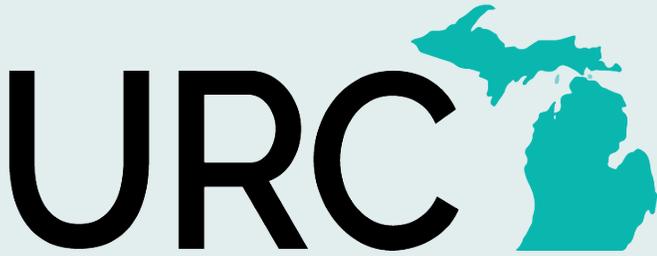


2022



UNIVERSITY RESEARCH CORRIDOR

EMPOWERING MICHIGAN

ECONOMIC IMPACT OF THE UNIVERSITY RESEARCH CORRIDOR





University Research Corridor

Economic Impact Report, 2022

Michigan's University Research Corridor (URC) is one of the top academic research clusters in the nation. This report analyzes the impact of the URC on Michigan's economy.

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UNIVERSITY RESEARCH CORRIDOR

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*Britany Affolter-Caine,
URC Executive Director*

2022 Economic Impact of the



UNIVERSITY RESEARCH CORRIDOR

The University Research Corridor (URC) is one of the nation's top academic research clusters. The URC is comprised of three world-renowned, public research-intensive universities.

Each member university is unique and contributes complementary strengths. With Michigan State University—a top land grant university—the URC reaches every county in the state. With the University of Michigan—the nation's largest public research university—the URC has a scale of research that propels Michigan into the top ten states for academic R&D. And with Wayne State University—one of the nation's premier urban-serving universities—the URC has a depth of impact in Detroit, Michigan's largest metro.

EMPOWERING
MICHIGAN



Foreword

Patrick L. Anderson, Anderson Economic Group

We are pleased to present the results of Anderson Economic Group's 13th economic impact report for Michigan's University Research Corridor.

This report comes at a critical juncture for the State of Michigan; one that puts into perspective the role that URC institutions play in sustaining our economy through difficult times. As we prepare this report in Spring 2022, two years have passed since the onset of a global pandemic that triggered an economic downturn that briefly pushed unemployment to Depression-era levels. We continue to face disruption in our signature industries, the number of people in the labor force is down, and we find ourselves facing price inflation that recalls economic crises not seen in more than four decades.

In such times, it is important to take stock of institutions that demonstrate staying power through good times and bad. Much of the data for this report were collected amid the pandemic and related economic and higher ed disruptions. Nonetheless, this report demonstrates the URC's tremendous resilience in the face of these genuinely unprecedented challenges. In particular:

1. In our first report—issued in 2007—we estimated that the University of Michigan, Michigan State University, and Wayne State University together generated \$12.8 billion in net economic benefits for the State of Michigan. The URC's economic impact now totals \$20.6 billion. That's a gain of \$7.8 billion from where we started 15 years ago.
2. Enrollment has grown by more than 15,000 students since 2007. This demonstrates the continued attraction of these research universities for students around the country. People working in the private sector know they have to work to earn their customers loyalty in a competitive market. Higher education is also a competitive market, and growth in enrollment shows these research institutions are gaining market share in spite of difficult circumstances.
3. Earnings for URC alumni residing in Michigan continue to account for *nearly 20%* of all wage and salary income in the state. These are the earnings of talented people, not the direct output of the universities. However, when your alumni earn a fifth of all wages statewide, it is a telling indication of the schools' benefit to Michigan overall. It also demonstrates unmistakably that the URC is fulfilling one of its primary roles, which is to prepare the knowledgeable workforce needed to build a strong economy and a healthy society.

As our last benchmarking analysis demonstrated, URC alumni have started new businesses at a rate that is roughly double the national average. The data shows not only that URC-trained architects, engineers, and liberal arts graduates are starting new businesses, it shows they are doing so later in life—an important reminder to policy makers that A URC education contributes to Michigan's growth and prosperity long after students graduate.

These vital institutions have demonstrated resilience and even growth through recent years. Now, more than ever, we must build upon the foundations laid by these URC schools if we are to meet the coming challenges in this changeable, unpredictable era.

Empowering Michigan Executive Summary

Purpose of This Report

The URC institutions play a critical role in the stability of the Michigan economy, by providing postsecondary education and supporting employers through innovation and research. These activities improve outcomes for Michigan residents and businesses.

The purpose of this report is to estimate the economic impact of the URC in Michigan, accounting for incremental spending in the state attributable to URC universities, their students, and their alumni.

Overview of Approach

The URC's *net economic impact* is defined as the net increase in Michigan's employment and output (sales by businesses) directly and indirectly attributable to the URC. In our analysis, the economic impact of the URC is quantified using three categories: university spending on operations and construction, student spending, and incremental earnings by URC alumni.

Net Economic Impact
\$20.6B

Tax Revenue Impact
\$650M

Fall Enrollment
139,624



**The URC
represents 51% of fall
enrollment for the 15
public universities in
Michigan.**



The main goal of the URC is to play a role in creating a vibrant Michigan economy that leverages the intellectual capital of the URC. In doing so, the URC makes a number of contributions to the state’s economy. A portion of these contributions are subject to state taxes. These economic impact estimates evaluate the additional tax revenues generated for the State of Michigan due to the URC.

A rigorous economic impact methodology is used to estimate the financial effects that can be traced back to URC universities. In implementing this methodology, base data on university spending, employment, enrollment, and alumni data from URC member institutions is utilized.

Key Indicators

In this report, the net economic benefit of the URC universities to the citizens of the State of Michigan are displayed. A conservative methodology has been used consistently since the first report prepared in 2007, allowing for apples-to-apples comparison of the economic impact over time. URC growth is impressive. For FY 2021, URC undergraduate and graduate fall enrollment represents 51% of fall enrollment for all 15 public universities in Michigan. There is also a significant increase over time in net economic impact.

| URC Key Indicators | 2007 Report ^a (FY 2006 Indicators) | 2022 Report (FY 2021 Indicators) | Change Since 2007 |
|--|--|-------------------------------------|-------------------|
| Operational and Construction Expenditures | \$7.0 billion | \$12.1 billion | +\$5.1 billion |
| Fall Enrollment (Undergraduate and Graduate) | 124,586 | 139,624 | +15,038 |
| Net Economic Impact | \$12.8 billion | \$20.6 billion | +\$7.8 billion |
| <i>Memo: Tax Revenue Impact on State of Michigan</i> | \$343 million | \$650 million | +\$307 million |

Source: AEG economic impact framework utilizing base data from URC Universities; U.S. Bureau of Economic Analysis RIMS II Multipliers; U.S. Census Bureau.

^aEstimated 2007 impacts using updated economic impact framework. These numbers reflect revisions made to our methodology in 2014.



Summary of Findings

Finding 1. In FY 2021, the URC universities collectively invested \$12.1 billion to support university operations and construction activities, employed over 66,000 people across the state, and had an enrollment of almost 140,000 students.

URC Operations, Enrollment, and Alumni, FY 2021

| Category | Value |
|--|----------------|
| Number of Enrolled Students | 139,624 |
| Number of Employees | 66,353 |
| Number of Known Alumni Living in Michigan | 712,214 |
| University Operational and Construction Spending | \$12.1 billion |
| Total Wage & Salary Earnings of Alumni in Michigan | \$48.3 billion |

Source: AEG economic impact framework utilizing base data from URC Universities.

Finding 2. In FY 2021, URC universities generated \$20.6 billion in incremental economic activity. The URC indirectly supported an additional 13,877 jobs in Michigan for a total of 80,230 jobs that were directly or indirectly attributable to a URC institution. In addition to university spending to support operations and construction, the main drivers of this economic impact are spending by URC students and incremental earnings by alumni.

URC Net Economic Impact in Michigan, FY 2021

| Impact Category | Output Impact (billions) |
|--|--------------------------|
| URC University Expenditures | |
| Nonpayroll Operating Expenditures | \$4.24 |
| Faculty & Staff Wages and Benefits | \$7.52 |
| Student Expenditures | \$2.87 |
| Incremental Alumni Earnings ^a | \$5.97 |
| Total Net Economic Impact | \$20.59 |

Source: AEG economic impact framework utilizing base data from URC Universities; U.S. Bureau of Economic Analysis RIMS II Multipliers.

^a"Incremental alumni earnings" refer to additional earnings, less taxes and savings, available for spending in Michigan.





