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**BUDGET MODELS AND METHODS
USED IN HIGHER EDUCATION**

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For the Degree of Master's in Public Financial Management

Martin School of Public Policy and Administration

University of Kentucky

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EXECUTIVE SUMMARY

The Cambridge Dictionary defines a budget as “a plan to show how much money a person or organization will earn and how much they will need or be able to spend.” (Budget, 2023). The budget of an institution within higher education is how to allocate the planned amount of revenues received to support the planned expenditures across the organization for an upcoming period, usually a fiscal year or project duration. Various public higher education institutions have many different methods for allocating those planned revenues to support expenditures across their colleges, schools, and administrative units to support the university's mission. This paper will look at six commonly utilized allocation philosophies for public institutions within higher education to consider how to distribute their funding and compare several universities that use the six different models to discover what budget methods are appropriate for various goals in higher education.

INTRODUCTION

The budget allocation process would appear to be straightforward in that governing boards or senior leaders plan what revenues a university or college is to receive, then plan out the expenditures against those revenues. However, the process can be wrought with infighting and negotiations among leaders as every organization has more uses for resources than sources of revenue to support the mission of the institution. Various allocation methodologies can help universities to prioritize and allocate the budget in a way that works for that school and aligns the resources to its strategic goals and plans. These allocation methods range from highly centralized models where a group of senior officials makes distribution decisions to very decentralized approaches that distribute decision-making authority across the various revenue-generating units.

Six approaches to budget allocation are included for comparison:

- Incremental
- Zero-Based
- Activity-Based
- Central-Based
- Performance Based
- Responsibility Center Management (RCM)

Each method offers the governing boards and senior leaders a plan to control costs and raise revenues that depend on the university's goals and mission. Many of the public universities reviewed use more than one method of budgeting and have a "hybrid" version that works for their organization. These hybrid models may be instituted for additional controls in certain areas of the institution or to incentivize certain programs as will be explored later in this paper. Below is a description to help define each method of allocating resources through a budget (Eisenstein, 2021):

Incremental Budgeting – The most common form of allocation at the college and university level, this method bases a new fiscal year’s budget on the current year’s funding level where the board only allocates new revenues (or deductions to that revenue) through the budget. As the name implies, this method is an incremental approach in most years unless a cut is required. Decisions for incremental budgets are typically made at a central level and pushed down into the organization. The benefits of this method include that it is easy to manage from year to year, relatively cost-effective in implementation, and the units can generally expect a similar budget each year. The drawbacks are that units may be less inclined to raise revenues knowing they have little involvement in the decisions and thus lack the desire to expend efforts as units may see no direct benefit from the efforts. In addition, the amount allocated for programs and purposes in prior years can get lost without extensive record keeping making cost control difficult.

Zero-Based Budgeting – This methodology completely wipes the current budget out and starts a new fiscal year from zero. This approach is the opposite of the Incremental method, as it ensures that the university staff must go before the board to get authorization for every expenditure each fiscal year. An institution starts from the ground up justifying all personnel, operating, and capital requests every year. This method’s advantages are in cost control and the extremely centralized approach that approving every expense entails. The main disadvantage to this method is the time it takes to assemble and justify every revenue and expenditure. This makes this method undesirable for some institutions as the university has a hard time reacting and being nimble when considering new initiatives or shifts to its business model when the

request must be vetted to the top of the organization. As the Harvard Business Review states, "...the process is a distraction to their people, that it does not deliver all the cost savings they anticipated, and that many of the costs they do eliminate soon creep back in, making the whole effort feel futile." (Mahler, 2016).

Activity-Based Budgeting – This model attempts to align revenues with expenses based on a particular function, activity, or metric at the institution. If there is an initiative that generates revenues, then those revenues will remain with that activity and promote the unit to grow those initiatives as they see the return on that revenue directly. The units, schools, or colleges within the institution have more direct control over raising the revenues and spending against those revenues. The advantage of this is it decentralizes control and allocates the resources to those programs attracting revenue. The disadvantage is its very difficult to track the indirect costs associated with these activities and assess an appropriate overhead to that program. If a revenue-generating unit believes they aren't getting the service desired centrally, it could also cause duplication among the various units around campus. There could be hundreds or thousands of various activities at your larger institutions thus requiring input from those leaders to allocate the appropriate resources, in addition reporting on the activities can be quite cumbersome.

Central-Based Budgeting – The name implies the philosophy behind this methodology, a small group of upper-level administrators make the budget decisions and inform the institution of their decisions and how they will impact its operations. This method is frequently used in conjunction with other methods as a board may want this level of control over one fund source like a state appropriation or tuition income but allow units,

schools, or colleges to use another method on funds they raise at a departmental level. The advantages of this method are that it helps to control allocations and allows the board to pivot in moments of crisis constricting what the institution can do considering financial difficulties. The disadvantage is that units will be less inclined to search for innovative opportunities if the funds are managed centrally and certain initiatives or programs could be considered “favored” thus setting up the potential for blowback from other areas of the institution.

Performance-Based Budgeting – This method will outline various metrics for the units to achieve which align with the goals and strategic plan for the university or can also unlock certain funds for the institution at the state level for public institutions of higher education. Thus, incentivizing various performances for the university to achieve its goals through a very distinct set of parameters such as enrollment growth, or degrees awarded. The benefits of this model are in its ability for units to have a direct monetary impact from achieving their performance goals. What hinders this method though is the time-consuming calculations and reports needed to monitor the status of the metrics as it aligns with the goals. In addition, units can become overly focused on goals outlined in the performance metrics which may or may not relate to all aspects of the strategic plan. Another risk is that units that perform well continue to receive the largest portions while units that are trying to catch up are never able to with a shrinking portion of the funding.

