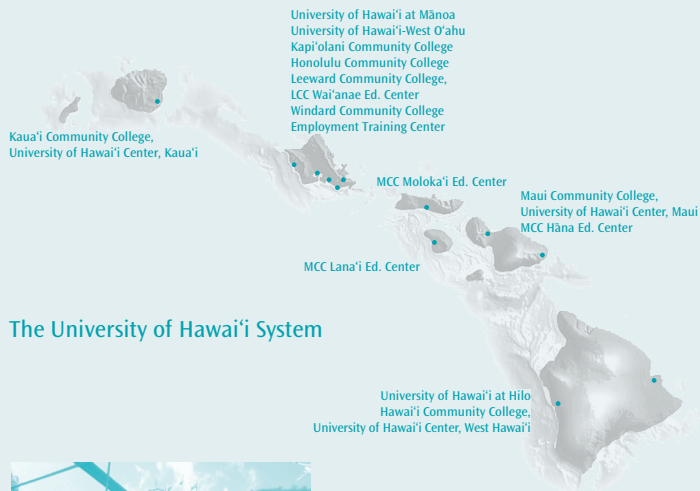




# The Contribution of the University of Hawai'i to Hawai'i's Economy in 2003



The University of Hawai'i System



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## **The Contribution of the University of Hawai‘i to Hawai‘i’s Economy in 2003**

### **University of Hawai‘i: A Brief History**

The University of Hawai‘i had its beginnings in 1907 as a college of agriculture and mechanical arts and became the territory’s Land Grant College, a designation that remains today. With the establishment of the College of Arts and Sciences in 1920, the College of Hawai‘i became a University. Enrollment growth in the early years was slow, but the close of World War II and increased educational demand fueled by returning GI’s increased the University’s enrollment to over 5,000 students in the 1950s. Statehood and the establishment of the University of Hawai‘i as the “state university” marked the beginning of a period of accelerating enrollment that resulted in the formation of a large diverse system. In 1965, the State Legislature created a statewide system of community colleges and placed it within the University of Hawai‘i. In 1970, the University of Hawai‘i at Hilo was founded. In 1989, West O‘ahu College, an upper division institution opened in 1976, was renamed the University of Hawai‘i-West O‘ahu. The flagship Mānoa campus became the University of Hawai‘i at Mānoa.

The University was designated a Sea Grant College in 1972 and a Space Grant College in 1989, and currently is one of only twelve universities in the United States to have received all three designations. In the decade after statehood, the University of Hawai‘i at Mānoa achieved national recognition both in graduate education and research. It shares distinction among 70 American institutions designated Carnegie I Research University by the Carnegie Foundation for the Advancement of Teaching. Striving for economic development was an important reason why the State of Hawai‘i wanted a

Carnegie I Research University.<sup>1</sup> As the economic development of the state has become increasingly dependent on knowledge and technology, government and industry have increasingly looked to the University as an essential partner to conduct basic and applied research in numerous key areas, such as agriculture, aquaculture, astronomy, medicine, biotechnology, ocean resources, renewable energy, travel industry management, and others. Research brings extramural money into the economy.

Today, the University of Hawai‘i system is comprised of 10 campuses—seven community colleges (four on O‘ahu and one each on Kaua‘i, Maui, and Hawai‘i), University of Hawai‘i at Mānoa, University of Hawai‘i at Hilo, and the University of Hawai‘i at West O‘ahu. In Fall 2002, enrollment of credit students totaled 48,173, distributed by campus as follows:

<u>Campus</u>	<u>Number of Students</u>
Mānoa	18,706
Hilo	3,040
West O‘ahu	834
Community Colleges:	25,593
Honolulu	4,478
Kapi‘olani	7,041
Leeward	5,918
Windward	1,761
Hawai‘i	2,182
Maui	2,989
Kaua‘i	1,224

Eighty-seven percent of the credit students were undergraduates; the remaining 13 percent were graduate students. Hawai‘i residents comprised nearly 82 percent of all credit students enrolled at the University of Hawai‘i campuses. The community colleges enrolled more than half (53 percent) of all the students in the system.

