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ECONOMIC IMPACT STUDY

The University Research Center (URC) was charged with estimating the impact of Mississippi's public universities on the state's economy. Data was collected from Mississippi Institutions of Higher Learning's (IHL) annual financial statement and surveys of Mississippi's eight public universities.

EXECUTIVE SUMMARY

Mississippi's public university system had a \$6.527 billion impact on the state's economy in 2020, according to a recent study conducted by the University Research Center. That amount is projected to increase to \$8,052 billion by 2030.

The direct, indirect, and induced effects on real GDP, total employment, and real personal income are included in the calculations, which focused on three major components of the university system's impact:

- University operations, including the number of employees, wages, construction cost, research spending, and all other operational costs
- Off-campus spending and all non-operational activities such as sports, conferences, and volunteer hours provided by students and employees
- Additional earnings of graduates entering the workforce

The number of jobs supported by the university system through direct, indirect, and induced employment was estimated to be 80,280 jobs in 2020. By 2030, URC estimates 98,801 jobs will be supported through the university system's impact on the state.

The study found that IHL graduates in every sector earned more than non-IHL graduates, according to available data in 2019. The average additional earnings for IHL graduates among all industries was \$26,700. The University Research Center gathered data from the 2014-15 through 2019-20 academic years and used the five-year average for the calculations. The study, authored by URC Senior Economist Sondra Collins, Ph.D., included the following key findings:

- Each \$1 of state funding for spending by Mississippi's public universities generates approximately \$1.52 of personal income in Mississippi.
- For every \$1 the state invests in Mississippi Public Universities invest in students, staff, research and other components of their missions, the Mississippi economy grows \$1.72.
- Mississippi Public Universities had a \$6.527 billion economic impact around the state in 2020.
- Mississippi Public Universities are projected to have a \$8.052 billion economic impact on the state in 2030.
- In 2020, Mississippi Public Universities contributed to the state's economy by supporting 80,280 direct, indirect and induced jobs.
- By 2030, the university system is expected to support 98,801 direct, indirect and induced jobs.
- In 2020, IHL Universities contributed an estimated \$289 million to Total State General Fund Revenue
- Approximately 57% of graduates from IHL universities secure employment in Mississippi within one year of graduation.
- The different components of higher education will contribute approximately 5.1% to Mississippi's economy annually.
- 1 in every 15 jobs in Mississippi's economy is supported in some way by IHL operations, outreach, and/or graduates.



\$6.5B
IMPACT ON THE STATE'S ECONOMY IN 2020

Mississippi's public university system had a \$6.527 billion impact on the state's economy in 2020, according to a recent study conducted by the University Research Center.



\$289M
IHL UNIVERSITIES CONTRIBUTED

In 2020, IHL Universities contributed an estimated \$289 million to Total State General Fund Revenue.



80,280
#OF JOBS SUPPORTED BY THE UNIVERSITY SYSTEM

The number of jobs supported by the university system through direct, indirect, and induced employment in 2020.



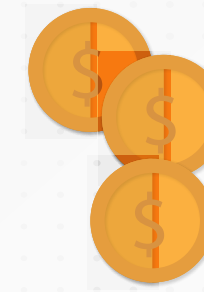
52%
INCREASE IN PERSONAL INCOME

For every dollar spent by Mississippi's public universities, the ROI to personal income is 1.52 meaning for every dollar spent by Mississippi's public universities, personal income in the state increases by \$1.52.



7%
OF JOBS IN MISSISSIPPI'S ECONOMY

1 in every 15 jobs in Mississippi's economy is supported in some way by IHL operations, outreach, and/or graduates.



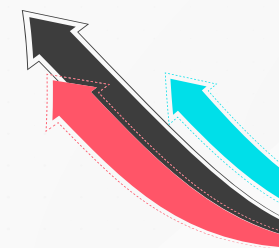
\$8B
PROJECTED IMPACT ON THE STATE'S ECONOMY IN 2030

According to a recent study conducted by the University Research Center, the previous amount of \$6.527 billion is projected to increase to \$8.052 billion by 2030.



