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ABSTRACT

The relative incidence of across-the-board cuts in higher education for all institutions that experienced decreasing revenues between 1976-1977 and 1980-1981 was studied. Factors that affect the extent to which administrators employed across-the-board cuts versus selective cuts were also assessed. Attention was focused on the effects of the severity of revenue decline, the duration of the decline episode, the institution's recent history in managing decline, institutional control, and the effect of the type of institution on the reallocation of institutional resources. Data were obtained from the Higher Education General Information Survey finance and enrollments questionnaires. Reallocation was defined as the percentage of constant dollar expenditures across functional areas in time that differed from what would be expected in an across-the-board cutback. It was found that the majority of the cuts tended toward minimal reallocation. The results supported the hypothesis that reallocation: increases as the severity of decline increases, decreases as the length of a decline episode increases, is more likely in private institutions, and is more likely in two-year institutions. Additional findings and implications are discussed. Types of expenditures for 10 functional areas are also outlined. (SW)

CUTBACK MANAGEMENT AND RESOURCE REALLOCATION IN HIGHER EDUCATION

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Abstract

The National Commission on Higher Education Issues (1982: 1) recently concluded that "the greatest danger to quality in higher education in the 1980s is "cuts-across-the-board." While a large literature on the danger of across-the-board cuts supports this conclusion, little empirical information is available on the extent to which this practice is employed in colleges and universities, or about the factors that affect the degree of reliance on across-the-board cuts. This study examines the relative incidence of across-the-board cuts in higher education for all institutions that experienced decreasing revenues between 1976-77 and 1980-81. It also tests a number of hypotheses about factors that affect the extent to which administrators employ across-the-board cuts versus selective cuts.

CUTBACK MANAGEMENT AND RESOURCE REALLOCATION IN HIGHER EDUCATION

The National Commission on Higher Education Issues (1982: 1) recently concluded from their study of institutional priorities and administrative leadership that "the greatest danger to quality in higher education in the 1980s is "cuts-across-the-board." A substantial literature, which focuses on why across-the-board cuts are a common response to decreasing revenues and the dangers associated with this practice, has emerged over the past few years and fully supports the Commission's conclusion. Unfortunately, there is little empirical information on the extent to which this practice is employed, or on the factors that affect administrative decisions on how and where to cut during a period of retrenchment. This study examines the relative incidence of across-the-board versus selective cuts in higher education, and tests a number of propositions about factors that affect the selection of a cut back strategy.

Across-the-board Cuts

Several researchers, such as Jick and Murray (1982) and Behn (1980), have noted that many organizations, both within and outside of higher education, employ across-the-board cuts as a response to decreasing revenues. The public administration and organization theory literatures have examined both the reasons for this practice and the associated dangers. Administrators tend to employ across-the-board cuts for two reasons. First, across-the-board cuts promote an [illegible] equality; everyone shares equally in the problems of the [illegible]ion (Levine, 1978; Whetten, 1981). Equally sharing the burden of reduced

revenues helps avoid the political infighting and conflict associated with the reallocation of scarce resources. Second, across-the-board cuts are passive or delaying actions that require little exercise of administrative discretion (Jick and Murray, 1982; Murray, Jick, and Bradshaw, 1983). They enable administrators to avoid the reality of scarce resources and the hard choices required to retrench (Combs, 1982). In short, across-the-board cuts are a common, passive response to decreasing revenues because they are easier to accomplish than deciding how and where to make selective cuts in organizational operations.

Although across-the-board cuts are common and may reduce the pain of administrative decision making, they do have a number of drawbacks. While appearing to be equitable, across-the-board cuts penalize an organization's most efficient units, a phenomenon that Levine (1979) has labelled the "efficiency paradox." Efficient units have fewer slack resources with which to absorb budgetary cuts than less efficient units. As a result, across-the-board cuts often have two unintended consequences. First, administrators have no incentive to conserve resources and operate efficiently, something that becomes self-defeating during a period of declining revenues. Second, the production level of the organization can decrease disproportionately more than the extent to which cuts were made. To paraphrase Behn (1980), cutting back any unit beyond the point where organizational slack can be used to absorb cuts without reducing output will reduce production by more than the percentage of the cut.

