bay of Plenty regions
  - \$24m by an estimated 1,097 international EFTS resident in New Zealand. (UoW had total international enrolments of 1,727 EFTS, but about 36.5<sup>16</sup> percent lived overseas.)

<sup>14</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from UoW to regional GPP would be spending on staff, capital and operating surplus, a total of \$200m spread over Hamilton 187m (0.6 percent of regional GDP) and Tauranga 13m (0.1 percent of regional GDP). Estimated spending by UoW students (less GST) was \$193m spread over Hamilton 178m (0.6 percent of regional GDP) and Tauranga 14m (0.1 percent of regional GDP).

<sup>15</sup> The estimated expenditure per student excluding fees per year is \$18,825 for domestic students and \$23,830 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>16</sup> See 'TOTAL EFTS BY SOURCE OF FUNDING, OFF-SHORE', 'UOW-Annual-Report 2021', p 31.





In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

- UoW acts as attractor for research spending<sup>17</sup> in the region that would otherwise be allocated to other parts of the country. UoW also provides a bridge between academic research and the application of this research to local innovation through WaikatoLink.
- UoW also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by UoW and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to UoW
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>18</sup>) to the direct UoW expenditure and spending by UoW students and estimated the 'indirect' and 'induced' footprint of UoW in the Waikato region as:

- indirect footprint – direct spending plus estimated indirect effects – nationally of \$724m, comprising \$672m in Waikato and \$52m in Bay of Plenty regions
- induced footprint – direct spending plus estimated indirect and induced effects – nationally of \$996m, comprising \$924m in Waikato and \$72m in Bay of Plenty regions.

The approach to estimating the size of the footprint and the caveats on their interpretation are explained in detail in Appendix A.

<sup>17</sup> In 2021 UoW earned research and contract revenues of \$41m. The direct contribution from this spend is already included in our estimates through the direct spending by UoW.

<sup>18</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.

## 5 Massey University

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We have estimated the contribution of Massey University (MU) to the economies of the areas in which it operates (Palmerston North Auckland and Wellington) in 2021 compared to a situation where the services offered by MU were not available in these areas. MU makes a direct contribution to the economies of the three areas in which it operates through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the areas in which it operates)
- retention of university students in the area in which Massey operates (who would otherwise have to move to access a university education).

We estimate that in 2021 the total direct contribution was approximately \$911m made up as follows:

- direct MU spending<sup>19</sup> of approximately \$545m in 2021 including:
  - \$306m on staff and contractors. MU employed 3,178 full time equivalent staff:
    - 661 in Auckland (about 0.1 percent of estimated filled jobs in the TLA)
    - 2,057 in Palmerston North (about 4.0 percent of estimated filled jobs in the TLA)
    - 460 in Wellington (about 0.2 percent of estimated filled jobs in the area)
    - salary and wages paid to MU staff account for about 0.1, 6.2 and 0.2 percent of the salary and wages paid in the Auckland TLA , Palmerston North TLA and Wellington area respectively.
  - operating and occupancy spending of \$139m, most of which is spent on service providers in the areas in which MU is based
  - estimated capital spending of \$99m primarily on university building projects and upgrades
- MU attracted student spending<sup>20</sup> (excluding tuition fees) to the regions in which it operates of up to \$366m made up as follows:
  - \$182m by an estimated 9,474 domestic EFTS from within the regions in which MU operates
  - \$129m by an estimated 6,841 domestic EFTS from outside the regions in which MU operates

<sup>19</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from MU to regional GPP would be spending on staff, capital and operating surplus, a total of \$431m spread over Auckland 90m (0.1 percent of regional GDP), Palmerston North 279m (2.2 percent of regional GDP) and Wellington 62m (0.2 percent of regional GDP). Estimated spending by MU students (less GST) was \$366m spread over Auckland 136m (0.1 percent of regional GDP), Palmerston North 167m (1.3 percent of regional GDP) and Wellington 64m (0.2 percent of regional GDP).

<sup>20</sup> The estimated expenditure per student excluding fees per year is: \$18,500 for domestic students in Palmerston North, \$22,500 for domestic students in Auckland, \$20,622 for domestic students in Wellington and \$23,500 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).



