# The Contribution of the University of Hawai`i to Hawai`i's Economy in 2006

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**The System**[1]

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 2006, enrollment of credit students totaled 49,990, distributed by campus as follows:

| Campus | Number of Students |
|---|---|
| Mānoa | 20,357 |
| Hilo | 3,507 |
| West O`ahu | 866 |
| Community Colleges: | 25,260 |
| Honolulu | 4,143 |
| Kapi`olani | 7,272 |
| Leeward | 5,746 |
| Windward | 1,781 |
| Hawai`i | 2,358 |
| Maui | 2,841 |
| Kaua`i | 1,119 |

Eighty-seven percent of the credit students were undergraduates; the remaining 13 percent were graduate students. Hawai`i residents comprised nearly 78 percent of all credit students enrolled at the University of Hawai`i campuses. The community colleges enrolled just slightly more than half (50.5 percent) of all the students in the system.

The University of Hawai`i serves a large percentage of college-bound Hawai`i high school graduates. In 2006, 56 percent (7,513 of 13,366 graduates) of that year's high school class in Hawai`i went to college right after graduation,

[1] For a very succinct, yet informative history of the University of Hawai`i System, please see the March 2004 Up-Date of the same title, at: http://www.hawaii.edu/offices/app/opp/econimpact/03uhcontribution_report.pdf
As those familiar with the first two UH System economic impact studies will note, this Up-Date (of the 2003 Up-Date, published in March 2004 and referenced directly above) follows the latter version very closely, both for economy and easier comparability.
Data sources and method are discussed in Appendix B following this report.

and 57% percent of those (4,287 of 7,513) went to one of the ten campuses of the University of Hawai`i. Among Hawai`i colleges and universities, UH was the choice of 82 percent (4,287 of 5,208) of the college-bound graduates who remained in Hawai`i. While the UH System is not the only provider of higher education, especially at the undergraduate level, it is by far the largest.

In addition to educating the 49,990 regular session credit students, in FY 2006, 17,635 students enrolled in the University of Hawai`i summer sessions.[2] The Mānoa campus led all campuses in summer session enrollment with 51.5 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 3,117 (2003) are faculty.

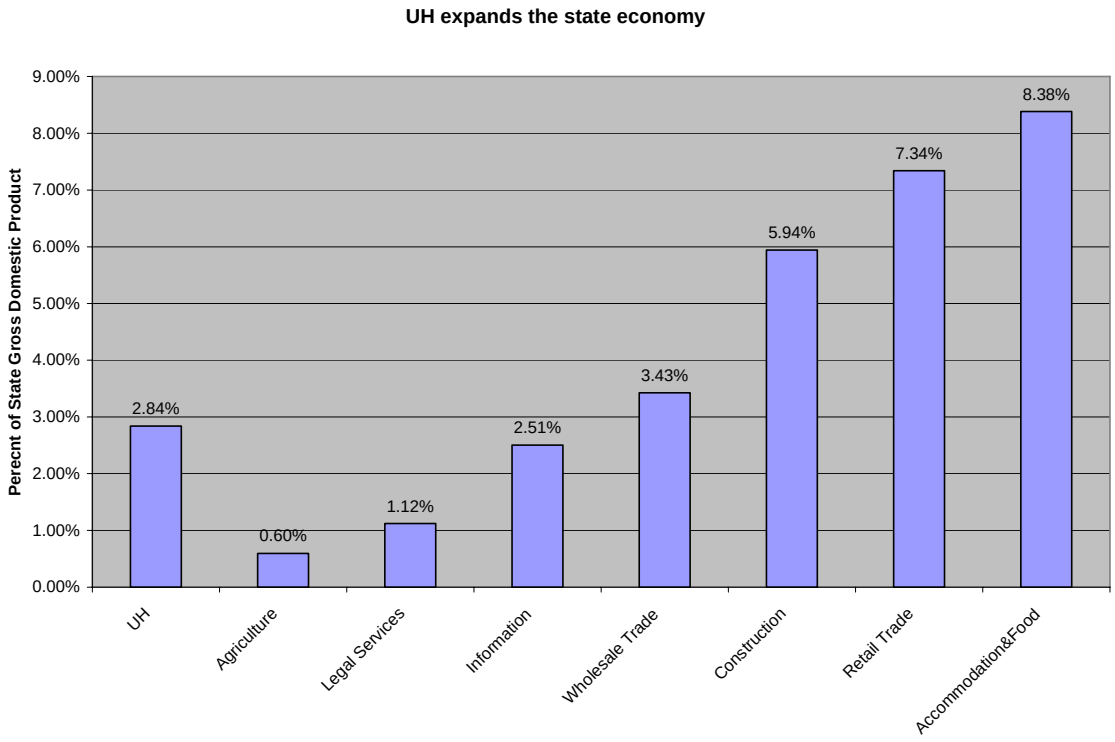
## UH: A Major Economic Sector in Hawai`i

