

Estimating Enrollment & Economic Impacts of Achieving R1 Status

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Executive Summary

This report examined several metrics at the University of Nevada, Reno, Montana State University, Bozeman (Montana State), University of Southern Mississippi, University of New Hampshire, Main Campus (University of New Hampshire), and Binghamton University before (generally 2015–2018) and after (generally 2019–2022) they became R1 institutions in order to determine the impacts of becoming an R1 university. Each of these institutions achieved R1 classification in 2019 ([2018 Carnegie Classification Announcement](#)). Given the impacts of the COVID-19 global pandemic, simply comparing before and after R1 may not accurately represent the changes that occurred as a result of reaching R1 status. Therefore, a particular focus of this report is on the changes that occurred in the 2019–2022 period after these universities achieved R1 status. The examined R1 universities were chosen based on similarities to UAF (enrollment levels, research expenditures, staffing and regional economics, among others). While no university is the same, the impacts, including enrollment and PhD completion increases, experienced at the examined institutions since becoming R1 can forecast potential impacts when UAF achieves R1 status. Additionally, due to numerous similarities between UAF and Montana State, this report also forecasts impacts for UAF when it achieves R1 based on the impacts that occurred at Montana State.

Total Enrollment Forecast

While national total enrollment at public universities declined from 2019–2022, partly due to the COVID-19 global pandemic, all the R1 universities examined in this report had smaller declines compared to the national average. All the R1 universities also had smaller declines compared to the average total enrollment changes in their respective states. This indicates that being an R1 institution may have had a positive impact on total enrollment.

Beginning in 2019, if UAF experienced the average change in total enrollment of the five R1 universities examined, UAF's total enrollment in 2022 would have increased from 6,607 to 7,047 or by 6.7%. Additionally, beginning in 2019, if UAF experienced the enrollment changes of Montana State, UAF's total enrollment in 2022 would have increased from 6,607 to 7,172 or by 8.5%.

Undergraduate Enrollment Forecast

Despite national undergraduate enrollment at public universities declining from 2019–2022, most of the R1 universities examined in this report had smaller declines compared to the national average. The R1 universities also had smaller declines compared to the average undergraduate enrollment changes in their respective states. This indicates that being an R1 institution may have had a positive impact on undergraduate enrollment.

Beginning in 2019, if UAF experienced the average change in undergraduate enrollment of the five R1 universities examined, UAF's undergraduate enrollment in 2022 would have increased from 5,636 to 5,976 or by 6%. Additionally, beginning in 2019, if UAF experienced the undergraduate enrollment changes of Montana State, UAF's undergraduate enrollment in 2022 would have increased from 5,636 to 6,150 or by 9.1%.



Graduate Enrollment Forecast

With graduate enrollment growing at public universities nationally from 2019-2022, most of the R1 universities examined experienced larger growth compared to the national average. Most of the R1 universities also experienced higher growth in graduate enrollment compared to the average growth rate in their respective states. This indicates that being an R1 institution may have had a positive impact on graduate enrollment.

Beginning in 2019, if UAF experienced the average change in graduate enrollment of the five R1 universities examined, UAF's graduate enrollment in 2022 would have increased from 971 to 1,045 or by 7.6%. Additionally, beginning in 2019, if UAF experienced the graduate enrollment changes of Montana State, UAF's graduate enrollment in 2022 would have increased from 971 to 1,033 or by 6.4%.

PhD Completion Forecasts

All the R1 universities examined in this report experienced increases in PhD completions since achieving R1 status. From 2019-2022, most of the R1 universities experienced PhD completion growth rates higher than the national and their respective state averages. This indicates that being an R1 institution may have had a positive impact on increasing PhD completions.

Beginning in 2019, if UAF experienced the average change in PhD completions of the five R1 universities examined, UAF's PhD completions in 2022 would have increased from 32 to 48 or by 50%. Additionally, beginning in 2019, if UAF experienced the PhD completion increases of Montana State, UAF's PhD completions in 2022 would also have increased from 32 to 48 or by 50%.

Research Expenditures Forecasts

UAF significantly outperforms the R1 universities and national average in research expenditure growth. This demonstrates that UAF is already performing at or above R1 standards. Based on national research interests (e.g. the Arctic) and the fact that most of the R1 universities experienced growth in research expenditures once achieving R1, it is reasonable to assume that UAF will realize further growth in research expenditures when it achieves R1 status.

Beginning in 2022, if UAF was able to keep its current growth rate, UAF's total research expenditures in 2025 would increase from \$202.5 million to \$284 million. Additionally, beginning in 2022, if UAF experienced the growth rate in research expenditures of Montana State, UAF's total research expenditures in 2025 would increase from \$202.5 million to \$262.7 million.

