RESEARCH MEMORANDUM

To: Governance and Policy Committee, Oregon State Board of Higher Education

Author(s): Michael Owens, Eric McClendon, Aidan Melia, and Ryan Young

Date: Monday, November 14, 2011

RE: Results of Revised Study on Governance, Finance and Attainment

I. INTRODUCTION

This report surveys seven education outcomes at four-year, public colleges and universities in the United States. Those outcomes, which measure financial health and college attainment, are compared against the structure by which each university is governed to determine if there is a correlation between higher education governance and financial and educational attainment success. First, the report indicates the average result on those finance and attainment measures, over a five-year period, for three governance types. Second, the report summarizes the results of a set of multiple regression analyses to determine if the associations between outcomes and governance types are statistically significant.

This report is a follow-up to an earlier report that included some initial, draft data on these measures. After receiving feedback on that draft, in this revised survey, we have streamlined and adjusted the underlying data in a number of ways. The data here is presented to help the Oregon State Board of Higher Education and other Oregon policymakers in determining how best to structure the governance of Oregon’s postsecondary institutions.

II. METHODS

A. Data Source & Scope of Study

The vast majority of the raw data in this report comes from the Delta Project on Postsecondary Education Costs, Productivity, and Accountability, an independent nonprofit whose mission “is to help improve college affordability by controlling costs and improving productivity.” In our initial report, we used data from the Integrated Postsecondary Education Data System (IPEDS) of the Department of Education’s National Center for Education Statistics. Although that data was valuable, after speaking with other researchers, we determined that we might find better indicators of educational outcomes, and indicators that were better adjusted for underlying differences in school accounting measures, by relying on the Delta Project.
To be clear, the Delta Project variables are also derived from IPEDS, but are adjusted in ways that make them more valuable to studying the financial position of postsecondary institutions. A more thorough explanation of how we calculated each variable based on the Delta Project is included in the data dictionary that accompanies this report.

This study covers a period of five academic years (2004, 2005, 2006, 2007, and 2008). We selected this period for its recency and because it included both recessionary and pre-recession data. As for the institutions in our study, that is one of the most significant changes we made in streamlining our data for this report. Based on conversations with other researchers, we determined that our study should exclude a number of schools we originally surveyed, including, for instance, schools with high numbers of graduate students, because of the comparatively high cost of educating such students. In addition, excluding these schools simultaneously eliminated most standalone professional schools, which also have unique financial situations.

In the end, the revised study covered all public, four-year institutions in the 50 states (492 reporting units), with the following exceptions:

1. Any school where less than 40% of full-time students were undergraduates (this excludes most or all standalone medical schools);
2. Any school that appeared to be only nominally four-year (most degree programs were two-year or school was recently in transition from two-year to four-year);
3. Any school that failed to report data for a number of variables during our study period or was excluded altogether by Delta Project;
4. Any non-state school (such as federal service academies).

B. Educational Outcomes

1. Financial Indicators

For this study, we looked at five distinct indicators of a university’s financial success. Each variable was intended to measure the study period, from 2004-2008. They were:

1. Private Income (per FTE): Gifts, grants, and contracts related to instruction, research, public service, or other institutional purposes.
2. Investment Income (per FTE): Revenues from investments, including investments of endowment funds.
3. State Appropriations (per FTE): Revenues received by the institution through acts of a state legislative body (except grants and contracts and capital appropriations); includes funds for meeting current operating expenses, but not funds for specific projects or programs.
4. Net Tuition Change (per FTE): The percent increase in the amount of money the institution takes in from students after institutional grant aid is provided between the first year of our study (04) and the last (08).
(5) **In-State vs. Out-of-State Tuition and Fee Change:** The difference between the percentage change in in-state and out-of-state tuition and fees (sticker price for a full-time undergraduate student) between the first year of our study (04) and the last (08).

For the first three of these indicators, we used the aggregate five-year sum of each school. In other words, we wanted to determine the entire amount of funding a school received over the five-year period, though before aggregating the amount, we adjusted each year’s total for the school’s full-time-equivalent enrollment during that year.

2. **Attainment Indicators**

Our original report was intended to measure the effect of governance structure on financial outcomes. However, given the importance of college attainment, especially with Oregon’s recent enactment of the 40-40-20 goals, in this revision we decided to add two measures of attainment so that we might also have some indication of how governance structure can affect the most important goal of colleges and universities: educating students. These variables were:

1. **Full-Time Graduation Rate:** Percentage of full-time, first-time, bachelor’s degree-seeking undergraduates who graduate within 150 percent of normal time;
2. **Completions (as % of FTE):** The total number of completions (awards, certificates, and degrees) granted as a percent of full-time equivalent (FTE) enrollment.