Responsibility Center Management (RCM) Budgeting – This is the most decentralized approach to budgeting examined as it gives the operational authority down to the units, schools, and colleges within the university and allows them to set their

own goals. The tuition assessed by students from each unit, school, or college goes back to that division thus allowing each division to stand as a business unit within the institution. Since the divisions are receiving the tuition raised, all costs associated with that division are allocated down and any central services provided by the institution are also allocated through an overhead rate, assessment, or tax of some sort to those divisions since they hold the revenues. The advantages of this method are it puts control over decisions at the unit or division level which should motivate the division leaders and deans of colleges to seek out revenue opportunities for their school and thus the institution. Monitoring and control over costs can be difficult in an RCM model for a board or administration though as each division is paying its way, so colleges may all want to set up an accounting, payroll, or IT division for example to circumvent the central service tax or to monitor their unit's functions. In addition, competition between colleges and units may become fierce as a student may be in one school but take a class in another. Definitions of where the funds go must be adjudicated on an almost continual basis as everyone will be competing for those funds causing extensive policies and regulations around the allocation methodology.

These six methods of budgeting are the most common philosophies in use at public institutions of higher education across the United States today. As will be explored in the analysis, most institutions use a hybrid approach to budgeting where they mix and match allocation methodologies to help their university achieve their strategic goals and mission. This paper will explore the various components of these methods, how they relate to each other, under what conditions each method may be considered for use, and a look at why some institutions have changed in recent years.

LITERATURE REVIEW

As illustrated, the field of budgeting in higher education contains many different models and philosophies when it comes to how these institutions of higher learning allocate and prioritize their resources. While accounting departments have standardized formats as laid out by the Governmental Accounting Standards Board (GASB) for public institutions and the Financial Accounting Standards Board (FASB) for private institutions, the realm of budgeting is up to interpretation and having their governing boards align resources with that institution's strategic plan. In recent years, as revenue streams are constricted through state appropriations, enrollment declines, and the public questioning the value of degrees, several institutions have also changed budgeting methods and philosophies to better align their resources for a more "business-like" approach when allocating funding. The six models highlighted examine how institutions allocate their costs and revenues while emphasizing their ambitions and goals.

From the overview of various budgeting models, a look at the planning format in higher education is necessary. A paper from the Education Advisory Board (EAB) laid out this ever-changing environment and items for universities to consider when researching alternative budget models. While the paper does detail most of the various methods of budgeting to be compared in this work, it doesn't list them all. However, it does document the necessary components to consider when applied to the different budgeting philosophies to be analyzed in this research (Auerbach and Edmonds, 2013).

The discussion surrounding budgeting in large organizations can be fraught with infighting and positioning for divisions to get the resources necessary to achieve their mission and goals. The budget is a way for the administrators of an organization to allocate funds to support the many different programs, initiatives, and ultimately the

livelihoods of employees executing the institution's mission. This naturally sets up competition among departments, administrators, programs, and other units at the institution for the available funding. These allocation models reveal that the decision level at an organization can have institutions appear to be more holistic in their approach or inclusive thus some models are touted for their communication and transparency among the campus community. A recurring theme among the institutions examined is central and incremental approaches to budgeting have very little information surrounding their process. What is gleaned was mostly from budget calendars and the budget books they publish. The other methods all advertise the method used and have many flyers, videos, white papers, and testimonials from campus faculty and staff on the approach.

When working with public institutions there is also the political component from the state government and a major lobbying effort on behalf of the public institutions to help ensure their state appropriations are adequate. In recent years, reductions and state governments changing allocation models to Performance-Based funding have caused universities to look at their allocation models within the institution. There is a documentary called "Starving the Beast" about how political influence over higher education has become highly politized and whether higher education is a commodity worth funding at the state level (Mims, 2016). The changes to funding models from the state along with the reduction in public funds to public universities are causing industry disruptions and institutions must evaluate and change the way they approach budgeting. Innovation is a term used by administrators to describe the changes and the new approaches to allocating resources but comes from a change to their revenue sources at the political level.

Each method has its advantages and disadvantages to allocate funds among the institution's many priorities. Overall, the number of institutions implementing multiple budget philosophies to achieve their goals is surprising and a look at several institutions using different models will help identify information about when and why to use the various models.

RESEARCH METHODS

The research into what budget models and philosophies are appropriate for the various goals in public higher education is about how management decisions and priorities are reflected in an organization's budget. An examination of the research is leading to a transition in preferred budget types with many institutions moving from an Incremental model to other models such as the Responsibility Center Management (RCM) or performance incentive models as their funding sources shift. The design of this research is a comparative analysis of the different models of budgeting in the public space of higher education.

This paper takes a qualitative approach when comparing and analyzing the effects of the various budgeting methods on each other, particularly around the schools and their preferred methods of allocating resources to the divisions that teach, do research, and support the students in being successful. Many schools use a multi-method or hybrid approach in how they plan out their operating budgets with some sources and divisions using one method while others utilize a different method at the same school. This paper will examine why an organization is utilizing one certain method over another and the results they experience. The study lends itself to the qualitative approach with a descriptive research design as the research question is comparing the various methods and under which circumstances these methods are best utilized.

This research will explore the various budgeting methods currently most popular at public higher education institutions across the United States and will give the reader an idea about what methods can be best applied in certain situations and the methods

used at some select schools for comparison. Some schools are more descriptive than others about the types of methods used, as such the examples include schools that have published their process and how they allocate resources within their university. This research is only reviewing public institutions as many private institutions do not publish information regarding their budget let alone their processes and methods used to develop a budget.