Economic Impact Forecasts

Assessing economic impacts of a single university is difficult without direct inputs (e.g. number of students, salary information, institutional spending data, etc.). However, reasonable comparisons can be made for universities in similar sized communities. The University of Southern Mississippi



and University of New Hampshire are not only similar institutions to UAF but the local economies in which they reside are similar to Fairbanks. As such, the operations of these institutions are more likely to impact the economic activity of their respective regions.

Based on job and GDP growth, the local economies of the University of Southern Mississippi and University of New Hampshire outperformed the Fairbanks economy since the institutions reached R1 status. Given the various aspects of these two universities' operations that grew after becoming R1 (e.g. enrollment and research expenditure growth) and the fact that the local economies outperformed Fairbanks, it is reasonable to conclude that achieving R1 status may have had some positive impact.

Based on the experienced changes in the local areas of the University of Southern Mississippi and University of New Hampshire, when UAF reaches R1 status, it is possible that it may create between 815 and 1,060 jobs and add between \$54.8 million and \$148.9 million to the Fairbanks economy.

Disclaimer

No university is exactly the same and no local economic area is exactly the same so any comparisons or projections are assumptions. It should also be noted that a global pandemic occurred beginning in 2020 that dramatically affected colleges and universities. Therefore, it is difficult to make before and after R1 conclusions as the impacts of the pandemic were dramatic.



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Reference and Definitions

Nearly all university-related data comes from the U.S. Department of Education's (ED) National Center for Education Statistics (NCES) through the Integrated Postsecondary Education Data System (IPEDS) and Digest of Education Statistics.

- NCES defines **total enrollment** as students reported enrolled in courses creditable toward a degree or other formal award; students enrolled in courses that are part of a vocational or occupational program, including those enrolled in off-campus or extension centers; and high school students taking regular college courses for credit. Institutions report annually the number of full- and part-time students, by gender, race/ethnicity, and level (undergraduate, graduate, first-professional); the total number of undergraduate entering students (first-time, full- and part-time students, transfer ins, and non-degree students); and retention rates. In even-numbered years, data are collected for state of residence of first-time students and for the number of those students who graduated from high school or received high school equivalent certificates in the past 12 months. Also in even numbered years, 4-year institutions are required to provide enrollment data by gender, race/ethnicity, and level for selected fields of study.
- NCES defines **research staff** as an occupational category used to classify persons whose specific assignments customarily are made for the purpose of conducting research. Regardless of title, academic rank, or tenure status, these employees formally spend the majority of their time conducting research.

Research expenditure data comes from the National Science Foundation's (NSF) National Center for Science and Engineering Statistics (NCSES).

- **Total Research Expenditures** are R&D Expenditures, which are defined by NCSES as Expenditures for R&D activities from the institution's current operating funds that were separately accounted for. For the purposes of the survey, R&D includes expenditures for organized research as defined by 2 CFR 220 Part 200 Appendix III and expenditures from funds designated for research. Expenditures came from internal or external funding and included recovered and unrecovered indirect costs. Funds passed through to subrecipient organizations were also included. R&D was excluded if it was conducted by university faculty or staff at outside institutions and was not accounted for in the reporting institution's financial records.
- **Federal Research Expenditures** are defined by NCSES as expenditures from any agency of the U.S. government. Federal funds that were passed through to the reporting institution from another institutions were included.

Data on private employment comes from the U.S. Department of Labor's (DOL) U.S. Bureau of Labor Statistics (BLS).

Data on real gross domestic product (GDP) comes from the U.S. Department of Commerce's (DOC) Bureau of Economic Analysis (BEA).



Total Enrollment¹

The following table shows changes in total enrollment before and after the examined universities reached R1 status. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. The table also shows the average of the changes that occurred at the examined R1 universities. UAF’s changes in total enrollment for those same periods are included for comparison purposes.

<u>2015-2018 Total Enrollment % Changes</u>	<u>2019-2022 Total Enrollment % Changes</u>
University of Nevada, Reno: +2.6%	University of Nevada, Reno: -0.2%
Montana State University: +10.4%	Montana State University: -0.1%
University of Southern Mississippi: -0.3%	University of Southern Mississippi: -4.3%
University of New Hampshire: -0.3%	University of New Hampshire: -5.6%
Binghamton University: +5.1%	Binghamton University: +1%
<i>Average % Change of R1s: +3.5%</i>	<i>Average % Change of R1s: -1.84%</i>
<i>UAF: -14.3%</i>	<i>UAF: -8%</i>