By default, administrators give up control of the retrenchment process in using across-the-board cuts. And when administrative

control is lost, an institution can enter into a "self-reenforcing, downward spiral of declining resources and capabilities (Behn, 1980: 617)." An initial decrease in resources forces a first round of program cuts. These cuts, in turn, discourage the organization's most talented and productive members who, also being the most mobile, leave. Their departure hurts the organization's productivity and makes it more difficult for the organization to attract resources. The subsequent decrease forces a second round of cuts. And, so the downward spiral continues. Unless administrators can break out of the spiral of decline, organizational demise becomes a real possibility (Cyert, 1978; Bozeman and Slusher, 1979).

While much has been written about the dangers of across-the-board cuts, little information is available on how common the practice is, or about factors that affect administrative decisions concerning cutback management. The purpose of this study is to provide that information for the population of colleges and universities as a whole. As Starbuck (1976: 1100) noted, one major implication of conducting a large-sample study of this sort is that it can be used "to discover aggregate, general propensities to which few, if any, organizations conform to exactly." In other words, such analyses provide an overview of the behavior of the higher education system, rather than of the behavior of individual institutions within it. The advantage of this type of study is that it provides a perspective within which more intensive, small-sample studies can be productive. In essence, large-sample studies can help identify important research questions that can be fruitfully pursued in smaller scale studies. Thus, the purpose of this study is to provide an overview of cutback management

and resource reallocation in higher education, and to identify areas in which small intensive sample studies would be useful.

The central concept around which the study is designed is the reallocation of resources in colleges and universities under conditions of declining revenues. Reallocation can be viewed as ranging between two extremes: from no reallocation, where the proportionate distribution of resources across organizational units or areas of operation remains constant as revenues decrease (i.e., across-the-board cuts), to total reallocation, where all the remaining resources of the organization are redirected to a single unit or area of operation. The analysis examines the effects of the severity of revenue decline, the duration of the decline episode, an institution's recent history in managing decline, institutional control, and type of institution on the reallocation of institutional resources. The expected effects and the rationale for each are presented in the following six hypotheses.

Hypotheses

1. The extent to which reallocation occurs is positively related to the severity of declining revenues.

This proposition is based on the premise that the greater the magnitude of revenue decline, the greater the threat to institutional survival. When institutional survival is threatened, administrators often have little choice but to undertake drastic action. Moreover, the reality of decreasing revenues is immediate and unavoidable, and resistance to change within the organization is reduced. As a result, administrators are more likely to take corrective actions and reallocate resources so as to enhance an institution's chances for

survival. Therefore, it is expected that there is less of a propensity to use across-the-board cuts, and a greater propensity to make selective cuts and reallocate resources as the severity of revenue decline increases.[1]

2. The longer the duration of a decline episode, the greater the extent to which institutions rely on across-the-board cuts over time.

Jick and Murray (1982) have suggested that organizations adopt more passive responses to decline over time as the length of a decline episode increases. Given that across-the-board cuts are a passive response to decreasing revenues, the expectation is that institutions will rely on them more with the passage of time.[2] Murray, Jick, and Bradshaw (1983) have empirically demonstrated this effect in a study of the responses of six hospitals to declining revenues over a five year period. They found that these institutions initially responded to decreased revenues by increasing efficiency and reallocating resources. But as the duration of the decline episode increased, the emphasis on reallocation gave way to delaying actions.

3. Institutions that have experienced decreasing revenues in the past are more likely to engage in reallocation than are institutions with no recent history of revenue decline.

This hypothesis is based on Nottenburg and Fedor (1983), who suggest that past experience with managing decline may sensitize the information sensing and processing mechanisms within an organization. In turn, if an organization is sensitive to such information, it is

more likely to act quickly and respond to decreasing revenues through the reallocation of resources. Conversely, Kiesler and Sproull (1982) argue that research on social cognition suggests that past experience in managing a crisis will have little affect on the management of a current crisis since social cognition processes often result in a "deficiency of memory" in this type of situation. Therefore, the third hypothesis provides a manner of examining the relative usefulness of these two divergent views in understanding reallocation behavior in institutions of higher education.

