A COMPARISON OF FUNDING PRIORITIES IN TWO YEAR INSTITUTIONS WITH AND WITHOUT FACULTY COLLECTIVE BARGAINING

by

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(ABSTRACT)

The purpose of this study was to determine if two-year colleges with faculty unions differ from two-year colleges without unions in terms of selected institutional characteristics. The objectives of the study were to determine the relationship between union and non-union colleges with respect to: 1) the percentage of Education and General (E & G) expenditures allocated to instruction; 2) the percentage of their revenue by source; 3) E & G expenditures per FTE student; 4) the FTE student to full-time faculty ratio; 5) average full-time faculty salary; and 6) the possibility of one or more of the variables serving as a predictor of membership in one of the two groups.

The population for the study consisted of 163 institutions with faculty bargaining and 115 institutions without bargaining. Data on the institutions were obtained from the Higher Education General Information Survey (HEGIS) 1979-80 Tapes. The data were classified and summarized by two Statistical Analysis System

(SAS) procedures: general descriptive statistics, and crosstabulation. A Stepwise Regression was used to analyze the relationship between the dependent variable and twelve independent variables.

Institutions with faculty collective bargaining, when there was no control for the possible effects of institutional size and state governance, had a significantly higher average faculty salary than institutions without faculty bargaining. Institutions with faculty bargaining received greater mean percentages of their income from tuition and fees and local governmental appropriations, while institutions without faculty bargaining obtained a greater mean percentage of revenue from state appropriations.

When institutions were matched by size (as measured by FTE students and total current fund revenue) and by state, there were no significant differences between the two sets of institutions.

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CHAPTER ONE

Introduction

Over the past twenty years, approximately 25 percent of the faculty in institutions of higher education have chosen bargaining agents to represent their interests when dealing with their employer. The majority, 64 percent, of the institutions with collective bargaining are community and junior colleges (Academic Collective Bargaining Information Service (ACBIS), 1981). While it is expected that collective bargaining will grow in the public sector (Crossland, 1976; Lieberman, 1979; and Jascourt, 1981), in the private sector, conditions may be otherwise. Many private institutions have delayed further involvement with collective bargaining since the Yeshiva Decision [444 US 672 (1980)]. Fiske (1982, p. C,1.) sums up the private sector situation with a quote from the AAUP's Jordan Kurland, "for the foreseeable future, collective bargaining is going nowhere in the private sector."

There has been considerable speculation on the growth of collective bargaining in the public sector, and in community colleges in particular, in relationship to the general health of these institutions and their faculties. However, most research in this area has been concerned with why faculties join unions

and the effect of collective bargaining on faculty salaries (Garbarino, 1975; Ladd and Lipset, 1973; and Baldridge, Curtis, Ecker, Riley, 1978). There has been little, if any, systematic research on whether two-year colleges with bargaining units differ from institutions without bargaining units in terms of financial viability, size, and faculty salaries, issues of immediate concern because declining or stabilized enrollments and reduced "real" revenues are predicted for the eighties.

These circumstances differ from those experienced by American Higher Education between World War II and the present. Various governmental actions, such as the G.I. Bill, started a growth spiral for higher education. The establishment of the Higher Education Act during the period of the "Great Society" opened college doors to previously under-served populations by means of new financial aid programs and special programs for the disadvantaged. This period was also marked by the rapid development of public, two-year institutions whose "open door" mission was directed to the targeted populations. The growth required institutions to adjust to new external and internal realities. Externally, governmental agencies, at the federal, state, and local levels, developed ever-increasing regulations to govern the institutions. Internally, growth meant new building projects, new programs, new personnel and more students.

This growth in higher education, especially the community college sector, has been accompanied by changes in the traditional pattern of collegiate governance which had been characterized by strong faculty input in all phases of institutional operations. Some institutions have been successful in maintaining faculty participation, while in others faculty experienced a feeling of alienation due to a breakdown in communications. The larger the organization becomes, and the more scattered its operations, the greater the need for increased communications. Barnard (1938, p. 91) observed that the structure, extensiveness, and scope of the organization determine the organization's communication system. From his research on governmental agencies, Blau (1970, p. 201) constructed a formal theory of differentiation in which size was the major causal variable. According to this theory, expanded size increases the subdivision of responsibilities, facilitates supervision, widens the span of control of supervision, and at the same time creates structural differentiation and problems of coordination that require supervisory attention.

Studies conducted on traditional governance patterns and operations in higher education institutions have produced mixed conclusions. Lupton, Augenblick, and Heyison (1976) found that larger size contributed to a better financial condition.

Increased size brings about certain economies of scale and provides the institution with greater budgetary flexibility to withstand short-term fiscal problems. There appears to be a cost associated with size however: Minter and Bowen (1982a) have argued that educational quality slips when institutions become very large and suffer from impersonality and a "bureaucratic mentality." Although no one has defined when size becomes too large, it appears from the literature that there is general agreement that trust and effective communication are in inverse order to size, all other things being equal; security and financial health, are in direct relationship to size (Bowen, 1980; and Baldridge et al, 1978).

Background

As noted above, there has been considerable research on the non-economic reasons for the growth of collective bargaining in higher education (Garbarino, 1975; Ladd and Lipset, 1973; and Baldridge et al, 1978). However, only a few studies have examined the economic effects of unions on (1) an institution's allocation of its resources for instruction; (2) faculty workload; (3) sources of revenue; (4) the cost of educating each student; and (5) the economic benefits of collective bargaining to faculty. The paucity of economic studies is striking since, according to the Government Employee Relations Report

(1979-1981), over 85 percent of faculty strikes were the result of economic issues (GERR, 1981a; GERR, 1982). Some of the studies done to date suggest collective bargaining forces the institution to divert funds from educational programs or alternatively forces an institution to raise tuition and fees to pay the higher costs associated with contract settlements (Chamberlain, 1978; Leslie and Hu, 1977; and Caruthers and Orwig, 1979). Little attention has been given to determining how institutions adjust their expenditures to meet faculty salary demands at both union and non-union institutions.

Studies conducted in the mid-1970's (Birnbaum, 1974 and 1976; Morgan and Kearney, 1977; Brown and Stone, 1977; and Leslie and Hu, 1977) have compared salary and compensation increases between institutions with and without bargaining units. Birnbaum (1974, 1976) and Leslie and Hu (1977) found that faculty in two-year institutions without collective bargaining fared as well or better than their colleagues at comparable institutions with faculty bargaining. Marshall (1979), Guthrie-Morse, Leslie and Hu (1981), and Horn (1981), observed that when adjustments were made for the local cost of living, faculty at two-year institutions without collective bargaining units enjoyed similar or greater average salaries as those in bargaining institutions.

Collective bargaining, especially for multi-year contracts, requires decisions on the percent of the budget to be allocated to faculty salaries at a time when higher education is beset with a growing number of financial problems. These problem areas result from a leveling off or decrease in "real" dollar appropriations, inflation, enrollment slowdown or decline, increased costs associated with a prolonged policy of deferred maintenance, and the increased costs of complying with federal and state regulations, and planning and evaluation programs. The cost of such compliance not only includes the direct costs associated with the immediate task but also includes the indirect costs of planning and acquiring personnel, equipment, time, and materials to perform the tasks.

Minter and Bowen (1982b, p. 8) found that faculty salaries, along with maintenance and equipment replacement, have been made to bear an increased proportion of the institution's financial adjustments. Faculty, particularly in the public sector, have seen their salaries rise less rapidly than administrative and general service staff salaries while their workload has increased and their working conditions deteriorated. From his studies of institutional viability, using a series of financial indicators or operating ratios selected from the HEGIS data base, Bowen (1980, pp. 9-10) has suggested that reducing the front line

expenditures in favor of behind-the-lines support may be an important barometer of the health of higher education. In neither the 1980 study or the 1982 reports was there an attempt to differentiate between union and non-union colleges.

Purpose Statement

The purpose of this study was to determine if two-year colleges with faculty bargaining differ from two-year colleges without faculty bargaining units by answering the following questions:

1. what is the relationship between union and non-union colleges with respect to the percentage of education and general (E & G) expenditures allocated to direct instruction?

2. do union and non-union colleges receive different percentages of their revenue from state and local governments, tuition and fees, and grants, gifts, contracts, and endowment income?

3. do union and non-union colleges differ in the education and general expenditures per FTE student?

4. do union and non-union colleges have a different FTE student to full-time faculty ratio?

5. what is the relationship between union and non-union colleges and average full-time faculty salary?

6. can one or a group of variables serve as a possible predictor of institutional membership with faculty collective bargaining?

To answer the above questions, data were collected on the following institutional characteristics:

(1) faculty salaries / Educational and General (E & G) expenditures + Mandatory Transfers (MT);

(2) fringe benefits / E & G expenditures + MT;

(3) total E & G expenditures + MT / FTE students;

(4) tuition and fee revenue / total current fund revenue;

(5) government appropriations: state / total current fund revenue;

(6) government appropriations: local / total current fund revenue;

(7) grants, gifts, contract, endowment income / total current fund revenue;

(8) FTE enrollment / number of full-time faculty;

(9) full-time faculty salaries / number of full-time faculty;

(10) instructional cost / E & G expenditures + MT;

(11) size (FTE students); and

(12) state.

Significance of the Study

Previous research into the economic effects of faculty collective bargaining has concentrated on the changes in faculty salaries as a result of bargaining. This study has concentrated on how institutions have adjusted expenditures to pay for faculty contract settlements with their faculty bargaining agent. The study has provided some insight into how collective bargaining has affected instructional expenditures at a time when some

authorities in higher education have expressed concern about the decline in the proportion of funding allocated to instruction (Bowen, 1980, 1981; and Minter and Bowen, 1982c). The study also looked at the percentage of instructional costs spent on full-time faculty compensation.

Definitions

In order to clarify the meaning of certain phrases used in this study, the following definitions are provided:

Agent: A union that has been voted as and designated as the employees' representative to bargain with the employer on the terms and conditions of employment. Three unions dominate faculty collective bargaining in higher education: American Association of University Professors (AAUP), American Federation of Teachers (AFT), and the National Education Association (NEA). In some cases, a faculty bargaining unit may choose to remain independent of any other organization or may form a combination of the AAUP, the AFT, and/or the NEA.

Collective Bargaining: A general term which describes the process by which representatives of the employees' agent and the employer come to agreement on the

terms and conditions of employment.

Higher Education General Information Survey (HEGIS): A collection of data gathering instruments and procedures developed by the National Council for Educational Statistics (NCES). Annual surveys are collected on enrollment, degrees conferred, institutional characteristics, and financial data are collected from institutions receiving federal aid. Occasional surveys are used to collect data on facilities and the library.

