
TRENDS IN STATE EMPLOYMENT
FY 2000 – FY 2004

A REPORT TO THE
EXECUTIVE APPROPRIATIONS COMMITTEE

OFFICE OF THE LEGISLATIVE FISCAL ANALYST
JONATHAN C. BALL
R. BENJAMIN LEISHMAN
STAN ECKERSLEY
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EXECUTIVE APPROPRIATIONS COMMITTEE 2004 INTERIM

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EXECUTIVE SUMMARY

Analysis of Utah state government employment reveals that employment in state agencies decreased by 1.4% between fiscal year 2002 and fiscal year 2004. For that same period, state supported (“appropriated”) employment in higher education increased by 1.8%. Public education certificated professional employment decreased by 1.1%, while employment in public education agencies increased by 1.8%.

Although full-time equivalent (FTE) employment and appropriation of dollars correlate across time, appropriations alone cannot explain a significant portion of employment. Other factors, such as availability of flexible funds, programmatic characteristics, trends in the labor market, overtime hours worked, and changes in state demographics must be considered when attempting to explain state employment trends.

Limited conclusions could be drawn from public education employment data due to different definitions of “classified employee” among school districts. This report recommends that public education develop and employ a common methodology for measuring and reporting FTE employment in all school districts and charter schools.

OVERVIEW

As a result of revenue down-turns between fiscal year 2001 and fiscal year 2003, the Utah Legislature reduced General Fund and school fund appropriations by \$685 million when compared to original appropriations for FY 2001. At the time cuts were implemented, Legislators contemplated the impact of such funding reductions on state employees – especially those in education.

In retrospect, and at the request of the Executive Appropriations Committee, the Office of the Legislative Fiscal Analyst examines in this report actual state employment levels for the past five years. It also analyzes the relationship between appropriations and employment for this period. The Analyst does so by answering the following questions:

1. What is full-time equivalent (FTE) employment and how is it measured?
2. What has been the trend in actual FTE employment for the past five years and how does it compare with appropriations?
3. Does a correlation exist between dollars appropriated and actual employment?
4. To what extent can appropriations alone explain variations in employment levels?

This study documents that during the course of budget cuts state agency employment fell by 1.4%; state financed higher education employment grew by 1.8%; and public education certificated professional employment decreased by 1.1% while employment in the public education agencies increased by 1.8%. It concludes that actual FTE employment and funding appropriations generally track one another over time. However, it demonstrates that appropriations alone cannot explain changes in employment with an acceptable degree of accuracy.

Recommendation

Due to definitional inconsistencies among school districts, this study draws limited conclusions with regard to public education employment. The Analyst recommends that the Legislature direct the State Board of Education to develop a common definition of full-time equivalent employment to be used by all state school districts and charter schools. The standardized definition should allow a public education FTE employee to be compared with a similar FTE employee in another school district or governmental agency. The Analyst further recommends that the Legislature ask the State Office of Education to collect data using the new common definition beginning in FY 2005 both retrospectively for each of the past five years, as well as prospectively.

WHAT IS FULL-TIME EQUIVALENT (FTE) EMPLOYMENT AND HOW IS IT MEASURED?

Definition

Full-time equivalent employment, often referred to as FTE, is a measure of the number of workers employed by entities of state government when all hours worked by full- and part-time employees are mathematically converted to a standard forty hour work week. For example, an employee that works on

average forty hours per week would be one FTE; two employees that work on average twenty hours per week each are together one FTE; three employees that work on average thirteen and one-third hours per week each are together one FTE; and so on. Due to the number of part-time workers in state government, the “head count” of state employees is usually much higher than the full-time equivalent employment level.

Budgeted FTE

During the Legislative General Session, budgeters project FTE levels based upon the number and type of positions funded in a proposed budget. This is commonly known as Budgeted FTE. It is a budget analyst’s best estimate of FTE employment given a staffing plan and funding level.

Actual FTE

As factors other than funding impact hours worked, staffing plans may change. Employees may work overtime, or funds originally targeted for personal services costs may be shifted to other categories of expenditure. As a result, actual FTE may not equal budgeted FTE. Actual FTE is a mathematical expression of the actual number of hours worked in a given year divided by the number of normal work hours in that year (usually 2088).