The UH system generated more than $1.655 billion worth of spending in FY2006. 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 businesses, governments, and the general public. Significant

[2] A change in counting summer session students across the two summer sessions prevents the strict comparison of this figure with those reported in earlier (2000, 2004) UH Economic Impact Studies.

portions of its services are exported worldwide to students, businesses, governments, and individuals abroad.

It buys goods and services locally and abroad. In FY 2006, 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 $1.655 billion. UH is more than a billion and a half dollar business!




Sources: UH: author's estimates; state sectors and gross state domestic product, (all for 2006): www.bea.gov

In 2006, UH represented about 2.84 percent of Hawai`i's economy (gross state domestic product) of $58.3 billion. By comparison, agriculture's contribution to Hawai`i GDP was 0.6 percent; the Information (formerly communications) industry, 2.51 percent; accommodation and food, 8.4 percent;

legal services, 1.1 percent; wholesale trade, 3.4 percent; retail trade, 7.3 percent; and construction, 5.9 percent. Clearly, 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 2006, the University of Hawai`i system spent $1.149 Billion, net of spending and internal accounting transfers between units within the University, in support of its educational mission; the State General Fund paid $575 million of the total.

The difference between what the State General Fund paid for and the total amount spent by the University ($1.149 billion - $575 million = $574 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[3], out-of-town visitor spending on UH athletic events (e.g., football, baseball, basketball, volleyball games, etc.) and UH-sponsored professional meetings and conferences,

[3] As in the past (2000,2004) studies, 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.

and University employee retiree benefits brings total UH-related expenditures to $1.655 billion in FY2006.

Thus, for every dollar of taxpayer money spent on UH, the University was able to generate an additional $1.88 (= [($1.655 billion/$0.575 billion) - 1] ) of spending for a total of $2.88. 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 2002 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 $1.655 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.[4]

[4] Again, to avoid needless repetition, for a thorough distinction among direct, indirect and induced multipliers the reader should see footnote 4, page 6, of the 2004 study, at: http://www.hawaii.edu/offices/app/opp/econimpact/03uhcontribution_report.pdf.

**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** | **$1,655,212** | 1.48 | 22.54 | 0.90 | 0.09 |
| Organized Research (ORS) | $327,561 | 1.54 | 28 | 1.02 | 0.088 |
| Instructional Units (Non ORS) | $821,777 | 1.42 | 23 | 1.07 | 0.09 |
| UH Foundation | $26,179 | 1.26 | 21 | 0.71 | 0.073 |
| RCUH(2005) | $5,457 | 1.53 | 24 | 0.92 | 0.09 |
| Student Spending | $302,261 | 1.51 | 17 | 0.35 | 0.083 |
| Visitor Spending | $82,632 | 1.63 | 18 | 0.48 | 0.091 |
| Retiree Benefits | $89,345 | 1.58 | 17 | 1.21 | 0.11 |

Table 1 shows that each educational dollar spent generates $1.48 of total business sales, $0.90 of employee earnings, and 9 cents of state revenues in Hawai`i in FY 2006; and each million dollars of spending generates 22.5 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 $1.655 billion of education-related expenditures attributable to the UH system generated $2.443 billion in local business sales, $1.488 billion in employee earnings, $148 million in state tax revenues, and 37,316 jobs in Hawai`i in FY 2006. They represented approximately 6 percent of total jobs, 3.4 percent of worker earnings, and 3.33 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. In Table 2, every

dollar of general fund spending on UH translates into $4.25 of total business sales, $2.59 of employee earnings, and 26 cents of state taxes in Hawai`i.[5]

Every $1 million of general funds spent on UH generates 65 jobs in the economy.