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<sup>1</sup> In 2000, the Carnegie Foundation for the Advancement of Teaching designation for this category of universities changed to “Doctoral/Research Universities—Extensive.”

The University of Hawai‘i serves a large percentage of college-bound Hawai‘i high school graduates. In 2000, the most recent data available, 59 percent of that year’s high school graduates went to college right after graduation, and 60 percent of them went to one of the ten campuses of the University of Hawai‘i. Among Hawai‘i colleges and universities, UH was the choice of 87 percent of the college-bound graduates who remained in Hawai‘i. While UH may not be the only higher education “game in town”, as often claimed, it is by far the biggest higher education game in town.

In addition to educating the 48,000 regular session credit students, in FY 2003 more than 20,000 students enrolled in the University of Hawai‘i summer sessions.<sup>2</sup> The Mānoa campus led all campuses in summer session enrollment with nearly 60 percent of the total. As well, each year thousands of students take credit and non-credit continuing education courses offered by the University’s various campuses for personal growth and enjoyment. The task of teaching thousands of students each year, to conduct research at the knowledge frontier, and to serve the needs of the community are assigned to nearly 15,000 University employees including lecturers, graduate assistants and other student employees; about 3,300 are faculty. The UH system generated more than \$1.4 billion worth of spending in FY2003.

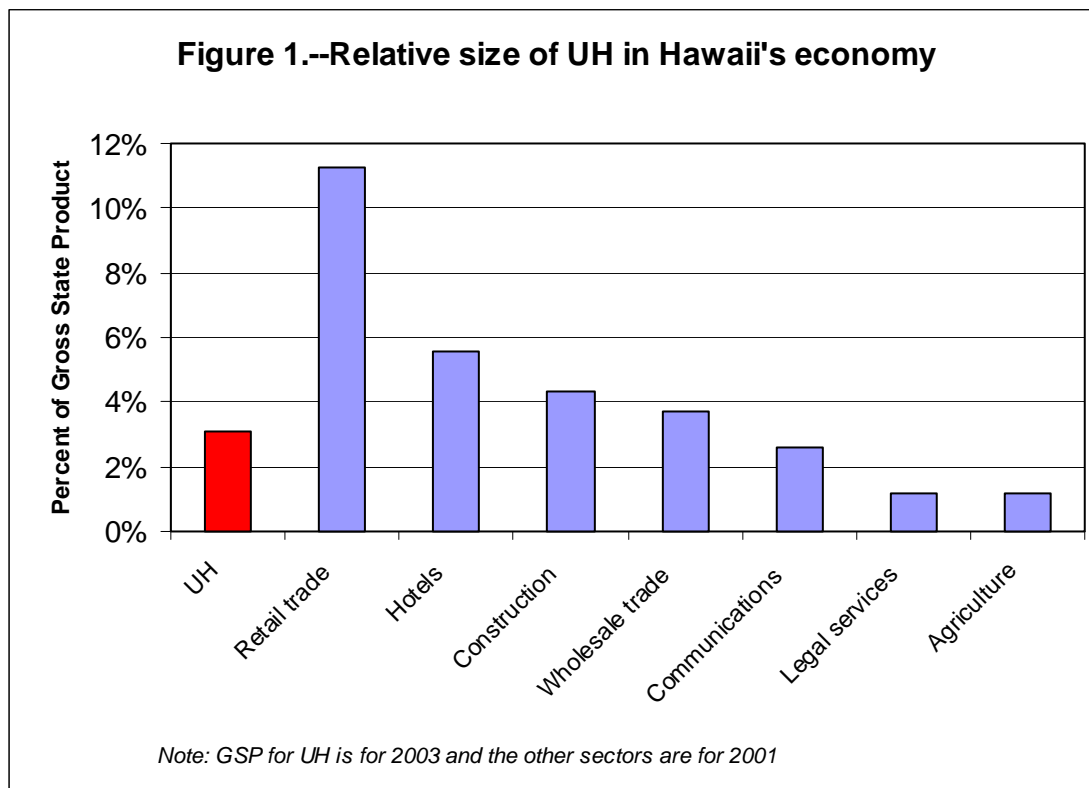
### **UH: A Major Economic Sector in Hawai‘i**