Previous publications used budgeted FTE, this one reports Actual FTE

The Office of the Legislative Fiscal Analyst reports budgeted FTE in its Budget Analysis, Appropriations Summary, and Appropriations Report. Past FTE reports produced by the office also focus upon budgeted FTE. This report uses actual FTE, and so will not tie to previous publications.

In higher education, normal work hours, and thus actual FTE, are determined by contract and employee type. Therefore, state agency FTE measures and FTE measures in higher education are not comparable.

As previously mentioned, Public Education lacks a standardized method for determining full-time equivalent employees across the system. Each school district determines what constitutes a FTE employee. For example, the job description for a bus driver or food service worker may only require a four hour workday. Currently, some districts may be interpreting such a position as one FTE while another district may count the employee as a partial FTE. Without a common definition of FTE, comparisons to other governmental agencies, Higher Education, or even other school districts becomes difficult.

WHAT HAS BEEN THE TREND IN ACTUAL FTE EMPLOYMENT FOR THE PAST FIVE YEARS AND HOW DOES IT COMPARE WITH APPROPRIATIONS?

Figures 1-3 below graphically depict the trends in full-time equivalent employment for public education, higher education, and state agencies other than public and higher education. As the graphs demonstrate, state government FTE levels fell between FY 2002 and FY 2004. State financed higher education FTE levels continued to grow over all five years. Public education employment dipped slightly in fiscal year 2003, but grew in all other years.