- \$39m by an estimated 1,790 international EFTS resident in New Zealand. (MU had total international enrolments of 2,493 EFTS, but about 28.2<sup>21</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following ‘direct’ linkages that we have not been able to quantify.

- MU acts as attractor for research spending<sup>22</sup> in the region that would otherwise be allocated to other parts of the country. MU also provides a bridge between academic research and the application of this research to local innovation through Massey Ventures.
- MU also attracts visitors to the regions it operates in for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by MU and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to MU
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>23</sup>) to the direct MU expenditure and spending by MU students<sup>24</sup> and estimated the ‘indirect’ and ‘induced’ footprint of MU in the regions in which it operates as:

- indirect footprint – direct spending plus estimated indirect effects – nationally \$1,433m comprising, \$831m in Manawatu/Wanganui, \$398m in Auckland and \$228m in Wellington
- induced footprint – direct spending plus estimated indirect and induced effects – nationally \$1,970m comprising, \$1,109m in Manawatu/Wanganui, \$547m in Auckland and \$314m in Wellington.

<sup>21</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,

<sup>22</sup> In 2021 MU earned research and contract revenues of \$79m The direct contribution from this spend is already included in our estimates through the direct spending by MU.

<sup>23</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in ‘The Economic Impact of International Education in New Zealand 2015/16’ for Education New Zealand, October 2016, Infometrics and BERL, page 11.

<sup>24</sup> For this calculation, the estimated spending by distance students is added to the expenditure for Manawatu Wanganui. If this spending was removed the estimated footprint of MU in the Manawatu Wanganui region would shrink by just under 20 percent.

The approach to estimating the size of the footprint and caveats on their interpretation are explained in detail in Appendix A.



## 6 Victoria University of Wellington

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We have estimated the contribution of Victoria University of Wellington (VUW) to the economy of the Wellington region in 2021 compared to a situation where Wellington did not have a university. VUW makes a direct contribution to the economy of the Wellington region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Wellington region)
- retention of university students in the Wellington region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$851m made up as follows:

- direct VUW spending<sup>25</sup> of approximately \$495m in 2021 including:
  - \$268m on staff. (VUW employed 2,329 full time equivalent staff which is about 1 percent of the estimated filled jobs in the region. Salary and wages paid to VUW staff are about 1.5 percent of the salary and wages paid in the region.)
  - operating and occupancy spending of \$179m, most of which is spent on service providers in the region
  - estimated capital spending (based on depreciation and amortisation) of \$47m
- VUW attracted additional student spending<sup>26</sup> (excluding tuition fees) to the region of up to \$356m per year made up as follows:
  - \$110m by an estimated 5,715 domestic EFTS from within the Wellington region
  - \$215m by an estimated 11,215 domestic EFTS from outside the Wellington region
  - \$21m by an estimated 852 international EFTS resident in New Zealand. (VUW had total international enrolments of 1,311 EFTS, but about 35.0<sup>27</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

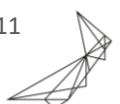
VUW acts as attractor for research spending<sup>28</sup> in the region that would otherwise be allocated to other parts of the country. VUW also provides a bridge between academic research and the application of this research to local innovation through sponsored chairs, and the VicLink programme that creates commercial applications of VUW research projects and provision of advice and research to local businesses.

<sup>25</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from VUW to regional GDP would be spending on staff, capital and operating surplus, a total of \$337m (0.8 percent of regional GDP). Estimated spending by VUW students (less GST) was \$356m (0.9 percent of regional GDP).

<sup>26</sup> The estimated expenditure per student excluding fees per year is \$20,622 for domestic students and \$26,000 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>27</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,

<sup>28</sup> In 2021 VUW earned research and contract revenues of \$80m. The direct contribution from this spend is already included in our estimates through the direct spending by VUW.



VUW also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by VUW and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to VUW
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>29</sup>) to the direct VUW expenditure and spending by VUW students and estimated the 'indirect' and 'induced' footprint of VUW in the Wellington region as:

- indirect footprint – direct spending plus estimated indirect effects – \$1,344m
- induced footprint – direct spending plus estimated indirect and induced effects – \$1,848m.