Indeed, one can think of the UH system as if it were one of many businesses or industries in Hawai‘i. It produces education and research services as its primary outputs. In addition, it produces entertainment and sports services, consulting services, health care, housing, and food services. Its customers include students, visitors, private

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<sup>2</sup> A summer session student was counted twice if he/she was enrolled in both Manoa summer sessions.

businesses, governments, and the general public. Significant portions of its services are exported worldwide to students, businesses, governments, and individuals abroad. It buys goods and services locally and abroad. In FY 2003, student spending (system-wide) for tuition, room and board, and other expenses; state and federal government-funded UH spending for goods and services; out-of-state visitor spending while attending UH sporting events and UH-sponsored conferences and professional meetings, totaled \$1.403 billion. UH is approaching a billion and a half dollar business!



In 2003, UH represented about 3.1 percent of Hawai‘i’s economy (gross state product) of nearly \$46 billion (estimated). By comparison, agriculture’s contribution to

Hawai‘i gross state product was only 1.2 percent; the communications industry, 2.6 percent; hotels, 5.6 percent; legal services, 1.2 percent; wholesale trade, 3.7 percent; retail trade, 11.2 percent; and construction, 4.3 percent. Thus, the University of Hawai‘i is a major economic sector in Hawai‘i.

### **Creating Jobs and Generating Income**

An important difference between the University of Hawai‘i and a private business is that the University gets a substantial part of its funding from taxpayers. In FY 2003, the University of Hawai‘i system spent \$989 million, net of spending and internal accounting transfers between units within the University, in support of its educational mission; the State General Fund paid \$454 million of the total. The difference between what the State General Fund paid for and the total amount spent by the University (\$989 million - \$454 million = \$535 million) was paid for by government research and training grants, revolving funds (e.g., bookstore revenues), special funds (e.g., tuition and fees), and federal matching grants (e.g., U.S. Department of Agriculture Hatch and Smith-Lever funds). Adding money spent by the privately funded University of Hawai‘i Foundation, the Research Corporation of the University of Hawai‘i (RCUH), spending by students on items other than tuition, fees, dorm fees, and books<sup>3</sup>, out-of-town visitor spending on UH athletic events (e.g., football, baseball, basketball, volleyball games, etc.) and UH-sponsored professional meetings and conferences, and University employee retiree benefits brings total UH-related expenditures to \$1.403 billion in FY2003. Thus, for every dollar of taxpayer money spent on UH, the University was able to generate an

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<sup>3</sup> Money spent by students for tuition, fees, dorm fees, and books were received and spent by the University and show up in the UH system expenditure data. They were excluded to avoid double counting.

additional \$2.09 ( $= [(\$1.403 \text{ billion} / \$0.454 \text{ billion}) - 1]$  ) of spending for a total of \$3.09.

In sum, the University is a generator of spending and economic activity in and of itself.

The University of Hawai‘i generates economic activity in the community through its purchases from local businesses, its payment to its employees and retirees, and spending by its students and visitors. The total amount of economic activity generated in Hawai‘i can be estimated using the state’s 1997 input-output (I-O) model of Hawai‘i’s economy. The model is able to quantify the economic activity impacts of UH expenditures on 20 industries. We first distributed the \$1.403 billion spending among the 20 I-O sectors; then we multiplied the expenditures by their respective type II “multipliers” to arrive at their total sales, employment, and earnings impacts. The type II multipliers capture the direct, indirect, and induced effects per dollar of spending in each of the 20 sectors of Hawai‘i’s economy.<sup>4</sup>

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<sup>4</sup> To illustrate the relationship between “direct,” “indirect,” and “induced” effects, consider the following example. I spend \$10 at a local grocery store; the “direct effect” of my expenditure on business sales in the economy is the \$10 received by the grocery store. In turn, the grocery store purchases \$5 worth of goods from its wholesaler. The “indirect” effect of my grocery purchase is the additional sale in the economy by the wholesaler to the grocery store. Both the grocery store and the wholesaler pay their employees, and with their pay the employees purchase goods and services in the economy. These are the “induced” effects. Similarly, the grocer and wholesaler pay rent, interest on loans, and take home profits; those incomes are eventually spent in the economy as well. Type II multipliers capture the “multiplier,” or sometimes referred to as the “ripple,” effects of any initial spending.