4. Private institutions reallocate more resources under conditions of decreasing revenues than do public institutions.

Behn (1980), Jick and Murray (1982), and Murray, et al. (1983) suggest that institutions will engage in delaying actions if they believe that an external agency is likely to provide additional resources in an emergency situation. Public institutions have state legislatures and coordinating agencies that can act as courts of last resort. Private institutions, with the exception of a small number of schools with religious affiliations, are less likely to be able to call upon an outside agency to make up revenue shortfalls. Moreover, administrators in public institutions appear to have less budgetary discretion than their counterparts in private institutions, which hinders their ability to reallocate resources. Therefore, it is expected that private institutions are more likely to reallocate resources than are public institutions.

5. Two-year institutions reallocate more resources among functional areas during periods of decreasing revenues than do four-year institutions.

This hypothesis is based on a finding by Krakower and Zammuto (1983) that enrollment inertia over time accounts for a greater proportion of the variance in year-to-year changes in enrollments for four-year institutions than for two-year institutions. Extending this finding to the current study suggests that inertia is inversely related to reallocation. That is, the less inertia, the more likely an institution is to engage in selective cuts and resource reallocation. Therefore, if the general thrust of the Krakower and Zammuto (1983) finding is applicable to institutional revenues, one might expect that two-year institutions reallocate more resources than do four-year institutions.

6. Reallocation will occur so as to protect the technical core of the organization.

Thompson (1967) noted that the administrative and support units of an organization function as a buffer in protecting the technical or operating core from changing environmental conditions. With respect to higher education, the traditional technical core of colleges and universities are the teaching, research, and public service functions. The expectation is that institutions will protect these areas by cutting more deeply into administrative and support operations, and by reallocating the freed resources to these core areas of operation.

METHODOLOGY

Data Base and Sample

Data for this study were obtained from the Higher Education General Information Survey (HEGIS) finance and enrollments questionnaires for the period between 1973-74 and 1980-81. The sample used to test the first five hypotheses included all institutions in the HEGIS universe that experienced declining revenues from one year to the next in any of the years between 1975-76 and 1980-81. The sample used in the analysis for the sixth hypothesis included all institutions reporting HEGIS financial and enrollment data between 1976-77 and 1980-81.

Variables

The reallocation variable used in the study was developed by Ludwig (1983). It is defined as the percentage of constant dollar expenditures across functional areas in time t+1 that differs from what would be expected given a pure, across-the-board cutback. Notationally, the reallocation variable is expressed as follows:

$$R = \frac{\left[\sum_{i=1}^{n=10} \left| a_{i,t+1} - [a_{i,t} \times (1 - C)] \right|\right] / 2}{\sum_{i=1}^{n=10} a_{i,t+1}}, \quad 0 \leq R \leq 1$$

Where 'a' is the expenditures per area of institutional operations and 'C' is the percent decrease in total organizational expenditures from time t to time t+1. The functional areas are: 1) instruction, 2) research, 3) public service, 4) academic support, 5) libraries, 6) student services, 7) institutional support, 8) plant operation and maintenance, 9) scholarships and fellowships, and 10) educational and

general mandatory transfers. (A description of the types of expenditures in each category is provided in the appendix.) The reallocation score can range from 0 to 1, where 0 indicates a pure, across-the-board cutback and 1 indicates a total reallocation of resources to one area of operation. As Ludwig (1983) has shown, a score of .10 would indicate that ten percent of an institution's resources were reallocated among operational areas between time t and time t+1.

The severity of decline variable (S) is the percentage decrease in total constant dollar revenues from time t to time t+1. The duration of decline variable (D) is the number of consecutive years in which revenues have decreased. The recent history of decline (H) is a dummy variable, coded "1" if an institution had experienced decreasing revenues prior to time t and "0" if it had not. Data for 1973-74 and 1974-75 were included to calculate these last two variables so that it is possible for D to have a value of 2 and H to have a value of 1 during the first study year, which is 1976-77. Institutional control (C) is operationalized with public institutions coded "0" and private institutions code "1." Institutional type (T) also is operationalized as a dummy variable. Two-year institutions are coded "0" while four-year institutions are coded "1."

Analyses

The first five hypotheses were tested by regressing the reallocation variable (R) on the five independent variables (S, D, H, C, T). The hypotheses were accepted if the relationships were in the predicted direction and were significant ($p<.05$). Observations for each of the years were pooled into a single analysis. As a result, an

institution could appear as five separate observations if its revenues decreased from one year to the next during each of the years included in the study. Preliminary analyses indicated that neither autocorrelation or heteroscedasticity is a problem, making ordinary least squares regression appropriate.