- Beginning in 2019, if UAF experienced the average change in total enrollment of the five R1 universities examined, UAF’s total enrollment in 2022 would have increased from 6,607 to 7,047 or 6.7% higher
- Beginning in 2019, if UAF experienced the enrollment changes of Montana State, UAF’s total enrollment in 2022 would have increased from 6,607 to 7,172 or 8.5% higher

According to the [National Center for Education Statistics](#), national total enrollment at public universities declined by 7% from 2019-2022. All five R1 universities examined outperformed the national average. In addition, from 2019-2022, the examined R1 universities all outperformed the total enrollment declines at public universities in their respective states, providing further evidence that being an R1 university could be a key factor contributing to higher than average enrollment trends. Below are the state-wide enrollment trends for public universities for the 2019-2022 time period for comparison purposes:

- Nevada: -5.8% in public university total enrollment

¹ See definitions on page 6.



- Montana: -1.9% in public university total enrollment
- Mississippi: -6.5% in public university total enrollment
- New Hampshire: -13.2% in public university total enrollment
- New York: -13.6% in public university total enrollment
- Alaska: -14.1% in public university total enrollment

Of note, UAF's total enrollment did decline less than the State of Alaska average.

Given that total enrollment level declines were smaller at all five examined R1 universities relative to the national and state averages, it is reasonable to conclude that becoming an R1 university may have positively influenced enrollment levels, among other factors. It is worth noting that most of the R1 universities examined significantly outperformed the national average, some by 7%, and each outperformed their state averages by multiple percentage points ranging from 5% to 10%. This could indicate that potential students are more interested in attending R1 universities.



Undergraduate Enrollment

The following table shows changes in undergraduate enrollment before and after the examined universities reached R1 status. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. The table also shows the average of the changes that occurred at the examined R1 universities. UAF’s changes in undergraduate enrollment for those same periods are included for comparison purposes.

<u>2015-2018 Undergrad Enrollment % Changes</u>	<u>2019-2022 Undergrad Enrollment % Changes</u>
University of Nevada, Reno: +0.9%	University of Nevada, Reno: -1.9%
Montana State University: +8.9%	Montana State University: -0.9%
University of Southern Mississippi: +0.7%	University of Southern Mississippi: -11.5%
University of New Hampshire: -1.7%	University of New Hampshire: -5.9%
Binghamton University: +3.9%	Binghamton University: +1.7%
<i>Average % Change of R1s: +2.5%</i>	<i>Average % Change of R1s: -3.7%</i>
<i>UAF: -14.7%</i>	<i>UAF: -9.2%</i>

- Beginning in 2019, if UAF experienced the average change in undergraduate enrollment of the five R1 universities examined, UAF’s undergraduate enrollment in 2022 would have increased from 5,636 to 5,976 or 6% higher
- Beginning in 2019, if UAF experienced the undergraduate enrollment changes of Montana State, UAF’s undergraduate enrollment in 2022 would have increased from 5,636 to 6,150 or 9.1% higher

According to the [National Center for Education Statistics](#), national undergraduate enrollment at public universities declined by 5.1% from 2019-2022. Three of the five R1 universities examined outperformed the national average while two underperformed vs. the national average, though the difference for one of the underperformers vs. the national average was less than 1%. Consequently, it is fair to conclude that four of the five R1 universities performed at or above the national average. In addition, from 2019-2022, four of the five examined R1 universities outperformed the undergraduate enrollment declines at public universities in their respective states, providing further evidence that being an R1 university could be a key factor contributing to nearly all of the examined R1 universities outperforming undergraduate enrollment trends. Below are the



state-wide enrollment trends for public universities for the 2019-2022 time period for comparison purposes:

- Nevada: -6.6% in public university undergraduate enrollment
- Montana: -2.4% in public university undergraduate enrollment
- Mississippi: -8.9% in public university undergraduate enrollment
- New Hampshire: -14.4% in public university undergraduate enrollment
- New York: -15.9% in public university undergraduate enrollment
- Alaska: -14.5% in public university undergraduate enrollment

Of note, UAF's undergraduate enrollment did decline less than the State of Alaska average.

Given that undergraduate enrollment levels were higher at four of the five examined R1 universities relative to the national and state averages, it is reasonable to conclude that becoming an R1 university may have positively influenced undergraduate enrollment trends, among other factors.



Graduate Enrollment

The following table shows the changes in graduate enrollment before and after the examined universities reached R1 status. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. UAF’s changes in graduate enrollment for those same periods are included for comparison purposes. The table also shows the average of the changes that occurred at the examined R1 universities.