**Table 1: Multiplier Effects Per Dollar of UH-Related Expenditures**

	Amount (‘000\$)	Business Sales per \$ of Spending	Jobs per Million \$ of Spending	Earnings per \$ of Spending	State Taxes per \$ of Spending
Total Expenditures	1,403,436	1.41	26	.89	0.09
Organized Research (ORS)	309,427	1.51	32	1.01	0.10
Instructional Units (Non-ORS)	679,925	1.31	28	1.06	0.10
UH Foundation	17,982	1.19	17	.69	0.08
RCUH	3,898	1.39	26	.95	0.10
Student Spending	255,285	1.45	15	.34	0.08
Visitor Spending	76,291	1.60	18	.46	0.10
Retiree Benefits	60,628	1.56	17	1.22	0.12

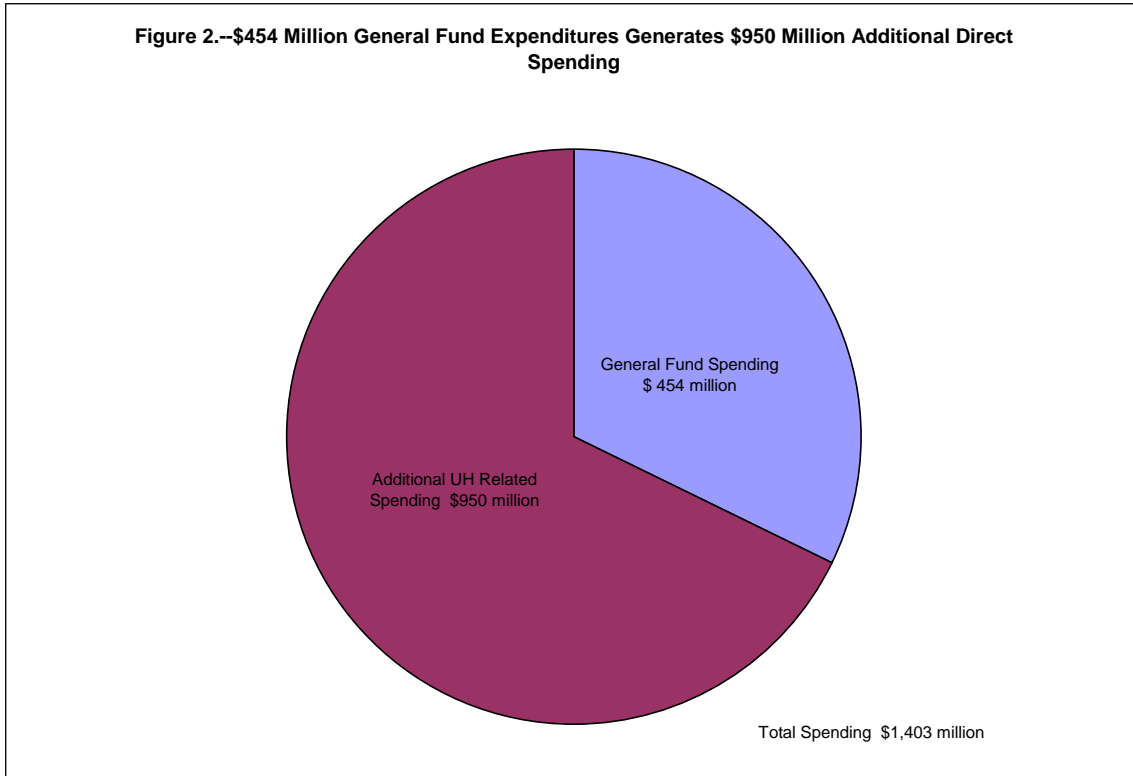
Note: Due to unavailability of updated information, visitor spending and retiree benefits in FY 2003 are assumed to be the same as in FY1999, except for an adjustment for inflation.