Limitations

The limitations of this study were:

1. The age of the institution and the length of time collective bargaining has existed on campus, and the effect they may have on faculty salaries on campus, were not controlled.
2. Only data on average faculty base salary for nine month and twelve month full-time faculty are used. Therefore the average salary is understated because of the exclusion of overload pay and summer session pay. Academic rank, faculty seniority, sex, and credentials are not considered.
3. The HEGIS Financial Survey data is voluntarily reported, statements of the institution's financial condition are not verified by an independent audit and therefore may not

represent the actual revenue and expenditures of the institution.

4. The study does not include analysis of the management style or personal relationship between administration and faculty and the effect these variables have on the collective bargaining process at each institution.
5. An inspection of the HEGIS data showed some values that appear to be unreasonable in view of high standard deviations. These figures may be the function of: (1) the heterogeneity of the population; (2) data collection problems; or (3) poor institutional reporting. It is assumed that the size of the population and the test for significance will correct for any distortion in the reported data.

Organization of the Study

Chapter Two contains a review of the literature focusing on: (1) historical perspective of collective bargaining; (2) the formation of educational associations; (3) enabling legislation; (4) the advent of collective bargaining in higher education; (5) studies on the causes of faculty unions including economic and means in obtaining a voice in governance; (6) the effects of collective bargaining on institutional governance; (7) faculty

compensation under collective bargaining; and (8) mechanisms for studying the financial conditions of colleges and universities.

Chapter Three outlines the methodology and research design used. Results of the study are reported in Chapter Four. A discussion of findings and conclusions is presented in Chapter Five.

CHAPTER TWO

Review of Related Literature

In this chapter the relevant literature is reviewed on the development of collective bargaining in the United States with particular emphasis on bargaining in public, two-year colleges. It also includes a brief review of the historical development of craft and industrial unions, enabling legislation and the formation of educational associations. A more extensive literature review is presented on the advent of collective bargaining in higher education, studies on the economic and voice in governance causes of faculty unions, effects of unions on institutional governance, faculty compensation under collective bargaining, and mechanisms for studying the financial condition of colleges and universities.

Historial Perspective of Collective Bargaining

The desire of American workers to have a voice in determining their wages and conditions of employment is as old as the country itself. Colonial times were marked by numerous work stoppages resulting from employer-employee disputes over the terms and conditions of employment. The first labor disturbance

occurred in Maine in 1636 and the first authentic strike was called by journeymen New York tailors in 1768 (Dulles, 1966, pp. 20-21). In the first instance the employer of fishermen in Maine withheld wages. The New York tailor strike resulted when workers refused to work for their employers and advertised their availability to accept private work independent of their employers.

In the 1760's skilled workers, carpenters, shoemakers, printers, and tailors organized themselves into societies to further their interests. These societies bargained for wages, working hours, closed-shop conditions, called boycotts and strikes, paid strike benefits, regulated apprentices, and employed "walking delegates" to oversee the enforcement of agreed upon terms (Peterson, 1944, p. 1). Probably, the original trade union in America was the Federal Society of Journeymen Cordwainers, established in Philadelphia in 1794 (Dulles, 1966). The Society limited membership to journeymen shoemakers and conducted a successful strike, with picketing of shops, in 1799. Over the next decade, numerous worker organizations were founded in the major cities and these enjoyed early successes in winning concessions from employers because of a shortage of skilled workers, a lack of unity among employers, and increasing demand for goods from an expanding America (Dulles, 1966).

The workers' success was short-lived. The owners had begun

to organize to protect themselves. In 1806, employers successfully filed criminal charges against the Journeymen Cordwainers of Philadelphia for striking. In his charge to the jury, the judge characterized the strike as "pregnant with public mischief and private injury" (Dulles, 1966, p. 29). Similar verdicts were handed down in New York in 1810 and Pittsburgh in 1815 (Dulles, 1966).

During the 1800's, the nation witnessed many attempts by worker organizations to strengthen their position. National organizations were organized to develop a political power base, encouraging the enactment of favorable legislation, and reducing competition between workers in various parts of the country. The legislative objectives fell into two categories: (1) issues directly linked to the labor movement, for example, the right to bargain collectively and the ten hour work day; and (2) socially oriented objectives. The social objectives included free public schools, abolition of imprisonment for debt, and women's suffrage. However, workers made little headway during the 1800's because of depression, immigration, and philosophical conflict. The depressions of 1819, 1837, and 1873 forced many companies to close or reduce their work force. These economic reverses meant that workers had to take any job available at rates set by the employer. Furthermore, in 1864, the contract labor law was

passed which permitted immigrants to agree to a lien on their wages for passage money to the United States. The American Emigrant Company, founded by some prominent government officials, promised to provide skilled laborers from Europe " . . . at short notice and on reasonable terms" (Dulles, 1966, p. 97).

External impediments to union growth were assisted by internal conflicts regarding the goals of the labor movement. The labor organizations of the 1700's were trade unions for skilled workers concerned with improving their wages and working conditions. As the nation became more industrialized, other labor organizations were formed to represent the semi-skilled industrial worker. These larger, broad-based groups also directed their concern toward social issues as well as direct terms and conditions of employment. The interest of labor in having more favorable labor legislation enacted, combined with the demand for social change, resulted in the formation of national labor organizations and ultimately the National Labor Reform Party in 1866. However, the inability of all labor to agree on a national agenda restricted the effectiveness of the Labor Reform Party and it ceased to exist in 1872 (Dulles, 1966).

With the collapse of the Labor Reform Party, labor split along its traditional lines. The trade unions continued to

organize according to specific skills or jobs. The industrial workers were recruited into the Knights of Labor. The Knights, originally founded as a secret society in Philadelphia on December 9, 1869, had as its ultimate goal the establishment of "an industrial commonwealth" (Dulles, 1966, p. 126). Membership was open to all workers. The Knights were unable to deliver on many of their goals in spite of many strikes and legislative lobbying efforts. By the mid-1890's the Knights ceased to be a powerful labor group.

The American Federation of Labor (AFL), formed in 1886, was a coalition of national skilled trade unions bound together by interest in obtaining better economic and working conditions for their membership. The Federation was governed by a council composed of the leaders of all participating national unions. The national unions retained complete control over their membership and strictly limited the AFL's role to that of being the voice for organized labor at the national level. The structure of the Federation gave power to the numerous skilled trade unions and negated the influence of the less numerous, industrial unions who had large memberships.

The AFL was led by Samuel Gompers from 1886 to 1924, and was the dominant force in American unionism until 1935. At that

time, the AFL was fractured with the departure of the industrial unions who formed the Congress of Industrial Organizations (CIO). The split was caused by: 1) the failure of the AFL to adequately recognize and deal with the increasing number of industrial unions; 2) internal policy differences over how to deal with the increasingly violent union avoidance tactics of employers; and 3) bitter personality clashes between the conservative head of the AFL, William Green, and John L. Lewis, the aggressive, colorful head of the United Mine Workers (Dulles, 1966).

The two groups remained apart until 1955 when they merged to form the AFL-CIO. The impetus for the merger came in 1952 when William Green and John L. Lewis died within twelve days of each other. Their successors, George Meany of the AFL and Walter Reuther of the CIO, had not played major roles in the original split and both were eager to rebuild labor into a powerful political force.

Formation of Educational Associations

The development of educational associations and teacher unions parallelled the development of the industrial unions. The three major groups now representing faculty bargaining interests are the American Association of University Professors (AAUP), the American Federation of Teachers (AFT), and the National

Education Association (NEA). The groups started with different objectives and have undergone change in order to be more effective in competing for members.

The National Education Association (NEA) was founded in 1857 to help direct the country's educational policy. Until 1919 the NEA was essentially a management organization "dominated by college and normal school presidents, and school superintendents" (Stinnett, 1968, p. 21). Between 1919 and 1921 changes in the structure of NEA, namely proportional representation in the Delegate Assembly (e.g., voting by groups: teachers vs. administrators), brought about greater participation by the membership in establishing policy. Stinnett cites the organization's size, clientele and democratic structure as the reasons for NEA being a "slow-moving, often ultraconservative organization" (Stinnett, 1968, p. 22). During its drive to organize higher education faculties, the NEA attempted to shed its image as an organization only concerned with K-12 education by restructuring its National Higher Education Association in 1969 into three college divisions: the National Faculty Association for Community and Junior Colleges, the National Society of Professors, and the National Association of College and University Administrators (Lindeman, 1973, p. 87). These divisions were difficult to administer and were subsequently

abolished in favor of a central national office. The NEA has been the most successful organization in winning representation elections on college campuses. Forty-four percent of the campuses with collective bargaining are affiliated with the NEA (ACBIS, 1981).

Unlike the NEA, the American Federation of Teachers (AFT), formally organized in 1916, has always been an employee organization. The motivating force for the teachers forming the Federation was to gain the support of other labor unions in forcing the governing bodies to improve the teachers' economic status. Gains by some teacher federations, most notably the Chicago Federation of Teachers, encouraged other groups to closely align themselves with organized labor. Several attempts were made by the AFT to take over the NEA and restructure it according to the philosophical beliefs of the AFT (Stinnett, 1968). Debate on a possible merger has continued to the present time but has not produced any results.

The AFT continues to be successful in winning representation elections in traditionally strong pro-labor areas such as the large cities. In 1963, the AFT established the United Federation of College Teachers to spearhead its drive to represent college faculties. To date the AFT represents the largest (34 percent) of four-year campuses with faculty collective bargaining (ACBIS,

1981).

Unlike the NEA and AFT, which represent teachers at all levels, as well as support staff and some administrators, membership and representation in the American Association of University Professors (AAUP) is limited to college and university faculties. Organized in 1915 as an association exclusively devoted to issues and concerns of higher education faculty, the AAUP has gained the reputation as the "conscience" of higher education, equally concerned about the quality of the system and the profession. The primary mechanism for enforcing its views was the official "censure" list which indicated to the academic community that a particular institution did not adhere to the accepted standards of the profession. After several years of debate over the appropriateness of the Association becoming involved in campus collective bargaining, the AAUP's Council recommended a major initiative in collective bargaining in the fall of 1971. The general membership ratified the recommendation at the annual meeting in 1972 (Osborne, 1978). Despite its late entry into the higher education collective bargaining arena, the AAUP has made significant gains in winning representation elections at four-year institutions (see Table 2.1, p. 22). The major reasons cited for such programs were: 1) a perception that the AAUP is not viewed as a union; 2) an outstanding history of

Table 2.1

Collective Bargaining Representation
on College and University Campuses

	Number of 4 Year Campuses			Number of 2 Year Campuses			Grand Total
	Public	Private	Total	Public	Private	Total	
AAUP	31	31	62	22	1	23	85
AFT	63	27	90	149	7	156	247
NEA	56	17	73	248	3	251	324
AAUP/AFT*	26	0	26	1	0	1	27
AAUP/NEA*	3	0	3	7	0	7	10
Indep. & Other	5	8	13	31	1	32	45
Total	184	83	267	458	12	470	737

Source: ACBIS, 1981, p. 7

* In some cases the faculty bargaining unit represents a merger of the AAUP with the AFT or NEA affiliates on the campus.

representing faculty interests; and 3) in selecting the AAUP as bargaining agent, the faculty does not surrender its autonomy to a state or national organization (Osborne, 1978).