Unfortunately, there is no central repository of budget information for public higher educational institutions, thus selecting the schools to examine entailed research into the various college and university published materials on their websites along with presentations to their boards. Since many schools are looking at their budget methods or have recently changed methodologies, there was a plethora of materials surrounding their budget practices including committee documents, videos explaining the methodology, and training information for users in their university. Ultimately, the budget models examined at public institutions were as follows given intimate knowledge of the source and the number of published materials on their websites:

- Incremental – University of Kentucky
- Zero-Based – Colorado Mountain College
- Activity-Based – University of Washington
- Central-Based – University of Georgia
- Performance Based – University of Colorado
- Responsibility Center Management (RCM) – University of Michigan

For each institution listed, a thorough review of that university's published budgets from FY2014-15 through either FY2022-23 or FY2023-24, if that institution had a published book for the upcoming fiscal year, were examined to measure changes in the overall budget and how the budget changes through their published units. In addition,

further research was completed on each website to get budget calendar details and an examination of other information to glean specifics regarding their budget processes.

As indicated above, limitations in the research methodology result from no centralized source of information about what philosophies are used at each institution. Institutions in recent years have also been forming task forces and committees to change their budgeting methods either gradually across campus or through years of research and setup to help with adoption and buy-in across each university. With additional resources, site visits and interviews with staff at each of the universities would assist with a more descriptive and refined definition of the institution's budget process.

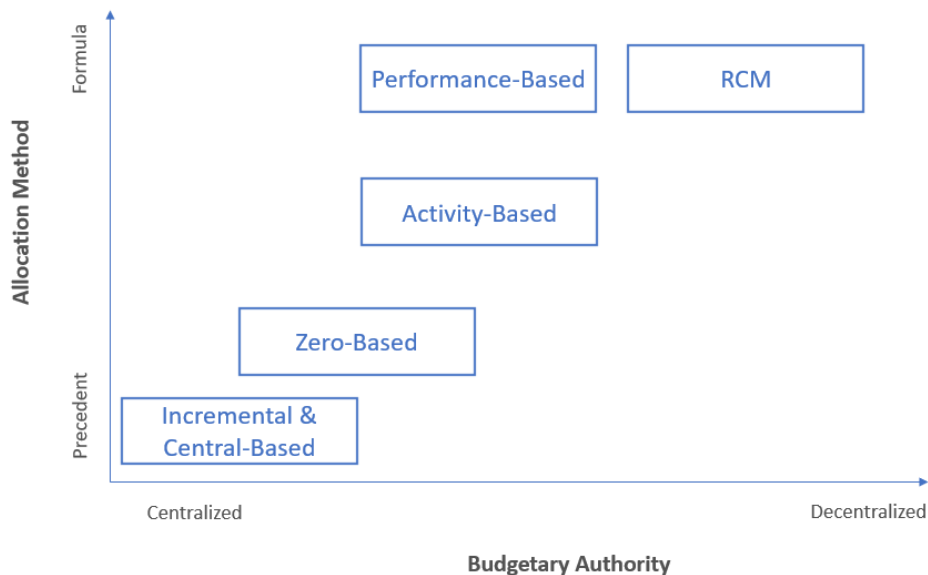
Overall, this research is comparative in nature with no single method standing out over another as each method has its advantages and disadvantages. A comparison of each of the budgeting methods has the reader decide what process they should explore for their management style and resource allocation. This may point the reader to further investigate one or more of the budget philosophies and how that will work for their institution's priorities. The design of my project is intended to showcase the uses of budgeting methods to achieve various management goals and priorities for public higher education institutions.

ANALYSIS

In allocating resources across public institutions, the numerous models allow for varying levels of input from different groups across campus. As the budget in an organization is defined as management's decision on how to spend the university's resources, the method used to allocate those resources is also management's decision to make or delegate. This can range from an attempt to maintain full control of costs, to creating an allocation model that incorporates others within the institution's decisions beyond the governing board.

The Education Advisory Board (EAB) produced a model in 2013 to show how decisions around each of the models function and where the authority for the method rests (Auerbach and Edmonds, 2013), however, the model didn't include the Central-Based model. Thus, based on this paper's analysis later, the modified methodologies using Auerbach and Edmonds chart would look like the following:

Figure 1: Budget Model Framework of Allocation and Authority



Note: Modified from *Exploring Alternative Budget Models*, by C. Auerbach and L. Edmonds, pg. 7, Copyright 2013 by The Advisory Board Company

While the EAB model does not consider the Central-Based method, it should be considered in the centralized and precedent area of the chart and is usually implemented for ease of budgeting. This helps institutions increase or decrease a budget more in line with an incremental approach and then allocate or deduct funding for other central decisions made. In addition, the Zero-Based model is moved to a slightly less centralized space as in practice, units must inform their budget decision-makers about allocations and requests. Because of this dynamic, there is a non-centralized piece where the leaders must rely on the units for data to make their decisions.

Each of the six methods is analyzed and compared below to see how they function at various public colleges and universities where they are utilized. The institutions were selected by their published materials on each of the school's websites and the nuances of how the schools use those methods when allocating their institution's resources were examined.

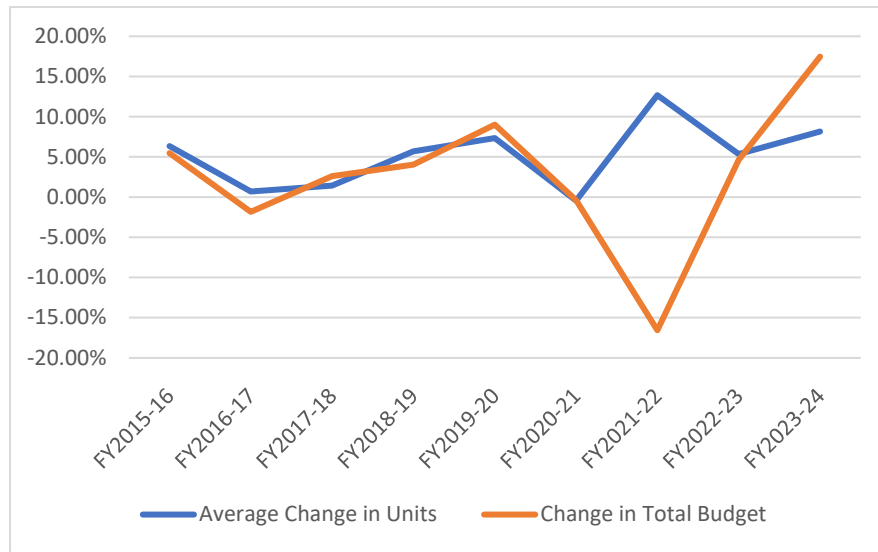
INCREMENTAL BUDGETING

The traditional approach of most public institutions follows the allocation method many states use for that institution's state appropriation. Many states use an incremental approach to budgeting for their overall state budget year-over-year as it's an easy starting point and thus many public higher education institutions also use this method, though the number has been decreasing. It's estimated that as of 2011, roughly 79% of public institutions were using an Incremental model, down from 87% in 2008 (Auerbach and Edmonds, 2013). Governing boards and administrators like the ease of implementing an incremental approach as they have already approved what to do with prior allocations