<u>2015-2018 Graduate Enrollment % Changes</u>	<u>2019-2022 Graduate Enrollment % Changes</u>
University of Nevada, Reno: +27%	University of Nevada, Reno: +7.5%
Montana State University: +28.3%	Montana State University: +6.4%
University of Southern Mississippi: +20.5%	University of Southern Mississippi: +28.7%
University of New Hampshire: +5.2%	University of New Hampshire: -4.3%
Binghamton University: +14.3%	Binghamton University: -1.2%
<i>Average % Change of R1s: +19.1%</i>	<i>Average % Change of R1s: +7.4%</i>
<i>UAF: -12.1%</i>	<i>UAF: -0.2%</i>

- Beginning in 2019, if UAF experienced the average change in graduate enrollment of the five R1 universities examined, UAF’s graduate enrollment in 2022 would have increased from 971 to 1,045 or 7.6% higher
- Beginning in 2019, if UAF experienced the graduate enrollment changes of Montana State, UAF’s graduate enrollment in 2022 would have increased from 971 to 1,033 or 6.4% higher

According to the [National Center for Education Statistics](#), national graduate enrollment at public universities increased by 1.5% from 2019–2022. Three of the five R1 universities examined outperformed the national average while two underperformed vs. the national average, though the difference for one of the underperformers vs. the national average was approximately 1%. Consequently, it is fair to conclude that four of the five R1 universities performed at or above the national average. In addition, from 2019–2022, three of the five R1 universities examined outperformed graduate enrollment changes at public universities in their respective states, providing further evidence that being an R1 university could be a key factor contributing to higher than average enrollment trends. Below are the state-wide graduate enrollment trends for public universities for the 2019–2022 time period for comparison purposes:



- Nevada: +2.5% in public university graduate enrollment
- Montana: +1.4% in public university graduate enrollment
- Mississippi: +16.5% in public university graduate enrollment
- New Hampshire: -3.2% in public university graduate enrollment
- New York: +0.4% in public university graduate enrollment
- Alaska: -10.2% in public university graduate enrollment

Of note, UAF's graduate enrollment did decline less than the State of Alaska average.

Given that graduate enrollment levels were higher at four of the five examined R1 universities relative to the national and three of the five outperformed their respective state averages, it is reasonable to conclude that becoming an R1 university may have positively influenced enrollment levels, among other factors. It is worth noting that for three of the five R1 universities investigated (60%) they significantly outperformed the national and state averages ranging from 5% to 12%. This could indicate that potential students are more interested in attending R1 universities.



Graduate Assistants (Teaching & Research)

The following table shows the changes in graduate assistants' employment before and after the examined universities reached R1 status. In this analysis, "before" uses data from 2016-2018, while "after" uses data from 2019-2021. UAF's changes in graduate assistants' employment for those same periods are included for comparison purposes. 2022 data was not available at the time of publication of this report. The table also shows the average of the changes that occurred at the examined R1 universities.

<u>2016-2018 Graduate Assistants % Changes</u>	<u>2019-2021 Graduate Assistants % Changes</u>
University of Nevada, Reno: +5%	University of Nevada, Reno: +7.5%
Montana State University: -20%	Montana State University: +11.6%
University of Southern Mississippi: +3%	University of Southern Mississippi: +2.4%
University of New Hampshire: +4%	University of New Hampshire: +3.3%
Binghamton University: -1%	Binghamton University: -3.1%
<i>Average % Change of R1s: -1.8%</i>	<i>Average % Change of R1s: +4.3%</i>
<i>UAF: -19%</i>	<i>UAF: +2.1%</i>

- Beginning in 2019, if UAF experienced the average change in graduate assistants employment of the five R1 universities examined, UAF's employment of graduate assistants in 2021 would have increased from 287 to 293 or 2.1% higher
- Beginning in 2019, if UAF experienced the graduate assistants employment changes of Montana State, UAF's total employment of graduate assistants in 2021 would have increased from 287 to 314 or 9.4% higher

According to the [National Center for Education Statistics](#), national employment of graduate assistants at public universities increased by 0.8% from 2019-2021. Four of the five R1 universities examined outperformed the national average. In addition, from 2019-2022, four of the five R1 universities examined outperformed employment growth of graduate assistants at public universities in their respective states, providing further evidence that being an R1 university could be a key factor contributing to higher levels of the employment of graduate assistant trends. Below are state-wide trends in the employment of graduate assistants for public universities for the 2019-2021 time period for comparison purposes:



- Nevada: +5.4% in public university employment of graduate assistants
- Montana: +5.4% in public university employment of graduate assistants
- Mississippi: 0% in public university employment of graduate assistants
- New Hampshire: -3.4% in public university employment of graduate assistants
- New York: -4.2% in public university employment of graduate assistants
- Alaska: -2.2% in public university employment of graduate assistants

Of note, UAF's employment of graduate assistants outperformed the State of Alaska average.