State Agencies

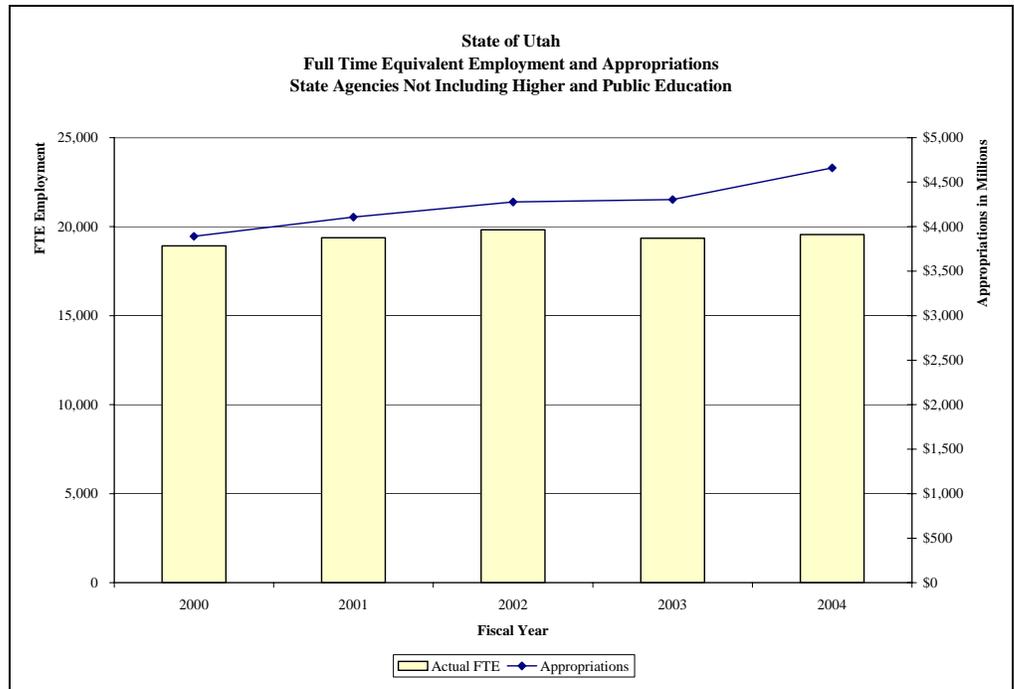


Figure 1

Higher Education

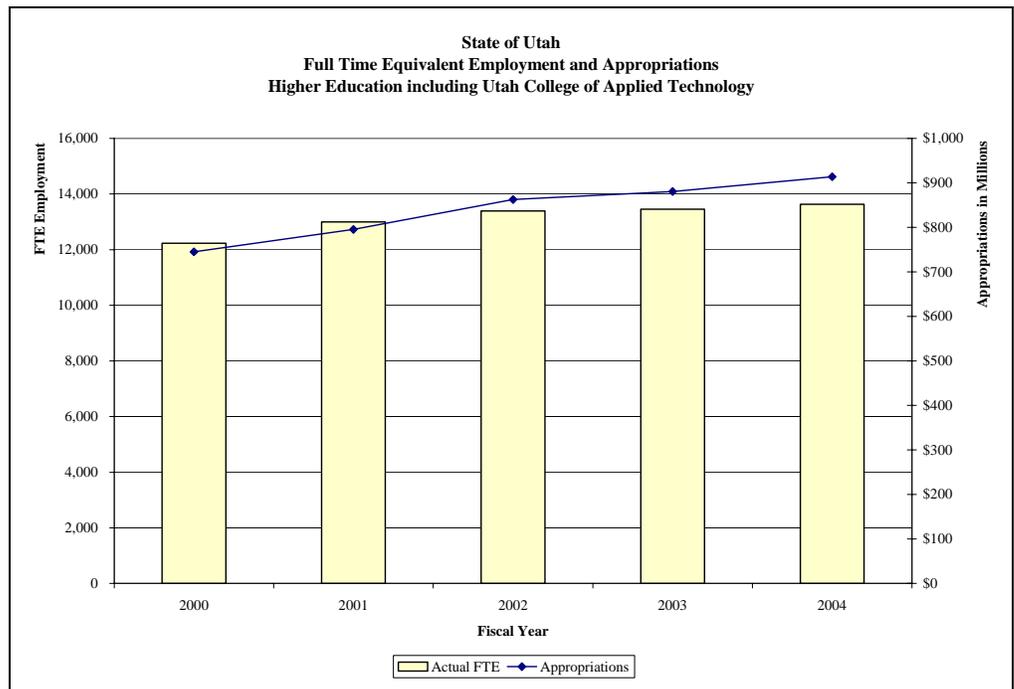


Figure 2

Figure 2 reflects “appropriated” FTE employees in higher education. It shows only those employees supported by state appropriations, including tuition. Additional “non-appropriated” employees work for institutions of higher education, but are financed by other revenue sources, as noted in Appendix B.

Public Education

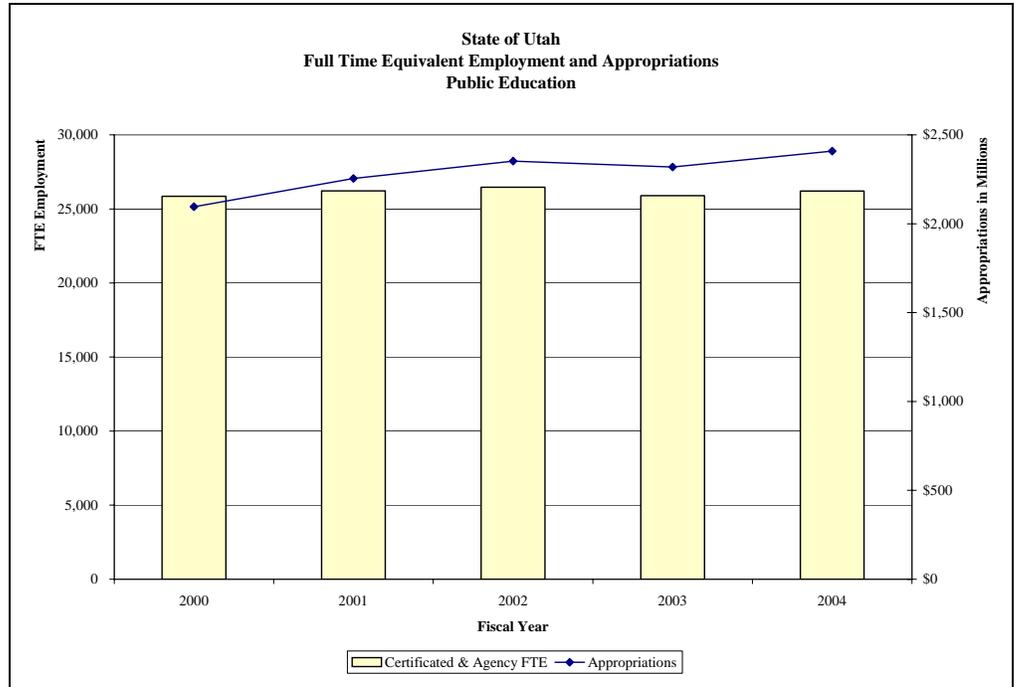


Figure 3

In addition to FTE definition discrepancies among school districts, a number of districts were not, until recently, reporting all employees. Beginning in FY 2004, these districts changed their reporting methodology to include previously unreported classified personnel categories. To avoid this reporting inconsistency, Figure 3 shows “Certificated” personnel in districts and all personnel at public education agencies. (See Appendix C for additional information.)