**Table 2 Economic Impacts of the UH System & Related Expenditures, FY 2006**

| Source of Expenditure | Direct Expenditures ('000) | Business Sales ('000$) | Employment (Jobs) | Income ('000$) | State Tax ('000$) |
|---|---|---|---|---|---|
| **UH System** | $1,149,338 | $1,670,212 | 28500 | $1,212,259 | $102,785 |
| **UH Foundation** | $26,179 | $33,090 | 545 | $18,692 | $1,911 |
| **RCUH** | $5,457 | $8,360 | 129 | $5,010 | $491 |
| **Student Spending** | $302,261 | $455,810 | 5138 | $104,582 | $25,088 |
| **Visitor Spending** | $82,632 | $134,855 | 1504 | $39,994 | $7,520 |
| **Retiree Benefits** | $89,345 | $140,808 | 1501 | $107,839 | $9,828 |
| **TOTAL** | **$1,655,212** | **$2,443,136** | **37,316** | **$1,488,376** | **$147,623** |
| | | | | | |
| **Impact per $ of General Fund** | $2.88 | $4.25 | 64.92 | $2.59 | $0.26 |
| **Impact as a % of State Total** | | | 6.00 | 3.39 | 3.33 |

Note: Jobs are per $1 million of State General Funds not per $1.

[5] $4.25 is calculated by dividing $2.443 billion of total business sales by $575 million appropriated from the State General Fund. Similarly, $2.59 of employee earnings and $0.26 of state tax revenues are calculated by dividing $1.488 billion in employee earnings and $148 million in tax revenues, respectively, by $575 million appropriated from the State General Fund.

## Appendix A

We may compare the FY1999 results from the earlier (December 2000) study with results for FY2003 (March 2004) and these results for FY 2006. But, the reader should be aware that the FY1999 results were estimated using the State's 1992 Input-Output (I-O) table, the FY 2003 results were estimated using the 1997 I-O table, and the latest results for FY 2006 were estimated using the state's 2002 I-O tables. There were also some accounting rule changes between the years. Hence, the results are not strictly comparable. However, we present the results here.

**Table A-1. Comparison of Total Economic Impacts, FY 1999, FY 2003, FY 2006**

| | FY1999 | FY2003 | FY2006 |
|---|---|---|---|
| **Direct Expenditures ('000$)** | 1,086,241 | 1,403,436 | 1,655,212 |
| **Business Sales Receipts ('000$)** | 1,552,288 | 1,972,605 | 2,443,136 |
| **Employment (Jobs)** | 29,048 (FTE) | 35,814 (Head Count) | 37,316 |
| **Household Income ('000$)** | 1,095,177 (Income) | 1,242,699 (Earnings) | 1,488,376 |
| **Tax Revenues ('000$)** | 182,894 (State& | 132,310 (State Only) | 147,623 |
| | &Counties) | | |

All figures (except Employment) in nominal dollars.
FY 2006 Employment (Head Count), Earnings, Tax Revenue (State only), thus more comparable to FY 2003.

## Appendix B-Data Sources

As noted earlier, this Up-Date of the March 2004 Up-Date follows it closely in method, calculation and presentation. That Report was an Up-Date of the December 2000 UH System Economic Impact study which may be retrieved at: http://www.hawaii.edu/offices/app/opp/econimpact/report.pdf. Thus, this is a 'third-generation' Up-Date of an Up-Date.

Distinguishing this latest Report from the previous Up-Date is the up-dating and sourcing of the numerical information and the use of the latest (2002) state Input-Output tables.