The approach to estimating the size of the footprint and caveats on their interpretation are explained in detail in Appendix A

<sup>29</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11..



## 7 University of Canterbury

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We have estimated the contribution of the University of Canterbury (UoC) to the economy of the Canterbury region and Christchurch territorial local authority (TLA) in 2021 compared to a situation where the services offered by UC were not available in these areas. UoC makes a direct contribution to the economy of the Canterbury region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Canterbury region)
- retention of university students in the Canterbury region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$743m made up as follows:

- direct UoC spending<sup>30</sup> of approximately \$440m in 2021 including:
  - \$216million on staff and contractors.
    - UoC employed 2,043 full time equivalent staff which is about 1.0 percent of the estimated filled jobs in the Christchurch TLA
    - salary and wages paid to UoC staff account for about 1.6 percent of the salary and wages paid in the Christchurch TLA.
  - operating and occupancy spending of \$135m, most of which is spent on service providers in the region
  - estimated capital spending (additions less disposals) of \$89m
- UoC attracted student spending<sup>31</sup> (excluding tuition fees) to the region of up to \$303m made up as follows:
  - \$138m by an estimated 7,503 domestic equivalent full time students (EFTS) from within the Canterbury region
  - \$141m by an estimated 7,657 domestic EFTS from outside the Canterbury region
  - \$25m by an estimated 1,077 international EFTS.
  - \$18m by an estimated 765 international EFTS resident in New Zealand. (UoC had total international enrolments of 1,077 EFTS, but about 29.0<sup>32</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

<sup>30</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from UoC to regional GDP would be spending on staff, capital and operating surplus, a total of \$311m (0.8 percent of regional GDP). Estimated spending by UoC students (less GST) was \$303m (0.7 percent of regional GDP).

<sup>31</sup> The estimated expenditure per student excluding fees per year is \$19,741 for domestic students and \$24,740 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>32</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,



UoC acts as attractor for research spending<sup>33</sup> in the region that would otherwise be allocated to other parts of the country. UoC also provides a bridge between academic research and the application of this research to innovation through centres of research excellence such as Quake.<sup>34</sup>

UoC also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by UC and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to UoC
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>35</sup>) to the direct UoC expenditure and spending by UC students and estimated the 'indirect' and 'induced' footprint of UoC in the Canterbury region as:

- indirect footprint – direct spending plus estimated indirect effects – \$1,177m
- induced footprint – direct spending plus estimated indirect and induced effects – \$1,619m.

The approach to estimating the size of the footprint and caveats on their interpretation are explained in detail in Appendix A.

<sup>33</sup> In 2021 UoC earned external research income of \$48m. The direct contribution from this spend is already included in our estimates through the direct spending by UoC.

<sup>34</sup> A joint effort with the University of Auckland.

<sup>35</sup> This report uses an indirect expenditure multiplier of 1.6 and an induced expenditure multiplier of 2.2 based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.





## 8 Lincoln University

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We estimated the contribution by Lincoln University (LU) to the economy of the Canterbury region and Selwyn territorial local authority (TLA) in 2021 compared to a situation where the services offered by LU were not available in the Canterbury region. LU makes a direct contribution to the economy of the Canterbury region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Canterbury region)
- retention of university students in the Canterbury region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$161m made up as follows:

- direct LU spending<sup>36</sup> of approximately \$123m in 2021 including:
  - \$62million on staff and contractors.
    - LU employed 534 full time equivalent staff which is about 2.8 percent of the estimated filled jobs in the Selwyn TLA
    - salary and wages paid to LU staff account for about 5.3 percent of the salary and wages paid in the Selwyn TLA
  - operating and occupancy spending of \$41m, most of which is spent on service providers in the region
  - estimated capital spending of \$20m primarily on university building projects and upgrades
- LU attracted additional student spending<sup>37</sup> (excluding tuition fees) to the region of up to \$41m per year made up as follows:
  - \$8m by an estimated 618 domestic EFTS from within the Canterbury region
  - \$18m by an estimated 1,339 domestic EFTS from outside the Canterbury region
  - \$8m by an estimated 434 international EFTS resident in New Zealand. (LU had total international enrolments of 604 EFTS, but about 28.1<sup>38</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following 'direct' linkages that we have not been able to quantify.