DOES A CORRELATION EXIST BETWEEN DOLLARS APPROPRIATED AND ACTUAL EMPLOYMENT?

When faced with a need to cut budgets, Legislators are often told that funding reductions will impact employment levels, suggesting a causal relationship between the two variables. The first step in confirming this causal relationship is determining whether the two variables correlate.

The graphs that follow depict the extent to which a correlation exists by comparing the percent change in appropriated funding to the percent change in actual FTE for FY 2000 - FY 2004.

State Agencies

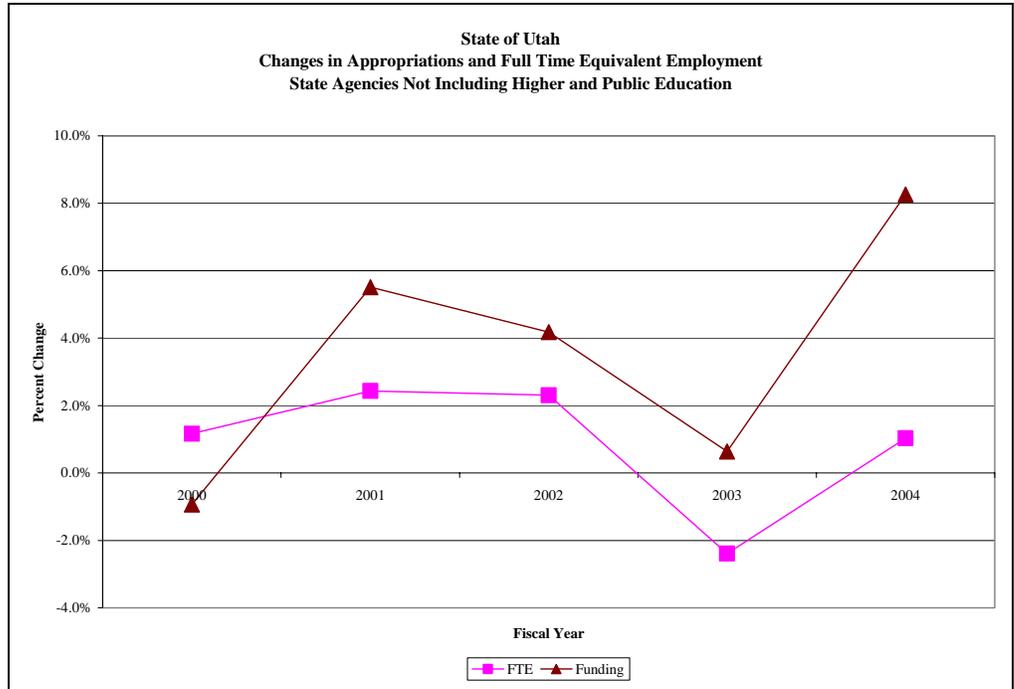


Figure 4

Figure 4 seems to show that, for state agencies not including public and higher education, actual FTEs track appropriated dollars. Statistical analysis of the base data returns a correlation coefficient of 0.65. This indicates a moderate degree of correlation between appropriations and FTE. Note, however, that in fiscal year 2000 funding decreased while FTEs increased. In FY 2003, state agency funding increased while FTE employment decreased.