and must only be concerned about how to allocate new funding throughout the institution. A disadvantage to this model is that allocations for programs or units are lost over time through changes at the institution. For example, funding for a data center that went offline may never get recouped or an area of the institution may get reorganized and realize efficiencies never to be reallocated by the board. This has led many institutions away from Incremental budgeting in recent years in favor of a Zero-Based budget, RCM model, or some hybrid between various models depending on the level of decision-making the institution is looking to implement.

The incremental approach is by far the easiest in terms of time and effort to implement year-over-year, as it gives boards and senior management a balance of control and keeps resource allocation levels in line with prior years while additions and deductions tend to be minimal each year. Generally, it gives units and divisions a good idea of the resources they will have to make decisions on in each fiscal year on a recurring level. This also makes long-term planning easier to project as the level of budget is a smoother line, as shown below in Figure 2.

Figure 2: Percentage Change in the University of Kentucky’s Budget using the Incremental Budget Method and the Average Change across Unit Budgets



Note: Data compiled from the University of Kentucky’s Budget Books from FY2014-15 through FY2023-24 (UK UBO, 2023)

The University of Kentucky primarily uses an incremental approach to budgeting (excluding the healthcare part of the organization and a small amount dedicated to Performance-Based funding for academic programs). Decisions are made centrally around new revenues and how to allocate expense authority to each of the units for their operations into the new year. Requests are made to the central administration early in the process against the new revenues then the administration allocates the resources in line with the mission and strategic plan of the University. Anytime there are planned decreases to revenues, central administration decides how and where those cuts will be allocated such as through a hiring freeze, pull back in vacant salary lines, or across-the-board cuts in the form of a percentage. Regardless of the increases or deductions, management can typically feel secure in knowing that their budget will be similar each year through this method.

As mentioned previously, there could be reorganizations or efficiencies within the units and the central administration may not realize these have occurred thus not realizing that certain funds that were allocated in past years may be used for different purposes now. Thus, the authority granted for a program has been reallocated within a unit without any centralized approval or awareness of the rearrangement and change. As budgets and revenues tighten, this is an area that can lead universities to look to other methods for cost control purposes. Figure 2 shows the percentage change in the budget of the institution (adjusted for inflation in real 2023 dollars) against the average change in budget across the various units at the University of Kentucky. This data excludes the university's academic medical hospital as that entity uses a zero-based budgeting approach whereas the campus uses the Incremental budget methodology primarily.

The chart shows a close correlation between average changes across the units to the overall change in the University budget. In FY2021-22 the University had a significant re-organization between major units at the University resulting in the divergence between the two data series. This comparison also shows there is a correlation between the overall budget and the changes in the units as a result of the type of budget model. The budget thus typically oscillates around a 5% increase overall using the Incremental method for budgeting. The increase each year is attributed to enrollment growth of the institution, state support, and auxiliary and restricted funds growth.

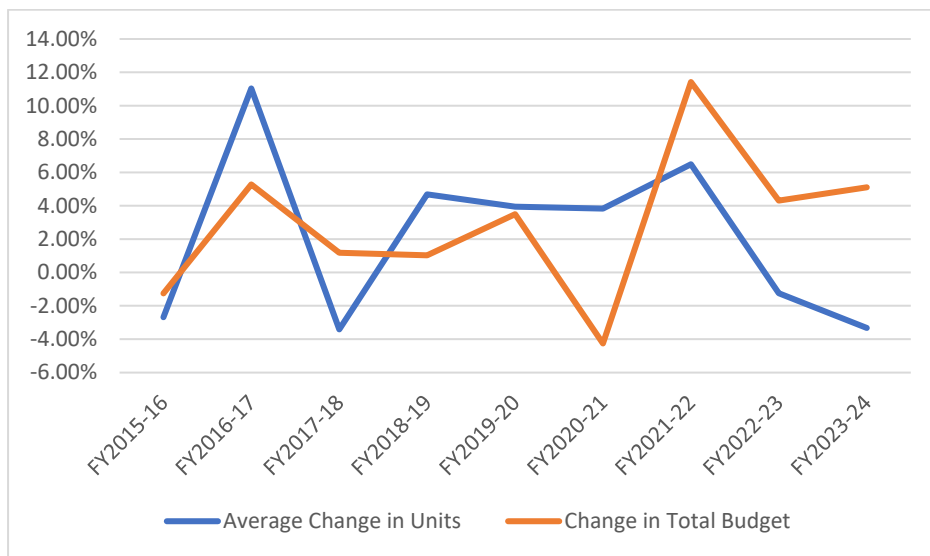
ZERO-BASED BUDGETING

Colorado Mountain College, a community college system, uses a zero-based approach where each year during their budget development process the College makes their units tie their expenses to the College's strategic plan (Kiley, 2011). The College prior to 2011 used an incremental approach but in times of uncertainty during the Great Recession, the System's leaders decided they needed a new approach to eliminate waste and to rein in spending that was not tied to their mission. The process is very similar to the description of this model from the introduction, central administrators in conjunction with the budget office meet with divisions across campus and the divisions request authority to spend funds through their budget requests. Within this methodology, institutions maintain control over each dollar spent thus the process takes longer to evaluate all requests and get approval from management and the board for those requests. With this non-recurring approach, schools could potentially have a very different budget year-over-year making accurate long-range forecasting extremely difficult.