Given that employment of graduate assistants were higher at four of the five of the R1 universities relative to the national and state averages, it is reasonable to conclude that becoming an R1 may have positively influenced graduate assistants employment levels, among other factors.



PhD Completions

The following table shows changes in PhD completions before and after the examined universities reached R1 status. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. The table also shows the average of the changes that occurred at the examined R1 universities. UAF’s changes in PhD completions for those same periods are included for comparison purposes.

<u>2015-2018 PhD Completions % Changes</u>	<u>2019-2022 PhD Completions % Changes</u>
University of Nevada, Reno: +13%	University of Nevada, Reno: +23.1%
Montana State University: +15%	Montana State University: +28.7%
University of Southern Mississippi: +1%	University of Southern Mississippi: +18.8%
University of New Hampshire: +3	University of New Hampshire: +3.2%
Binghamton University: -3%	Binghamton University: +71.3%
<i>Average % Change of R1s: +5.8%</i>	<i>Average % Change of R1s: 29%</i>
<i>UAF: +38%</i>	<i>UAF: -13.5%</i>

- Beginning in 2019, if UAF experienced the average change in PhD completions of the five R1 universities examined, UAF’s PhD completions in 2022 would have increased from 32 to 48 or 50% higher
- Beginning in 2019, if UAF experienced the PhD completion changes of Montana State, UAF’s PhD completions in 2022 would have increased from 32 to 48 or 50% higher
- Beginning in 2019, even if UAF experienced the smallest increase of the five R1 universities examined, UAF’s PhD completions in 2022 would have increased from 32 to 38 or 18.8% higher

All five R1 universities experienced increases in PhD completions after achieving R1 status, despite the challenges facing universities as a result of the COVID-19 pandemic. Further, in all but one case, the increases in PhD completions were greater than 18%. Additionally, according to the [National Center for Education Statistics](#), PhD completions at public universities nationally increased by 8.7% from 2019-2022. Four of the five R1 universities outperformed the national average.



In addition, from 2019-2022, two of the five R1 universities outperformed the average increase in PhD completions in their respective states. Despite only two R1 universities outperforming state averages, all the trends show increases in PhD completions. Below are state-wide PhD completion trends for public universities for the 2019-2022 time period for comparison purposes:

- Nevada: +28.2% in public university PhD completions
- Montana: +44.3% in in public university PhD completions
- Mississippi: +5.1% in public university PhD completions
- New Hampshire: +34.7% in public university PhD completions
- New York: +4.7% in public university PhD completions
- Alaska: -16.3% in public university PhD completions

Of note, UAF's PhD completion rate declined by slightly less than the State of Alaska average.

Given that all five R1 universities experienced increases in PhD completions after becoming R1 institutions, four of the five saw increases higher than the national average, and two saw increases substantially higher than their respective state averages, it is reasonable to conclude that becoming an R1 university may have positively influenced PhD completions, among other factors.



Total Research Expenditures

The following table shows changes in total research expenditures before and after the examined universities reached R1 status. The table also shows the average changes that occurred at the examined R1 universities. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. UAF’s changes in total research expenditures for those same periods are included for comparison purposes.

<u>2015-2018 Total Research Exp. % Changes</u>	<u>2019-2022 Total Research Exp. % Changes</u>
University of Nevada, Reno: +60.2%	University of Nevada, Reno: +19.5%
Montana State University: +15.4%	Montana State University: +29.7%
University of Southern Mississippi: +18.3%	University of Southern Mississippi: -5.2%
University of New Hampshire: +1.2%	University of New Hampshire: +38.5%
Binghamton University: +42.5%	Binghamton University: +25.5%
<i>Average % Change of R1s: +27.5%</i>	<i>Average % Change of R1s: +21.6%</i>
<i>UAF: -1.3%</i>	<i>UAF: +40.2%</i>

Since 2019, UAF has outperformed all of the five R1 universities examined in total research expenditures. Additionally, UAF significantly outperformed the average in research expenditure growth of the five R1 universities examined. This demonstrates that from a research expenditure perspective, UAF is performing at or above R1 standards.

Given UAF’s rapid research expenditure growth rate, it is reasonable to question if such performance can be sustained or further accelerated. However, several factors are working in UAF’s favor to potentially continue its current growth rate, particularly when R1 status is achieved. First, public and private interests in the Arctic continue to grow. This creates potential for increased investment in UAF research. Second, four of the five R1 universities experienced a double digit increase in research expenditures after achieving R1 status. It is reasonable to assume that prestige associated with being an R1 can lead to additional investment at UAF as funders will naturally want the best institutions to perform research. Third, as indicated earlier in this report, it is possible enrollment, particularly graduate enrollment, could increase once UAF reaches R1 status. Therefore, it is reasonable to assume additional enrollment could lead to more individuals interested in conducting research and more graduate students and their faculty mentors working to secure funding.