Higher Education

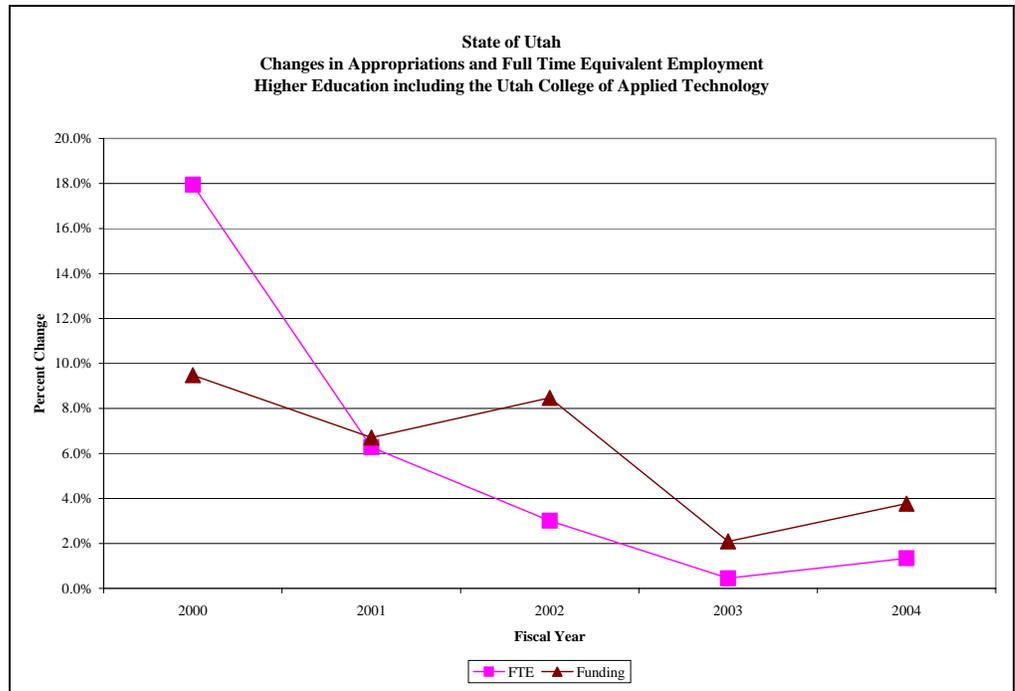


Figure 5

It is unclear from the graphical representation of percent change in FTE and appropriations for institutions of higher education, including the Utah College of Applied Technology (Figure 5) the degree to which a correlation between the two variables. Statistical analysis for all years combined returns a high correlation coefficient of 0.99, indicating a very close relationship.

Public Education

Given aforementioned definitional inconsistencies, the Analyst has not included here an examination of the correlation between employment and appropriations in public education.

TO WHAT EXTENT CAN APPROPRIATIONS ALONE EXPLAIN VARIATIONS IN EMPLOYMENT LEVELS?

We have determined that appropriations and actual FTE employment move together over time. We have not yet examined the extent to which appropriations alone can predict FTE levels. Statisticians use something called the Coefficient of Determination, or “R-square”, to do this. R-square is an expression of the amount of variation in a dependent variable – in this case FTEs – that can be explained by an independent variable – in this case appropriations.

Our analysis shows that, for state agencies, appropriations explain only 42% of changes in FTE. Other independent variables, such as overtime hours worked, labor market conditions, availability of flexible funding sources, and population demographic trends must be considered when attempting to predict FTE levels for state agencies and public education.

Given the strong correlation between funding and FTE in higher education, however, our analysis confirms that appropriations changes in higher education can predict as much as 99% of changes in employment. We note

here that higher education institutions have the ability to adjust tuition in response to state funding levels, employment costs, and enrollment demand. Tuition is included in the total appropriations shown here, and may help explain the high degree of determination.

The graphs below portray the extent to which appropriations predict FTE. The more closely the dots are clustered to the trend line, the higher the Coefficient of Determination and thus the more appropriations alone can predict FTE.