139.6K

Enrolled Students

\$2.9B

Student Spending

\$20.6B

Net Economic Impact

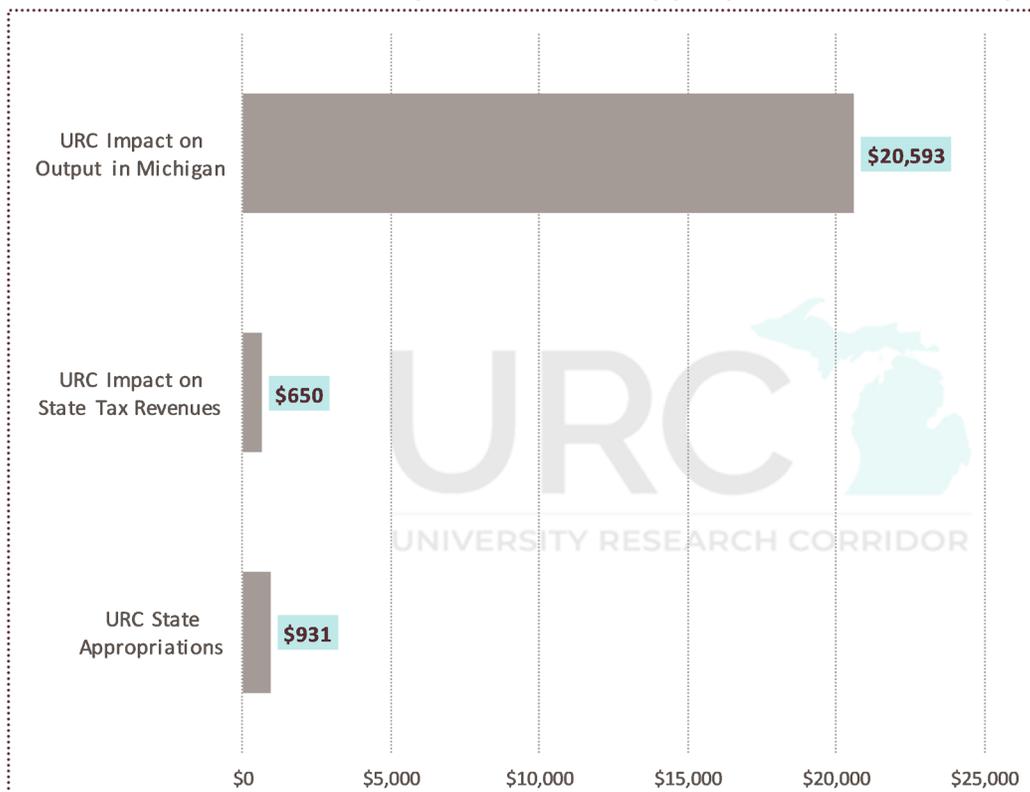
URC Economic Impact in Michigan by Region, FY 2021

| Region | Output Impact (millions) | Jobs Impact |
|--------------------------|--------------------------|---------------|
| Upper Peninsula | \$64.7 | 92 |
| Northwest | \$193.9 | 184 |
| Northeast | \$59.8 | 80 |
| West | \$787.7 | 909 |
| East Central | \$174.8 | 201 |
| East | \$697.6 | 2,022 |
| South Central | \$4,129.0 | 12,913 |
| Southwest | \$245.6 | 266 |
| Southeast | \$6,599.2 | 43,671 |
| Detroit Metro | \$7,640.6 | 19,893 |
| State of Michigan | \$20,592.8 | 80,231 |

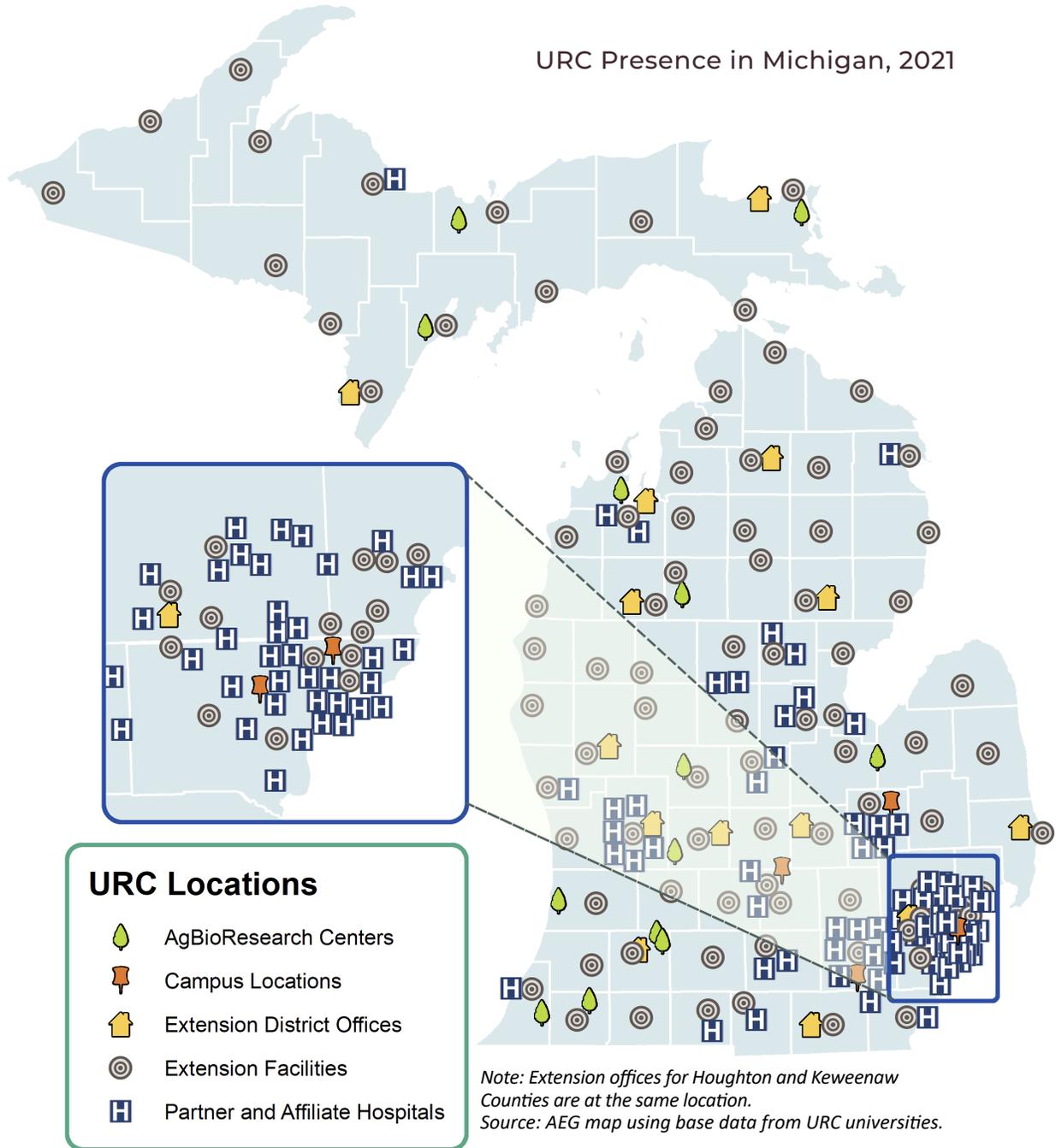
Source: AEG economic impact framework utilizing base data from URC Universities; U.S. Bureau of Economic Analysis RIMS II Multipliers.
 Note: See "Economic Impact by Michigan Region" on page 21 for more details.

Finding 3. In FY 2021, the URC increased tax revenues for the State of Michigan by \$650 million. While the main focus of these universities is not to generate tax revenue, the economic impact of the URC universities was more than 22 times the state’s total appropriations across the three universities.

URC Economic & Fiscal Impact vs. State Appropriations, FY 2021 (millions)



Source: AEG economic impact framework utilizing base data from AEG estimates, Michigan House Fiscal Agency.



Michigan's University Research Corridor

An alliance of Michigan State University, the University of Michigan, and Wayne State University, the University Research Corridor has a presence in all 83 Michigan counties. The URC universities have main campuses in East Lansing, Ann Arbor, Flint, Dearborn, and Detroit. Each URC university has research and teaching locations, along with hospitals throughout Michigan, as shown on this map. This presence crowns Michigan as home to one of the nation's leading research clusters. The URC universities are focused on increasing economic prosperity and connecting Michigan to the world. The universities educate Michigan residents, attract talented workers to the state, support innovation, and encourage the transfer of new technology to the private sector.

A close-up photograph of a black graduation cap (mortarboard) resting on a stack of several thick, old books. A vibrant red ribbon is tied around the books, and a black tassel hangs from the cap. The scene is lit with warm, golden light, creating a sense of accomplishment and tradition.