Figure 3 shows the percentage change in the budget of the institution against the average change across its various campuses which is how Colorado Mountain College organizes its units. The College has had some fluctuations from renamed facilities to closing and opening new facilities over the period researched from FY2014-15 to FY2023-24. Figure 3 shows how the overall budget of this system has more variability with some years having a decrease followed by years with a significant increase to the budget. The units in turn also have more variability in their allocations ranging somewhere between a 3% decline in some years to more than a 10% increase in others. This method of budgeting is all about cost control though, so more variability in the budget year over year

is acceptable to their board to have visibility over the expenditures in each of their campus units. Interestingly, there are years where the average change in the units moves in an inverse direction to the total change in budget for the institution showing that units are not always moving in the same direction as the institution in terms of their budget.

Figure 3: Percentage Change in the Colorado Mountain College Budget using the Zero-Based Budget Method and the Average Change across Unit Budgets



Note: Data compiled from the Colorado Mountain College Budget Reports from FY2014-15 through FY2023-24 (Colorado Mountain College, 2023)

ACTIVITY-BASED BUDGETING

The method of Activity-Based Budgeting (also known as Activity-Based Costing at some institutions) allocates the revenues and expenses based on a formulaic expression and is usually on top of some predetermined base. To use this method, the institution must organize its reporting such that its departments and divisions are set up by activity or function that generates revenues and can track expenses against a defined activity. The activity is then assigned revenues from its source, for example, a college would be given a certain amount of tuition revenues for the students taking the courses, or housing

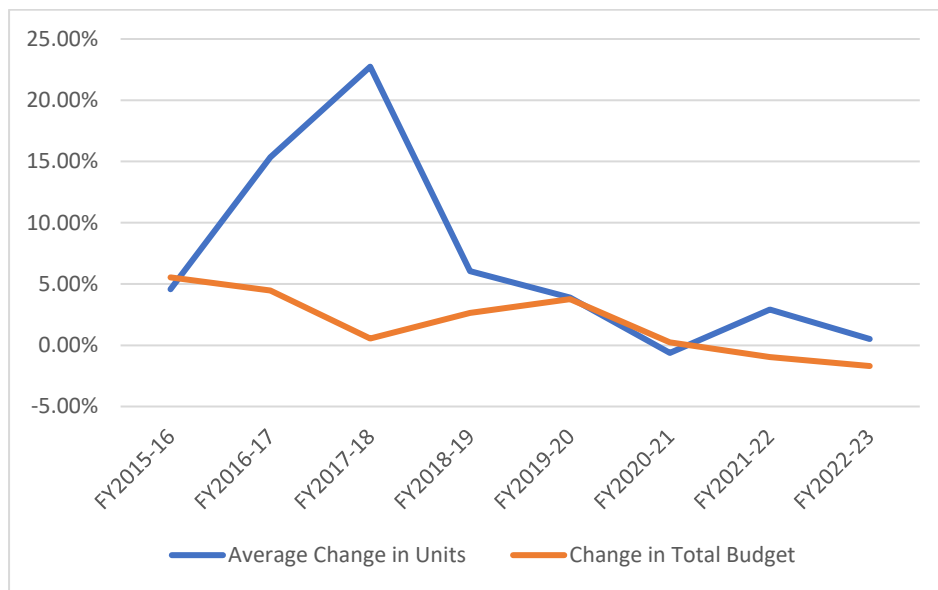
would get the revenues associated with students paying for housing costs, and support units would have revenues in the amount of a tax to other units to support the administration.

The University of Washington uses an Activity-Based Budgeting model to allocate general funds to units (UW, 2018). The model considers the gross revenue, applies a detailed set of formulas to that gross amount, then will determine the net operating revenues that can go to each activity at the university. Like Zero-Based budgeting, the Activity-Based budgeting model is intensive and treats activities and revenues more like a business would treat its revenues in terms of margins and the level of outputs needed to reach those margins. The control over the budget becomes more decentralized through this approach as decisions about programs, enrollments, or activities are up to the division leader in charge of the activity. It incentivizes leaders to think more about revenue generation and how they will raise funds for their unit rather than relying on a central source. Transparency is touted through this method as a division leader can see through the formula how they will receive the revenues. The downside is that it takes leaders in charge of research, academic progress, or other non-financial experts and requires them to think about how their market works, how to incentivize their units to enroll more students and set up competition among units at the same organization over student enrollments and central costs.

Figure 4 shows the average change in the Activity-Based divisions at the University of Washington when compared to the overall change in the budget when adjusted for inflation. The University went through a reorganization effort in FY2016-17 and FY2017-18 among the administrative units at the University of Washington, thus the large peak

and difference between the changes in the overall budget versus the divisional level budgets. As can be seen from this model, the average divisional-level budgets remain in line with the overall changes to the budget when using an Activity-Based budgeting model.