State Agencies

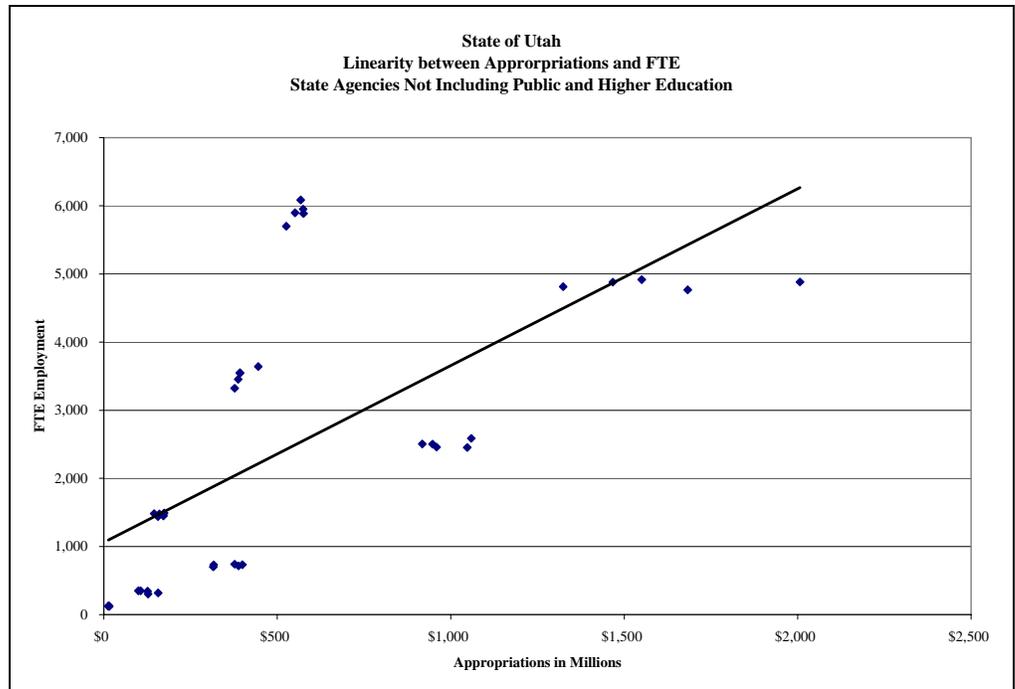


Figure 6

Higher Education

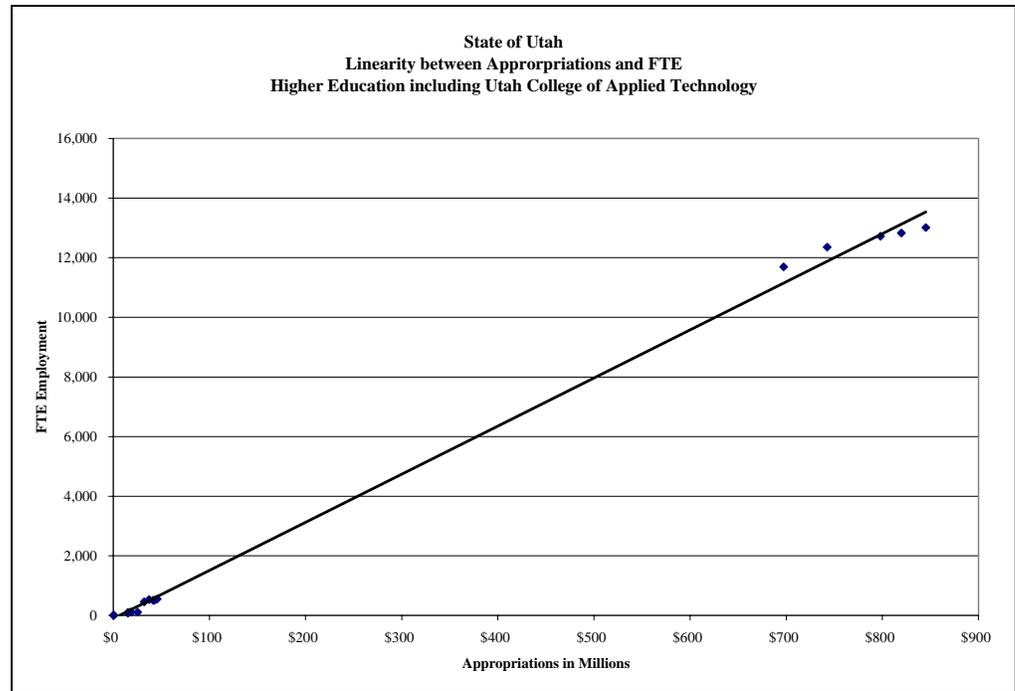


Figure 7

Public Education

Again, given data limitations, this report is inconclusive about the extent to which appropriations influence employment in public education.

CONCLUSION

State Agencies

Between fiscal year 2000 and fiscal year 2004, actual full-time equivalent employment in state agencies other than public and higher education grew by 3.3%. However, from FY 2002 to FY 2004, actual employment fell by 1.4%. While appropriations and employment for state agencies move in tandem across these years, appropriations alone can explain only 42% of that movement.