**URC institutions
employed over 66K
faculty & staff throughout
Michigan in 2021.**

Overview of URC

Operations and Student Spending

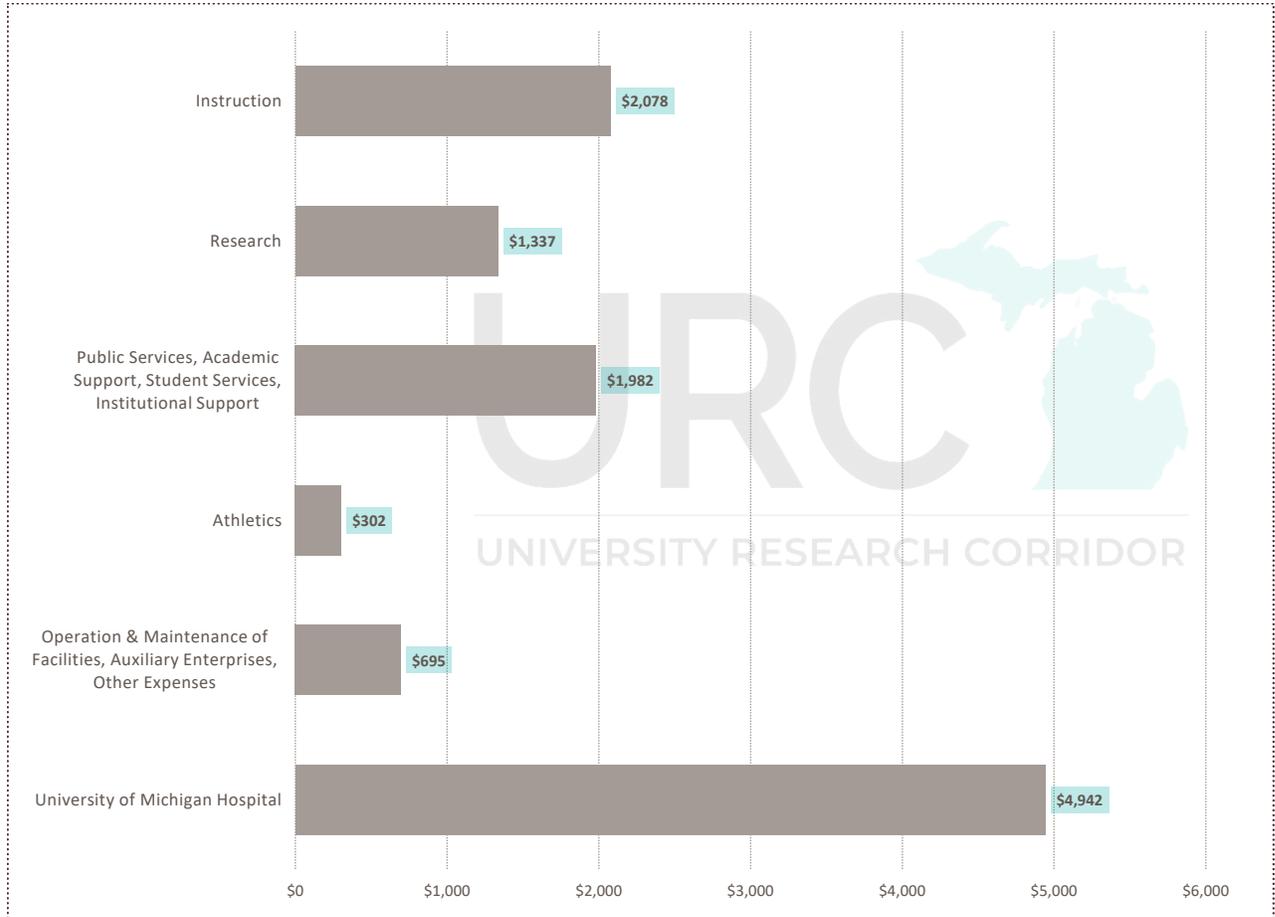
This section summarizes 2021 URC university operations and spending as well as student origins and spending in Michigan.

URC Spending

The URC makes significant contributions to Michigan’s economy through direct spending on goods and services in the state. All of these expenditures benefit Michigan’s economy, especially research dollars, which typically originate outside of the state and would not have made their way into the Michigan economy if the URC did not exist.

URC institutions spent \$11.3 billion on operations and \$725 million on construction in FY 2021 and employed over 66,000 faculty and staff throughout Michigan.

Operational Spending by the URC, FY 2021 (millions)

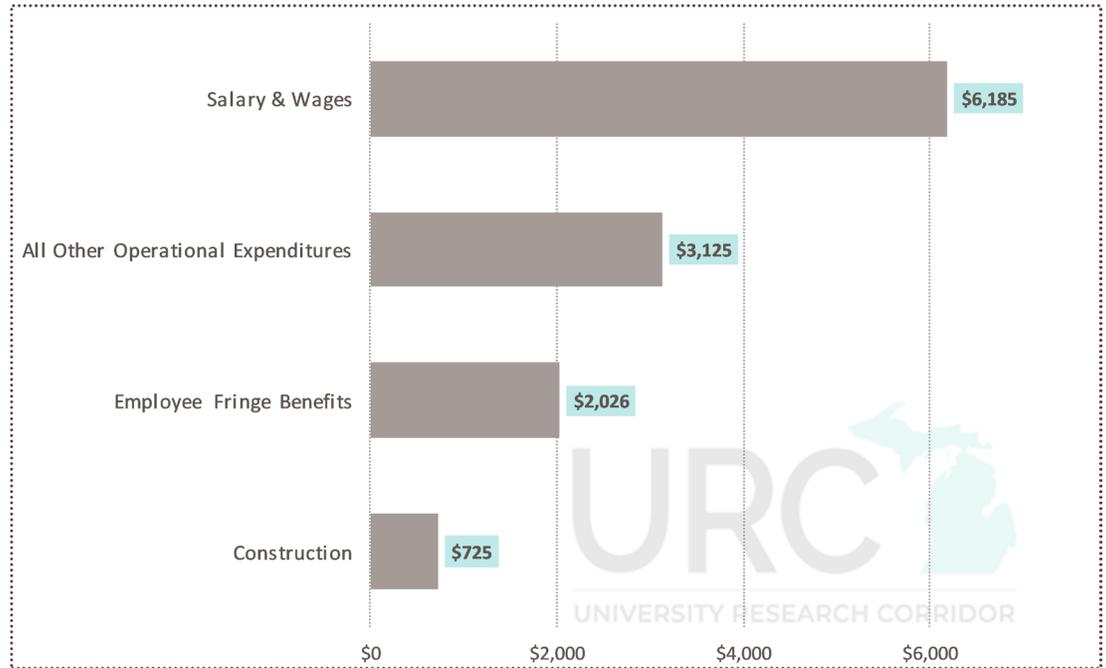


Source: AEG economic impact framework utilizing base data from URC universities.

Student instruction represented 17.2% of URC operations expenditures last fiscal year, 16.4% were for public service, academic support, student services, and institutional support, and 11.1% of expenditures were for university research.

Half of the URC’s \$12.1 billion in expenditures were for university faculty and staff salaries and wages, and employee benefits made up 16.4% of spending.

URC Spending, FY 2021 (millions)

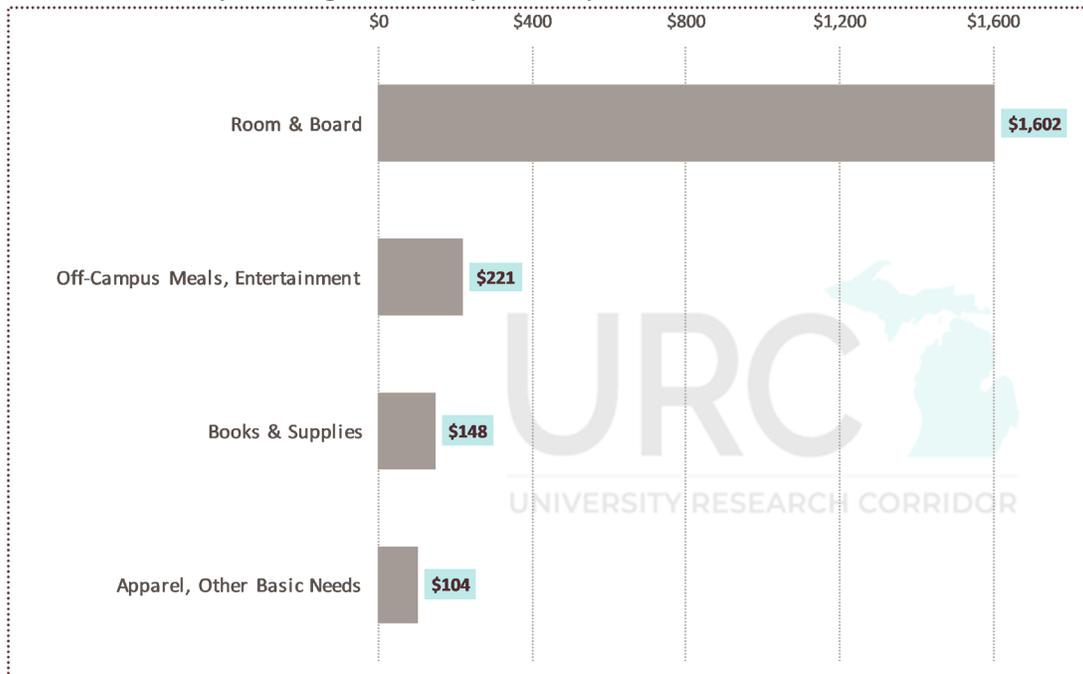


Source: AEG economic impact framework utilizing base data from URC universities.

Student Origins and Student Spending

The URC schools are one of the main drivers in the opportunity for population growth in Michigan. The URC brings in students from every county in Michigan, every state in the U.S., and more than 100 countries across the world. In fall 2021, 68% of URC students were from Michigan. An additional 22% were from other U.S. states and territories, and the remaining 10% were international students.