Figure 4: Percentage Change in the University of Washington Budget using the Activity-Based Budget Method and the Average Change across Activities



Note: Data compiled from the University of Washington Budget Reports from FY2014-15 through FY2022-23 (University of Washington, 2023)

CENTRAL-BASED BUDGETING

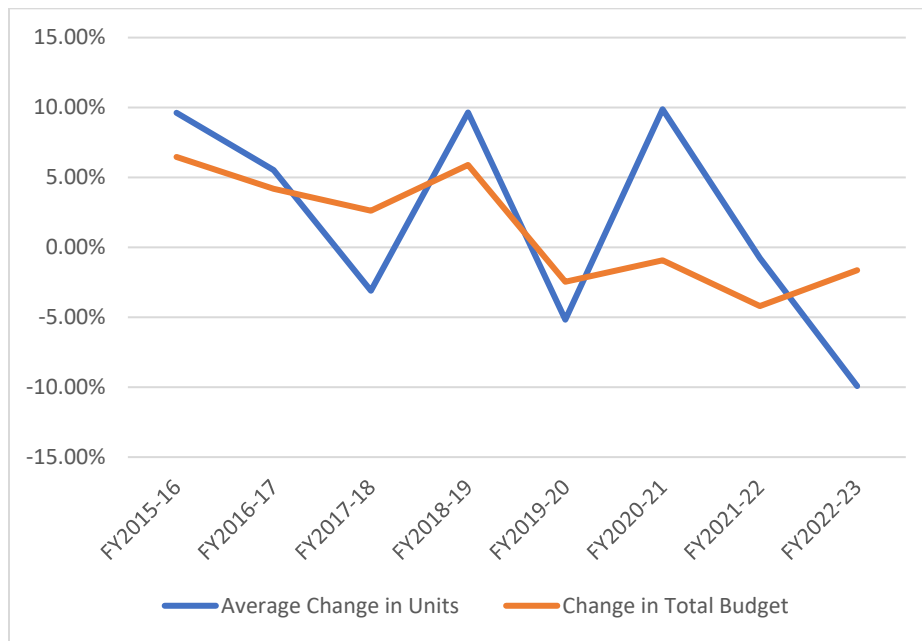
The Central-Based budget model encompasses both the Incremental and Zero-Based models as a small group of senior leaders or governing board members make the decisions on how the resources will be allocated. In other words, a centralized group is making the allocation decisions for the entire university. In the EAB model, the Central-Based budget model is not shown as an option because this model uses features of both the Incremental and Zero-Based models when making decisions and is a hybrid between

the two. The incremental decisions are typically based on university-wide funding sources such as state appropriations, tuition, indirect revenues, or investment income. The institution will collect these in a central set of accounts and disperse authority for the units to spend against them usually in an incremental fashion adding programs, initiatives, cost of living increases, etc. as the revenue source permits. When it comes to auxiliary or restricted fund revenues from say housing, dining, gifts, or grants, units will look at these sources as starting from zero each year as there is more fluctuation in the year-over-year revenue when compared to say the state appropriation. Thus, central administrators require these units to justify the expenses associated with them.

The University of Georgia primarily uses a Central-Based model where decisions are pushed down throughout the organization from high-level administrators assigning resources based on requests. The advantage of using a Central-Based budget model is the timing from decisions to implementation. In researching the schedules this model has one of the shortest turn-around times. For FY2023-24, the University had decisions made by May 16th, 2023, for the announcement, and everything was completed for review and approval by the board by May 26th, 2023, just a ten-day turn-around (University of Georgia Budget Schedule for FY 2024, 2023). Since the work of compiling data and making decisions takes place with just a few individuals, the time from announcement to completion of the budget takes much less time. A downside of this method is there may not be buy-in from the leaders around the institution or units are likely not invested in helping to raise revenues as they don't get to make the decisions on what those revenues will be used for in their units.

Like the other models reviewed, Figure 5 shows a similar relationship between the average divisional budget over time versus the total budget. The peak in FY2020-21 on the average change in unit line represents an organizational change where funding was reallocated to its student services division. The divergence in FY2022-23 was due to the elimination of a division as reported in the budget. As seen in the incremental model, the lines are similar except where the organization changes had a significant impact on reporting units. These units tend to stay more static year-over-year in the centralized models and thus make long-term forecasting a more achievable goal for the institutions that plan centrally. The variability in decentralized models leaves a lot of guesswork as to the amount each unit can anticipate year-over-year.

Figure 5: Percentage Change in the University of Georgia Budget using the Central-Based Budget Method and the Average Change across Unit Budgets



Note: Data compiled from the University of Georgia Budget Reports from FY2014-15 through FY2022-23 (University of Georgia, 2023)

PERFORMANCE-BASED BUDGETING

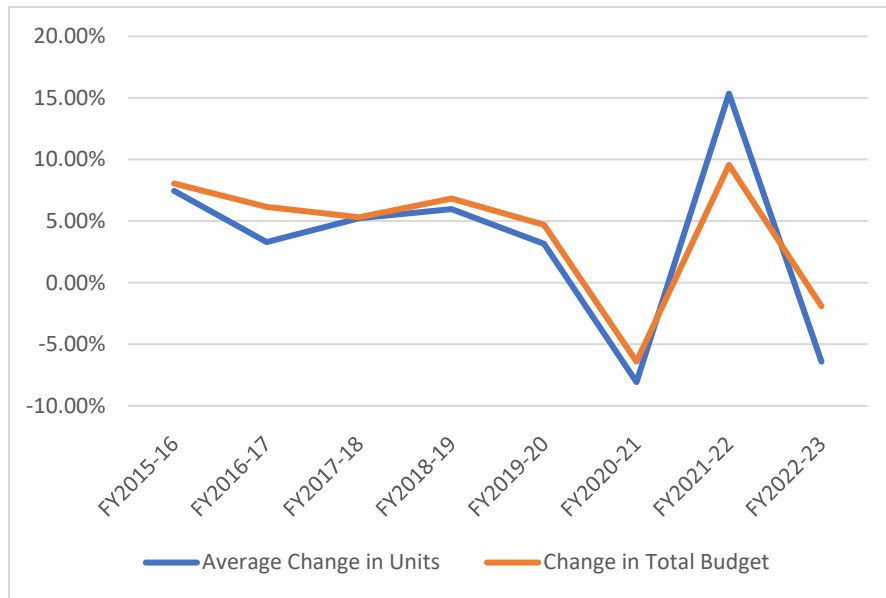
The Performance-Based budgeting model, which is also known as an Incentive-Based budget model, relies on senior leaders and the governing board to come up with some defined parameters and then incentivize those parameters when divisions and colleges meet those goals. Most schools researched have incorporated some form of a Performance-Based budget into their current system. No university examined has this as its sole methodology for budgeting as finding metrics that can apply to all types of units, academic, research, public service, health, athletic, and/or administrative would be next to impossible. For example, some units cannot produce degrees if they are research-based or administrative in nature just as an academic unit wouldn't be able to reach a basketball tournament. The goal of implementing a performance or incentive into the budget model is to decentralize decisions to unit leaders and rely on those leaders to move in a way that benefits their college or unit. Enrollment growth, increasing retention rates between years, or earned credit hours are all metrics seen at several of the institutions that have implemented this type of model.