Higher Education

Full-time equivalent employment in higher education increased by 11.6% between FY 2000 and FY 2004. Even for the years in which Legislators cut budgets, FY 2002 – FY 2004, higher education employment grew by 1.8%. Appropriations and FTE employment correlate very closely over this period, and appropriations alone can explain nearly all of the change in FTE levels over time. Higher education’s ability to adjust tuition – a part of total appropriations – may explain the high correlation and determination between appropriations and FTE in higher education.

Public Education

One can draw only limited conclusions about employment in public education due to inconsistencies in definition among the forty school districts. The Analyst recommends that the Legislature direct the State Board of Education to develop a common definition of full-time equivalent employment to be used by all state school districts and charter schools. The standardized definition should allow a public education FTE employee to be compared with a similar FTE employee in another school district or governmental agency. The Analyst further recommends that the Legislature ask the State Office of

Education to collect data using the new common definition beginning in FY 2005 both retrospectively for each of the past five years, as well as prospectively.

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APPENDICES

APPENDIX A: ACTUAL FULL-TIME EQUIVALENT EMPLOYMENT – STATE AGENCIES

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Judicial Branch	1,111	1,127	1,125	1,053	1,048
State Treasurer	20	20	22	23	22
Governor's Office	113	108	114	103	105
Attorney General	350	377	385	381	384
State Auditor	42	44	42	39	39
Public Safety	1,101	1,106	1,171	1,166	1,202
Corrections	2,963	3,107	3,226	3,135	3,154
Executive Offices & Criminal Justice	5,701	5,888	6,085	5,899	5,953
Capitol Preservation Board	1	2	2	3	3
Dept of Admin. Services	729	730	738	710	699
Capital Facilities & Administrative Services	731	732	741	713	702
Tax Commission	854	884	872	835	839
Workforce Services	1,702	1,772	1,850	1,889	1,977
Alcoholic Beverage Control	299	310	321	323	325
Labor Commission	122	127	125	116	118
Commerce	221	234	241	247	248
Financial Institutions	37	37	41	47	47
Insurance	73	76	78	78	74
Public Service Commission	15	14	15	15	15
Utah College of Applied Technology*					
Commerce & Revenue	3,322	3,454	3,543	3,549	3,642
Career Service Review Board	2	2	2	2	2
Human Resource Management	39	38	38	37	33
Navajo Trust Admin	6	6	9	13	8
Community & Economic Development	286	302	297	267	260
Economic Development & Human Resources	333	348	345	318	303
Human Services	3,716	3,741	3,733	3,567	3,632
Health	1,092	1,138	1,183	1,200	1,252
Health Policy Commission	6	0	0	0	0
Health & Human Services	4,813	4,880	4,916	4,767	4,884
School & Instit. Trust Lands Admin.	55	56	60	63	64
Natural Resources	1,191	1,191	1,219	1,215	1,225
Agriculture	193	200	202	198	201
Natural Resources	1,438	1,448	1,482	1,477	1,490
Environmental Quality	394	404	416	408	394
Transportation	1,879	1,895	1,951	1,871	1,815
Utah National Guard	180	202	222	227	250
Transportation, EQ, & Utah National Guard	2,452	2,501	2,589	2,506	2,458
Legislature	127	127	125	123	119
Total, State Agencies	18,918	19,379	19,825	19,352	19,551

*For purposes of this report, the Utah College of Applied Technology is classified as higher education.

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APPENDIX B: ACTUAL FULL-TIME EQUIVALENT EMPLOYMENT – HIGHER EDUCATION

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Higher Education Institutions & USBR	11,692	12,357	12,724	12,830	13,010
Utah Education Network	76	104	111	104	104
Utah Medical Education Council	6	6	6	7	7
Utah College of Applied Technology	457	532	549	510	510
Higher Education Appropriated	12,231	12,999	13,390	13,451	13,631
Research Grants and Contracts	2,525	3,429	3,289	3,072	3,453
Sales and Services	2,053	2,418	3,624	3,588	3,602
Auxiliaries (Bookstores, Housing, Food Svc, etc.)	1,046	1,364	1,472	1,500	1,533
Hospital	3,657	3,678	3,747	3,955	3,975
Other	3,397	1,665	1,111	1,110	1,136
Higher Education Non-Appropriated	12,678	12,554	13,243	13,225	13,699
Total, Higher Education	24,909	25,553	26,633	26,676	27,330

Because Applied Technology Service Regions' FTEs were not included in higher or public education FTE reports prior to the creation of UCAT, the Analyst created UCAT-equivalent FTE counts for FY 2000 – 2001. Other FTE information came from the Utah System of Higher Education data book or directly from the institutions.