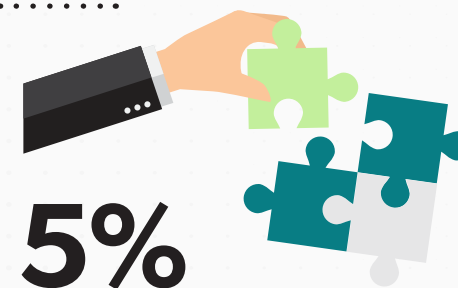
57%
OF GRADUATES WORK IN MISSISSIPPI

Approximately 57% of graduates from IHL universities secure employment in Mississippi within one year of graduation.



98,801
#OF ESTIMATED JOBS SUPPORTED BY 2023

By 2030, URC estimates 98,801 jobs will be supported through the university system's impact on the state.



5%
CONTRIBUTED TO MISSISSIPPI'S ECONOMY

The different components of higher education will contribute approximate 5.1% to Mississippi's economy annually.



72%
% OF GROWTH IN THE STATE'S ECONOMY PER \$1 SPENT

For every dollar spent by Mississippi's public universities, the state's GDP increases by \$1.72.

FULL REPORT

The University Research Center (URC) was charged with estimating the impact of Mississippi's public universities on the state's economy. Data was collected from Mississippi Institutions of Higher Learning's (IHL) annual financial statement and surveys of Mississippi's eight public universities.

This report focuses on three main components of IHL's impact. The first is the universities' operations, followed by non-academic/non-operational activities such as sports, conferences, and volunteer hours. The final section will outline the impact graduates have on the state's economy.

URC used data from the 2014-15 through 2019-20 academic years. Using this 5-year average instead of a one-year snapshot allows us to capture events that happen often, but not necessarily annually such as larger construction and research projects. The operational data collected include number of employees, wages, construction cost, research spending, and all other operational cost. The off-campus data includes number of visitors to each campus, amount visitors spend for various events, off-campus spending by students, and volunteer hours logged by students/faculty/staff. The post-graduation data includes wages of IHL graduates, wages of all employees who didn't graduate from an IHL institution, wages of employees who entered the workforce immediately after graduating from a Mississippi high school or community college, and wages of employees who entered the workforce before obtaining a diploma from a Mississippi high school.

Our results consider direct, indirect, and induced effects on real GDP, total employment, and real personal income. Direct effects are the new employment, personal income and GDP created directly from the universities. Indirect effects stem from the employment, personal income, and GDP that stem from new employment at other businesses that are a direct result of relationships with the colleges and universities. For example, the university may hire a company for food services, another company for security and outsource other parts of operations. These jobs are indirect but would not exist without the direct connection to IHL universities. The final category, induced effects, stem from new employment that stems businesses locating in an area or hiring additional employees because of the universities. This will include off-campus bookstores, restaurants, hotels, and many other businesses. Although, this study will not separate the indirect from induced effects, it is important to note the difference. A fast-food chain may contract with the university for a location on-campus and be counted as part of the indirect effect due to their relationship, while another fast-food chain may locate near campus without a contract or request from the university and instead be counted as part of the induced effect.

State GDP and personal income are presented in real terms. This means that URC chooses a base year and eliminates the expected inflation in the following years to ensure that the growth we see in GDP and personal income are real growth and not just the result of an increase in the price level.