For both of these variables, we used each school’s average for the five-year period of our study.

C. **Governance Coding**

In coding a school’s governance system, we categorized it as “yes” or “no” for each of the following governance components:

1. **Coordinating Board:** a statewide entity that oversees multiple institutions and sometimes levels of education with limited control, but usually helps determine which academic programs will be offered by which school, and often distributes state appropriations;
2. **System Governing Board:** an entity that oversees multiple educational institutions and wields direct and substantial power over those institutions, usually controlling personnel policies and having hiring and firing power over top school administrators;
3. **Institutional Governing Board:** an entity that wields the powers of a system governing board, but over a single school (though sometimes with branch campuses).

Unlike in our prior report, we did not distinguish between system board schools that shared an institutional identity and those with distinct identities. After speaking with
other researchers, we determined that this distinction might not be meaningful, and might suggest two schools were similar simply because of their nomenclature, when their underlying missions and histories might be distinct. Based on these three components, we created an aggregate category called *Governance Type*, a distinct one of which existed for each distinct combination of the above three components.

Of the seven governance types we found in our dataset, we chose to focus on three specific types given the recent reform discussion in Oregon. Those types were:

1. *Type 3*: System Board Only;
2. *Type 5*: Coordinating Board + Institutional Board;
3. *Type 6*: Coordinating Board + System Board.

As we suggested in our prior draft, the decision of how to code a school for its governance system continues to be one of the most important aspects of any research into this subject. In our initial report, we noted the difficulty of finding a universal system of coding governance. For this report, we spoke with other researches and consulted some additional resources for coding governance structure, such as reports of the State Higher Education Executive Officers (SHEEO). However, upon reviewing SHEEO’s categorizations, we quickly determined that the organization conceived at least some of the critical governance components in a different manner than we did. For instance, SHEEO categorized some states as having coordinating boards even when the boards in questions did not appear to exercise any binding authority over the state’s schools as far as program coordination, funding distribution, etc.

Thus, with a few minor adjustments, we kept the governance coding of our original study. Nonetheless, further research into this area would benefit by governance coding undertaken after the initial development of objective, multifaceted criteria. While the development of such criteria would likely be a resource- and time-intensive endeavor, such criteria would allow for clear distinctions between “close calls,” such as single schools with multiple campuses and one board (institutionally governed) versus separate schools that also have multiple campuses and one board (system governed).

For our coding, we made visits to websites of schools, boards, state agencies, and administrators, as well as follow-up calls to school administration offices (when necessary). We also drew heavily on the categorizations of Aims McGuinness, a nationally recognized expert in higher education governance. When we encountered close calls, we considered a number of case-by-case factors, such as an entity’s self-identification, whether it had a separate administrative structure from other schools or campuses, whether its locations had separate admissions processes, and how it developed historically (many schools/locations merging into one or one school branching out).

**III. RESULTS**

**A. Averages by Governance Type**

Having sorted the schools by their governance types, we calculated the average for all schools in each governance type for the seven outcome measures (five financial
and two attainment) we generated. Because this data is a census (meaning it covers all the relevant data, as opposed to merely a sample), reporting these associations may be useful. However, because we believed that the underlying economic situation of a state might have some effect on the outcomes, we also divided the schools in each governance type into two groups. One group is all those schools that, within the governance type, ranked in the bottom half of state per capita real gross domestic product. In other words, these were the schools from the bottom half of the state economic ladder within their group. The first column on each chart below represents this half, while the second column represents the top half of schools by GDP (within each governance type), and the third column represents the average.

1. **Private Income (Gifts, Contracts per FTE)**

![Bar chart showing private income (gifts, contracts per FTE) for different governance types and GDP segments.]

<table>
<thead>
<tr>
<th></th>
<th>Sys Bd Only</th>
<th>Coord Bd + Inst Bd</th>
<th>Coord Bd + Sys Bd</th>
<th>All Gov Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom 50% GDP</td>
<td>$2,668</td>
<td>$1,832</td>
<td>$1,058</td>
<td>$2,333</td>
</tr>
<tr>
<td>Top 50% GDP</td>
<td>$1,996</td>
<td>$2,809</td>
<td>$3,171</td>
<td>$2,314</td>
</tr>
<tr>
<td>All Schools</td>
<td>$2,334</td>
<td>$2,317</td>
<td>$2,115</td>
<td>$2,323</td>
</tr>
</tbody>
</table>

**AVERAGE TOTAL PRIVATE INCOME (GIFTS & CONTRACTS), PER FTE, FY 04-08**
2. **Investment Income (per FTE)**

![Graph showing investment income per FTE for different categories]