Enabling Legislation

The National Labor Relations Act of 1935 (the Wagner Act), was passed in an effort to deal with economic and industrial problems of the depression. This Act affirmed the employees right to form unions and to bargain collectively through representation of their own choosing. The Act also prohibited various employer practices used to discourage or prevent employees from organizing.

Although the Wagner Act facilitated the formation of unions and the use of collective bargaining in the private sector, it was almost 25 years later before similar rights were granted to any public employee. Wisconsin enacted the first comprehensive employee bargaining legislation in 1959. As a general rule, comprehensive legislation includes the right to self-organization unit determination, establishes the employer's obligation to "bargain collectively" or to "meet and confer," and provides some mechanism for dispute resolution.

The first significant order granting federal employees the right to engage in collective bargaining was President Kennedy's Executive Order 10988 issued on January 17, 1962. Marx (1969, p. 16) considered this order as important in establishing unionism

in the federal sector as the Wagner Act had done in the private sector. Following the President's lead many states granted public employees the right to bargain collectively. By 1981, 35 states had granted public employees, including teachers, the right to bargain collectively by legislation, executive order, court decision, or attorney general opinion (GERR, 1981b). Issues such as the following: who can bargain, unit representation, the mandatory, permissive, and illegal subjects of bargaining, grievance procedures, impasse resolution, and governing authority (the legal employer), are all treated differently in the states.

Advent of Collective Bargaining in Higher Education

Two authorities disagree on when the first union was granted the right to represent faculty at a two-year college. The earliest date is 1964 when Olympic College, formerly a part of the Olympic School District, was separated from the district. The faculty of the newly formed college formed an AFT local (Milander, personal communication, 1983). Crossland (1976) has reported that the first bargaining unit was organized in 1963 at the Milwaukee Area Technical College, though a contract was not ratified until 1965. Clark College of Washington organized (NEA) and ratified its initial contract in 1964 (Douglas and Kramer,

1982).

Collective bargaining at public, four-year institutions commenced with the signing of an agreement at the United States Merchant Marine Academy in February 1968 (Carr and Van Eyck, 1973, p. 17). Although it followed the Merchant Marine Academy by almost a year and a half, the agreement signed in September 1969 at the City University of New York is considered by some (Carr and Van Eyck, 1973; Mason, 1974) to be the real start of collective bargaining in four-year, public institutions because of the institution's size and national status.

The right of employees at private, non-profit institutions of higher education to form unions and to bargain collectively was recognized by the National Labor Relations Board in the 1970 Cornell University case (183 NLRB No. 41, 74LRRM1269 (1970). This case involved certain non-academic employees at Cornell, and there was no indication "that anyone recognized the way was being opened to collective bargaining under NLRB supervision by faculty members as 'employees' of private institutions" (Carr and Van Eyck, 1973, p. 26). The initial NLRB decision on the right of private college faculty to organize came as a result of representation petitions filed by the faculty at the Brooklyn and C.W. Post campuses of Long Island University. In the C.W. Post decision the NLRB found the university's claim that NLRB jurisdiction did not apply to professional personnel, to be

" . . . without merit" [189, NLRB No. 109, 77 LRRM 1001 (1971)]. As of July 1981, 737 campuses had faculty bargaining agents (see Table 2.1).

Garbarino suggested that unionism would continue to grow because of financial depression and other external factors, such as increased federal and state regulations and the public's demand for "accountability" (Garbarino, 1975, p. 4). Crossland (1976, p. 38) also predicted that faculty unions would continue to increase. Support for these assertions is to be found in the number of campuses with faculty bargaining. In 1981, there was an 8.2 percent increase over the previous year (ACBIS, 1980, p. 7). In addition, the recent vote by faculty in the California state system indicates that more faculty are deciding to choose faculty collective bargaining.

Studies on the Causes of Faculty Unions

Collective bargaining in community colleges has been studied extensively. A number of attitudinal studies have found that faculty view collective bargaining as a legitimate means in achieving their goals. Moore (1970) studied the attitude of faculty members toward collective bargaining in ten community colleges in Pennsylvania. Results showed faculty viewed collective bargaining as a legitimate means to obtain a voice in

setting policy regarding working conditions. The respondents also felt that bargaining did not infringe on Board rights, produce detrimental effects on education, or lower the dignity of college faculty.

Cline (1973), studied faculty attitudes toward collective bargaining at twelve community colleges in Colorado prior to the passage of collective bargaining legislation. The study population consisted of all full-time faculty at institutions with 30 or fewer full-time teaching faculty, and a 50 percent random sample at institutions with more than 30 full-time teaching faculty. Sixty percent of the faculty indicated they would join a faculty organization engaged in collective bargaining. Faculty attitudes favoring collective bargaining were found to be directly related to faculty perceptions of poor administrative management. The more authoritative the management style, as peceived by faculty, the more likely the faculty would support collective bargaining (Cline, 1973).

Support for the findings of Moore and Cline was found in faculty surveys included in the Report of the Carnegie Council on Policy Studies in Higher Education (Carnegie Council, 1977). The surveys found general faculty support for collective bargaining from all sectors of higher education as evidenced by positive responses to the statement: collective bargaining has a place in higher education.

An extensive literature review showed the primary reasons faculty vote for collective bargaining were: (1) inadequate compensation; (2) dissatisfaction with faculty role in governance; (3) the statutory right to bargain; (4) inept administration; (5) and the competition for membership among the AAUP, AFT, and NEA (Lindeman, 1973). Instructors and Assistant Professors were particularly dissatisfied with their compensation. Contributing to this feeling of dissatisfaction were the annual publication of national data on faculty salaries, the inability of junior faculty to have a meaningful voice in institutional policy-making because of the seniority system, and the continued call for an attainment of higher salaries by rival unions. The concerns of junior faculty were explored by Budig and Decker (1973) in a survey of 200 assistant professors at ten major public universities. Ninety-six percent of those surveyed favored unionization because of a sense of uncertainty regarding their status. They felt effective collective bargaining "might give them a lasting and more significant role in the higher education enterprise" (Budig and Decker, 1973, p. 143).

Four variables cited as leading to faculty bargaining were: (1) the economy; (2) organizational structure; (3) the legal system; and (4) the events of the sixties (Ladd and Lipset, 1973). Economic concerns emanated from a declining rate of real income

growth, and, in some cases, an absolute decline in income (Cheit, 1971, p. 1). As revenues decline a balanced budget can only be obtained by lowering salary increases, reducing staff, deferring maintenance, increasing workloads and/or reducing educational expenditures.

Structural concerns resulted from the rapid growth in the size of institutions, particularly in the public sector. Increased size led to "bureaucratization and reduced the sense of collegiality between faculty and administrators" (Ladd and Lipset, 1973, p. 4). Increased size removed the decision making process from the faculty senate and various faculty committees and strengthened the authority of an increasing number of non-academic administrators. In many cases these decision makers are far removed from the teaching environment, located either in central administration or in state departments of higher education. The availability of an alternate means of having a voice in one's destiny would be very appealing to a faculty feeling increasingly disenfranchised.

Other studies concentrated on the differences between institutions choosing or rejecting collective bargaining. Leadership style in colleges and universities was found to have significant impact. Some institutions were characterized by high morale, faculty trust in the administration, satisfaction with

working conditions and little identity with the institution. However, other institutions had a hostile climate marked by "... low morale, distrust of administrators, and dissatisfaction with working conditions" (Baldridge, et al, 1978, p. 132). The latter institutions also were characterized by faculty militancy. Two-year institutions and public colleges were found to have the lowest levels of trust and satisfaction, and high institutional identification (Baldridge, et al, 1978, p. 141). Institutions that "rate high in trust and satisfaction also tended to be: (1) wealthy; (2) older; (3) selective in student admissions; and (4) low in the amount of external influence the faculty perceive" (Baldridge, et al, 1978, p. 147). It was also noted that the faculty with the lowest academic rank had the lowest levels of trust and satisfaction because of low salaries, heavy teaching loads, few benefits and an unstable position in troubled financial times. Unions offered such individuals a greater voice in their destiny. Since unions operate by the one man one vote procedure the junior members of the faculty, often the majority, can effectively counteract the traditional campus governance system.

The findings of the large national studies were confirmed by a case study in Michigan done to determine the conditions that would lead to faculty bargaining (Owen, 1979). The author, a

professional union organizer, studied faculty readiness for bargaining and successfully organized the faculty at one of the institutions studied. Two major conclusions were drawn from the study: (1) authoritarian administrators stimulate faculty interest in collective bargaining; and (2) certain conditions will keep faculty from choosing the union alternative. The union avoidance conditions are: 1) faculty participation in policy determination; 2) protection of due process by impartial third party adjudication; 3) salaries and fringe benefits at or above the norm; 4) protected tenure rights; and 5) a meaningful faculty voice in campus governance.

Other studies examined selected community colleges to determine what issues were considered important by the faculty. A ranking of bargaining issues by faculty preference in a ten percent random sample of public, two-year colleges with collective bargaining found the five priority issues were: (1) academic freedom; (2) salary schedule; (3) conditions of employment; (4) professional growth; and (5) employee rights and responsibilities (Harvey, 1979). A survey of the full-time faculty at Brevard Community College found 77 percent would vote for collective bargaining. The reasons given for the vote were: (1) lack of faculty participation in governance; (2) faculty economics; (3) lack of faculty power; (4) lack of academic

freedom; and (5) union pressure (Kubiak, 1981). Shortly after this study, the faculty at Brevard voted for a collective bargaining agent.

Power in Organization

Another explanation of why faculty join unions can be found in the analysis of intraorganizational behavior is offered by Hirschman (1972) and others. Hirschman (1972) notes that personnel in organizations are constantly involved in intra-political conflict that frequently results in individuals having to choose between exiting the organization or voicing their opinion. Bacharach and Lawler (1981, p. 8) take the position that the lack of flexibility in today's labor market and the benefits of longevity in one's job, militate against a high degree of mobility. In practical terms the individual is left with one alternative: voice. However, vocal individuals are vulnerable to either manipulation or dismissal. Bacharach and Lawler (1981) note that a group provides some protection against retaliation and thus becomes the viable unit for political action within the organization.