<sup>36</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from LU to regional GDP would be spending on staff, capital and operating surplus, a total of \$73m (0.2 percent of regional GDP). Estimated spending by LU students (less GST) was \$44m (0.1 percent of regional GDP).

<sup>37</sup> The estimated expenditure per student excluding fees per year is \$14,697 for domestic students and \$19,700 for international students. Our estimate of total student spending excludes GST (which is paid on expenses other than rent).

<sup>38</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,



LU acts as attractor for research spending<sup>39</sup> in the region that would otherwise be allocated to other parts of the country. LU also provides a bridge between academic research and the application of this research to local innovation through Lincoln Agritech.

LU also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by LU and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to LU
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>40</sup>) to the direct LU expenditure and spending by LU students and estimated the 'indirect' and 'induced' footprint of LU in the Canterbury region as:

- indirect footprint – direct spending plus estimated indirect effects – \$253m
- induced footprint – direct spending plus estimated indirect and induced effects – \$347m.

The approach to estimating the size of the footprint and caveats on their interpretation are explained in detail in Appendix A.

<sup>39</sup> In 2021 LU earned research and contract revenues of \$32m. The direct contribution from this spend is already included in our estimates through the direct spending by LU.

<sup>40</sup> The indirect and induced multipliers used in this report are based on the multipliers used in 'The Economic Impact of International Education in New Zealand 2015/16' for Education New Zealand, October 2016, Infometrics and BERL, page 11.



## 9 University of Otago

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We have estimated the contribution of the University of Otago (UoO) to the economy of the Otago region and Dunedin City territorial local authority (TLA) in 2021 compared to a situation where the Otago region did not have a university. UoO makes a direct contribution to the economy of the Otago region through the following:

- spending on staff, operations and capital equipment
- attraction of students to the region (both from overseas and outside the Otago region)
- retention of university students in the Otago region (who would otherwise have to move to access a university education).

We estimate that in 2021 this direct contribution was approximately \$1,187m made up as follows:

- direct UoO spending<sup>41</sup> of approximately \$782m in 2021 including:
  - \$440 million on staff and contractors. (UoO employed 4,044 full time equivalent staff:
    - 3,475 in Dunedin (about 6.1 percent of estimated filled jobs in the TLA)
    - 271 in Christchurch (about 0.1 percent of estimated filled jobs in the TLA)
    - 251 in Wellington (about 0.1 percent of estimated filled jobs in the TLA)
    - 35 in Auckland (about 0.0 percent of estimated filled jobs in the TLA)
    - 12 in Invercargill (about 0.0 percent of estimated filled jobs in the TLA)
  - salary and wages paid to UoO staff account for about 11.1, 0.2, 0.1, 0.0 and 0.1 percent of the salary and wages paid in the Dunedin, Christchurch, Wellington, Auckland and Invercargill TLA respectively
  - operating and occupancy spending of \$223m, most of which is spent on service providers in the region
  - estimated capital spending (additions less disposals) of \$127m
- UoO attracted student spending<sup>42</sup> (excluding tuition fees) to the regions in which it operates of up to \$405m per year made up as follows:
  - \$137m by an estimated 6,679 domestic EFTS from within the regions in which UoO operates
  - \$243m by an estimated 11,873 domestic EFTS from outside the regions in which UoO operates

<sup>41</sup> Note that these numbers are measures of expenditure, rather than value-added or GDP. The estimated direct contribution from UoO to regional GPP would be spending on staff, capital and operating surplus, a total of \$564m spread over Otago \$493m (3.9 percent of regional GDP), Canterbury \$34m (0.1 percent of regional GDP) and Wellington \$32m (0.1 percent of regional GDP). Estimated spending by UoO students (less GST) was \$330m spread over Otago \$ 298m(2.4 percent of regional GDP), Christchurch \$14m (0.0 percent of regional GDP) and Wellington \$15m(0.0 percent of regional GDP.)