<table>
<thead>
<tr>
<th></th>
<th>Sys Bd Only</th>
<th>Coord Bd + Inst Bd</th>
<th>Coord Bd + Sys Bd</th>
<th>All Gov Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom 50% GDP</td>
<td>$3,134</td>
<td>$1,550</td>
<td>$1,041</td>
<td>$2,989</td>
</tr>
<tr>
<td>Top 50% GDP</td>
<td>$1,049</td>
<td>$4,446</td>
<td>$3,179</td>
<td>$2,189</td>
</tr>
<tr>
<td>All Schools</td>
<td>$2,097</td>
<td>$2,988</td>
<td>$2,110</td>
<td>$2,590</td>
</tr>
</tbody>
</table>

*Average Total Investment Income, Per FTE, AY 04-08*

3. **State Appropriations (per FTE)**

![Graph showing state appropriations per FTE for different categories]

<table>
<thead>
<tr>
<th></th>
<th>Sys Bd Only</th>
<th>Coord Bd + Inst Bd</th>
<th>Coord Bd + Sys Bd</th>
<th>All Gov Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom 50% GDP</td>
<td>$30,974</td>
<td>$30,753</td>
<td>$30,278</td>
<td>$32,768</td>
</tr>
<tr>
<td>Top 50% GDP</td>
<td>$41,891</td>
<td>$30,770</td>
<td>$34,969</td>
<td>$35,701</td>
</tr>
<tr>
<td>All Schools</td>
<td>$36,404</td>
<td>$30,761</td>
<td>$32,623</td>
<td>$34,231</td>
</tr>
</tbody>
</table>

*Average Total State Appropriations, Per FTE, AY 04-08*
4. Percent Change in Net Tuition (per FTE)

![Percent Change in Net Tuition (per FTE)](image)

<table>
<thead>
<tr>
<th></th>
<th>Sys Bd Only</th>
<th>Coord Bd + Inst Bd</th>
<th>Coord Bd + Sys Bd</th>
<th>All Gov Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom 50% GDP</td>
<td>37.2%</td>
<td>40.7%</td>
<td>31.5%</td>
<td>32.7%</td>
</tr>
<tr>
<td>Top 50% GDP</td>
<td>23.5%</td>
<td>31.8%</td>
<td>35.4%</td>
<td>30.0%</td>
</tr>
<tr>
<td>All Schools</td>
<td>30.3%</td>
<td>36.3%</td>
<td>33.4%</td>
<td>31.3%</td>
</tr>
</tbody>
</table>
5. **In-State vs. Out-of-State Tuition & Fee Change**

*This measure was created by subtracting the in-state change from the out-of-state change, so a negative number indicates a greater increase in in-state tuition and fees.*
6. **Full-Time Graduation Rate (150% of normal time)**

![Graduation Rate Chart]

<table>
<thead>
<tr>
<th></th>
<th>Bottom 50% GDP</th>
<th>Top 50% GDP</th>
<th>All Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sys Bd Only</td>
<td>47.11%</td>
<td>49.50%</td>
<td>48.28%</td>
</tr>
<tr>
<td>Coord Bd + Inst Bd</td>
<td>44.89%</td>
<td>49.07%</td>
<td>46.97%</td>
</tr>
<tr>
<td>Coord Bd + Sys Bd</td>
<td>36.19%</td>
<td>45.29%</td>
<td>40.56%</td>
</tr>
<tr>
<td>All Gov Types</td>
<td>44.57%</td>
<td>48.30%</td>
<td>46.40%</td>
</tr>
</tbody>
</table>

**PERCENT OF STUDENTS GRADUATING WITHIN 150% OF PROGRAM TIME, AVERAGE AY 04-08**

7. **Degree Completions (as % of FTE)**

![Degree Completions Chart]

<table>
<thead>
<tr>
<th></th>
<th>Bottom 50% GDP</th>
<th>Top 50% GDP</th>
<th>All Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sys Bd Only</td>
<td>22.59%</td>
<td>24.60%</td>
<td>23.59%</td>
</tr>
<tr>
<td>Coord Bd + Inst Bd</td>
<td>22.88%</td>
<td>22.84%</td>
<td>22.86%</td>
</tr>
<tr>
<td>Coord Bd + Sys Bd</td>
<td>21.57%</td>
<td>25.12%</td>
<td>23.33%</td>
</tr>
<tr>
<td>All Gov Types</td>
<td>22.02%</td>
<td>24.46%</td>
<td>23.24%</td>
</tr>
</tbody>
</table>

**AVERAGE NUMBER OF COMPLETIONS (DEGREES & CERTIFICATES), PER FTE, AY 04-08**
B. Regression Analyses

In addition to sorting the data by governance type, we ran the data through 18 distinct multiple regression models. Each model tested one dependent variable against a host of independent variables. The dependent variables were the same seven outcomes we discussed above: private income, investment income, state appropriations, net tuition change, in-state vs. out-of-state tuition and fee change, full-time graduation rate, and completions.