Colorado University changed to a Performance-Based model in 2022 with the goal to be more transparent to the campus community and flexibly make movements to incentivize new goals when needed (Colorado University Budget Model, 2022). Prior to 2022, the University used an incremental approach and felt that decisions made long ago were dictating the levels of budget throughout its organization and thus began in 2020 to move to a model that the institution felt gave them more flexibility and inclusion of other stakeholders. As noted in Figure 1 above, this method is the most formulaic approach to budgeting and lays out that if you reach the metrics as defined, then there could potentially

be additional funds on the table for that division or college. This is one of the advantages of this model and makes it palatable to the campus community. It's up to the unit to succeed and get more funding, not up to a central administrator to inform them of what they will be getting through the budget allocation. In every institution that has this model, there is either a portion of each unit's budget that is "at risk" for loss or an amount set aside from central funding as the "performance pool" should units achieve their metrics and thus have access to the funds. One of the main disadvantages of this model though is that units that do well tend to get the resources to keep doing well, whereas the units not growing in the defined metrics are limited in the resource allocation to do better.

Figure 6 shows the average unit's change in budget relative to the total budget of the University over the last several years. Of note is that through FY2021-22 the university did use an Incremental model so it will be interesting to see how the line moves across divisions in the future. Another consideration is that all the institutions researched for this paper implemented this recently so historical data was very difficult to observe. This will be a method to follow back up on and see how it works in conjunction with the other models as most institutions that have implemented this form of budgeting are still using an Incremental or Zero-Based approach through their other divisions.

Figure 6: Percentage Change in the University of Colorado Budget using the Performance-Based Budget Method and the Average Change across Unit Budgets



Note: Data compiled from the University of Colorado Budget Reports from FY2014-15 through FY2022-23 (University of Colorado, 2023)

RESPONSIBILITY CENTER MANAGEMENT (RCM) BUDGETING

The RCM model for budgeting is frequently referred to as “a tub on its own bottom” method meaning that any unit in the institution must raise its revenues and has complete discretion over its expenses of which those revenues must cover all their expenses, both direct and indirect. From Figure 1, this method is the most decentralized thus giving unit leaders operational authority over the revenues they raise. Tuition dollars and state appropriations are allocated based on a formula while other revenue streams associated with an individual unit are retained for use by that unit with institution-wide expenses allocated against individual unit revenues.

Universities that list RCM as their method of budgeting and managing funds have listed some advantages including more transparency in their budgeting decisions

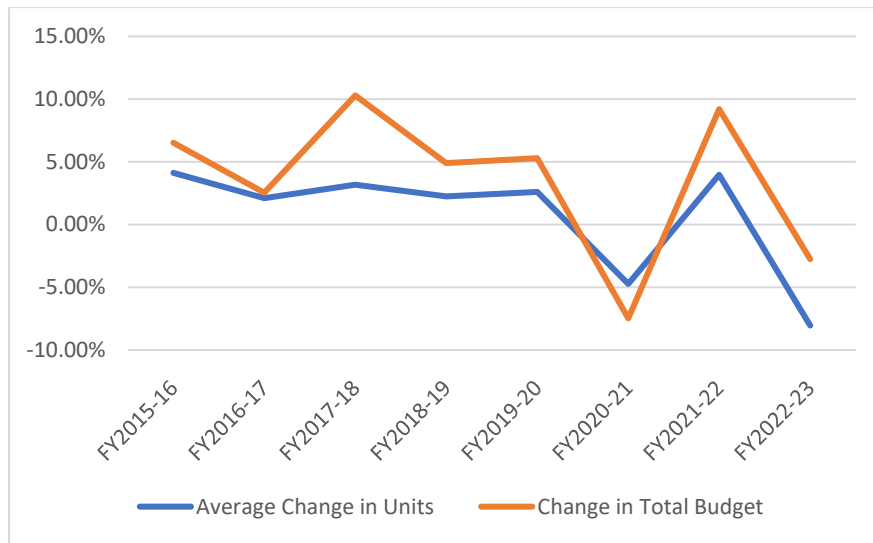
throughout the organization, flexibility in reallocating resources to meet market changes, and units at the universities have more incentive to help control costs as they are on the hook for those costs. One disadvantage is that units are treated as their own business at the institution and compete against other divisions for resources. This can lead to duplicative functions when a central department may be more efficient. Higher education traditionally has an inclusive environment where all parties must work together for the greater good of the institution, this method can put those individuals against each other with disparate goals, and that collaborative environment ideal in jeopardy.

In researching institutions using an RCM model, no one institution examined has implemented a 100% RCM budgeting philosophy. Like many of the other methods researched, institutions highly favor a customizable mix of budgeting tools to meet the resource allocation needs of that institution. At the University of Michigan for example, they implemented a modified approach taking many of the aspects of RCM such as schools and colleges receiving the tuition funds for their share of the students they teach, and the indirect cost recovery for the research performed by that unit. However, some of those funds are taxed to cover these items rather than be directly allocated more like a Central-Based model than an RCM model (University of Michigan Budget Model).