<sup>42</sup> The estimated expenditure per student excluding fees per year is: \$18,245 for domestic students in Dunedin (and Invercargill), \$21,372 for domestic students in Wellington, \$17,104 for domestic students in Christchurch, \$21,420 for domestic students in Auckland and \$23,940 for international students



- \$20m by an estimated 841 international EFTS resident in New Zealand. (UoO had total international enrolments of 1,051 EFTS, but about 20.0<sup>43</sup> percent lived overseas.)

In addition to the quantifiable direct contribution we also note the following ‘direct’ linkages that we have not been able to quantify.

UoO acts as attractor for research spending<sup>44</sup> in the region that would otherwise be allocated to other parts of the country. UoO also provides a bridge between academic research and the application of this research to local innovation through Otago Innovation.

UoO also attracts visitors to the region for both graduation ceremonies and conferences for experts. Data on the number of conference attendees and the amount spent by either conference attendees or visitors is sparse.

The direct spending by UoO and its students also encourages both:

- indirect activity; the first round spending by suppliers of goods and services to UoO
- induced activity; second and subsequent rounds of spending in supplier industries, and spending by households whose incomes are increased by the direct spending and indirect activity.

Estimating the size of these indirect and induced effects in a way that is economically meaningful is problematic. The multiplier analysis approach (used in the mid-2000s but now discredited) massively overstates the indirect and induced economic activity attributable to any industry because it fails to consider alternative uses for the resources employed by the industry. At best, multiplier based estimates of indirect and induced effects are a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

In response to your interest, we have applied a multiplier analysis (using the most recent relevant example we could find<sup>45</sup>) to the direct UoO expenditure and spending by UoO students and estimated the ‘indirect’ and ‘induced’ footprint of UoO in the Otago region as:

- indirect footprint – direct spending plus estimated indirect effects – nationally \$1,891m comprising, \$1,653m in Dunedin, \$114m in Christchurch, \$106m in Wellington, \$13m in Auckland and \$8m in Southland
- induced footprint – direct spending plus estimated indirect and induced effects – nationally \$2,601m comprising, \$2,273m in Dunedin, \$154m in Christchurch, \$146m in Wellington, \$17m in Auckland and \$10m in Southland.

The approach to estimating the size of the footprint and the caveats on their interpretation are explained in detail in Appendix A.

<sup>43</sup> Estimated from an informal poll by Universities New Zealand of offshore EFTS in September 2021,

<sup>44</sup> In 2021 UoO earned research and contract revenues of \$156m. The direct contribution from this spend is already included in our estimates through the direct spending by UoO.

<sup>45</sup> The indirect and induced multipliers used in this report are based on the multipliers used in ‘The Economic Impact of International Education in New Zealand 2015/16’ for Education New Zealand, October 2016, Infometrics and BERL, page 11.



## 10 Direct spending

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This section reports data on the direct university spending as a measure of gross domestic product (GDP), local employment and spending on suppliers.

### 10.1 Contribution to GDP

The direct impact of university spending on regional gross domestic product can be measured as the sum of payments to staff, depreciation (as a proxy for the average rate of capital formation) and the university operating surplus compared to the gross domestic product for the region. The measure of these classes of university spending as a share of GDP tends to be a relatively low percentage for two reasons:

- the large number of industry classifications which mean that any one industry accounts for only a small percentage total GDP. (For example the entire Education and Training sector is one of 21 industries and accounts for just under 5 percent of national GDP.)
- regions include a wide range of businesses some of which have little or no direct connection with the university.

As a contrast to the 'geographically broad' regional measures we have also used the following 'geographically narrower' measures based on territorial authority data:

- compared university payments to staff and number employed to salary/wage payments with numbers employed and salary and wage payments by territorial authority as reported in Linked Employer Employee<sup>46</sup> database.
- compared estimated student accommodation 'demand with availability of rental accommodation by territorial authority.

<sup>46</sup> This database is published by Statistics New Zealand and is based on data gathered by the Inland Revenue Department.