The hypothesis concerning where reallocation occurred among the functional areas was examined in a different manner. Curves were fitted to data for changes in allocations to each functional area. The resulting figures, shown and discussed in the results section, provide a visual representation of resource reallocation among the functional areas over a range of changes in total revenues values.

Two restrictions were applied in selecting a sample for testing the sixth hypothesis. These restrictions were designed to eliminate extreme cases so that the resulting resource allocation curves would not be unduly distorted in representing the experiences of the majority of colleges and universities. Moreover, the analysis included institutions with growing revenues as well as those with declining revenues. This allowed for an examination of the relative symmetry of resource allocation under conditions of increasing and decreasing revenues. The sampling restrictions were: 1) changes in total revenues from one year to the next did not exceed 20 percent, and 2) institutional enrollments were at least 200 full-time equivalent students. This last restriction was applied because preliminary analysis indicated that the volatility of resource allocation among functional areas was much higher in small schools than it was in larger institutions. Data for institutions were pooled across the years of the study, so that a single institution could appear as five

observations. Given the complexity of the analysis, resource allocation curves were generated only for public and private four-year institutions. Application of the sampling restrictions resulted in 2,406 of a potential 2,565 observations (93.8 percent) being included in the public four-year sample, and 4,121 of a potential 4,615 observations (89.3 percent) being included in the private four-year sample.

Resource allocation curves for each of the functional areas were generated in the following manner. First, the difference in the proportion of total institutional expenditures (TE) allocated to each functional area from one year to the next $((a_{i,t+1}/TE_{t+1}) - (a_{i,t}/TE_t))$ was regressed on the percent change in total revenues (S) from one year to the next. It was expected that the relationship between resource allocation and changes in total revenues was not linear over the whole range of values, so squared and cubed change in total revenues (S^2, S^3) terms also were included in the regression equation. Finally, percent change in enrollment $((E_{t+1}-E_t)\ E_t)$ was also added to the regression equation to control for changes in allocations among functional areas that could be attributed solely to changes in enrollments.

Then the significant unstandardized regression coefficients for the revenue variables were used to plot a resource allocation curve for each functional area using 20 sample values for changes in revenues. Enrollments were treated as fixed and not used to construct the curves. Visual examination of the resulting curves provide a general indication of how resources are reallocated among functional areas as revenues change.

Results

Figure 1 presents the findings for the distribution of institutions by the extent to which reallocation occurred as total revenues decreased for 3,893 observations over the five year study period. The results show that the extent of reallocation among functional areas was five percent or less for 54 percent of the cases. A total of 216 of these cases (5.5 percent of the total) were for pure, across-the-board cuts (i.e., reallocation score of .00). As can be seen by the distribution presented in the figure, the majority of the cuts tended toward minimal reallocation. Only 22 percent of the cases reallocated more than 10 percent among the functional areas.

Elimination of cases with incomplete data reduced the size of the sample to 3,647 cases for the regression analysis. The average change in revenues was minus seven percent, and the average proportion of resources reallocated among functional areas was 7.4 percent. In terms of institutional characteristics, 47 percent of the cases were private institutions, and 41 percent were two-year institutions.

Table 1 presents the results of the regression analysis. The coefficients for the severity of decline, duration of the decline episode, institutional control and institutional type were significant and in the predicted direction. Therefore, they can be taken as supporting the hypotheses that reallocation: 1) increases as the severity of decline increases, 2) decreases as the length of a decline episode increases, 3) is more likely in private institutions, and 4) is more likely in two-year institutions. The coefficient for the past experience variable was significant, but it also was the opposite of the predicted direction. This finding suggests that both the rationale

for the third hypothesis (i.e., learning from past experience increases reallocation) and the alternative suggested by social cognition theory (i.e., that a "deficiency of memory" will result in past experience having no effect on the present) are inaccurate. What the results may indicate is that these institutions may not have accumulated enough slack resources between decline episodes to be able to cut selectively and reallocate resources. This may result in a situation similar to that suggested in the second hypothesis, which is concerned with the duration of a decline episode.