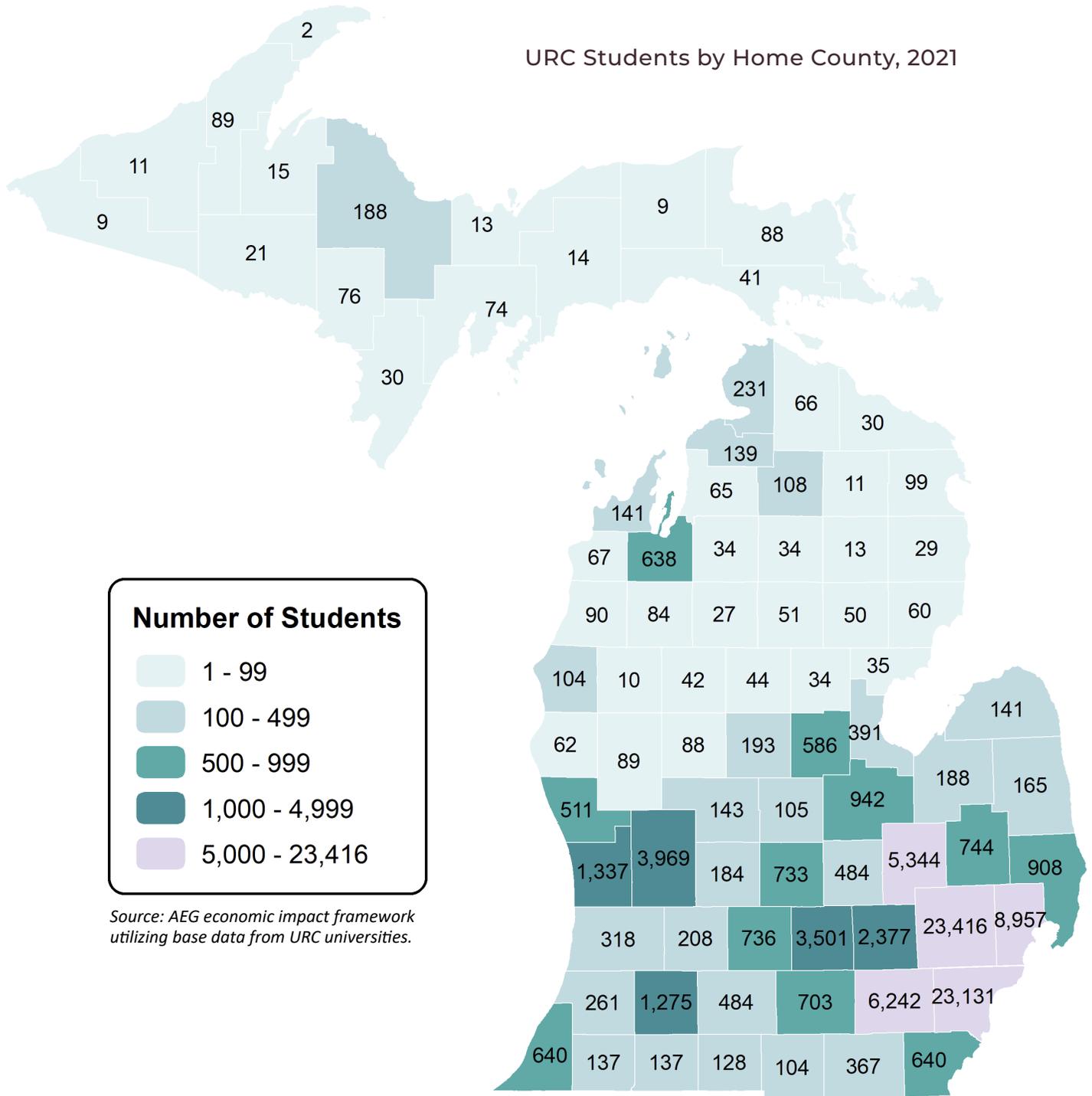
URC Student Spending, FY 2021 (millions)



Source: AEG economic impact framework utilizing base data from URC Universities, BLS Consumer Expenditure Survey 2019, and College Insight.

These students spend money on and off campus, contributing significantly to local and state economies. Of course students spend on tuition, as well as room and board on campus, however this spending is captured in the university operations economic impact analysis. To further display the contributions student spending makes, it is important to assess off-campus room and board, books and supplies, apparel and other basic needs, as well as off-campus meals and entertainment. In 2021, URC students spent \$2.1 billion on these categories of expenditures. The largest share of student spending was on room and board, at more than 75% of total spending. Much of this spending stays in Michigan and circulates throughout the state economy.

URC Students by Home County, 2021



Number of Students

- 1 - 99
- 100 - 499
- 500 - 999
- 1,000 - 4,999
- 5,000 - 23,416

Source: AEG economic impact framework utilizing base data from URC universities.



URC alumni earnings in Michigan totaled \$48.3 billion in FY 2021, accounting for 20% of all wage and salary income in the state.

URC Alumni in Michigan

URC institutions are one of the largest sources of postsecondary human capital in Michigan, providing Michigan's economy with a highly educated workforce capable of meeting the needs of public, private, and nonprofit entities across the state. Attending and graduating from a URC university increases earning power for alumni, many of whom live and work in Michigan after completing their studies. This section discusses the economic impact of alumni.

Number of URC Alumni

As of spring 2021, the URC had almost 1.5 million alumni worldwide. Over 712,000 URC alumni live in Michigan, accounting for 10% of the state's population over the age of 24. URC universities have alumni in every county in Michigan and in every U.S. state. URC alumni also live in 180 countries across the world.

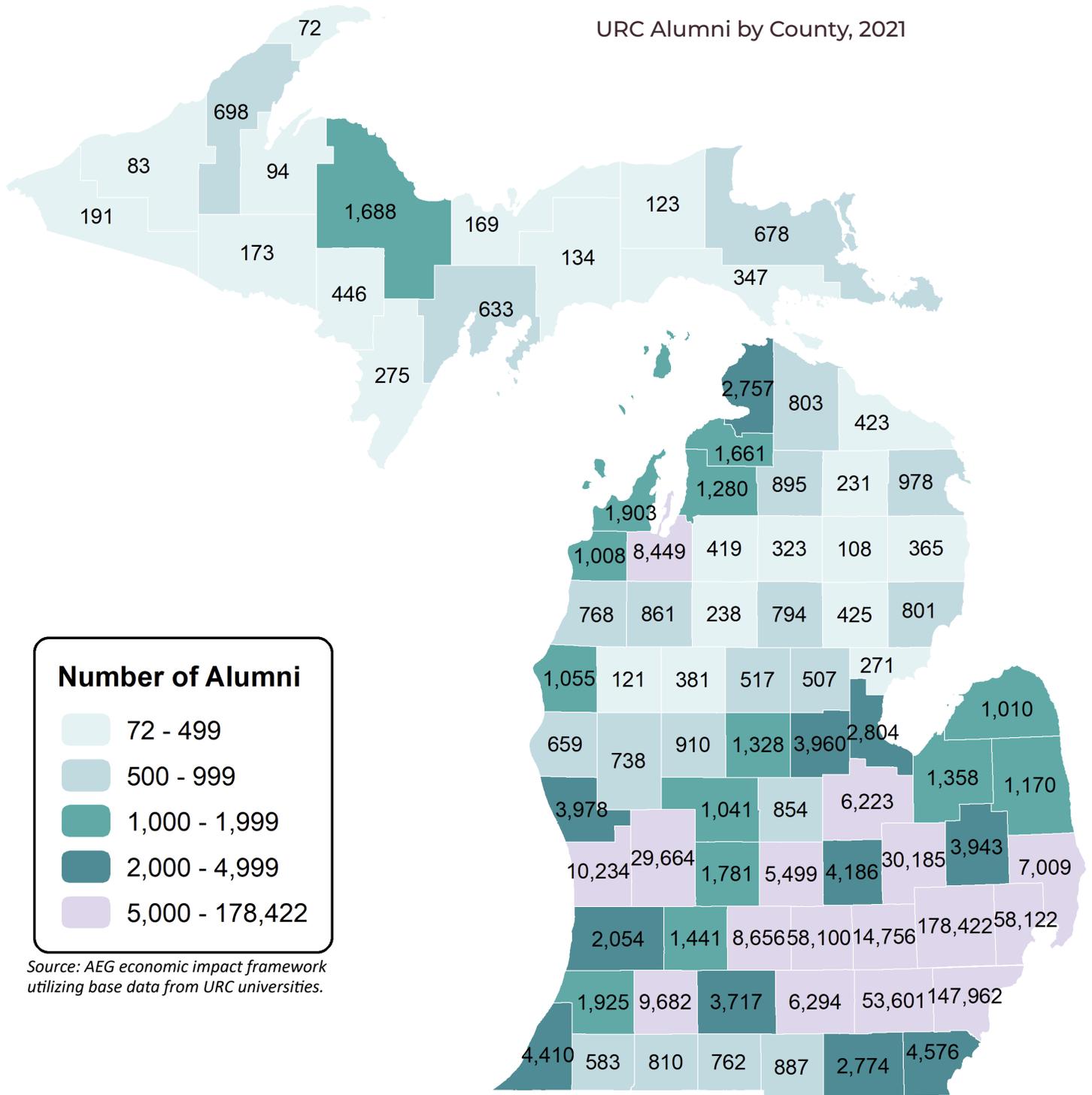
Alumni Earnings

URC alumni make significant contributions to the state's economy, leveraging their degrees to produce and earn more than the average worker. The estimated total URC alumni earnings in Michigan were \$48.3 billion in FY 2021. This accounts for 20% of all wage and salary income in the state.

Each region in Michigan benefits from alumni earnings since alumni live in every county. The table on page 18 shows how URC alumni earnings are distributed across Michigan's ten regions based on alumni location. This table also

shows the URC alumni share of each region’s population and personal income. URC alumni account for an outsized proportion of personal income in every region in Michigan, meaning that alumni have a larger share of each region’s total personal income than their respective share of the population. For example, in the South Central region URC alumni account for roughly one in every seven residents and one out of every five dollars earned by residents. This high share of earnings reflects the value of a degree from a URC university.

URC Alumni by County, 2021



Source: AEG economic impact framework utilizing base data from URC universities.