Appropriated FTE

The Utah System of Higher Education’s growth in appropriated full-time equivalent employees from fiscal year 2000 to 2004 was 1,400. Approximately 70 percent of the growth was faculty and about 30 percent was staff. Over the past five years, higher education experienced a 25,606 (29 percent) increase in full-time equivalent students. In the same time period, dedicated credits (tuition and fees) increased 59 percent while state tax revenues increased 10 percent.

Non-Appropriated FTE

Growth in full-time equivalent non-appropriated personnel for the Utah System of Higher Education between fiscal years 2000 and 2004 was 1021. The change in employees over the last five years is due to an increase in the following: sales and services: day care centers, educational publications, and dairy production (74 percent); auxiliary enterprises like college bookstores, food services and student housing (47 percent); federal research grants and contracts (37 percent); and the hospital operations (9 percent). In addition, higher education experienced a 67 percent decrease in employees in the “other” category, which is comprised of faculty and staff paid out of non-appropriated funds. Higher education’s non-appropriated operating budget for FY 2004 was \$1.9 billion, nearly a 50 percent increase over the FY 2000 budget of \$1.3 billion.

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APPENDIX C: ACTUAL FULL-TIME EQUIVALENT EMPLOYMENT – PUBLIC EDUCATION

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Public Education Agencies	986	1,004	1,005	992	1,024
Non-Instructional	989	1,076	1,106	1,088	1,125
Support Services	1,864	1,928	1,944	2,008	2,066
Teachers	22,008	22,211	22,415	21,810	21,988
Subtotal Certificated Personnel	24,861	25,215	25,466	24,906	25,179
Classified Personnel	15,689	15,711	15,905	16,302	19,609
Total, Public Education	41,536	41,929	42,376	42,201	45,811

Note: The increased number of classified personnel in FY 2004 may be a result of FTE employee reporting or definition changes in the school districts, and not necessarily an increase in the total number of people hired.

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APPENDIX D: REVISED ESTIMATED APPROPRIATIONS, ALL FUNDS

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Executive Offices & Criminal Justice	\$525,595,700	\$575,735,600	\$567,619,100	\$551,042,800	\$574,520,700
Capital Facilities & Administrative Services	\$316,402,900	\$399,349,600	\$377,022,600	\$388,147,400	\$315,619,500
Commerce & Revenue	\$377,060,300	\$387,123,800	\$392,019,300	\$392,384,200	\$445,195,100
Commerce & Revenue - Applied Technology Education	\$32,081,000	\$37,196,200	\$45,711,600	\$41,510,100	\$42,801,000
Economic Development & Human Resources	\$99,401,900	\$105,755,700	\$125,878,900	\$156,597,300	\$127,686,300
Health & Human Services - Department of Health	\$916,476,900	\$1,025,746,700	\$1,102,171,385	\$1,223,323,200	\$1,536,132,800
Health & Human Services - Department of Human Services	\$407,576,200	\$441,304,000	\$448,456,500	\$459,954,000	\$470,667,100
Higher Education - Medical Education	\$540,000	\$111,000	\$593,500	\$483,500	\$600,000
Higher Education	\$697,356,800	\$742,470,700	\$798,152,400	\$819,769,400	\$845,209,800
Higher Education - Utah Education Network	\$15,198,600	\$15,395,900	\$18,081,900	\$18,838,100	\$25,214,500
Natural Resources	\$155,985,900	\$171,855,200	\$144,998,000	\$159,793,000	\$173,668,000
Public Education	\$2,095,928,712	\$2,255,022,912	\$2,352,891,120	\$2,318,840,609	\$2,409,356,311
Transportation & Environmental Quality	\$1,047,602,800	\$947,396,100	\$1,059,124,600	\$917,914,000	\$958,993,800
Legislature	\$13,030,000	\$14,287,350	\$14,347,650	\$14,031,300	\$15,115,300
Total	\$6,700,237,712	\$7,118,750,762	\$7,447,068,555	\$7,462,628,909	\$7,940,780,211