The results of the analysis designed to examine the sixth hypothesis, where cuts and reallocations were made, are presented in Figures 2 through 6. Again, it is important to emphasize that these curves are descriptions of general tendencies within the sample, and are not likely to represent the experiences of any single institution. The R^2s for the regressions used to generate the curves bear out this point. On the average, the curves in Figures 3 to 6 explain about one percent of the variance for changes in resources allocated to the various expenditure categories. (The regressions used to calculate the curves in Figure 2 explained 34 percent of the variance for private institutions and 52 percent of the variance for public institutions.) While the curves represent general tendencies within the sample, there is considerable variation in the behavior of individual institutions.

Figure 2 presents the relationship between changes in total revenues and changes in total expenditures. Looking across the diagonal from the lower left corner to the upper right corner, it can be seen that expenditures adjust rather slowly in response to changes

in revenues. As a result, expenditures increase during periods of increasing revenues, but at a slower rate than the rate of increase in revenues. Similarly, expenditures decrease at a slower rate than the rate of decline in revenues. As a result, increasing revenues are likely to generate surpluses, and decreasing revenues are likely to result in deficits. faster pace than revenues decrease.

Figure 3 shows how allocations of expenditures in core areas of institutional operations--instruction, research, and public service--vary as total revenues change for public four-year institutions. The curves indicate that changes in instructional expenditures are negatively related to changes in total revenues, while there is a slightly positive relationship between changes in total revenues and changes in resources allocated to research and public service. Hypothesis six states that institutions will protect their core areas of operation as resources become more scarce, which the curves partially support (i.e., instruction acquires a larger share of expenditures and revenues decrease).

Figure 4 presents the resource allocation curves for the support areas of institutional operations for public four-year institutions. The regression analyses used to generate the curves revealed that no significant patterns of allocation were evident in the data for the academic support, library, or student services expenditures, which is to say that there was no statistically discernable pattern as to how institutions reallocated resources among these expenditure classifications. For the four areas in which patterns were evident, the figure shows that educational and general mandatory transfers have a negative relationship with decreasing revenues and a positive

relationship with increasing revenues. Plant maintenance expenditures, on the other hand, have a negative relationship with changes in revenue across the range of values, while scholarship and institutional support expenditures are positively related to changes in revenues.

The negative relationship between changes in revenues and plant maintenance expenditures and mandatory transfers are not consistent with the hypothesis as stated, but may reflect the "fixed cost" components of these expenditure areas. In contrast, expenditures for institutional support and scholarships fit the pattern suggested by the hypothesis, and comparison of the curves in Figures 3 and 4 suggests that much of the reallocation occurs in the transfer of funds from scholarships to instruction.

Figures 5 and 6 present the same information for private four-year institutions. Figure 5, which shows the expenditure curves for core areas of institutional operations, shows that the [illegible] source allocation [illegible] the same for public and private four-year institutions as revenues increase. But there is a noticeable difference between the two institutional sectors in instructional expenditures as revenues decrease. While instructional expenditures were negatively related to decreasing revenues across the whole range of values for public four-year institutions, they were negatively related to revenues across part of the range for private institutions. The curve suggests that the instruction function is allocated an increasing share of institutional resources as the magnitude of revenue decline approaches ten percent. The reallocation of additional resources then tapers off to about a 15 percent decrease in revenues, at which point resources are reallocated away from instruction to other areas.

Figure 6 presents the curves for the support areas of institutional operations in private four-year institutions. As was the case for public institutions, no significant pattern for academic support expenditures was found, and expenditures for scholarships decreased as revenues decreased. In contrast to the findings for public institutions, it appears that these resources are diverted largely to other support areas of institutional operations such as student services, institutional support, plant maintenance, and library expenditures. Moreover, while the same relationship is evident for public and private institutions for mandatory transfers when revenues increase, they proceed in the opposite direction when revenues decrease.

Overall, hypothesis 6 is only partially supported, and the findings for public institutions appear to fit it better than that for private institutions. Expenditures for instruction, which is clearly the core area of all colleges and universities operations, appear to be buffered from the full impact of decreasing revenues. The results also suggest that fixed costs and restricted expenditures limit the extent to which resources from some of the components can be reallocated to other areas of operation. But, contrary to the logic of the hypothesis, it appears that much of the reallocation in private institutions is from support areas into other support areas.