UNIVERSITY OPERATIONS

To estimate the effect IHL operations has on the state's economy, we begin by taking the 5-year average spending in four major categories, employment, construction, research, and other operations for the entire IHL system. Assuming the 5-year average is the norm, URC estimates IHL's impact on 2020 GDP to be \$2.9 billion (see Table 1). This calculation takes into consideration all funds spent on wages, construction, research, and other operational costs, while also considering leakages. Leakage is money that goes into another state's (or country's) economy instead of continuing to circulate in the Mississippi economy. This happens because some funds are spent on goods and services from outside the state. This includes the funds the university directly pays to out-of-state vendors/employees as well as goods various employees purchase with their income from out-of-state vendors. In 2020, the impact of IHL's operations on the state's GDP was \$2.9 billion. By 2030, we expect IHL's operations to account for approximately \$3.6 billion in the state's real GDP (see Table 1).

In addition to state GDP, URC estimates employment and real personal income. Like the reported real GDP, employment includes all direct, indirect, and induced employment created by IHL. In 2020, this estimate is 32,524 jobs. By 2030, URC estimates 42,449 jobs. Personal income includes all income from all employment that stems from the existence of IHL and its universities. In 2020, URC estimates IHL to have added \$925 million to personal income in the state, increasing to \$1.3 billion in 2030.

NON-ACADEMIC / NON-OPERATIONAL ACTIVITIES

The next step in estimating the impact of IHL universities is to add non-academic/non-operational activities such as off-campus spending by students, volunteer hours worked by students/faculty/staff, visitors to campuses for events like sports and conferences, and other reported events that happen in the state due to the presence of the universities. After adding this the contribution to the state's real GDP increases to a total of \$3.9 billion for 2020. Again, this includes direct, indirect, and induced effects minus any leakages. By 2030, IHL's contribution to the state's real GDP increases to \$4.8 billion. After adding additional non-operational expenditures, IHL's impact on that state's employment increases to 49,759 in 2020 and 60,344 in 2030. IHL's total contribution to real personal income in the state is \$1.4 billion in 2020 and increases to \$1.9 billion in 2030 (see Table 2).

	GROSS DOMESTIC PRODUCT IN FIXED (2020) DOLLARS	TOTAL EMPLOYMENT	PERSONAL INCOME IN FIXED (2020) DOLLARS
2020	\$2,891,103,451	32,524	\$924,736,502
2021	\$2,952,978,070	33,402	\$958,051,491
2022	\$3,016,176,912	34,304	\$992,566,701
2023	\$3,080,728,319	35,229	\$1,028,325,372
2024	\$3,146,661,237	36,180	\$1,065,372,302
2025	\$3,214,005,234	37,157	\$1,103,753,901
2026	\$3,282,790,510	38,160	\$1,143,518,254
2027	\$3,353,047,909	39,190	\$1,184,715,176
2028	\$3,424,808,938	40,247	\$1,227,396,278
2029	\$3,498,105,778	41,333	\$1,271,615,029
2030	\$3,572,971,296	42,449	\$1,317,426,825

Table 1

	GROSS DOMESTIC PRODUCT IN FIXED (2020) DOLLARS	TOTAL EMPLOYMENT	PERSONAL INCOME IN FIXED (2020) DOLLARS
2020	\$3,914,461,867	49,759	\$1,436,789,073
2021	\$3,992,344,363	50,728	\$1,475,750,163
2022	\$4,071,776,417	51,716	\$1,515,767,752
2023	\$4,152,788,859	52,723	\$1,556,870,490
2024	\$4,235,413,131	53,750	\$1,599,087,801
2025	\$4,319,681,304	54,797	\$1,642,449,910
2026	\$4,405,626,084	55,864	\$1,686,987,859
2027	\$4,493,280,830	56,952	\$1,732,733,534
2028	\$4,582,679,562	58,061	\$1,779,719,685
2029	\$4,673,856,980	59,192	\$1,827,979,948
2030	\$4,766,848,472	60,344	\$1,877,548,874

Table 2

GRADUATE'S IMPACT ON THE STATE'S ECONOMY

Lastly, we add the economic impact of those who graduated from an IHL institution. This is difficult to measure because there is no state database that contains the educational attainment of all residents. Fortunately, we do have a fair amount of information on residents who graduate from public high schools, community colleges, and IHL institutions in the state via the Statewide Longitudinal Data System (SLDS) managed by Mississippi State University's NSPARC. The SLDS is a rich database however, it lacks information on those attending private colleges and universities in Mississippi as well as information on those attending any colleges and universities outside of Mississippi. The SLDS also fails to identify IHL graduates who graduated prior to 1984.