Share of URC Alumni Earnings in Michigan by Economic Development Collaborative Region

| Economic Development Collaborative Regions | Number of URC Alumni | | Alumni Earnings (millions) | |
|--|----------------------|--------------------------|----------------------------|---|
| | Total | % of Region's Population | Total | % of Personal Income Earned by URC Alumni |
| Upper Peninsula | 5,804 | 1.9% | \$400 | 3.0% |
| Northwest | 19,344 | 6.3% | \$1,331 | 8.1% |
| Northeast | 6,146 | 3.0% | \$418 | 4.8% |
| West | 54,057 | 3.3% | \$3,714 | 4.5% |
| East Central | 16,464 | 2.9% | \$1,133 | 4.4% |
| East | 44,675 | 5.8% | \$3,201 | 8.7% |
| South Central | 76,441 | 13.9% | \$5,102 | 20.1% |
| Southwest | 21,889 | 2.8% | \$1,511 | 3.9% |
| Southeast | 82,888 | 8.2% | \$5,974 | 10.6% |
| Detroit Metro | 384,506 | 9.9% | \$25,493 | 11.2% |
| Total: | 712,214 | | \$48,277 | |

Source: AEG economic impact framework utilizing base data from URC Universities; U.S. Bureau of Labor Statistics; U.S. Census Bureau.

If the URC did not exist, some URC alumni would not have obtained a postsecondary degree and would have earned less. Some out-of-state alumni would not have moved to Michigan to pursue a degree at all, and would not have remained in Michigan after graduation. After accounting for what would have happened to URC alumni if the URC did not exist, the estimated incremental earnings impact of URC alumni in Michigan totaled \$7.4 billion in FY 2021. The Detroit Metro, Southeast, and South Central regions lead the state in share of incremental URC alumni earnings, with other populous regions like West Michigan and East Michigan also benefiting from hundreds of millions of additional earnings.

Economic Impact of the URC in Michigan

This section illustrates the impact of URC universities on output and jobs throughout Michigan at the state and regional levels.

Economic Impact Defined

The net economic impact of the URC is defined as the economic activity that occurs in the state that is directly or indirectly caused by the URC. This includes economic activity that would not otherwise occur in each region without the URC's presence. Economic activity from URC operations, student expenditures, and URC alumni have direct impacts, as well as indirect impacts, generating more economic activity in Michigan as it recirculates throughout the state. The economic impact is expressed in terms of output (sales) and employment.

Sources of Economic Impact

The components of the URC's economic impact on Michigan and its ten regions are described below.

Nonpayroll Operating Expenditures. Nonpayroll spending includes expenditures on supplies, equipment, maintenance of university buildings, services, athletics, and U-M's hospital services. In FY 2021, the URC's nonpayroll expenditures totaled more than 4.5 billion. A portion of these expenditures would not have been made in Michigan if the URC did not exist. The URC nonpayroll spending resulted in an estimated net increase in sales by Michigan businesses of more than \$4.2 billion in FY 2021.

Payroll Operating Expenditures. In FY 2021, URC universities spent \$8.2 billion on salaries, wages, and benefits for their employees. This spending resulted in increased sales at Michigan businesses by an estimate of almost \$7.5 billion in FY 2021.

Student Spending. The URC universities have students from every county in Michigan, every state in the U.S., and from 180 countries. Some of these students would not have come to or remained in Michigan for a college degree if not for the URC universities. Spending by students who moved to or stayed in the state because of the URC is counted as new economic activity. In FY 2021, URC student expenditures

✓ NONPAYROLL OPERATING EXPENDITURES

Supplies, equipment, university building maintenance, services, athletics, and U-M hospital services.

✓ PAYROLL OPERATING EXPENDITURES

Salary, wages, and benefits for employees.

✓ STUDENT SPENDING

Spending by students who moved to or stayed in the state because of the URC.

✓ ALUMNI INCREMENTAL EARNINGS

A percentage of URC graduates' earnings determined to be net new in the state.



totaled an estimated \$2.1 billion. Of this amount, about \$1.8 billion was net new spending in Michigan, which, after accounting for the recirculation of this spending across Michigan, resulted in increased sales at Michigan businesses by \$2.9 billion.

Alumni Incremental Earnings. The URC has 712,000 living alumni in Michigan who collectively earned \$48.3 billion in 2021. An estimated \$5.2 billion of the earnings are considered net new earnings in Michigan. These earnings are calculated after accounting for earnings that would otherwise have occurred in the state (e.g., if URC graduates had attended other Michigan universities instead of a URC university). The earnings resulted in an estimated sales increase of almost \$6 billion for Michigan businesses.

Output Impact in Michigan

In FY 2021, the estimated value of the economic activity that the URC universities generated in the state, benefiting households and businesses, was \$20.6 billion.

URC Net Economic Impact in Michigan, FY 2021 (billions)

| Impact Category | Direct Impact | Indirect Impact | Net Output Impact |
|------------------------------------|---------------|-----------------|-------------------|
| URC University Expenditures | | | |
| Nonpayroll Operating Expenditures | \$2.07 | \$2.16 | \$4.24 |
| Faculty & Staff Wages and Benefits | \$1.41 | \$6.10 | \$7.52 |
| Student Expenditures | \$1.76 | \$1.11 | \$2.87 |
| Incremental Alumni Earnings | - | \$5.97 | \$5.97 |
| Total Economic Impact | \$5.24 | \$15.35 | \$20.59 |

Source: AEG economic impact framework utilizing base data from URC Universities; U.S. BEA RIMS II Multipliers; U.S. Census Bureau.

Jobs Impact of URC Operations

In Michigan, an estimated 80,230 jobs were directly or indirectly created by the URC’s operations in FY 2021. This includes 14,800 net new faculty positions and 31,609 net new staff positions that are directly employed by the URC universities and hospitals. It also includes 25,316 indirectly generated jobs in other industries in the state due to expenditures by the URC universities and their faculty, staff, and students.

Jobs Impact

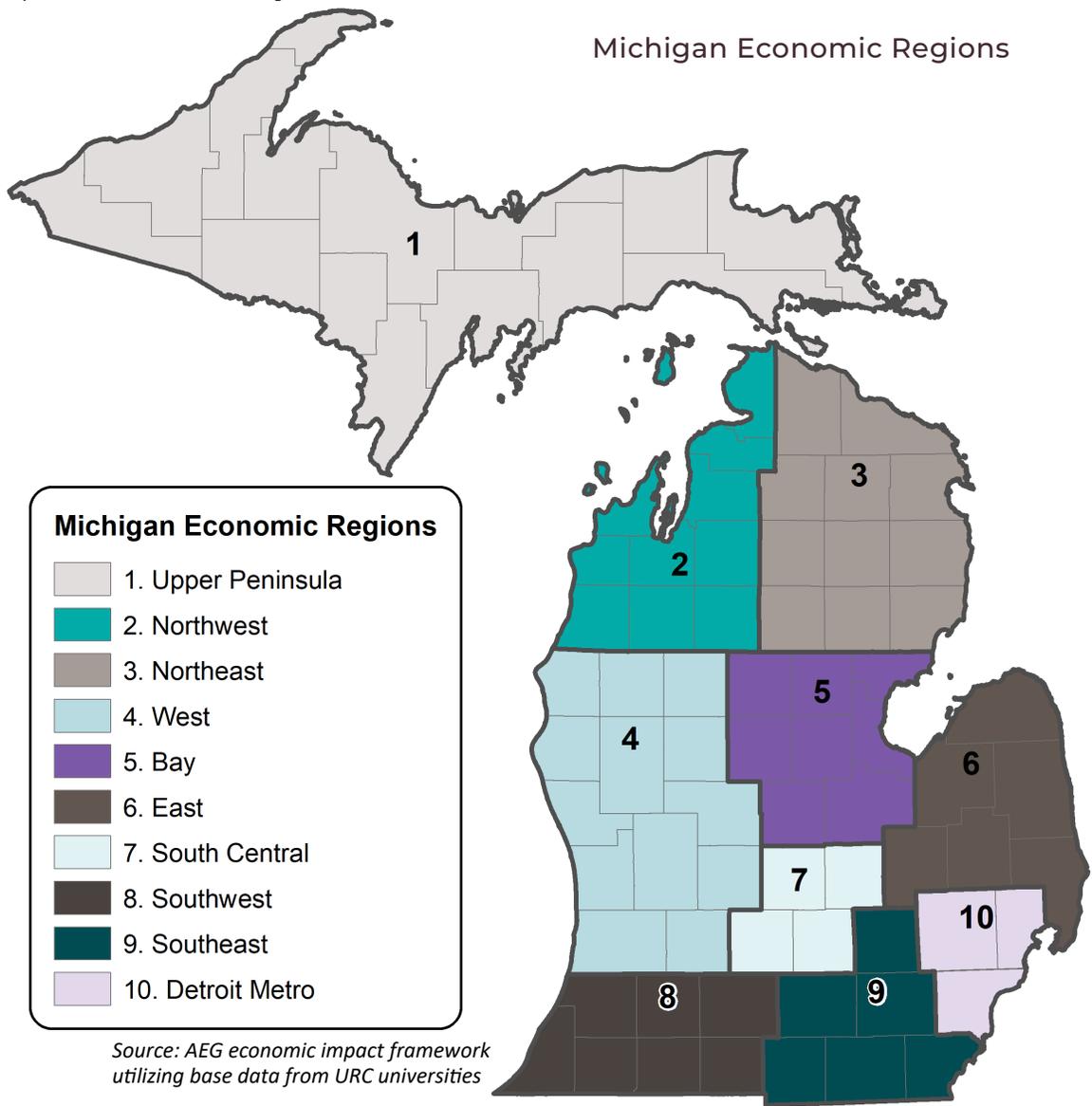
80,230

In fiscal year 2021, the URC universities were directly or indirectly responsible for the creation of more than 80 thousand university jobs and jobs in other Michigan industries.