Whereas small institutions have a cohesive faculty, larger institutions suffer from fragmentation. Litchfield (1979, p. 464) describes universities as a "miscellaneous collection of faculties" that respond to specific needs of individual schools

or departments while neglecting total instititutional needs. Hoenack and Weiler (1977) focused on the budget building process as the most political institutional exercise that results in funds being distributed as a result of political power rather than by programmatic need or academic quality. From her studies on higher education budgeting, Tonn (1978) found that the process is best described by a political behavior model in which decisions are subjectively negotiated rather than being made by impartial formulas or direct appeals to the hierarchy. Tonn (1978, p. 58) found that groups holding real power positions within the organization will seek to build strength through coalitions when their power base cannot be maintained by acting alone. In contrast, groups low in the organizational hierarchy resort to coalition building frequently in order to play some part in the decision making process. In a study of governance at four-year institutions, Lee (1979) found support for the claim that unions, a form of coalition, gave faculty greater power in institutional affairs, especially in fiscal matters relating to salary and benefits. Examples were also found where faculty unions formed coalitions with outside individuals and groups to obtain support for their positions thus bringing external pressure to bear on institutional decision making.

Effects of Collective Bargaining on Governance

Traditionally, college governance has been viewed as a process in which both administration and faculty have a role in decision making. The events of the sixties resulted in a perception that faculty were losing some of their decision making involvement. In 1966, an American Association for Higher Education study observed that faculty, particularly in community colleges, were not satisfied with the passive role assigned to them in the governance structure and that it was unlikely that faculties would continue to accept such limitations on their role (AAHE, 1967, p. 10). Greater voice in institutional policy was found to be a major reason for the formation of faculty unions (Lindeman, 1973; Schuster, 1974; Mason, 1974; and Crossland, 1976). Bargaining, Lombardi points out:

> changes an informal faculty-administration relationship of unequality into a formal relationship of more nearly equal parties. For the contract is always the product of negotiations between equals, unlike the policy memorandum which is adminstratively prepared with or without faculty participation and usually administratively interpreted. (Lombardi, 1979, p. 1)

Although a greater voice in governance is one of the goals of faculty bargaining, in some cases bargaining has created more bureaucracy and has further removed decision making from the campus. Traditionally, the president was viewed as the primary authority in the institution. Bargaining forces the

identification of the actual employer. When bargaining is conducted locally, the employer is clearly identified as the Board. In some states, for example, the New Jersey State College system, the employer is determined to be the state itself, either the governing board for higher education, the legislature, or the governor. In these cases, a representative of the employer conducts negotiations. These circumstances result in the loss of local institutional autonomy and tend to have a centralizing effect on issues such as faculty personnel policies, salaries and working conditions. Crossland claimed that one reason for bargaining will be that both faculty unions and the institutions will be increasingly governed by "professional administrators, many of whom never earned advanced degrees and never taught a class" (Crossland, 1976, p. 41).

The most direct way collective bargaining can impact campus governance is for the contract to have provisions granting faculty involvement in those areas traditionally considered management's prerogative. In a study of the effects of collective bargaining on specific written policies at 23 selected two-year institutions, sufficient evidence was found to draw the conclusion that ". . . collective bargaining has been influential in changing a number of written policies of governance" (Poole and Wattenbarger, 1977, pp. 9-10). The areas

most affected were the use of a third party to resolve disputes between the faculty and the employer, granting the faculty a formal voice in the selection of administrators, including the president, and allowing faculty a formal voice in reduction in force decisions.

Despite claims of impending problems with an increased union voice in institutional governance, some claim at least two benefits from collective bargaining. First, collective bargaining enables the employer to deal with the employees as a group for whom the contract has created specific expectations and obligations to be carried out. The second benefit is that the faculty should become better informed about the financial condition of the institution and the implications of various plans of action (Caruthers and Orwig, 1979, pp. 78-80).

Faculty Compensation Under Collective Bargaining

While considerable attention has been directed at studying the causes of and attitude toward collegiate collective bargaining, fewer studies have examined the effect of collective bargaining on the finances of affected institutions. The initial study on the financial impact of collective bargaining examined the total salary increase over a five year period in 176 institutions divided according to the presence or absence of

bargaining (Birnbaum, 1974). Pairing was accomplished by considering control, level of degrees, compensation level in the base year, size (number of full-time faculty), and geographic location (state, if possible). The data source chosen for the comparison of salaries was the AAUP Faculty Compensation Surveys for the years 1968-69 and 1972-73.

By the 1972-73 academic year institutions with collective bargaining enjoyed a net salary gain of $770.00 over non-collective bargaining institutions. The net salary increases by type of institutions were: public universities, $883; public, four-year colleges, $1,157; public, two-year colleges, $375; and independent colleges and universities, $388 (Birnbaum, 1974, p. 31). Salary increases as a function of union membership were significant for only two types of institutions - public universities and public four-year colleges.

A 1975 study comparing compensation increases at union and non-union community colleges found union compensation had increased at a faster rate (Garbarino, 1975). The salary data were standardized for differences and change in the cost of living in the areas the colleges were located. The years used for the comparison were 1965-66 and 1972-73. The year 1965-66 was selected because it was the last year before the extensive formation of faculty unions in community colleges. The

institutions studied were selected from California, Illinois, Michigan, and New York. Although the average non-union compensation was higher in both years, $682 in 1965-66 and $404 in 1972-73, the union compensation had increased at a faster rate. By 1972-73 the net increase in union faculty compensation had increased by $2,897 as compared to the $2,619 at non-union institutions. However, the general applicability of the study has been questioned since the sample included only sixteen community colleges.

Birnbaum (1976) studied the effects of collective bargaining on faculty salary increases using data on faculty compensation from 1968-69 through 1974-75. The matching techniques and source of salary information were identical to the 1974 study. One hundred and forty institutions were used in the study. The data showed that between the academic years 1968-69 and 1972-73 compensation at bargaining institutions increased 35.5 percent, over the base year salary, compared to 28.2 percent at non-bargaining institutions, a difference of 7.3 percent. Comparable differences between the academic years 1972-73 and 1974-75 were 17.3 percent at bargaining institutions and 17.2 percent at non-bargaining institutions, a difference of only 0.1 percent (Birnbaum, 1976, p. 117). Birnbaum suggested the relationship between faculty unions and compensation may not be

as strong as originally suggested and may result from other factors. He specifically identified the institutions' unique history or situation, regional location, general economic conditions, and the changes in legislative attitude toward the funding of higher education.

Morgan and Kearney (1977) compared 92 institutions to determine the effects of unionization on faculty salary levels. Regression analysis was used to control for public/private institutions, geographic proximity or cultural similarity, and institutional size. Size was measured by enrollment and not by number of faculty, as Birnbaum had used. They found that, as of 1974-75, "Collectivized faculties have a average $625 differential over their unorganized counterparts" (Morgan and Kearney, 1977, p. 37).

Using a different approach than Birnbaum, and Morgan and Kearney, Brown and Stone (1977) examined salary increases, by academic rank, at 45 four-year institutions with collective bargaining. Comparisons were made using AAUP national and regional averages rather than matching institutions to avoid a bias resulting from the researcher being forced to choose the "best match" between institutions. Salary comparisons were made using the academic years 1970-71 through 1975-76. Contrary to earlier studies, Brown and Stone concluded, "there have been no

general economic gains associated with the adoption of collective bargaining" (p. 385).

A study, designed to examine the question of faculty salary gains from collective bargaining in light of the obvious differences in findings of the Birnbaum, Brown and Stone, and Morgan and Kearney studies, found collective bargaining results in impressive salary gains in the first few years but then levels off (Leslie and Hu, 1977). One hundred and fifty institutions, both two and four-year, were matched according to six criteria: AAUP category, AAUP compensation scale, control, geographical proximity, level of urbanization, and institutional size. Using an analytical model based largely on the study by Morgan and Kearney, the authors found that bargaining increased faculty compensation about $1,291 up to 1974-75 but by 1975-76, the figure decreased to about $800. However, when just two-year institutions were examined for 1975-76, "only a $1 gross salary gap separated the union from the non-union schools" (p. 44).

Leslie and Hu also looked at the impact of bargaining on tuition and fees, the institution's ability to seek outside support, and educational expenditures. Five variables, taken from 1973-74 HEGIS Financial Data, were used: (1) total government appropriations; (2) total government contract revenues; (3) educational and general expenditure; (4) total

current expenditures; and (5) average tuition and fees. Two of the variables were found to have significant differences at the 0.05 level: state government appropriations and student tuition and fees. Students in union institutions paid about $250 more that students in non-union institutions in 1973-74. The results also indicated that unions do not change the incentives for faculty to seek contract money from government sources (Leslie and Hu, 1977, p. 23).

The contradictory results regarding salary gains by union faculty led Ito and Masoner (1980) to reexamine all data to seek an appropriate explanation. The reexamination included redefining the Brown and Stone sample by creating single observation units from those campuses that had a common contract and basing their analysis on average faculty compensation rather than average compensation across each professional rank. Ito and Masoner suggested the conclusions of earlier studies were not based on methodological weaknesses but on the differences in the terminal years the studies used and because of the large numbers of campuses from the Northeast and the "severe decline in compensation growth within and surrounding New York state between the academic years 1974-75 and 1975-76" (Ito and Masoner, 1980, p. 63). They concluded that all studies showed a positive association between collective bargaining and salary gains as of

the 1974-75 academic year.

In an attempt to control for problems encountered in earlier studies over the question of the base year, Marshall (1979) defined the base year as the year prior to the signing of a contract. Bargaining institutions were included only if they signed their first contract in the base year, therefore eliminating the influence of institutions that had bargaining for several previous years. The study also used a later end year (1976-77) than all prior studies. A comparison of the percent of faculty salary increases at 60 bargaining and non-bargaining institutions over a five year period found an eight percent increase (41.4 v. 33.6) in faculty salaries at non-union, two-year institutions. Marshall offered three possible explanations. First, failure to unionize is, of itself, a cause of higher salaries. Campus officials and/or legislators may attempt to reduce union activity by granting higher salaries as a form of union avoidance. Second, higher salaries at a nearby institution will force an institution to raise its pay scale to remain competitive. Third, the inherent subjectivity involved in the matching process produced "methodological artifacts" (Marshall, 1979, p. 319). Two examples demonstrate the latter point. Lincoln University in a strongly pro-union state, Pennsylvania, was matched with Elizabeth City State College in

North Carolina. Also, Temple University, a large eastern institution, was matched with the University of Southern California. In both cases, questions on the appropriateness of the match arise from the difference in region and state, type of control, and regional cost of living.

Bennett and Johnson (1979) studied the demographic and economic trends that influence fiscal and academic policies in institutions of higher education. They predicted that declining enrollments and reduced tuition revenues would decrease the need for faculty at the same time there was an increased supply of academic professionals. These events would result in greater numbers of faculty unions but the faculty would have to pay greater costs due to the cost of union membership. The authors also found evidence that collective bargaining would force the institution to divert existing resources to deal with contract negotiations and dispute settlements.