DISCUSSION

As noted in the introduction, the purpose of a large-sample study such as this one is to outline the general dynamics of a system. The value of such a study lies in its ability to provide a perspective within which small-sample studies can be designed to discover why the identified systems dynamics occur. The discussion, therefore, will focus on implications that can be fruitfully applied to directing finer-grained examinations of cutback management in institutions of higher education.

First, the results suggest that the concern with across-the-board cuts per se is misplaced. Contrary to conventional wisdom, the results show that across-the-board cuts are the exception rather than the rule in colleges and universities. What the findings suggest is that a more appropriate question for both administrators and researchers would be: How much reallocation is needed in order to realign an institution to a changing environment? The findings also show that although most institutions reallocated resources to some extent as revenues declined, the proportion of resources reallocated was fairly minimal. Five percent or less of institutional resources were reallocated in over 50 percent of the cases in the sample. This suggests that more intensive studies on small samples of colleges and universities should focus on the relationship between the extent to which resources are reallocated and the subsequent effectiveness of institutional performance.

Second, a number of structural factors--those over which administrators have little control such as institutional control and type--have significant effects on reallocation behavior. Future small-sample studies should attempt to determine more precisely why

such factors exert a constraining influence on administrative behavior. In the same vein, it would also be useful to determine how such factors constrain the options open to administrators in the process of cutback management. The analysis of where cuts and reallocation occur among the functional areas are suggestive in this respect.

Consider the difference between the general tendencies of private and public institutions as represented by the instructional expenditures curves. Reallocation to instruction increased in public institutions across the continuum of decreasing revenues. In contrast, reallocation to instruction increased across part of the revenue range for private institutions then decreased as revenue decline became more severe. This difference may be related to differences in the major source of revenues in public and private institutions. Private institutions are more dependent on tuition and fees as a source of income than are public institutions, which rely more heavily on government appropriations. As a result, the pressures on private institutions to recruit and retain students during a period of declining revenues are more intense than for public institutions. This in turn may explain some of the differences in the resource reallocation patterns observed for public and private institutions.

Two of the four areas to which resources tended to be reallocated in private institutions were student services and plant maintenance. Student services is by definition related to student recruitment and retention. Plant maintenance is related to retention in that the physical climate of a residential campus, which is characteristic of most private institutions, is an important factor in attracting and

retaining students. Thus these support areas may become critical to the continued viability of a private institution as revenues decrease.

The decrease observed in the instructional expenditures curve for private institutions as the severity of declining revenues increases may in part be related to the diversion of funds to these other areas. At the same time, it should not be interpreted as a de facto diminuation in the quality of instruction at private campuses as they experience decreasing revenues. Rather, it may again reflect differences in the options open to administrators at private and public institutions.

For example, it appears that administrators in private institutions have more latitude in making academic program changes than do their counterparts in public institutions. One factor is the greater tendency for faculties to be unionized at public institutions, which limits administrative discretion in making program changes. Another factor is that administrators at private institutions appear to be more sensitive to market demands for educational services (Somervill, 1983). Thus one interpretation of the instructional expenditure curves is that pruning in instructional areas, such as the discontinuation of low demand programs, occurs more frequently in private as compared to public institutions. This may result in an overall decrease in the proportion of total expenditures allocated to instruction, while at the same time result in a strengthening of the remaining programs and the provision of resources to other areas of operation. Finer-grained research on cutback management is needed to determine the extent to which factors such as these operate to create

differences in the options open to administrators in public and private institutions.

Moreover, while this large-sample study has identified patterns of resource allocation, more intensive, small-sample studies should be directed toward explaining variations in reallocation behavior across institutions. For example, what institution-specific factors constrain reallocation? Some candidates include the demographic composition of staff and faculty (Pfeffer, 1983), particularly in the extent to which the faculty of the institution is tenured. Similarly, the power configurations and coalitions that form within an institution may have a major impact on decisions about how the institution can reallocate resources (Pfeffer and Salancik, 1974; Salancik and Pfeffer, 1974; Beyer, 1982). Do institutions that have relative equality of power among different academic units have a greater propensity make reallocations of resources in a way that best reflects the interests of the institution? Or, does a concentration of power result in the protection of vested interests at the expense of the long-term interests of the institution?