Considering UAF's already high research expenditures and the potential advantages of achieving R1 status, the following are different scenarios regarding total research growth that could be realized when UAF reaches R1 status:

- Beginning in 2022 (\$202.5 million), if UAF was able to keep its current growth rate, UAF's total research expenditures in 2025 would increase to \$284 million
- Beginning in 2022 (\$202.5 million), if UAF experienced the growth rate in research expenditures of the five R1 universities examined, UAF's total research expenditures in 2025 would increase to \$246.3 million
- Beginning in 2022 (\$202.5 million), if UAF experienced the growth rate in research expenditures of Montana State, UAF's total research expenditures in 2025 would increase to \$262.7 million

According to the [National Center for Science and Engineering Statistics \(NCSES\)](#), in 2022, UAF ranks in the top 14% of all U.S. universities in total research expenditures. In addition, NCSES reports (in 2022) that UAF is among the top 100 public research universities. It is highly likely that these rankings will improve if UAF's research growth is as outlined above. These rankings could be used to market to future students interested in conducting research at an elite university.



Federal Research Expenditures

The following table shows changes in federal research expenditures before and after the examined universities reached R1 status. The table also shows the average changes that occurred at the examined R1 universities. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. UAF’s changes in federal research expenditures for those same periods are included for comparison purposes.

<u>2015-2018 Federal Exp. % Changes</u>	<u>2019-2022 Federal Exp. % Changes</u>
University of Nevada, Reno: +21.1%	University of Nevada, Reno: +33%
Montana State University: +9.2%	Montana State University: +33.7%
University of Southern Mississippi: +27.2%	University of Southern Mississippi: +3.1%
University of New Hampshire: +4.1%	University of New Hampshire: +43.7%
Binghamton University: +44.7%	Binghamton University: +2.8%
<i>Average % Change of R1s: +21.3%</i>	<i>Average % Change of R1s: +23.3%</i>
<i>UAF: +16.4%</i>	<i>UAF: +66.5%</i>

Since 2019, UAF has significantly outperformed all of the five R1 universities examined in federal research expenditures. In addition, according to the [National Center for Science and Engineering Statistics’ \(NCSES\)](#) Higher Education Research and Development Survey, from 2019-2022, UAF dramatically outperforms the national 21.4% average increase in university federal research expenditures. Further, from 2019-2022, NCSES reports that UAF ranks 2nd in the nation in federal research expenditure growth among universities with at least \$100 million in federal expenditures. This provides further evidence that from a research expenditure perspective, UAF is performing at or above average R1 universities.

Given the need to maintain global technological superiority and recently enacted legislation on the federal level (e.g. CHIPS and Science Act and Infrastructure Investment and Jobs Act), it is expected that the availability of federal research and development funds will grow in the coming years. UAF stands to benefit from increased federal investment, particularly when UAF becomes an R1 university should enrollment increase.

Considering current trends on the federal level, the following are different scenarios regarding federal research growth that could be realized when UAF reaches R1 status:



- Beginning in 2022 (\$154.7 million), if UAF was able to keep its current growth rate, UAF's federal research expenditures in 2025 would increase to \$257.6 million.
- Beginning in 2022 (\$154.7 million), if UAF experienced the growth rate in federal research expenditures of the five R1 universities examined, UAF's federal research expenditures in 2025 would to \$190.8 million
- Beginning in 2022 (\$154.7 million), if UAF experienced the growth rate in research expenditures of Montana State, UAF's federal research expenditures in 2025 would increase to \$206.9 million



Research Staff

The following table shows the change in employment of research staff before and after the examined universities reached R1 status. In this analysis, “before” uses data from 2015-2018, while “after” uses data from 2019-2022. UAF’s changes in research staff employment for those same periods are included for comparison purposes. The table also shows the average of the changes that occurred at the examined R1 universities.

<u>2015-2018 Research Staff % Changes</u>	<u>2019-2022 Research Staff % Changes</u>
University of Nevada, Reno: +38.9%	University of Nevada, Reno: +12.5%
Montana State University: -32.4%	Montana State University: +12.5%
University of Southern Mississippi: -2.1%	University of Southern Mississippi: -47.7%
University of New Hampshire: +25.3%	University of New Hampshire: +12.4%
Binghamton University: -31.6%	Binghamton University: +100%
<i>Average % Change of R1s: -0.4%</i>	<i>Average % Change of R1s: +18%</i>
<i>UAF: -17.4%</i>	<i>UAF: -21.3%</i>