The Birnbaum matching technique and the Morgan-Kearney regression model were used to study 30 pairs of four-year colleges with a longer history of collective bargaining (Guthrie-Morse, Leslie and Hu, 1981). Compensation data for each year from 1970-71 through 1977-78 were examined. They found that union faculty continued to receive a moderately higher pay ($750 to $900 per year) unless local cost of living differences were

taken into account. The study also confirmed the observation of Ito and Masoner (1980) that the 1974-75 academic year was the peak year for union salary gains.

Five Florida two-year colleges with collective bargaining were matched with five Florida two-year colleges without collective bargaining on the basis of student FTE's to study changes in governance faculty attitudes, and compensation between 1974-75 and 1978-79 (Horn, 1981). Budgetary information on faculty compensation allocated was taken from the annual state report on the community colleges. Institutions without collective bargaining paid higher minimum and maximum salaries than institutions with unions. However, the proportion of the budget allocated to faculty compensation was not significantly different.

Studies on the financial effects of collective bargaining led to several general conclusions. First, studies utilizing a matched pairing technique are prone to a selection bias because of the necessity to choose the "best" match between several possible groups of institutions. Second, unless the matched pairs are from the same state, or ideally, from the same region of the state, other influences, such as regional cost-of-living differences, could inhibit financial comparisons. Third, the studies also appear to indicate that collective bargaining

produces some immediate economic advantages but the advantages erode with time. It is not clear from the literature whether the economic advantages enjoyed by unions were a result of the time, the early 70's, or due to the direct intervention of the unions.

Mechanisms for Studying Financial Condition of Colleges and Universities

Concern about the financial condition of higher education has led to a series of studies on the financial condition of various sectors of higher education, the implications of the financial condition, and the underlying causes for the differences in the financial condition of the various sectors and of comparable institutions. Cheit (1971) used a set of financial indicators to assess the financial condition of selected private institutions. His study examined institutional expenditures and income data from 1959-60 to 1970-71 and included in-depth interviews with campus officials. An institution was judged to be in financial difficulty when its current financial condition resulted in "a loss of services that are regarded as a part of its program or a loss of quality" (p. 36). An institution was judged to be headed for financial trouble when it could meet current responsibilities but either could not ensure doing so in the future or could not plan support for evolving program growth. Seventy-one percent of the institutions studied were either in

financial difficulty or headed for financial trouble because costs were rising at a steady rate while income was declining. The study found five important components of expenditures: inflation, faculty salaries, student aid, campus disturbances, and a growth in responsibilities, activities, and aspiration (p. 38). The necessity of having to obtain and analyze large numbers of financial reports placed a limitation on the number of institutions that could be studied using this methodology.

A study by Lupton, Augenblick, and Heyison (1976) used the HEGIS data base to develop national norms for assessing the financial health of institutions. The methodology combined the opinion of a panel of experts on what constitutes collegiate financial health with data on 16 variables from HEGIS data. Ten of the variables were financial ratios. Their study sparked a great deal of controversy and discussion as to the methodology and appropriateness of the conclusions. In an analysis of the study, Francis and Stenner (1979) concluded that refining the use of expert panels, better statistical procedures, and additional conceptual work might have affected some of the conclusions. One of the generally accepted conclusions was that larger size provides economies of scale, as well as budgetary flexibility to withstand short-term negative trends.

A study of the causes of the demise of certain small,

private, liberal arts colleges indicated that some financial ratios, developed from the HEGIS data bank, proved useful in discriminating between "live and dead" institutions (Andrew and Friedman, 1976). A stepwise discriminate analysis classified the institutions, live and dead, correctly 84 percent of the time. Although the prediction rate was not considered sufficiently high to be an indicator of institutional death, it was deemed high enough for longer term, or trend studies, of institutional viability (p. I-14). The study also supported the contention that abilities of the chief administrator have a major impact on the ultimate condition of the institution.

In a study to determine how institutions allocate their resources, Bowen (1980) used a random sample of 268 institutions, stratified by type, size, and geographic region. HEGIS data was used to develop the cost differences among institutions. Wide differences in expenditures per student were explained by the diversity of the clientele served, differences in mission and services, and educational innovation. Bowen also found a decrease in the amount spent for direct instruction. This was seen as an important barometer in measuring the progress, health, and efficiency of institutions (p. 10).

The use of HEGIS information to make financial comparisons has generated much discussion. Critics point to the delay in obtaining the national data, problems of data reliability, and

missing data as chronic problems and suggest the alternative of using institutional audit statements. Proponents of HEGIS point to the Patrick and Collier (1979) study that analyzed groups of institutions using HEGIS data and refined audit reports prepared by John Minter Associates. The study found both data sets gave similar results as to the institutions' financial condition. Summarizing the literature on the use and limitations of HEGIS data, Andrew (1983) suggests three uses of the data base: (1) building financial taxonomies to identify sets of peer institutions; (2) monitoring changes in enrollments and program allocations within peer institutions; and (3) tracking the relationship between revenues and expenditures.

CHAPTER THREE

Methodology

Purpose Statement

The purpose of this study was to determine if two-year colleges with faculty unions differed from two-year colleges without faculty unions in terms of selected institutional characteristics, including certain operating ratios drawn from the HEGIS data base. The data were developed to provide a profile of union and non-union two-year community colleges with regard to revenue and expenditure patterns.

Research Questions

The research was designed to provide answers to the following questions:

1) what is the relationship between union and non-union colleges with respect to the percentage of education and general (E & G) expenditures allocated to direct instruction?

2) do union and non-union colleges receive different percentages of their revenue from state and local governments, tuition and fees, and grants, gifts, contracts, and endowment income?

3) do union and non-union colleges differ in the education and general expenditures per FTE student?

4) do union and non-union colleges have a different FTE student to full-time faculty ratio?

5) what is the relationship between union and non-union colleges and average full-time faculty salary?

6) can one or a group of variables serve a possible predictor of institutional membership with faculty collective bargaining?

Research Design

To answer the research questions, data were collected on the following institutional characteristics:

1. faculty salaries / Education and General (E & G) expenditures + Mandatory Transfers (MT)
2. fringe benefits / E & G expenditures + MT
3. total E & G expenditures + MT / FTE students
4. tuition and fee revenue / total current fund revenue
5. government appropriations: state / total current fund revenue
6. government appropriations: local / total current fund revenue
7. grants, gifts, contracts, endowment income / total current fund revenue
8. FTE enrollment / number of full-time faculty
9. faculty salaries / number of full-time faculty
10. instructional cost / E & G expenditures + MT
11. size (FTE students)
12. state

Data for this study were obtained from the Higher Education General Information Survey (HEGIS) 1979-80 tapes on Financial

Statistics, Institutional Characteristics, Fall Enrollment, and Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty. The salary and fringe benefit data is for full-time, 10 month and 12 month instructional faculty.

The data were classified and analyzed using the Statistical Analysis System (SAS) procedures: PROC MEANS, PROC T-Test, PROC FREQ, and PROC STEPWISE. In the first phase of the analysis all of the institutions were used without controlling for size or state. In the second phase, 84 matched institutions were drawn from the full sample to provide a control for size and state.

Population

The initial population for this study consisted of 926 public, two-year institutions listed in the Directory of Colleges and Universities: 1979-80 (Peterson and Davis, 1980). Of this population, 458 institutions (49 percent) had faculty collective bargaining as of August 11, 1981 (ACBIS, 1981). The population was divided by state to determine the percentage of two-year colleges with faculty bargaining in each state. Institutions excluded from this study were: (1) institutions without degree granting authority; (2) institutions without a full-time faculty; (3) two-year campuses of a university; (4) institutions from states where all of the two-year institutions have faculty bargaining units; (5) institutions from states in which

collective bargaining was not permitted; and (6) institutions who started collective bargaining after 1976.

An initial analysis of institutional data revealed very high standard deviations for three variables included in the study. Institutions with average faculty salary values outside of the range of the mean plus and minus two standard deviations were checked to determine the validity of the HEGIS data. Forty-one institutions were found to have values that were unusual because of reporting errors on the HEGIS surveys, data processing errors, changes in personnel practices during the academic year studied, or the occurrence of faculty strikes. The forty-one institutions were removed from the study. Institutions with values outside of the range of the mean plus and minus two standard deviations for the variables grants, gifts, contract, and endowment income and FTE students per full-time faculty were also checked. In all cases their reported values resulted from unique institutional policies or practices in development and curriculum. In the latter cases, the institutions used instructional techniques that resulted in large class sizes or made extensive use of adjunct faculty.

The exclusions resulted in a final population of 278 public, two-year colleges of which 163 had faculty collective bargaining units and 115 did not. The institutions used in this study were located in the following 14 states:

California	Nebraska
Florida	New York
Illinois	Ohio
Iowa	Oregon
Kansas	Pennsylvania
Maryland	Washington
Michigan	Wisconsin

A listing of institutions is contained in Appendix A.

Instrumentation

Data for this study were obtained from the Higher Education General Information Survey (HEGIS) 1979-80 tapes on Financial Statistics, 1980 (NCES Form 2300-4), Fall Enrollment in Institutions of Higher Education, 1979 (NCES Form 2300-2.3), Institutional Characteristics of Colleges and Universities, 1979-80 (NCES Form 2300-3). In Appendix B the lines and columns for each HEGIS Form from which data was taken are listed. Appendix C contains the HEGIS definitions used in completing HEGIS Forms.

Data on the presence of faculty unions, union affiliation, and length of time collective bargaining has existed on a particular campus were obtained from the Academic Collective Bargaining Information Service and the Douglas and Kramer Study (1982) sponsored by Baruch College's National Center for the

Study of Collective Bargaining in Higher Education and the Professions. Discrepancies between the two sources of data and missing data were resolved by telephone calls to the institutions (Appendix D).

Data Collection Procedure

Data on the institutions included in the study were taken from the HEGIS tapes using the Statistical Analysis System (SAS) format. Information on the presence or absence of collective bargaining, bargaining agent, and year of first contract was merged with the HEGIS data to create an operational file. Utilizing the procedures described below, a program was written to establish the ten operating ratios from the collected HEGIS data.

Method of Analysis

Four SAS procedures were used in the analysis. SAS PROC MEANS was used to determine the means, standard deviations, minimum and maximum ranges, and the standard error of the means for all of the operating ratios for the two sets of institutions - union and non-union.

Prior to doing the PROC MEANS analysis, the relationship between the data elements used in the ratios were examined to determine which (numerator, denominator, or both) contributed to

the difference between the types of institutions. This task, which was facilitated by the SAS PROC FREQ procedure indicated that the data was stable. The cells for the crosstabulation are the following: cell one, those values between zero and the mean minus one standard deviation; cell two, the values between the mean minus one standard deviation and the mean; cell three, those values between the mean and the mean plus one standard deviation; and cell four, those values greater than the mean plus one standard deviation but less than or equal to the range maximum. In those instances where the values for the mean minus one standard deviation were negative, cells one and two were combined into zero to the mean.