Economic Impact

\$20.6B

The URC universities added \$20.6 billion to the Michigan economy in fiscal year 2021. This sales activity, which would not have occurred without the URC, includes direct spending impacts from the universities, faculty and staff, students, and alumni. It also includes indirect impacts from this spending as it recirculates through the state’s economy.



Economic Impact by Michigan Region

Given below is the URC’s net economic impact on each of the state’s 10 economic regions.

The Detroit Metro, Southeast, and South Central Regions—the regions in which the universities are located—experienced the greatest additional economic activity from the URC. This is also true for jobs created by URC university activities, as shown in the table (right) and on the map (above).

Net Economic Impact of the URC by Region

| Regions | Output Impact (millions) | Jobs Impact |
|--------------------------|--------------------------|---------------|
| Upper Peninsula | \$64.7 | 92 |
| Northwest | \$193.9 | 184 |
| Northeast | \$59.8 | 80 |
| West | \$787.6 | 909 |
| East Central | \$174.8 | 201 |
| East | \$697.6 | 2,022 |
| South Central (MSU) | \$4,129.1 | 12,913 |
| Southwest | \$245.6 | 266 |
| Southeast (U of M) | \$6,599.3 | 43,671 |
| Detroit Metro (WSU) | \$7,640.6 | 19,893 |
| State of Michigan | \$20,592.8 | 80,231 |

Source: AEG economic impact framework utilizing base data from URC Universities; BEA RIMS II Multipliers; IPEDS; Census Bureau.

URC Impact on State Tax Revenue

A portion of the new economic activity generated by the URC in Michigan is subject to taxes. To estimate new tax revenue, the incremental wage and salary income that URC employees and alumni receive because of the URC is calculated. Then, the additional state revenue generated by several important taxes: income, sales, property, and transportation taxes is determined.

Total Additional State Tax Revenues

The URC generated an estimated \$11.7 billion in incremental earnings for Michigan households in FY 2021 through university operations and capital spending and by increasing alumni earnings in Michigan.

These new earnings are subject to a number of state taxes, including income, sales and use, and transportation taxes. URC staff and alumni also use this income to make expenditures toward property taxes on their homes. In FY 2021 these \$11.7 billion in earnings led to an additional \$650 million in tax revenue for the State.

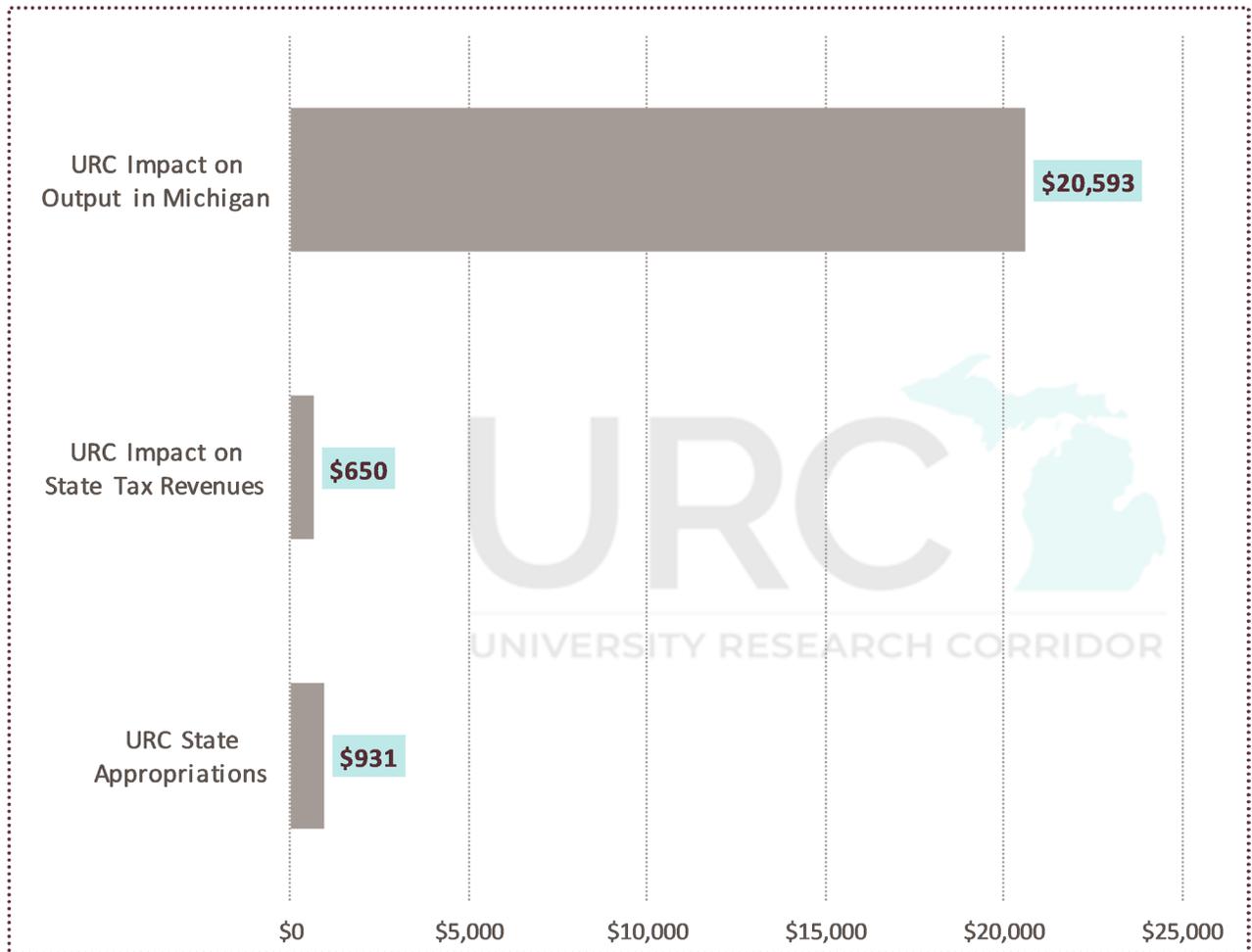
Additional Tax Revenue to State of Michigan Due to URC, FY 2021

| Tax | Total Additional Revenue (millions) |
|-------------------------------------|-------------------------------------|
| Personal Income Tax | \$317.1 |
| Sales and Use Tax | \$245.8 |
| Property Tax | \$53.1 |
| Transportation Tax | \$34.0 |
| Total Additional Tax Revenue | \$650 |

Source: AEG economic impact framework utilizing base data Consumer Expenditure Surveys and Michigan House Fiscal Agency.



URC Net Economic Impact vs. State Appropriations, 2021



Source: AEG economic impact framework utilizing base data from AEG estimates, Michigan House Fiscal Agency.



Comparing Economic Impact to State Appropriations

The main goal of the URC is to leverage the educational attainment and intellectual capital developed in the URC schools. In doing so, the URC supports a vibrant Michigan economy. The URC’s contributions to the Michigan economy also generate additional tax revenue for the state. Since the state provides funding for these universities, it is natural to compare the URC’s economic and fiscal impact to the state’s appropriations for universities.

The URC’s \$20.6 billion in net economic impact was 22 times greater than the State’s \$930 million in funding appropriated for the URC and MSU extension in FY 2021. In addition, the State of Michigan received an estimated \$650 million in tax revenue from URC employees and alumni that it would otherwise not have received if the URC did not exist in Michigan.

Appendix A.

Methodology

The methodology used this year is consistent with the methodology used in our last report, except that we used updated economic impact multipliers in this year's analysis. We describe our analysis methodology below.

Data and Analysis for Maps

All maps in this report were created using Geographic Information Software (GIS). When data were incomplete or imperfect in terms of geographies, we used professional judgment and GIS to make estimations.

"URC Presence in Michigan" is derived from locations found primarily on the websites of URC universities, partners, and affiliates and licensed hospitals. Where addresses for affiliate hospitals, extension locations, and partner hospitals were missing, careful research was done to find them.

"URC Students by County" is based on data from the URC that details student enrollment by Michigan county for the cohorts entering the universities in Fall 2021.

"URC Alumni by County" and "URC Alumni by State" were created using 2021 alumni data from the URC alumni offices. Using this data, we estimated the number of alumni per county, which we used in our regional incremental alumni earnings analysis. This is discussed further in "Alumni Earnings Methodology."

"Net Economic Impact of URC by Region (millions)" is based on data provided by the URC universities and the economic collaborative regions created by the Michigan Economic Development Corporation. We present our economic impact estimates of output and employment for those regions in "Economic Impact by Michigan Region."

Economic Impact Analysis

We define the net economic impact of the URC as the "net new" economic activity that occurs in Michigan that is directly or indirectly caused by the URC. Direct economic impacts stem from initial spending by the URC universities, students, and alumni in the state. Indirect impacts stem from direct spending recirculating throughout the Michigan economy. We estimated the indirect economic impact of URC's expenditures by multiplying the direct expenditures by final demand output multipliers from the Bureau of Economic Analysis.

Our economic and fiscal models are premised on comparing the economic activity occurring in Michigan today, relative to the amount of economic activity that would occur in Michigan if the URC did not exist. The incremental difference between these two levels of activity is the "net new" economic activity caused by the URC. For example, if the URC did not exist, fewer out-of-state students would come to Michigan to study, resulting in less student spending in the state. Likewise, the state would likely receive fewer research grants, meaning there would be less research spending in Michigan. We carefully considered all types of spending attributed to the URC to determine how much of that spending would occur in Michigan if the URC did not exist.