As a point of comparison, Figure 7 shows the average unit change in the budget each year when compared to the total university budget at the University of Michigan. The RCM budget model does not follow the overall change in the total university budget like some of the other models, meaning that the RCM could have less predictability year-over-year and stray away from the other models. This makes sense in how the allocation model works and how its more susceptible to changes in revenue streams. In addition, the fact

that the University uses a method to collect costs centrally before allocating them out could mean variation in the central funds before the unit, college, or division share is determined for disbursement.

Figure 7: Percentage Changed in the University of Michigan Budget using the RCM Budget Method Against the Average Changed across Units



Note: Data compiled from the University of Michigan Budget Reports from FY2014-15 through FY2022-23 (University of Michigan, 2023)

COMPARISON

The analysis of the different budgeting methods finds that many factors go into what type of model will work best with the examined institutions all using a hybrid form of modeling. In the early to mid-2000s most public institutions were still using an incremental, centralized approach to budgeting and followed their state legislature's lead in how funds were allocated for resources around campuses. The film, *Starving the Beast*, described a concerted effort, started in the state of Texas around 2008, to start treating higher education as a commodity more for personal gain than public benefit and this has transformed the perception of higher education in the U.S. (Mims, 2016). With this concept, university leaders are also taking note and attempting to measure more outcomes concerning the revenues and thus changing their budgeting model to match this change. Formulaic approaches to funding based on students, credit hours, and degrees are popping up all over the nation which led to this explosion of different budget models with the most popular transition occurring around the RCM and performance or incentive-based funding approach.

As examined in the research, very few if any institutions restrict their use to just one model for their resource allocation efforts. The vast array of options for boards and senior leaders to make decisions centrally or push those decisions down through their organizations are countless and vary among the different levels of the institution. Performance funds at the state level, for example, have public institutions compete for a pool of funds. This pool is awarded based on a formula set by the state where the universities that are doing well continue to do well. This has led the universities to allocate their budgets similarly through their organizations setting up either the same performance

metrics to align with getting additional funds from the state or different metrics to align with that institution's strategic plan. Even further, some colleges may then have additional metrics for the divisions to obtain funding from the central college level from this same performance pool. With so many options a comparison of the parameters observed in the research is essential to further dive into when a budget model may best function for an organization and when one should be avoided as there may be a more appropriate solution. The table on the following page shows the advantages and disadvantages of using each model.

Overall, if the goal is forecasting and expense predictability, a centralized approach such as the Incremental or Central-Based budget models gives the board and administrators the best possible solution for allocating their resources. If the goal is to incentivize units and have them lead their path to success, the Activity-Based, Performance-Based, and RCM models allow for a more decentralized approach. The Zero-Based model is primarily used for cost control and directive style leadership with very little authority given outside of a central administration group.

With so many different models a hybrid approach is quite appealing to large diverse organizations as is the case in higher education. Different leadership levels can approach budgeting in their customized way. While some institutions lean more heavily on one method like Incremental at the University of Georgia or the University of Kentucky, the University of Washington and the University of Colorado implemented a system around Performance-Based funding and Activity-Based or RCM units with an Incremental model for some of their central units. The following table gives a few comparison points between centralized and decentralized models for the advantages and disadvantages of their use.

Table 1: Comparison of Budget Models

Centralized Budget Models	De-Centralized Budget Models
<p>Central-Based</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Decisions are quickly made • Easy year-to-year implementation • Emphasizes important priorities at the institutional level <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Accountability throughout the organization • Cost control • Transparency and flexibility 	<p>Responsibility Center Management</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Accountability of units • Transparency and flexibility among units to shift to market fluctuations • Cost control <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Sets up competition between units at the institution • Difficult to implement • Getting buy-in
<p>Incremental</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Commonly the method already used in higher ed - precedence • Stable funding sources and predictability <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Lost funding throughout the organization over time • Changing priorities are more difficult to sell to campus 	<p>Activity-Based</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Incentivizes revenue-generating activities • Accountability is data and metric driven <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Intensive models that require data and metric tracking for funding allocations • Adversarial feelings toward subsidized campus activities
<p>Zero-Based</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Cost control • Communication between leadership and units • Emphasizes important priorities at the institutional level <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Time-Consuming • Effort to assemble, monitor, maintain, and track • Transparency and flexibility 	<p>Performance-Based</p> <p><i>Advantages</i></p> <ul style="list-style-type: none"> • Incentivizes desired performance in a measurable way • Transparency and flexibility to adjust to the metrics <p><i>Disadvantages</i></p> <ul style="list-style-type: none"> • Useability as a standalone budgeting method • Time-consuming data tracking and performance reviews with units and colleges

CONCLUSION

The reason different models exist relates to the fact that a budget model is an allocation method subjective to the institution's management style and culture. It could lend itself to more oversight and control of costs like the Zero-Based approach, or more decentralized and have Deans and unit leaders make decisions like the RCM model. In the past, there were two primary approaches to budgeting Incremental and Zero-Based; however, due to disruptions in higher education in the mid-2000s, other more corporate budgeting approaches have taken hold in the industry. Institutions that receive a significant portion of their budget from state appropriations tend to lean more on incremental and centralized approaches to budgeting. Whereas institutions that are transforming how the students learn or attempting to grow their institutions significantly are leaning more on RCM, Performance-Based, or Activity-Based funding models. Institutions suffering from setbacks and declining revenues tend to move toward a zero-based approach to help them control costs.

The budget models have seen a great deal of change over the last ten to fifteen years in higher education due to the disruption mentioned. Many of the schools examined above have also changed their model during these last fifteen years. It's an expensive undertaking to allocate high-level administrators and consultants, along with the potential turnover that changing causes at these institutions to get on board with new methods and funding models at these institutions. These models reflect a change occurring in higher education and it will be interesting to see how these models continue to evolve to reflect the changes occurring in the higher education industry. The main takeaway is that no one method stands out over another. The method to use depends on what the governing

boards and administration decide works best for allocating that institution's scarce resources and how it can fit in with its mission and strategic plan for the future.

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