**Table 5 University spending that contributes directly to regional GDP by region – 2021**

University salary and wages, the maximum of depreciation or net capital additions and operating surplus (from annual reports) in \$ million

Description	Auckland	Waikato	Bay of Plenty	Manawatu-Wanganui	Wellington	Canterbury	Otago	Southland
University of Auckland	890							
Auckland University of Technology	319							
University of Waikato <sup>1</sup>		187	13					
Massey University <sup>2</sup>	90			279	62			
Victoria University of Wellington					337			
University of Canterbury						311		
Lincoln University							85	
University of Otago <sup>3</sup>	5				33	36	463	2
<b>Total direct contribution</b>	<b>1,303</b>	<b>187</b>	<b>13</b>	<b>279</b>	<b>433</b>	<b>432</b>	<b>463</b>	<b>2</b>
Regional GDP	121,740	29,173	19,319	12,758	41,041	41,138	14,003	6,730
Total direct contribution/GDP	<b>1.1%</b>	<b>0.6%</b>	<b>0.1%</b>	<b>2.2%</b>	<b>1.1%</b>	<b>1.0%</b>	<b>3.3%</b>	<b>0.0%</b>

**Note:**

- 1 University of Waikato's direct contribution is allocated between its Hamilton (Waikato region) (93.3%) and Tauranga (Bay of Plenty) (6.7%) campuses.
- 2 Massey University's direct contribution is allocated between its Palmerston North (Manawatu-Wanganui region) (64.7%), Auckland (20.8%) and Wellington (14.5%) campuses.
- 3 Otago University's direct contribution is allocated between its Dunedin (85.9%), Auckland (0.9%) Christchurch (6.7%), Wellington (6.2%) and Invercargill (Southland) (0.3%) campuses

Source: NZIER analysis of data provided by Universities New Zealand and gathered from university accommodation information webpages



## Appendix A Economic footprint

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### A.1 Measures of economic impact

Regional economic impact analysis studies argue that spending associated with organisations such as universities contributes to the economic activity of the cities in which they are located through their employment of staff, expenditure on capital, attraction of students from outside the city and retention of students who would arguably leave the city to study in another city. Impact studies go on to apply multipliers to these direct spending effects to calculate the 'full economic contribution' of universities to a 'city or regional' economy.

In Table 1 we present estimates of both the direct spending by universities and the spending by domestic students who are either retained in the region or attracted from other regions.

Table 1 includes direct spending estimated as:

- direct spending by the university on employees, capital equipment and the operating surplus of the university
- living expenses for domestic students remaining in the area and attracted to the area (based on the number of domestic students enrolled multiplied by the university advice to students on living expense budgets).

### A.2 Regional indirect and induced impacts

Previous economic impact studies of university spending (in the mid-2000s) estimated the value of the indirect and induced output from the university spending using multipliers calculated from input-output tables. However, multiplier analysis over-states the reliance of the flow-on activity on the initial expenditure as it does not net out alternative use of those resources. Therefore, they describe the difference between the city/region economy as it is now compared to a city/region economy without a university and also all the resources in the city/region economy that are currently linked to the university in the city/region.

Dwyer et al (2005) find multiplier model estimates are 180 percent to 500 percent higher than Computable General Equilibrium (CGE) model estimates that do account for such offsetting effects. Based on our previous experience with the NZIER CGE model, more realistic multipliers are likely to be closer to 1.1 (in other words the 'ripple effect' of this type of spend is about an additional 10 percent of the initial direct spend).

At your request we have considered how a multiplier analysis could be applied to the direct university expenditure and spending by domestic students of each university on a city/region basis.

This report applies the following multipliers by each university and its students:

- indirect activity; output multiplier of 1.6
- induced activity (including indirect activity); output multiplier of 2.2.



These multipliers are likely to understate leakages of activity for regions. If these multipliers were applied to our estimate of each university's direct contribution to the city/region a multiplier analysis would suggest the indirect and induced impacts listed in Table 1

As explained in our previous report 'Economic impact of universities: An analysis of the contribution of New Zealand universities to economic activity' these indirect and induced effects are at best a measure of the current footprint of the university in the city/region. They cannot be added to calculate a national total across cities/regions and they are not accepted by central government as a credible argument for increased expenditure on university education or R&D.