Considering all identifiable IHL graduates and comparing them to everyone in the workforce who is not an IHL graduate, the SLDS show that in 2019, IHL graduates in every sector earned more than non-IHL graduates. The dollar amount ranged from a higher pay of \$10,500 for jobs in the Information industry to a higher pay of \$51,000 for jobs in the Wholesale Trade industry. The average additional earnings for IHL graduates among all industries was \$26,700. It's important to keep in mind that this is a return to IHL and not a return to college education generally. Ideally, when we consider the return to a college education, we compare those who attained a college degree to those who did not. Remember, SLDS data cannot identify those who attended colleges outside IHL institutions so those who have bachelor's degrees or higher from non-IHL institutions are included in the non-IHL group although they are likely earning the same wages as IHL graduates with similar degrees. One could argue that this is an understatement of the return to an IHL degree; however, the reader must keep in mind that other institutions of higher education would likely exist in the absence of IHL. Graduates from those institutions would likely work in the Mississippi economy as they do now. Therefore, including these employees in the non-IHL group creates a reasonable estimate of the return to an IHL degree although it underestimates the return to a college degree generally.

For 2014 IHL graduates, the leading industries one year after graduation are educational services, health care and social assistance, and retail trade. Together they compose of 60% of 2014 IHL graduates who are employed in Mississippi one year after graduation. For this same class, 5 years after graduation, the first two categories are still top employment options, but retail trade has decreased by half and public administration has moved to third place. There is growth in other higher paying industries over the 5-year period such as utilities. This is evidence that IHL graduates who remain in-state may start their careers in lower paying industries and later move to higher paying industries. Those who remain in industries with lower average pay still tend to earn more than the industry average. Table 3 shows industries that IHL graduates are overrepresented in. By this, we mean industries where there is a higher proportion of IHL graduates than non-IHL graduates across all Mississippi workers.

We've discussed IHL graduates in comparison to all non-IHL graduates, now let's discuss IHL graduates relative to other Mississippi employees for whom we have data on educational levels. These employees graduated from high school and/or community college programs in Mississippi. For those who entered the workforce in 2014 either after completing public high school, an associate degree/ professional certification at a public community college or a 4-year degree or higher from an IHL institution, wages vary largely (see Table 4). One year after entering the workforce, those who entered without finishing high school earned about \$7,900, while those who graduated from an IHL institution earned about \$33,500. Five years after entering the workforce, those without a high school diploma had increased their earnings to about \$14,700 and those who graduated from an IHL institution had increased their earnings to about \$48,400 (see Table 4).

	EARNINGS 1 YEAR AFTER GRADUATION	EARNINGS 3 YEARS AFTER GRADUATION	EARNINGS 5 YEARS AFTER GRADUATION
Less than High School Diploma	\$7,906	\$11,443	\$14,703
High School Diploma	\$11,333	\$15,971	\$21,518
Associate Degree or Professional Certificate	\$26,592	\$31,978	\$37,119
IHL Graduate	\$33,509	\$42,328	\$48,396

Table 4

Moving back to the economic impact, we must add the additional income IHL graduates receive to the other components to get the full impact of the institutions. This additional income is difficult to measure, especially considering the total number of IHL graduates in the workplace in Mississippi. To estimate the additional income created in the state by IHL graduates, we take the average IHL average in each industry and subtract the average salary of those who didn't graduate for an IHL institution and multiply that by the total number of IHL graduates in that industry. We then matched those industries with the industries in the REMI Tax PI model to find the benefit to the Mississippi economy of all IHL graduates. Again, this estimate underestimates the return to a college education because some employees are college graduates of non-IHL institutions. However, in the absence of IHL, these other institutions would still exist so capturing them in the non-IHL pool gives the return to IHL and not the return to a college education.