- Beginning in 2019, if UAF experienced the average change in research staff employment of the five R1 universities examined, UAF’s research staff employment in 2022 would have increased from 411 to 616 or 50% higher
- Beginning in 2019, if UAF experienced the research staff employment changes of Montana State, UAF’s research staff employment in 2022 would have increased from 411 to 587 or 43% higher

According to the [National Center for Education Statistics](#), employment of research staff at public universities increased by 4.2% from 2019-2022. Four of the five R1 universities examined outperformed the national average. In addition, from 2019-2022, four of the five R1 universities examined outperformed employment growth of research staff at public universities in their respective states, providing further evidence that being an R1 university could be a key factor contributing to higher than average research staff employment. Below are the state-wide changes in research staff employment for public universities for the 2019-2022 time period for comparison purposes:



- Nevada: -1.3% in public university research staff employment
- Montana: -1.3% in public university research staff employment
- Mississippi: -5.7% in public university research staff employment
- New Hampshire: +9.2% in public university research staff employment
- New York: +2.8% in public university research staff employment
- Alaska: -29.8% in public university research staff employment

Of note, UAF's employment of research staff declined slightly less than the State of Alaska average.

Given that four of the five R1 universities experienced increases in the employment of research staff relative to the national and state averages, it is reasonable to conclude that becoming an R1 university may have positively influenced research staff employment, among other factors.



Private Employment (Jobs)

The following table shows the changes in private sector employment (jobs) in the counties/boroughs that the examined universities reside before and after the universities reached R1 status. In this analysis, “before” uses data from 2015–2018, while “after” uses data from 2019–2022. UAF/Fairbanks’ changes in private sector jobs for those same periods are included for comparison purposes. As described below, averages among the R1 universities are not shown due to the significant size difference in the overall private sector jobs in the counties that the R1 universities reside, therefore making comparisons less reliable.

<u>2015-2018 Private Sector Jobs % Changes</u>	<u>2019-2022 Private Sector Jobs % Changes</u>
Washoe County (U. of Nevada, Reno): +11.5%	Washoe County (U. of Nevada, Reno): +3.7%
Gallatin County (Montana State): +13.9%	Gallatin County (Montana State): +12.4%
Forrest County (U. Southern Mississippi): +7.8%	Forrest County (U. Southern Mississippi): -1.2%
Strafford County (U. New Hampshire): +4%	Strafford County (U. New Hampshire): -2.1%
Broome County (Binghamton U.): +0.4%	Broome County (Binghamton U.): -7.1%
<i>Fairbanks (UAF): +0.9%</i>	<i>Fairbanks (UAF): -5.1%</i>

It is well [documented](#) that a university’s operations help support private sector jobs in their respective state and local communities (often indirectly). Without knowing the economic inputs (e.g. payroll, procurement among many others) from university operations that could impact the number of private sector jobs, this analysis seeks to assess if the increases in R1-related factors as described in this report (e.g. enrollment and research expenditure growth) could potentially contribute to creating new private sector jobs or limit the number of job losses.

The number of private sector jobs in Washoe (nearly 700% higher), Broome (144% higher) and Gallatin (125% higher) counties are significantly higher than Fairbanks. Therefore, it is difficult to accurately determine if achieving R1 status played a role in growing private sector jobs given the data limitations of this report. However, Forrest (U. Southern Mississippi; 29,469 jobs) and Strafford (U. New Hampshire; 38,528 jobs) counties are similar in size to Fairbanks (25,904 jobs) and each university in their respective counties accounts for between 6-7% of total county employment (public and private). Ultimately, these similarities provide for a potentially more fair foundation for comparisons.



From 2019-2022, the University of Southern Mississippi increased its graduate student enrollment by nearly 1/3rd. The University also increased its federal research expenditures and employment of graduate assistants while graduating more PhD students. These factors likely contributed to growing private sector employment. At the same time, the University experienced declines in total enrollment and undergraduate enrollment, research staff and total research expenditures. This likely contributed to declining private sector jobs as student spending is one important indirect economic contributor. Given these factors, it is not entirely surprising that there was a decline in private sector jobs (-1.2%) over this time period.

The University of New Hampshire, from 2019-2022, increased its employment of research staff and graduate assistants while graduating more PhD students. In addition, the University reported a 38% increase in total research expenditures including a 43.7% increase in federal research expenditures. At the same time, the University experienced across the board enrollment declines. Given the importance of student spending, it is not entirely surprising that there was a decline in private sector jobs (-2.1%) over this time period.

Nevertheless, the University of Southern Mississippi and University of New Hampshire outperformed UAF in nearly all metrics except research expenditures. Compared to UAF, more students and employing more staff likely made positive contributions to private sector employment and could be a key factor why Fairbanks experienced a more dramatic decline in private sector jobs compared to Forrest and Strafford counties.