In order to develop pairs of institutions for a regression analysis, a crosstabulation was used to identify similar institutions. Two variables were used for the crosstabulation, FTE students and total current fund revenue. Cells for the crosstabulation were established using the mean and standard deviation obtained for each variable from the PROC MEANS procedure for the entire 319 institutions. Institutions within the same cell were grouped by state in order to pair according tothe presence and absence of faculty unions. When a particular cell contained several institutions that could be selected as a possible pair, an additional criterion, single or multiple

campus, was used to arrive at the final pairing determination. The crosstabulation produced 41 pairs of institutions that were similar with respect to state, FTE enrollment, and total income, expressed as total current fund revenue, and differed by the presence or absence of faculty collective bargaining. A PROC MEANS procedure was done on the 41 pairs of institutions to obtain the mean, standard deviation, minimum and maximum range for the group divided according to the presence or absence of faculty collective bargaining. The pairs of institutions developed by this procedure are listed, by state, in Appendix F.

The SAS PROC T-Test procedure was used to compute the t-statistics for the two groups of institutions.

A stepwise regression was used to provide some insight into the relationship between the independent variables and the dependent variable. The SAS procedure PROC STEPWISE was used for this procedure.

CHAPTER FOUR

Results of Study

This chapter contains the results of the study comparing two-year colleges with faculty collective bargaining to two-year institutions without faculty collective bargaining in terms of selected institutional characteristics. The first section is a profile of the institutions, it compares the mean revenues and expenditure patterns of both groups of institutions; in the second section the results of the stepwise regression, first for the full sample and second for the matched sample, are given.

Profile of Institutions

This section contains a profile of union and non-union two-year colleges with and without faculty collective bargaining with respect to:

a) the percentage of education and general expenditures allocated to instructional sources;

b) the percentage of revenue obtained from tuition and fees, state government, local government, and grants, gifts, contracts, and endowments;

c) the educational and general expenditures per FTE student;

d) the full-time faculty to FTE student ratio; and

e) the average full-time faculty salary.

A comparison of institutions with and without faculty

collective bargaining using t-tests on the instructional costs and faculty salary variables are shown in Table 4.1. The mean percentage of E & G expenditures for FY 80 allocated to instructional sources was 58.9 percent for institutions with faculty collective bargaining as compared to a mean of 57.2 percent for institutions without faculty collective bargaining. The distribution of percentages of E & G expenditures for instructional costs for both groups of institutions were subjected to a two-tailed t-test and found to be not significant at the 0.05 level of confidence.

The average portions of instructional costs spent on the base salary for full-time faculty salaries was a mean 26 percent for institutions with faculty bargaining and a mean 22 percent for institutions without bargaining. T-tests on the differences between variable means across institutional groups showed a significant difference at the 0.05 level of confidence. The decomposition of the ratio faculty salaries to E & G expenditures may underestimate faculty salary at the institution since the numerator includes only the base salaries paid to both full-time faculty and does not include pay full-time faculty may receive as a result of overload pay, summer pay and special assignment pay in some institutions.

The variable concerned with fringe benefits was removed from

Table 4.1

A comparison of institutions with and without collective bargaining using mean percentages, standard deviations and t-tests on the variables: instructional cost/E & G expenditures and faculty salaries/E & G expenditures*

Variable	Institutional Bargaining Status	Number of Institutions	Mean Percents	Standard Deviation	T Value	PROB T
Instructional Cost / E & G expenditures	without CB	115	57.2	6.9	-1.77	0.076
	with CB	163	58.9	8.1	-1.72	0.085
Faculty Salaries / E & G expenditures	without CB	115	22.9	7.2	-2.92	0.007
	with CB	163	26.0	10.3	-2.76	0.006

* Data for this table as well as other data used in the text were drawn from Henry (1982).

the profile due to the extremely high number of institutions failing to report for fringe benefit expenditures. The unusually high number made it impossible to distinguish between institutions failing to report their fringe benefit expenditures.

The study examined the amount of revenue as a percent of total income from four sources: government appropriations - state; government appropriations - local; tuition and fees, and grants, gifts, contracts and endowment income. Table 4.2 shows the t-tests comparing the percentage means and the standard deviations for the two groups of institutions.

The percent of revenue obtained from government appropriations - state was 40 mean percent for bargaining institutions compared to 47 mean percent for institutions without faculty bargaining. The t-test showed the difference to be significant at the 0.05 level of confidence.

The relationship between the percentage of revenue received from local government and faculty collective bargaining was significant with bargaining institutions receiving a higher mean proportion of the revenue from local government (22 mean percent for institutions with bargaining compared to 17 mean percent for institutions without bargaining).

The distribution of the percentage of funds derived from

Table 4.2

A comparison of institutions with and without collective bargaining using percentage means, standard deviations, and t-tests on the amount of revenue as a percent of total income from four sources: tuition and fees; government appropriations - state; government appropriations - local; and grants, gifts, contracts and endowment income

Variable	Institutional Bargaining Status	Number of Institutions	Mean Percent	Standard Deviation	T Value	PROB T
Tuition and Fees	without CB	115	14.8	9.3	-2.66	0.008
	with CB	163	17.7	7.9	-2.74	0.006
State Appropriation	without CB	115	47.2	17.6	3.28	0.001
	with CB	163	40.4	15.7	3.34	0.000
Local Appropriation	without CB	115	17.1	15.0	-2.83	0.005
	with CB	163	22.4	15.6	-2.81	0.005
Grants, Gifts, Contracts and Endowments	without CB	115	9.8	11.7	1.74	0.08
	with CB	163	7.7	6.1	1.93	0.05

grants, gifts, contracts, and endowment income for institutions with faculty collective bargaining was 7 mean percent, while institutions without faculty collective bargaining had a mean of 9 percent. The t-test showed the difference to be not significant at the 0.05 level of confidence.

The distribution of the percentage of revenue obtained from tuition and fees accounted for 17 mean percent of the revenue of institutions with faculty bargaining and 14 mean percent of the revenue at institutions without faculty bargaining. A t-test on the differences between variable means showed a significant difference at the 0.05 level of confidence.

Table 4.3 shows the t-tests comparing the mean percentages and the standard deviation for the variables: E & G expenditures per FTE student, FTE student/full-time faculty ratio, and average faculty salary. The mean of E & G expenditures per FTE student for institutions with faculty collective bargaining was $1988.76 compared with a mean of $1821.13 for institutions without collective bargaining. The t-test showed the difference to be not significant at the 0.05 level of confidence.

The mean of the ratios of full-time equivalent students to full-time faculty at institutions with faculty collective bargaining was 49 to 1 while institutions without faculty collective bargaining had a mean of the ratios of 57 to 1. The

Table 4.3

A comparison of institutions with and without collective bargaining using mean percentages, standard deviations, and t-tests for the variables: E & G expenditures per FTE student, FTE student per full-time faculty ratio, and average faculty salary

Variable	Institutional Bargaining Status	Number of Institutions	Mean	Standard Deviation	T Value	PROB T
E & G expenditures / FTE Student	without CB	115	$1821.13	865.65	-1.50	0.13
	with CB	163	$1988.76	974.35	-1.47	0.14
FTE Student / Full Time Faculty	without CB	115	57.28	60.12	1.32	0.18
	with CB	163	49.36	25.8	1.49	0.13
Avg. Faculty Salary	without CB	115	$18216.37	4595.63	-2.24	0.02
	with CB	163	$19370.34	3619.79	-2.33	0.02

t-test showed the difference between the two groups of institutions to be not significant. Two hypotheses for the observed differences in these ratios are: the union has won limits on class size or non-bargaining institutions use a higher number of adjunct faculty than institutions with faculty bargaining.

Average faculty salary for institutions with collective bargaining was $19,370 while faculty without collective bargaining had a mean base salary of $18,216. The difference between the mean salaries was significant at the 0.05 level. of confidence.

Summary of Profile

Institutions with faculty collective bargaining allocated a significantly greater mean percentage of the E & G expenditures to faculty salaries and paid higher average salaries than institutions without faculty bargaining. T-tests comparing the mean percentages of three variables concerned with revenue were found to be significant at the 0.05 level. Institutions with faculty bargaining received greater mean percentages of their income from tuition and fees and governmental appropriations - local, while institutions without faculty bargaining obtained a greater mean percentage of revenue from state appropriations. Although these differences were significant, there was no control

for the possible effects of institutional size and state governance.

Findings When Institutions are Matched

To further test for differences between institutions with and without faculty collective bargaining, two control variables were introduced. The variables were state and size of the institution as measured by FTE students and total current fund revenue. A crosstabulation, using the two size criteria, FTE students and total current fund revenue, was done to classify the population. Institutions within the same cell of the cross-tabulation were then matched by state and paired according to the presence or absence of faculty collective bargaining. Forty-one pair of institutions were identified and compared on instructional expenditures, sources of revenue, E & G expenditures per FTE student, FTE student/full-time faculty ratio, and average faculty salary. T-tests comparing the mean percentages were found to be not significant at the 0.05 level of confidence. In Tables 4.4 through 4.6, the mean, standard deviation and results of t-tests for full sample and matched pairs are displayed. In all cases, the differences between the collective bargaining and non-collective bargaining were less when size and state were controlled.

Table 4.4

A comparison of the study's total population and a matched sample using mean percentages and t-tests on the variables: instructional costs per E & G expenditure and full-time faculty salary per E & G expenditure

Variable	Institutional Bargaining Status	Total Population N=278			Matched Sample N=41		
		Percentage Means	S.D.*	Prob T	Percentage Means	S.D.*	Prob T
Instructional Costs / E & G expenditures + MT	without CB	57.2	6.9	0.07	56.1	8.9	0.24
	CB	58.9	8.1	0.08	58.1	5.8	0.24
Full-Time Faculty Salary / E & G expenditures + MT	without CB	22.9	7.2	0.00	25.0	7.8	0.08
	CB	26.0	10.3	0.00	28.5	10.3	0.08

* S.D. - Standard Deviation

Table 4.5

A comparison of the study's total population and a matched sample using percentage means and t-tests on the amount of revenue as a percent of total income from four sources: tuition and fees; government appropriations - state; government appropriations - local; and grants, gifts, contracts, and endowment income

Revenue Status	Institutional Bargaining Status	Total Population N=278			Matched Sample N=41		
		Mean Percentages	S.D.*	Prob T	Mean Percentages	S.D.*	Prob T
Tuition and Fees	without CB	14.8	9.3	0.008	15.3	8.3	0.54
	CB	17.7	7.9	0.006	16.5	8.6	0.54
State Appropriation	without CB	47.2	17.6	0.001	35.9	18.8	0.64
	CB	40.4	15.7	0.000	37.6	13.3	0.64
Local Appropriation	without CB	17.1	15.0	0.005	23.1	16.3	0.46
	CB	22.4	15.6	0.005	25.6	14.5	0.46
Grants, Gifts, Contracts, and Endowments	without CB	9.8	11.7	0.08	11.4	16.2	0.19
	CB	7.7	6.1	0.05	7.8	7.1	0.18

* S.D. - Standard Deviation

Table 4.6

A comparison of institutions with and without collective bargaining using mean percentages and t-tests on the variables: E & G expenditures per FTE student, FTE student per full-time faculty, and average faculty salary

Variable	Institutional Bargaining Status	Total Population N=278			Matched Sample N=41		
		Mean	S.D.*	Prob T	Mean	S.D.*	Prob T
FTE Student / Full-Time Faculty	without CB	57:1	60.12	0.18	50:1	26.6	0.76
	CB	49:1	25.8	0.13	48:1	26.1	0.76
Average Faculty Salary	without CB	$18216	4595	0.02	$18502	$3556	0.44
	CB	$19370	3619	0.02	$19118	$3681	0.44
E & G Expenditures / FTE Students	without CB	$ 1821	865	0.13	$ 1976	$1231	0.32
	CB	$ 1988	974	0.14	$ 1751	$ 745	0.32

* S.D. - Standard Deviation

Variables as Possible Predictors

The second purpose of this study was to determine if any of the variables could serve as possible predictors of institutional involvement with faculty collective bargaining. In order to obtain some insight into the relationship between the independent variables and the dependent variable, both forward and backward stepwise regression analysis were used on both the total population and the matched sample.