One area that a study of this sort could not examine because of the limitations of the data base employed is how resources are reallocated among academic programs. This is an important topic, and it has been identified as one of the major areas in which institutions can make strategic responses to declining revenues and enrollments (Zammuto, Whetten, and Cameron, 1983). Some of the relevant questions that need to be examined are: To what extent are resources shifted from one program to another in response to changing revenues and enrollments? Are there differences between public and private

institutions, as suggested above, in their ability to reallocate resources among programs, and to make major changes in their configuration of programs? How do power distributions among faculties affect the ability of administrators to selectively cut and reallocate resources among different academic areas? Finally, what is the overall impact of reallocation and program modification on the ability of an institution to attract revenues and enrollments in later years?

One can conclude that this study has raised as many questions as it has answered, which indicates the value of large scale studies in guiding the direction of future research. By understanding the general dynamics within the system, better selection of relevant problems for future research can be made. And, the overview of general dynamics creates a context within which the findings of intensive, small-sample studies can be put into perspective. Concrete guidelines on cutback management for administrators cannot be developed until there is an understanding of how the system operates in a general sense, nor until finer-grained studies provide information on why institutions vary from these general patterns of behavior. This study is but the first step in creating this type of understanding.

FOOTNOTES

[1] Jick and Murray (1982) include both the severity of a reduction in funding and the relative time pressures imposed on an organization in their typology of cutback crises. The general logic concerning the severity of decreasing revenues made in hypothesis 1 is consistent with their model, but the second dimension of time pressure has not been included. The reason for eliminating time pressure from the scope of the study was that it could not be examined within the context of the HEGIS data base.

[2] This is a revisionist interpretation of Murray, Jick, and Bradshaw (1983), who classify across-the-board cuts as an internal response to decline as opposed to a delaying tactic. The argument made here is that across-the-board cuts are a passive response to declining revenues that result in a partial abdication of responsibility for making cuts. As a passive response, across-the-board cuts often delay "tougher" administrative decisions about resource reallocations.

REFERENCES

Allen, R. H. HEGIS financial reporting guide: 1980 edition. Boulder, Colo.: National Center for Higher Education Management Systems, 1980.

Behn, R. D. "Leadership for cutback management: The use of corporate strategy." Public Administration Review, 1980, 40, 613-620.

Beyer, J. M. "Power dependencies and the distribution of influence in universities." In S. B. Bacharach (Ed.), Research in the sociology of organizations, Volume 1. Greenwich, Conn.: JAI Press, 1982, pp. 167-208.

Bozeman, B. and Slusher, E. A. "Scarcity and environmental stress in public organizations: A conjectural essay." Administration and Society, 1979, 11, 335-355.

Combs, C. D. "Beyond cutback management: Alternative responses to resource scarcity." Paper presented at the annual meeting of the Urban Affairs Association, Philadelphia, April 1982.

Cyert, R. M. "The management of universities of constant or decreasing size." Public Administration Review, 1978, 38, 344-349.

Jick, T. D. and Murray, V. V. "The management of hard times: Budget cutbacks in public sector organizations." Organization Studies, 1982, 3, 141-169.

Kiesler, S. and Sproull, L. "Managerial response to changing environments: Perspectives on problem sensing from social cognition." Administrative Science Quarterly, 1982, 27, 548-570.

Krakower, J. Y. and Zammuto R. F. A report on the effects of environmental and institutional factors on college and university enrollments. Boulder, Colo.: National Center for Higher Education Management Systems, 1983.

Levine, C. H. "Organizational decline and cutback management." Public Administration Review, 1978, 38, 316-325.

Levine, C. H. "More on cutback management: Hard questions for hard times." Public Administration Review, 1979, 39, 179-183.

Ludwig, D. C. "Avoiding spiralling decline--The effects of retrenchment on decisions to join or leave a voluntary organization." Working paper, University of Pennsylvania, February 1983.

Murray, V. V., Jick, T. D., and Bradshaw, P. "To bargain or not to bargain: The case of hospital responses to externally imposed

budget cuts." In M.H. Bazerman and R.J. Lewicki (Eds.), Bargaining inside organizations. Beverly Hills, Calif.: Sage, 1983.

National Commission on Higher Education Issues. To strengthen quality in higher education. Washington, D. C.: American Council on Education, 1982.