- Beginning in 2019, if Fairbanks experienced the private sector job changes equal to Forrest County (University of Southern Mississippi), the number of jobs in 2022 would have increased from 25,904 to 26,964 or 4.1% higher (1,060 more jobs)
- Beginning in 2019, if Fairbanks experienced the private sector job changes of Strafford County (University of New Hampshire), the number of jobs in 2022 would have increased from 25,904 to 26,719 or 3.1% higher (815 more jobs)



Real Gross Domestic Product (GDP)

The following table shows the changes in real GDP (chained 2012 dollars) in the counties that the examined universities reside before and after the universities reached R1 status. In this analysis, “before” uses data from 2016-2018, while “after” uses data from 2019-2021. Data for 2022 was not available at the time of publication of this report. UAF/Fairbanks are included for comparison purposes. As described below, averages among the R1 universities are not shown due to the significant size difference in the overall real GDP in the counties that the R1 universities reside, therefore making comparisons less reliable.

<u>2016-2018 GDP % Changes</u>	<u>2019-2021 GDP % Changes</u>
Washoe County (U. of Nevada, Reno): +1.2%	Washoe County (U. of Nevada, Reno): +6.9%
Gallatin County (Montana State): +11%	Gallatin County (Montana State): +15.3%
Forrest County (U. Southern Mississippi): -0.3%	Forrest County (U. Southern Mississippi): +2.3%
Strafford County (U. New Hampshire): +2.1%	Strafford County (U. New Hampshire): +4.1%
Broome County (Binghamton U.): +1.6%	Broome County (Binghamton U.): +0.8%
<i>Fairbanks (UAF): -1.9%</i>	<i>Fairbanks (UAF): +1.2%</i>

Real GDP for Washoe County (U. of Nevada, Reno) is approximately \$20 billion larger than Fairbanks. Broome County (Binghamton U.) real GDP is more than \$3.1 billion larger than Fairbanks. It would not be appropriate to make direct comparisons or assumptions given the vast disparity in real GDP. However, Gallatin (\$6.5 billion; Montana State), Forrest (\$3.2 billion; U. Southern Mississippi), and Strafford (\$5.7 billion; U. New Hampshire) are similar to Fairbanks’ (\$5.2 billion) and given the similarities among the universities they are likely able to have more of an influence on real GDP growth.

Given that since becoming an R1, Montana State has experienced essentially steady total enrollment and undergraduate enrollment; an increase in graduate enrollment; additional hiring of graduate assistants; significant increase in PhD completions; substantial increase in research expenditures; and further hiring of research staff, it is possible that these factors contributed to the University’s operations may have contributed to real GDP growth (15.3%) in Gallatin County.

Since becoming R1s, the University of Southern Mississippi and University of New Hampshire have hired additional graduate assistants, increased federal research expenditures and graduated more PhDs while generally outperforming national and state enrollment trends. Both universities



outperformed UAF in most metrics excluding research expenditures and their operations could be one factor as to why their local economies performed better than Fairbanks.

- Beginning in 2019, if Fairbanks experienced real GDP growth of Gallatin Count (Montana State), real GDP in 2021 would have increased from \$5,286,112 to 6,019,699 or 13.9% higher (+\$733.6 million real GDP growth)
- Beginning in 2019, if Fairbanks experienced real GDP growth of Forrest County (University of Southern Mississippi), real GDP in 2021 would have increased from \$5,286,112 to \$5,340,982 or 1.04% higher (+\$54.9 million real GDP growth)
- Beginning in 2019, if Fairbanks experienced real GDP growth of Strafford County (University of New Hampshire), real GDP in 2021 would have increased from \$5,286,112 to \$5,434,958 or 2.8% higher (+\$149.9 million real GDP growth)



Conclusion

This report analyzed metrics from several universities before and after they achieved R1 status to assess the potential impacts of reaching R1 classification for UAF. The examined universities, including the University of Nevada, Reno, Montana State University, Bozeman, University of Southern Mississippi, University of New Hampshire, and Binghamton University, showed positive trends in enrollment, PhD completions, and research expenditures despite the challenges posed by the COVID-19 pandemic. Specifically, these R1 universities experienced smaller declines in total and undergraduate enrollment and higher growth in graduate enrollment and PhD completions compared to national and state averages. Furthermore, UAF's current research expenditure growth already aligns with or surpasses R1 standards, suggesting that achieving R1 status could foster further growth. Additionally, the economic impacts observed in the local economies of universities like the University of Southern Mississippi and University of New Hampshire indicate potential job creation and economic boosts for Fairbanks when UAF reaches R1 status. Overall, the analysis provides a forecast of potential positive outcomes for UAF in terms of enrollment, research, and economic impacts upon achieving R1 classification.