The primary independent variable with which we were concerned was the governance type variable. With each dependent variable, we ran three models to test against governance type: one model that sorted schools by yes or no on governance type three (system board only), yes or no on governance type five (coordinating board plus institutional board) and yes or no on governance type six (coordinating board plus system board).†

Each of those three models (per dependent variable) also included several other independent variables that we considered appropriate for control purposes. Because we hypothesized that these variables might also influence the dependent variables, we also tested for:‡

1. State Median Income;
2. State Per Capita Real GDP;
3. Percent of Student Financial Aid Recipients in Lowest Income Bracket;
4. Presence of NCAA FBS-Division Football Program (highest level);
5. Racial Demographics (percent of students who were African-American or Hispanic).

After reviewing the results of these analyses, we found only two dependent variables that showed a meaningful, statistically significant correlation with a governance type.§ We considered results meaningful if the R-square and adjusted R-square values for the model were 0.10 or higher, meaning that the variance in the dependent variable was at least 10 percent attributable to the independent variables tested in the model. We considered results statistically significant if both the overall model and the individual correlations were significant at the 95 percent confidence interval or higher. Based on this screen for significance, we found the following associations:

† Some models were not produced because the variables did not fit in a meaningful way; thus there were 18 models instead of the 21 that would have mathematically resulted from three models (based on governance type) for each of seven dependent variables.
‡ Because some independent variables were highly collinear, not each variable was included in each model as it would have skewed the explanatory value of the model.
§ Some models showed significant correlations between non-governance independent variables and the dependent variable, but because governance is the focus of this study, those results are not reported. They can be viewed in the regression outputs included with this memo.
1. **State Appropriations**

Schools in governance type three (system board only) were associated with an average combined 2004-08 per FTE state appropriation amount of $4,353 more than schools not in governance type three. Schools in governance type five (coordinating board plus institutional board) were associated with an average that was $4,017 lower than other schools. Finally, schools in governance type six (coordinating board + system board) were associated with an average that was $3,524 lower than other schools.

Each one of the three models demonstrating these relationships was significant at the 99 percent confidence interval. The individual correlations with governance types three and five were also significant at the 99 percent confidence interval, while the correlation with governance type six was significant at the 95 percent confidence interval. Each model had an R-square value of approximately 0.16-0.17 and an adjusted R-square value of approximately 0.15-0.16, meaning that all the independent variables tested in each model accounted for about 16 percent of the variation in the dependent variable, state appropriations.**

Each of these three models also showed a significant correlation between state appropriations and three other independent variables. For each percentage-point increase in students who were African-American or Hispanic, state appropriations increased by approximately $145. For each one-dollar increase in state per capita real GDP, state appropriations increased by approximately $0.57. Finally, schools that had an NCAA FBS-Division football program were associated with an average combined 2004-08 per FTE state appropriation amount of approximately $13,600 more than schools without such football programs. In every model, these associations were significant at the 99 percent confidence interval.

2. **Full-Time Graduation Rate (150% of normal time)**

Schools in governance type three (system board only) were associated with an average 2004-08 graduation rate that was 3.3 percentage points higher than the rate at schools not in governance type three. There was no statistically significant correlation between governance type five and the average 2004-08 graduation rate. Schools in governance type six (coordinating board + system board) were associated with an average graduation rate that was 6.5 percentage points lower than other schools.

Each one of the two models demonstrating these relationships was significant at the 99 percent confidence interval. The individual correlation with governance type three was significant at the 95 percent confidence interval, while the correlation with governance type six was significant at the 99 percent confidence interval. Each model had an R-square value of approximately 0.32-0.34 and an adjusted R-square value of approximately 0.32-0.33, meaning that all the independent variables tested in each model accounted for about 33 percent of the variation in the dependent variable, graduation rate.

---

** The exact values for these numbers and all other approximations listed here are available in the regression analysis outputs that accompany this report.
Each of these two models also showed a significant correlation between graduation rate and two other independent variables. For each percentage-point increase in students receiving financial aid who were in the lowest income bracket, the average graduation rate was approximately 0.79% lower. Additionally, schools that had an NCAA FBS-Division football program were associated with an average graduation rate that was approximately 15.3 percentage points higher. In each model, these associations were significant at the 99 percent confidence interval.