Table 1 shows that each educational dollar spent generates \$1.41 of total business sales, \$.89 of employee earnings, and 9 cents of state revenues in Hawai‘i in FY 2003; and each million dollars of spending generates 26 jobs in Hawai‘i. Not all the dollars spent have the same impact on the economy. For instance, Table 1 shows that dollars spent by organized research units have higher employment effects (per dollar of spending) than dollars spent by the instructional units, but instructional units have larger household earnings effects.

**Overall, the \$1.403 billion of education-related expenditures attributable to the UH system generated \$1.973 billion in local business sales, \$1.243 billion in employee earnings, \$132 million in state tax revenues, and 35,800 jobs in Hawai‘i in FY 2003. They represented approximately 4.6 percent of total jobs, 3.2 percent of**

**worker earnings, and 3.8 percent of total state tax revenues in the economy of Hawai'i.**

These numbers can also be used to illustrate the leverage effects of State General Fund higher education spending on the local economy (Figure 2).



In FY 2003, UH was able to parlay \$454 million in General Fund expenditures into \$950 (= \$1,403 million – \$454 million [rounded]) million dollars of related educational expenditures.

In Table 2, every dollar of general fund spending on UH translates into \$4.35 of total business sales, \$2.74 of employee earnings, and 29 cents of state taxes in Hawai‘i.<sup>5</sup>

Every \$1 million of general funds spent on UH generates 79 jobs in the economy.

**Table 2 -- Economic Impacts of the UH System & Related Expenditures, FY 2003**

Source of Expenditure	Direct Expenditures ('000 \$)	Business Sales ('000\$)	Employment (jobs)	Income ('000 \$)	State Tax ('000 \$)
UH System	989,352	1,358,437	29,202	1,031,945	99,375
UH Foundation	17,982	21,444	310	12,408	1,357
RCUH	3,898	5,417	102	3,717	383
Student Spending	255,285	370,956	3,785	85,676	16,797
Visitor Spending	76,291	121,882	1,398	35,112	7,409
Retiree Benefits	60,628	94,469	1,018	73,841	6,990
<b>TOTAL</b>	<b>1,403,436</b>	<b>1,972,605</b>	<b>35,814</b>	<b>1,242,699</b>	<b>132,310</b>
Impact per \$ of General Fund	3.09	4.35	79	2.74	0.29
Impact as a % of State Total			4.59	3.19	3.83

<sup>5</sup> \$4.35 is calculated by dividing \$1.972 billion of total business sales by \$454 million appropriated from the State General Fund. Similarly, \$2.74 of employee earnings and \$0.29 of state tax revenues are calculated by dividing \$1.243 billion in employee earnings and \$132 million in tax revenues, respectively, by \$454 million appropriated from the State General Fund.

## Appendix

Some may be interested in comparing the FY1999 results from our earlier (December 2000) study with results for FY2003. But a warning is in order. The FY1999 results were estimated using the State's 1992 I/O table and the FY 2003 results were estimated using the 1997 I/O table. There were also some accounting rule changes between the 2 years. Hence, the results are not strictly comparable. However, we present both sets of results here.

**Table A-1 .--Comparison of Total Economic Impacts, FY 1999 vs. FY 2003**

	FY 1999	FY 2003
Direct Expenditures ('000\$)	1,086,241	1,403,436
Business Sales Receipts ('000\$)	1,552,288	1,972,605
Employment (jobs)	29,048 (FTE)	35,814 (Head Counts)
Household Income ('000 \$)	1,095,177 (Income)	1,242,699 (Earnings)
Tax Revenues ('000 \$)	182,894 (State & County)	132,310 (State only)