### Student Enrollment and Expenditures:

Enrollment: http://www.irohawaii.edu/maps/mltitles.asp
Student spending, http://www.hawaii.edu/apis/ep/e6/e6201_f06.pdf
http://www.hawaii.edu/fas/information/06-07_coa.htm
http://www.hawaii.edu/financialaid/documents/estimated_student_budget_0607.pdf

### High School to college first time college students:

http://www.hawaii.edu/cgi-bin/iro/maps?hbuhf06w.xls

### Summer School Enrollments:

Summer 2006 Daily Headcount Enrollment - Regular Headcount, UH IRO, 7/26/2006

### Faculty/Staff employment numbers,

2003, Faculty and Staff Report, UH, Fall 2003, October 2004: http://www.hawaii.edu/iro/maps.htm

### University of Hawai`i as Portion of State Gross Domestic Product

GDP information from www.bea.gov

### UH Foundation Expenditures

"T O U C H I N G O N E T R A N S F O R M I N G M A N Y", University of Hawai'i Foundation Annual Report 2006, page 18

http://www.uhf.hawaii.edu/RequestPublication/UHF2006_AnnualReport.pdf

### RCUH Expenditures

page FS-8, 2006 Annual Report.

## Retiree Benefits

Employee's Retirement System of the State of Hawai`i, Comprehensive Annual Financial Report, 2006, pages 100, 111, and private conversations.

## Visitor Spending

Five percent of total spending based on a compilation and interpolation of state university Studies from Alabama, California, Florida, Michigan, Virginia:

http://dialog.ua.edu/dialog20011113/econimpact20011113.html
http://planning.ucsc.edu/budget/economic_impact/docs/EconContrib.Apr06.pdf
http://www.economicimpact.ifas.ufl.edu/publications/UF%20Impact%20Report%20FY2005-06.pdf
http://www.cherrycommission.org/docs/Resources/Economic_Benefits/MI_ED_Impact_study_2002.pdf

http://www.virginia.edu/uvatoday/newsRelease.php?id=2313

Previous estimates for UH (2000,2004) were 5.4% of total expenditures.

## ORS and Non-ORS Expenditures

ORS,UH Revenue Sources and Expenditures,11/29/06, UH Budget Office, http://www.hawaii.edu/budget/compAnalysis.html
Non ORS UH Revenue Sources and Expenditures,11/29/06, UH Budget Office

## Multipliers From State Input-Output Study

from 2002 State of Hawaii Input-Output Study
http://www.hawaii.gov/dbedt/info/economic/data_reports/2002_state_io/

As a point of reference, the major multipliers derived from this source, having values between 1.26 and 1.63 (see Table 1) yielding a sales multiplier of 1.48, are significantly lower than the multipliers typically used in university economic impact studies. See Adebayo, 2006:
http://www.ucmo.edu/Documents/Economic%20Impacts%20of%20CMSU.doc
who reports (page 2): "The study uses a multiplier of 2.0 after a review of recent economic impact studies from across the country. Economic impact studies conducted in New York, Georgia and Missouri have applied multipliers ranging from 1.9 to 3.0. The Commission on independent Colleges and universities recommends a multiplier of 2.5."
Following the authors of the 2000 and 2004 UH Economic Impact Studies and using the state-specific information inherent in the state input-output study we retain the existing methodology, but highlight that our estimates may be considered 'conservative' in the realm of university economic impact studies.

## General Funds

G Fund UH Revenue Sources and Expenditures,11/29/06
UH Budget Office, http://www.hawaii.edu/budget/compAnalysis.html
Figure chosen for FY 2006 corresponds to $462B in FY 2003, the closest found to Mak and Leung's figure of $454B (Up-Date, 2004, page 5).

State Employment, Income, and Taxes

http://www.hawaii.gov/dbedt/info/economic/data_reports/mei/state-r.xls

http://www.hawaii.gov/dbedt/info/economic/databook/db2006/section13.xls#'13.02'!A1

http://www.hawaii.gov/dbedt/info/economic/databook/db2006/section09.xls#'09.01'!A1