Operational Expenditures Methodology

First, we determined the amount of URC payroll and nonpayroll expenditures that went to employees and vendors in the state using University spending information provided by URC institutions; athletic information from NCAA reports and economic data from the U.S. Bureau of Labor Statistics. Accounting for what is “Net New” in Michigan. After calculating the URC payroll and nonpayroll expenditures and URC student expenditures, we accounted for the spending that would be considered net new in Michigan, excluding any spending that would have occurred even if the URC were not part of the state’s economy. To estimate the percentage of each category of expenditure that occurred in Michigan, we used actual expenditure data from the schools, as well as our professional judgment.

Student Spending Methodology

To estimate net new students in Michigan, we obtained the number of in-state and out-of-state students from the URC universities. Next, we estimated the percent of students who attend university in Michigan because of the URC. We estimated the number of new students in the state due to URC. Overall, we assumed 80% of in-state students attend universities in Michigan because of the URC. We also assume that 100% of out-of-state students are net new students in Michigan because of the URC.

Student spending was based on the percentage of students who live on- and off-campus, and their estimated spending on room and board; books and supplies; apparel, food and grocery, and other basic needs; and meals and entertainment away from campus. One way to think about this is that 20% of URC students from Michigan would remain in Michigan for their college degree if the URC never existed. That spending associated with their education would also remain in the state. Therefore, this is not new economic activity caused by the URC. It is unlikely that most out-of-state students would come to Michigan for their bachelor’s or advanced degree if the URC did not exist. We counted the expenditures on the instruction of and spending by these students as new economic activity caused by the URC.

Alumni Earnings Methodology

We constructed a customized earnings model to determine the value of a URC education and the incremental earnings a URC degree provides to students over the education and career path those students would have taken if the URC did not exist.

To estimate the current earnings of URC alumni living in Michigan, we relied on wage data by education level for 2020 and BLS inflation figures to bring it to 2021 dollars. We then estimated the proportion of URC alumni in would fall into one of three “counter-factual” groups. A counter-factual group is a group of students who would have exhibited a different labor market outcome had they not attended a URC university. These outcomes include considerations such as working outside the state, attaining less education, or attending another university in the state. Next, we used Census Bureau data and workforce participation data to estimate each counter-factual group’s total earnings and calculated incremental earnings.

Total Economic Impact

Following is a summary of our analysis of the economic impact of operations spending, student spending, and incremental alumni earnings.

Detail: URC Net Economic Impact, FY 2021

| Category | 2021 Expenditures | Net Econ Impact (Direct and Indirect) |
|--|------------------------|--|
| URC Payroll Expenditures | | |
| Salary and Wages | \$6,184,930,902 | \$4,943,881,292 |
| Employee Benefits | \$2,026,333,278 | \$2,573,885,592 |
| Subtotal: Econ Impact from Payroll Expenditures | \$8,211,264,180 | \$7,517,766,883 |
| URC Nonpayroll Expenditures | | |
| Instruction and Academic Support | \$203,995,782 | \$317,658,711 |
| Research | \$381,581,239 | \$640,332,654 |
| Public and Student Services, Institutional Support, Aux. Enterprises, Other Expenses | \$601,277,148 | \$875,124,159 |
| Plant Operation and Maintenance | \$461,480,968 | \$607,702,479 |
| Hospital Services | \$1,885,940,000 | \$413,321,796 |
| Athletics | \$241,846,224 | \$427,874,787 |
| Construction | \$725,076,954 | \$955,855,897 |
| Subtotal: Econ Impact from Nonpayroll Expenditures | \$4,501,198,315 | \$4,237,870,483 |
| Student Spending | | |
| Room and Board | \$1,602,400,794 | \$2,127,793,754 |
| Books and Supplies | \$147,945,355 | \$176,435,217 |
| Apparel, Food and Grocery, Other Basic Needs | \$103,565,036 | \$178,260,979 |
| Meals & Entertainment--Away From Campus | \$221,019,221 | \$385,363,705 |
| Subtotal: Econ Impact from Student Spending | \$2,074,930,406 | \$2,867,853,655 |

Source: AEG economic impact framework utilizing base data from URC Universities; Bureau of Economic Analysis RIMS II Multipliers.

| Category | 2021 Incremental Earnings | % After Taxes & Savings | Net Econ Impact (Direct and Indirect) |
|---|---------------------------|-------------------------|--|
| Alumni Earnings | | | |
| ^(a) Incremental Alumni Earnings | 17,046 | 15,271 | 1.61 |
| Subtotal: Econ Impact from Alumni Earnings | 67,836 | 47,936 | -- |

Source: AEG economic impact framework utilizing base data from URC Universities; Bureau of Economic Analysis.

^(a) "Incremental alumni earnings" refers to additional earnings, less taxes and savings, available for spending in Michigan.

Summary: URC Net Economic Impact, FY 2021

| Category | 2021 Expenditures or Incremental Earnings | Direct Impact ^a | Indirect Impact ^b | Direct and Indirect Impact ^c |
|--|---|----------------------------|------------------------------|---|
| Total Economic Impact | | | | |
| URC Payroll Expenditures | \$8,211,264,180 | \$1,413,058,244 | \$6,104,708,639 | \$7,517,766,883 |
| URC Nonpayroll Expenditures | \$4,501,198,315 | \$2,073,594,851 | \$2,164,275,633 | \$4,237,870,483 |
| Student Spending | \$2,074,930,406 | \$1,757,994,066 | \$1,109,859,590 | \$2,867,853,655 |
| Incremental Alumni Earnings ^d | \$7,387,249,352 | \$ | \$5,971,049,751 | \$5,971,049,751 |
| Total Economic Impact of the URC: | | \$5,244,647,160 | \$15,349,893,613 | \$20,594,540,773 |

Source: AEG economic impact framework utilizing base data from URC Universities; BEA RIMS II Multipliers; AEG Estimates.

a. "Direct impact" is taken from the "Net New \$ in Michigan" from the detailed summary. The direct impact excludes spending to households (e.g., direct salaries and wages and direct incremental alumni earnings) since this spending does not represent sales for businesses.

b. "Indirect impact" is taken from the "Memo: Indirect Impact" from the detailed summary.

c. "Direct and Indirect Impact" is taken from the "Net Economic Impact (Direct and Indirect)" from the detailed summary.

d. "Incremental alumni earnings" refers to additional earnings, less taxes and savings, available for spending in Michigan.

Jobs Impact

To estimate the jobs impact of the URC, we estimated the number of net new employees by headcount that work for the URC universities and UMHS. Like last year's report, we relied on headcount employment to estimate the jobs impact to be consistent with the definition of employment used by the U.S. Bureau of Economic Analysis, which is the source of the economic multipliers. We then applied the direct-effect employment multipliers from the Bureau of Economic Analysis to estimate the additional indirect impact the URC has on employment. The multipliers we used for school faculty and staff were for the junior colleges, colleges, universities, and professional schools category. For hospital faculty and staff, we used the hospitals multiplier. The following table shows the net jobs impact for the URC.

URC Net Jobs Impact, FY 2021

| Category | 2021 Employment | Direct Jobs Impact | Employment Impact |
|--------------|-----------------|--------------------|-------------------|
| Faculty | 16,710 | 14,800 | 24,023 |
| Staff | 49,643 | 31,609 | 56,207 |
| Total | 66,353 | 46,409 | 80,230 |

Analysis: Anderson Economic Group, LLC

Source: AEG economic impact framework utilizing base data from URC Universities; BEA RIMS II Multipliers, AEG Estimates.

Regional Economic Impact

Our regional economic impact analysis is meant to illustrate the magnitude of URC's economic impact on a local level. To conduct the regional economic impact analysis, we included the same expenditures in the state economic impact analysis, except at a county level.

Operational Expenditures

We estimated the percentage of payroll and nonpayroll expenditures in each county using data provided by the URC universities on wages and vendor payments by county. We allocated the net new university expenditures using the same distribution across counties.

Student Local Spending

We used our statewide estimates of URC student expenditures, and after accounting for substitution, we attributed a portion of that spending to the counties in which the URC universities are located. We apportioned 100% of spending for students living on campus to the counties in which the schools are located. No data were available that directly report where off-campus students live and spend money. We apportioned spending by students who live off campus based on our knowledge of the campuses and our professional judgment.

Regional Alumni Earnings and Incremental Earnings Estimates

An analysis of where URC alumni currently live shows that different regions of the state account for differing shares of alumni earnings. The largest driver of these differences comes from the number of URC alumni living in different parts of the state, but the distribution is also affected by whether the alumni have bachelors or advanced degrees. We apportioned alumni earnings based on where alumni live. We obtained this information from each university's alumni office.

Indirect Economic Impact

We estimated the regional indirect economic impact of URC's expenditures by multiplying direct expenditures by the multipliers from the U.S. Bureau of Economic Analysis. The analysis would be a highly complex (and prohibitively expensive) to use individual multipliers for each of Michigan's 83 counties. Instead, we purchased county multipliers for the three counties with the largest share of expenditures: Washtenaw, Wayne, and Ingham. The remaining counties were categorized according to their population—low, medium, or high population—and we estimated multipliers accordingly.

Economic activity is not contained within the region it occurs. For example, spending in one region generates activity in nearby regions when that money is re-spent. Therefore, the indirect economic impact generated by the URC is larger than the sum of regional estimates. To correct for this and apportion all indirectly generated activity to each region, we estimated a factor of economic activity that goes beyond each county's borders. Each direct expenditure estimate was multiplied by that spending factor as well as the multiplier.