Nottenburg, G. and Fedor, D. B. "Scarcity in the environment: Organizational perceptions, interpretations and responses." Organization Studies, 1983, 4, 317-337.

Pfeffer, J. "Organizational demography." In L. L. Cummings and B. M. Staw (Eds.), Research in organizational behavior, Volume 5. Greenwich, Conn.: JAI Press, 1983, pp. 299-357.

Pfeffer J. and Salancik, G. R. "Organizational decision-making as a political process: The case of the university budget." Administrative Science Quarterly, 1974, 19, 135-151.

Salancik, G. R. and Pfeffer, J. "The bases and uses of power in organizational decision making: The case of the university." Administrative Science Quarterly, 1974, 19, 453-473.

Starbuck, W. H. "Organizations and their environments." In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand-McNally, 1976, pp. 1069-1123.

Somervill, C. Z. "Intra-institutional mergers of academic units: Growth in the context of decline," presented at the Leadership and Excellence in Postsecondary Education conference, San Francisco, October, 1983.

Thompson, J. D. Organizations in action. New York: McGraw-Hill, 1967.

Whetten, D. A. "Organizational responses to scarcity: Exploring the obstacles to innovative approaches to retrenchment in education." Educational Administration Quarterly, 1981, 17, 80-97.

Zammuto, R. F., Whetten, D. A., and Cameron, K. S. "Environmental change, enrollment decline and institutional response: Speculations in retrenchment in colleges and universities." Peabody Journal of Education, 1983, 60(2), 93-107.

APPENDIX

Current Fund Expenditure and Mandatory Transfer Classifications

This appendix provides a brief overview of the types of expenditures that are classified within each of the ten functional categories. The information is abstracted from Allen (1980), and readers interested in a more comprehensive breakdown of the categories are referred to that source.

Instruction

Includes expenditures for all activities that are part of an institution's instructional program. The following types of activities are included in this category.

- -General academic instruction
- -Vocational/technical instruction
- -Special session instruction
- -Community education
- -Preparatory instruction

Research

Includes all expenditures for activities specifically organized to produce research outcomes, whether commissioned by an agency external to the institution or separately budgeted by an organizational unit within the institution. Activities that would be included in this category are:

- -Institutes and research centers
- -Individual and project research

Public Service

Includes funds expended for activities that are established primarily to provide noninstructional services that are beneficial to individuals and groups external to the institution. Activities in this category include:

- -Community service
- -Cooperative extension programs
- -Public broadcasting services

Academic Support

Includes funds expended primarily for support services for the institution's primary missions: instruction, research, and public service. This category includes the following types of activities:

-Museums and gallaries
-Educational media services
-Academic computing support
-Academic administration
-Academic personnel development
-Course and curriculum development

Libraries

Includes expenditures for organized activities that directly support the operation of a catalogued or otherwise classified collection of published material.

Student Services

Includes funds expended for offices of recruitment, admissions, and the registrar, and those activities whose primary purpose is to contribute to students' emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instruction program. This category includes the following types of activities:

-Student services administration
-Social and cultural development
-Counseling and career guidance
-Financial aid administration
-Student admissions
-Student records
-Student health services

Institutional Support

Includes expenditures for central executive-level activities, financial management, administrative data processing, space utilization, logistics, personnel management, and community and alumni relations. This category includes the following types of activities.

-Executive management
-Fiscal operations
-General administrative and logistical support
-Administrative computing support
-Public relations/development

Plant Maintenance

Includes all current funds expenditures for the operation and maintenance of the institution's physical plant. This category includes:

-Physical plant administration
-Building maintenance
-Custodial services
-Utilities

-Landscape and grounds maintenance
-Major repairs and renovations

Scholarships and Fellowships

Includes expenditures for scholarships and fellowships in the form of outright grants of the recipients are selected by the institution and the award financed from current funds, including Supplemental Educational Opportunity Grants. Both merit and need-based awards are included.

Educational and General Mandatory Transfers

Includes transfers from current funds to other funds arising out of binding legal obligations related to the financing of the educational plant, and 2) grant agreements with external agencies and individuals. This category includes:

-Provision for debt service on education plant
-Loan fund matching grants
-Other mandatory transfers, such as the Federal College Work-Study Program