When the total population was studied, both the forward and backward method had an R-square value of 13.7 (Figure 4.7). Four variables were found to have significant (0.05) F values: average faculty salary, percentage of revenue from tuition and fees, percentage of revenue from state government, and percentage of revenue from grants, gifts, contracts, and endowment income.

When the regression analysis was performed on the matched sample, the forward method entered only three of the ten variables since they were only variables that had F-statistics greater than the 0.5 required for variables to be entered into the model. Collectively, these three variables accounted for 6.5 percent of the variance between institution with and without faculty collective bargaining. The three variables were: Revenue from grants, gifts, contracts, and endowment income, percentage of E & G expenditures for full-time faculty salary, and

Table 4.7

Standardized Stepwise Regression using the backward elimination procedure for dependent variables with the total population (N=278)

All Variables Entered R Square = 0.137405 C(P) = 10.00000000

	DF	Sum of Squares	Mean Square	F	Prob F
Regression	9	9.2650	1.0294	4.74	0.0001
Error	268	58.1630	0.2170		
Total	277	67.4280			

E & G expenditures per FTE student. However, none of the variables had significant (0.05) F values.

The backward method of the stepwise regression removed all ten variables. Therefore, none of the variables were significant at the 0.10 significance level (see Table 4.8).

Table 4.8

Standardized Stepwise Regression using the backward elimination procedure for dependent variables with matched institutions (N=41)

All Variables Entered R Square = 0.078946 C(P) = 10.00000000

	DF	Sum of Squares	Mean Square	F	Prob F
Regression	9	1.6184	0.1798	0.69	0.72
Error	72	18.8815	0.2622		
Total	81	20.5000			

CHAPTER FIVE

Summary, Findings and Conclusions, and Recommendations

This chapter contains a summary of the study, including a statement of the problem, purpose of the study, and research procedures. Conclusions based on the findings of the study are also presented. Finally, recommendations for additional research are discussed.

Summary

In less than twenty years, approximately one-quarter of the institutions of higher education have chosen faculty bargaining agents to represent their interests when dealing with their employer. The majority (64 percent) of the institutions with collective bargaining are community and junior colleges. It is expected that collective bargaining will grow in the public sector but decline in the private sector as a result of the Yeshiva Decision, which found that faculty at the institution had managerial functions.

There has been considerable speculation on the growth of collective bargaining in the public sector, and in community colleges in particular, in regard to the general financial health and morale of these institutions and their faculties. However, most research in this area has been concerned with why

faculties join unions and the effect of collective bargaining on faculty salaries. However, there has been little systematic research on whether two-year colleges with bargaining differ from institutions without bargaining in terms of: instructional costs, size, tuition and fee changes, and faculty salaries. This issue is of concern as higher education enters the eighties - a decade that is predicted to be difficult because of declining or stabilized enrollments and reduced 'real' revenue.

Studies conducted in the mid-1970's (Birnbaum, 1974 and 1976; Morgan and Kearney, 1977; Brown and Stone, 1977; and Leslie and Hu, 1977) have compared salary and compensation increases between institutions with and without bargaining units and there have been significant, positive gains by some faculty unions. However, these findings have not been consistent for all higher education sectors. Birnbaum (1974, 1976) and Leslie and Hu (1977), found that faculty in two-year institutions without collective bargaining fared as well or better than their colleagues at bargaining sister institutions. Marshall (1979), Guthrie-Morse et al (1981) and Horn (1981) in later studies, found that when local cost of living adjustments are included, faculty at two-year institutions without collective bargaining units enjoyed similar or greater average salaries, much as those in bargaining institutions.

Purpose Statement

The purpose of this study was to determine if two-year colleges with faculty unions differ from two-year colleges without unions in terms of selected institutional characteristics, including certain operating ratios, drawn from the HEGIS data base. The study's objectives were:

1) what is the relationship between union and non-union colleges with respect to the percentage of education and general (E & G) expenditures allocated to instructional sources?

2) do union and non-union colleges receive different percentages of their revenue from state and local governments, tuition and fees, and grants, gifts, contracts, and endowment income?

3) do union and non-union colleges differ in the education and general expenditures per FTE student?

4) do union and non-union colleges have a different FTE student to full-time faculty ratio?

5) what is the relationship between union and non-union colleges and average full-time faculty salary?

6) can one or a group of variables serve as a possible predictor of institutional membership with faculty collective bargaining?

To answer the research questions, data were collected on the following institutional characteristics:

a. faculty salaries / E & G Expenditures + MT

b. fringe benefits / E & G Expenditures + MT

c. total E & G Expenditures + MT / FTE students

d. tuition and fee revenue / total current fund revenue

e. government appropriations: state / total current fund revenue

f. government appropriations: local / total current fund revenue

g. grants, gifts, contracts, endowment income / total current fund revenue

h. FTE enrollment / number of full-time faculty

i. full-time faculty salaries / number of faculty

j. instructional costs / E & G Expenditures + MT

k. size (FTE students)

l. state

Research Procedures

The population of public two-year colleges for this study was drawn from those states that permitted faculty collective bargaining. Institutions were excluded from this study based on the following conditions: institutions without degree granting authority, institutions without a full-time faculty, two-year campuses of a university, institutions with high standard deviations in the average faculty salary variable, institutions from states where all of the two-year institutions have faculty bargaining units, and institutions who started collective bargaining after 1976. These exclusions resulted in a final population of 278 public, two-year colleges, 163 had faculty collective bargaining units and 115 did not.

Data for this study were obtained from the Higher Education General Information Survey (HEGIS) 1979-80 tapes on Financial Statistics, Institutional Characteristics, Fall Enrollment, and Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty. Information on the presence or absence of collective bargaining, bargaining agent, and year of first contract was merged with the HEGIS data to create an operational file.

The first stage of the study was to create a profile of institutions, grouped according to the presence or absence of faculty collective bargaining. The profile consisted of five characteristics: 1) the percentage of E & G expenditures allocated to direct instruction; 2) the percent of revenue by source; 3) the E & G expenditures per FTE student; 4) the ratio of FTE students to full-time faculty; and 5) the average salary for full-time faculty.

The second stage of the study was to determine if one or a group of variables could serve as an indicator of institutional involvement with faculty collective bargaining. This process required the matching of institutions to control for size as measured by FTE enrollments and current fund revenue and the influence of state governance. A crosstabulation was used to separate institutions by the two variables dealing with size: FTE students and Total Current Fund Revenue. Institutions within the same cells were then paired on the basis of state. Eighty-

two institutions were identified and used in a stepwise regression to determine the amount of variance explained by the ten variables.

Findings

This study was an investigation of six aspects of collective bargaining in public two-year colleges. A discussion of the research questions relating to each of these aspects follows.

1. What is the relationship between union and non-union colleges with respect to the percentage of education and general (E & G) expenditures allocated to instructional sources?

Institutions with collective bargaining allocated 58.9 mean percent of their E & G expenditures to instructional costs compared to a mean percentage of 57.2 for institutions without bargaining. The difference was not significant at the 0.05 level of confidence. The mean percentage for both groups of institutions are similar to the 56 percent reported by Bowen (1981) as the median E & G expenditure for instruction.

2. Do union and non-union colleges receive different percentages of their revenue from state and local governments, tuition and fees, and grants, gifts, contracts, and endowment income?

Significant relationships were discovered in the total

population between institutions with and without faculty collective bargaining in terms of the percent of revenue received from tuition and fees, state appropriations, and local appropriations. Institutions with faculty collective bargaining obtained significantly greater percentages of their income from tuition and fees (18 percent to 15 percent), and local government (22 percent to 17 percent). Conversely, institutions without faculty bargaining obtained greater percentages of their income from state appropriations (46 percent to 39 percent).

These findings support the observations of Leslie and Hu (1976) that collective bargaining has a significant impact on student tuition and fees. The finding of a significantly greater support of non-union institutions by state government may support the claim of Marshall (1979) that the state government may be providing greater support to non-union institutions in an attempt to reduce union activity.

The lack of a significant difference between the two groups of institutions with respect to the percentage of revenues raised from grants, gifts, contracts, and endowment income also supports a similar finding of Leslie and Hu (1976). These findings fail to support the assertion of Bennett and Johnson (1979) that collective bargaining diverts resources away from the pursuit of non-traditional sources of funds in order to pay the costs associated with contract negotiations and dispute settlements.

3. Do union and non-union colleges differ in the education and general expenditures per FTE student?

Institutions with faculty unions had a mean E & G expenditures per FTE student of $1988 compared to $1821 at institutions without unions. The corresponding figures for the matched sample were $1751 at institutions with unions and $1976 at institutions without unions. In both the total population and the matched sample, the differences in average expenditures were not significant at the 0.05 level of confidence.

4. Do union and non-union colleges have a different FTE student to full-time faculty ratio?

The differences in average number of FTE students per full-time faculty members in institutions with and without faculty unions were not significant at the 0.05 level of confidence. However, the very high standard deviation in institutions without unions may indicate that the ratio failed to detect differences in staffing policies or instructional techniques. The use of adjunct faculty, instructional assistants, and paraprofessionals would result in large ranges of values for the variable. Normally faculty contracts restrict the use of such groups; that is contract language generally gives unit members priority in obtaining extra teaching assignments. Unions often make class size a priority in their bargaining which would also result in

lower average FTE student ratios. Non-union institutions had a higher standard deviation for this variable which may indicate differences in instructional strategies and/or personnel practices.