Table 5 shows the full benefit of IHL institutions including the increased salaries of all workers in Mississippi with a degree from an IHL institution. IHL is now responsible for over 80,000 jobs in the state in 2020. This is over and beyond the jobs that would exist without IHL's operations, outside activities and the improved wages of its graduates. By 2030, IHL will be responsible for almost 100,000 jobs in the state. In 2020, IHL is responsible for over \$6.5 billion of the state's GDP. URC estimates this will increase to \$8 billion by 2030.

Now that IHL's full economic impact has been measured, it is appropriate to discuss the returns generated by Mississippi's public universities. In FY2020, IHL's operating expenses were approximately \$3.8 billion, while state appropriations were approximately \$702 million according to the "State of Mississippi Institutions Of Higher Learning Financial Statements June 30, 2020 and 2019." Economists typically take the full impact and divide that by the full expenditure regardless of revenue source to determine the return on investment (ROI). In this case, ROI is 1.72. This means for every dollar spent by Mississippi's public universities, the state's GDP increases by \$1.72. The ROI to personal income is 1.52 meaning for every dollar spent by Mississippi's public universities, personal income in the state increases by \$1.52.

	GROSS DOMESTIC PRODUCT IN FIXED (2020) DOLLARS	TOTAL EMPLOYMENT	PERSONAL INCOME IN FIXED (2020) DOLLARS
2020	\$6,527,189,483	80,280	\$5,756,892,979
2021	\$6,679,867,095	81,964	\$5,946,185,908
2022	\$6,819,981,730	83,683	\$6,070,911,095
2023	\$6,963,035,362	85,438	\$6,198,252,474
2024	\$7,109,089,638	87,230	\$6,328,264,923
2025	\$7,258,207,500	89,060	\$6,461,004,469
2026	\$7,410,453,207	90,928	\$6,596,528,316
2027	\$7,565,892,369	92,836	\$6,734,894,864
2028	\$7,724,591,971	94,783	\$6,876,163,743
2029	\$7,886,620,401	96,771	\$7,020,395,829
2030	\$8,052,047,486	98,801	\$7,167,653,280

Table 5

	IHL GRADUATES MORE HEAVILY REPRESENTED IN 2019	AVERAGE WAGE 2019
Crop and Animal Production		\$39,623
Mining, Quarrying, and Oil and Gas Extraction		\$79,170
Utilities	Yes	\$81,362
Construction		\$50,923
Manufacturing		\$50,061
Wholesale Trade		\$60,524
Retail Trade		\$26,462
Transportation and Warehousing		\$45,263
Information	Yes	\$49,438
Finance and Insurance	Yes	\$61,087
Real Estate and Rental and Leasing		\$37,614
Professional, Scientific, and Technical Services	Yes	\$59,652
Management of Companies and Enterprises	Yes	\$85,732
Administrative and Support and Waste Management and Remediation Services		\$27,874
Educational Services	Yes	\$36,574
Health Care and Social Assistance	Yes	\$43,116
Arts, Entertainment, and Recreation		\$19,034
Accommodation and Food Services		\$17,771
Other Services (except Public Administration)		\$36,226
Public Administration	Yes	\$32,214

Table 3

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The University Research Center (URC) conducts applied unbiased research on a variety of state and local issues including revenue estimation, economic impact analysis, socio-economic policy analysis, tax analysis, and economic forecasting for the State of Mississippi. Clients include both public and private entities. URC routinely works closely with both the Legislative and Executive branches of state government. State Economist Corey Miller is the current Director of the University Research Center. URC is a division of the Mississippi Institutions of Higher Learning.