Total Impact of URC Operations and Student Spending in Michigan, by Region

| Region | Net New Payroll Expenditures | | Net New Nonpayroll Expenditures | | Net New Student Spending | | Net New Employment | |
|--------------------------|------------------------------|-------|---------------------------------|-------|--------------------------|-------|--------------------|-------|
| | Total | Share | Total | Share | Total | Share | Total | Share |
| Upper Peninsula | \$6,058,525 | 0.1% | \$6,970,947 | 0.2% | - | 0.0% | 92 | 0.1% |
| Northwest | \$12,230,060 | 0.2% | \$8,304,634 | 0.2% | - | 0.0% | 184 | 0.2% |
| Northeast | \$5,229,830 | 0.1% | \$830,313 | 0.0% | - | 0.0% | 80 | 0.1% |
| West | \$80,969,140 | 1.1% | \$216,355,328 | 5.1% | - | 0.0% | 909 | 1.1% |
| East Central | \$11,628,225 | 0.2% | \$16,101,327 | 0.4% | - | 0.0% | 201 | 0.3% |
| East | \$147,024,983 | 2.0% | \$54,700,850 | 1.3% | \$101,113,858 | 3.5% | 2,022 | 2.5% |
| South Central | \$1,499,633,209 | 19.9% | \$1,066,933,181 | 25.2% | \$856,391,525 | 29.9% | 12,913 | 16.1% |
| Southwest | \$16,635,679 | 0.2% | \$30,851,098 | 0.7% | - | 0.0% | 266 | 0.3% |
| Southeast | \$4,056,552,197 | 54.0% | \$560,998,586 | 13.2% | \$1,244,397,965 | 43.4% | 43,671 | 54.4% |
| Detroit Metro | \$1,681,805,036 | 22.4% | \$2,275,824,219 | 53.7% | \$664,251,756 | 23.2% | 19,893 | 24.8% |
| State of Michigan | \$7,517,766,883 | | \$4,237,870,483 | | \$2,866,155,104 | | 80,231 | |

Source: AEG economic impact framework utilizing base data from URC universities; US Bureau of Economic Analysis RIMS II Multipliers; AEG estimates.

Economic Impact of Additional URC Alumni Earnings in Michigan, by Region

| Region | URC Alumni ^a | | Share of URC Alumni Earnings ^b | | Share of Incremental URC Alumni Earnings | | 2019 Michigan Population | |
|--------------------------|-------------------------|-------|---|-------|--|-------|--------------------------|-------|
| | Total | Share | Total | Share | Total | Share | Total | Share |
| Upper Peninsula | 5,804 | 0.8% | \$399,540,971 | 0.8% | \$63,939,532 | 0.9% | 298,851 | 3.0% |
| Northwest | 19,344 | 2.7% | \$1,331,449,387 | 2.8% | \$214,457,160 | 2.9% | 306,842 | 3.1% |
| Northeast Region | 6,146 | 0.9% | \$418,421,385 | 0.9% | \$66,530,905 | 0.9% | 203,087 | 2.0% |
| West | 54,057 | 7.6% | \$3,713,614,352 | 7.7% | \$606,638,880 | 8.2% | 1,613,924 | 16.2% |
| East Central | 16,464 | 2.3% | \$1,133,489,049 | 2.3% | \$181,903,088 | 2.5% | 558,686 | 5.6% |
| East | 44,675 | 6.3% | \$3,201,157,420 | 6.6% | \$488,345,642 | 6.6% | 776,944 | 7.8% |
| South Central | 76,441 | 10.7% | \$5,101,665,807 | 10.6% | \$873,518,084 | 11.8% | 550,391 | 5.5% |
| Southwest | 21,889 | 3.1% | \$1,511,275,763 | 3.1% | \$245,081,435 | 3.3% | 784,571 | 7.9% |
| Southeast | 82,888 | 11.6% | \$5,973,684,212 | 12.4% | \$912,159,320 | 12.3% | 1,012,662 | 10.1% |
| Detroit Metro | 384,506 | 54.0% | \$25,492,855,152 | 52.8% | \$3,734,675,306 | 50.6% | 3,880,899 | 38.9% |
| State of Michigan | 712,214 | | \$48,277,153,497 | | \$7,387,249,352 | | 9,986,857 | |

Source: AEG economic impact framework utilizing base data from URC universities; BEA RIMS II 2019 multipliers; AEG estimates; ACS 5-year estimates.

^aAlumni population includes only alumni with valid zip codes.

^bAlumni Earnings include only alumni with valid graduation year information.

Total Impact of URC Alumni in Michigan, by Region

| Impact of URC Alumni in MI, by Region | Earnings After Taxes and Savings | | Total Impact of URC Alumni Incremental Earnings | |
|---------------------------------------|----------------------------------|-------|---|-------|
| | Total | Share | Total | Share |
| Upper Peninsula | \$45,109,340 | 0.9% | \$51,681,770 | 0.9% |
| Northwest | \$151,299,526 | 2.9% | \$173,343,867 | 2.9% |
| Northeast | \$46,937,554 | 0.9% | \$53,776,355 | 0.9% |
| West | \$427,983,730 | 8.2% | \$490,340,959 | 8.2% |
| East Central | \$128,332,629 | 2.5% | \$147,030,693 | 2.5% |
| East | \$344,527,851 | 6.6% | \$394,725,558 | 6.6% |
| South Central | \$616,267,008 | 11.8% | \$706,057,111 | 11.8% |
| Southwest | \$172,904,953 | 3.3% | \$198,097,204 | 3.3% |
| Southeast | \$643,528,400 | 12.3% | \$737,290,488 | 12.3% |
| Detroit Metro | \$2,634,813,429 | 50.6% | \$3,018,705,745 | 50.6% |
| State of Michigan | \$5,211,704,418 | | \$5,971,049,751 | |

Source: AEG economic impact framework utilizing using base data from URC universities; BEA RIMS II 2019 multipliers; AEG estimates; ACS 5-year estimates.

Estimate of the URC and Alumni Economic Impact in Michigan by Region, FY 2021

| Total Impact of URC in Michigan, by Region | Net New Economic Impact | | Total Jobs Impact | |
|--|-------------------------|-------|-------------------|-------|
| | Total | Share | Total | Share |
| Upper Peninsula | \$64,711,242 | 0.3% | 92 | 0.1% |
| Northwest | \$193,878,561 | 0.9% | 184 | 0.2% |
| Northeast | \$59,836,499 | 0.3% | 80 | 0.1% |
| West | \$787,665,427 | 3.8% | 909 | 1.1% |
| East Central | \$174,760,245 | 0.8% | 201 | 0.3% |
| East | \$697,565,250 | 3.4% | 2,022 | 2.5% |
| South Central | \$4,129,015,026 | 20.1% | 12,913 | 16.1% |
| Southwest | \$245,583,981 | 1.2% | 266 | 0.3% |
| Southeast | \$6,599,239,235 | 32.0% | 43,671 | 54.4% |
| Detroit Metro | \$7,640,586,755 | 37.1% | 19,893 | 24.8% |
| State of Michigan | \$20,592,842,221 | | 80,231 | |

Source: AEG economic impact framework utilizing base data from URC universities; BEA RIMS II 2019 multipliers; AEG estimates.

Tax Revenue Impact Analysis

We estimated new tax revenue by first calculating the new wage and salary income that URC employees and alumni receive because of the URC. We then estimated the additional tax revenue to the state for several state-level taxes: income, sales, property, and transportation taxes.

Additional Employee and Alumni Earnings

Average vs. Marginal Income. We categorize the earnings of employees and alumni caused by the URC into two groups—marginal and average income. The portion of alumni earnings that is earned in addition to what would have been earned without the URC is treated as “marginal income.” We treat entire new salary and wage income for an employee or alumni that is earned only because of the URC as “average income.” This distinction matters because people spend their first \$1,000 of income differently than their last, and the State taxes this income differently because of exemptions.

Employee Earnings. The income of URC employees is treated as average income. The earnings of URC employees come largely from out-of-state income sources. It is reasonable as a first approximation to treat URC employee jobs as jobs that would not exist without the URC, meaning each employee’s entire income generates net new tax revenue. The out-of-state income sources we refer to as supporting instruction and research expenses for URC employees includes tuition from out-of-state students and R&D funding (60% of which comes from the federal government). While it is possible that some of the income of URC employees could be treated as marginal income, treating it as average income is more conservative because average income is taxed at a lower average rate than marginal income is.

Alumni Incremental Earnings. For some graduates, such as those leaving Michigan after graduating, attending a URC university likely had no impact on their annual Michigan earnings (and therefore to the taxes they pay to the State of Michigan). Other graduates earn extra income due to the URC, and therefore pay additional taxes to the State. The proportion of their additional income that goes to Michigan taxes depends on whether their additional income due to the URC represents a pay boost (for graduates who would still be working in Michigan without the URC) or if their entire Michigan income is due to the URC (for graduates who otherwise would not be working in Michigan). We apply different effective tax rates to each scenario as described below.

Effective Tax Rates

Average and marginal income are taxed and spent differently. To account for this difference, we estimate an effective rate for each type of income that is taxed, which is the amount we anticipate people will pay in taxes divided by their income. For example, if someone makes \$10,000 and spends \$7,000 of that on items subject to the 6% state sales and use tax, he or she will pay 6% of \$7,000, or \$420 in taxes. His or her effective sales tax rate is \$420 divided by \$10,000, or 4.2%.

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