5. What is the relationship between union and non-union colleges and average full-time faculty salary?

When data for the total population are used without controlling for the effects of size (as a surrogate measure of location effects, ability to pay, and a competitive climate for employees) and state (as a surrogate measure of the above tax capacity, tax effort, and governance), it would appear that faculty at union colleges receive a significantly higher average salary than faculty at non-union colleges. However, when institutions are matched by state and size, the union colleges have a slightly higher ($616) average faculty salary which support the findings of Birnbaum, 1974 and 1976; Morgan and Kearney, 1977; and Leslie and Hu, 1977. The differences observed in average faculty salary between the general population and the matched sample add support to the conclusion of Brown and Stone (1977) and Guthrie-Morse et al (1981) that matching techniques must control for state and institutional size when comparing financial patterns between institutions.

6. Can one or a group of variables serve as a possible predictor of institutional membership with faculty collective bargaining?

The stepwise regression analysis comparing the entire population of institutions found that the variables included in the study only accounted for 13.7 percent of the variance between union and non-union colleges. When the same analysis was performed on the institution included in the matched sample the variance explained decreased to 7.8 percent. These results indicated that the variables used in this study were not predictors of institutional membership with faculty collective bargaining.

Conclusions

The results of this study lead to the following conclusions:

1. Collective bargaining does not appear to have a major effect on the following financial and operating ratios, whether or not institutional size and local are controlled.

   Instructional Costs / E & G expenditures + MT

   Grants, Gifts, Contracts, and Endowment Income / Total Current Fund Revenue

   FTE students / Full-Time Faculty

   E & G expenditures / FTE students

   There are indications that faculty bargaining might

have some effect on the following ratios:

Full-Time faculty salary / E & G expenditures + MT

Tuition and Fees / total current fund revenue

State appropriations / total current fund revenue

Local appropriations / total current fund revenue

Average faculty salary

However, this effect appears relatively weak for it disappears when institutions are matched by size and state. That the effect is weak is also confirmed by the findings that differences in the variables account respectively for 13.7 and 7.8 percent of the variance between types of institutions the total population and matched sets.

These conclusions are in general accord with previous studies using small samples and somewhat different methodologies. However, they differ from Marshall (1979) and Horn (1981) who found that average faculty salaries are higher at institutions without faculty bargaining.

2. More rigorous control or definitions of population may be necessary in studies of higher education. The standard deviations and maximum-minimum ranges on some of the variables were large, suggesting or reconfirming that institutions of higher education, including the community colleges, are extremely diverse. Community Colleges in this study differed by thousands

of FTE students in size from a low of 400 FTE to a high of 39,000 FTE. The governance system of the states differ. Organizational structures of individual colleges even within a state system vary greatly.

3. The range of variables used in the study were probably too narrow. Collective bargaining agreements often affect management's prerogative on class size and the use of adjunct professors. The findings, in particular the large differences between standard deviations of bargaining and non-bargaining institutions in respect to student-faculty ratios, would indicate that collective bargaining may be having some effect on the above.

4. The variables which were chosen could not provide any insight on the effects of union avoidance on faculty salary. However, nothing in the study contradicts Marshall's (1979) claim that failure to unionize has a positive effect on faculty salary.

5. There are indications that non-bargaining institutions are more successful in seeking outside funding. The study lends partial support to Bennett and Johnson's (1979) findings that bargaining redirects institutional funds away from other areas to pay costs associated with contract negotiations and dispute settlements. Bargaining would therefore reduce the amount of financial and personnel resources that could be committed to raising outside funds.

Recommendations

The following recommendations are based on the literature review, findings and conclusions of this study:

1) The impact of collective bargaining on community colleges should be studied using more specific variables such as total annual faculty salary rather than base salary, percentage of FTE generated by full-time faculty and adjunct faculty, and the presence or absence of class size regulations.

2) Institutions with and without collective bargaining should be compared on the basis of their interest and activities in seeking monies from grants, gifts, contracts, and endowments. Variables for such a study would include the percentage revenues generated from each source, the percentage of E & G expenditures allocated to the Development Office, staffing patterns, and the amount of funding provided to support proposal development.

3) Collegiate collective bargaining has not existed in some states for over 15 years and there have been many studies on why faculties choose union representation. However, there are some institutions in traditionally

strong pro-union states that have avoided faculty unions. Case study techniques should be used to examine how these institutions have avoided unions.

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Appendix A

Institutions Included in Study

Listing of Institutions by State Included in the Study

Institutions with a (0) following the name did not have faculty collective bargaining as of the 1979-80 academic year. Institutions with a (1) following the name had faculty collective bargaining prior to 1977.

California

Allan Hancock College	0
Antelope Valley College	0
Cabrillo College	0
Cerritos College	0
College of the Desert	0
College of the Redwoods	1
College of the Siskiyous	0
Cuesta College	0
Gavilan College	1
Hartnell College	0
Imperial Valley College	0
Lassen College	0
Mira Costa College	0
Modesto Junior College	0
Palo Verde College	1
Palomar College	0
Porterville College	0
San Bernardino Valley College	0
Santa Ana College	0
Santa Barbara City College	1
Santa Rose Junior College	0
Shasta College	1
West Valley College	0
Ohlone College	0
Columbia College	0
Saddleback Community College	1
Crafton Hills College	0
Cerro Coso Community College	0
Los Medanos College	0
Mendocino College	0
Indian Valley College	0

Lake Tahoe Community College	0
Mission College	0

Florida

Central Florida Community College	0
Daytona Beach Community College	0
Florida Junior College, Jacksonville	0
Florida Keys Community College	0
Gulf Coast Community College	0
Indian River Community College	1
Lake City Community College	0
Lake-Sumter Community College	0
Manaiez Junior College	0
Miami-Dade Community College	0
North Florida Junior College	0
Draloosa-Walton Junior College	0
Pensacola Junior College	0
Polk Community College	0
Santa Fe Community College	0
Seminole Community College	0
South Florida Junior College	0
Saint Johns River Community College	0
Saint Petersburg Junior College	0
Tallahassee Community College	0
Valencia Community College	0
Hillsborough Community College	1
Pasco-Hernando Community College	0

Illinois

Belleville Area College	1
Black Hawk College Quad-Cities	0
Prairie State College	1
Spoon River College	0
City Colleges of Chicago, Truman College	1
City Colleges of Chicago, Richard J. Daley College	1
City Colleges of Chicago, The Loop College	1
City Colleges of Chicago, Kennedy-King College	1
City Colleges of Chicago, Wright College	1
Elgin Community College	0
Highland Community College	1
Joliet Junior College	1
Kaskaskia College	0
Illinois Valley Community College	1
Morton College	1

Illinois Eastern Community College, Olwey Central College	0
Rock Valley College	0
Sauk Valley College	1
Southeastern Illinois College	0
Thornton Community College	1
Triton College	1
Illinois Eastern Community College, Wabash Valley College	0
William Rainey Harper College	1
College of Dupage	0
Waubonsee Community College	1
Parkland College	0
Rend Lake College	0
Lincoln Land Community College	0
Carl Sandburg College	1
Black Hawk College - East Campus	0
Lake Land College	1
Kishwaukee College	0
Kankakee Community College	0
McHenry County College	1
Moraine Valley Community College	1
Shawnee College	0
College of Lake County	1
John A. Logan College	1
City Colleges of Chicago, Olive-Harvey College	1
Illinois Eastern Community College, Lincoln Trail College	0
Oakton Community College	0
John Wood Community College	0
City Colleges of Chicago, City-Wide College	1
Illinois Eastern Community College, Frontier Community College	0

Iowa

Clinton Community College	1
Ellsworth Community College	0
Iowa Central Community College	1
Marchalltown Community College	0
North Iowa Area Community College	0
Muscatine Community College	1
Scott Community College	1
Kirkwood Community College	1
Northeast Iowa Technical Institute	1
Northwest Iowa Technical Institute	1
Des Moines Area Community College	0

Indian Hills Community College	1
Iowa Western Community Colleges	1
Southeastern Community College	1
Iowa Lakes Community College, South Center	1
Iowa Lakes Community College, North Center	1

Kansas

Allen County Community Junior College	0
Cowley County Community Junior College	1
Butler County Community Junior College	1
Colby Community College	1
Ft. Scott Community Junior College	1
Garden City Community Junior College	1
Highland Community Junior College	0
Hutchison Community Junior College	1
Independence Community Junior College	1
Kansas City Kansas Community Junior College	1
Labette Community College	1
Nedsho County Community Junior College	0
Barton County Community Junior College	0
Seward County Community Junior College	0
Haskell Indian Junior College	0

Maryland

Allegheny Community College	0
Community College of Baltimore	1
Catonsville Community Colleges	0
Charles County Community College	0
Essex Community College	0
Harford Community College	0
Howard Community College	0
Dundalk Community College	0
Garrett Community College	0
Wor-Wic Technical Community College	0

Michigan

Alpena Community College	1
Bay De Noc Community College	1
Charles S. Mott Community College	1
Glen Oaks Community College	1
Gogebic Community College	1
Grand Rapids Junior College	1
Henry Ford Community College	1

Jackson Community College	1
Kellogg Community College	1
Lake Michigan College	0
Lansing Community College	1
Montcalm Community College	1
Muskegon Community College	1
Northwestern Michigan College	0
Saint Clair County Community College	1
Schoolcraft College	1
Southwestern Michigan College	0
Washtenaw Community College	1
Macomb County Community College, Center Campus	1
Mid-Michigan Community College	1
Kalamazoo Valley Community College	1
Kirtland Community College	1
West Shore Community College	1
Oakland Community College	1
Macomb County Community College, South Campus	1
Wayne County Community College	1

Nebraska

Southeast Community College, Fairby-Beatrice	1
McCook Community College	1
Mid-Plains Community College	1
Nebraska Western College	0
Southeast Community College, Lincoln Campus	1
Northeast Technical Community College	0
Metropolitan Technical Community College	1
Central Technical Community College Area	1

New York

City University of New York Boro of Manhattan Community College	1
City University of New York Kingsborough Community College	1
City University of New York Queensborough Community College	1
State University of New York Agricultural and Technical College at Canton	1
State University of New York Agricultural and Technical College at Delhi	1
State University of New York Agricultural and Technical College at Farmingdale	

State University of New York Agricultural and Technical College at Morrisville	1
Adirondack Community College	1
Cayuga County Community College	1
Broome Community College	1
Corning Community College	0
Dutchess Community College	1
Fulton-Montgomery Community College	1
Hudson Valley Community College	1
Mohawk Valley Community College	1
Monro Community College	1
Nassau Community College	1
Niagara County Community College	1
Onundaga Community College	1
Orange County Community College	1
Suffolk County Community College	1
Sullivan County Community College	1
Ulster County Community College	1
Westchester Community College	1
Genesee Community College	1
Tumpkins-Cortland Community College	0
Columbia-Greene Community College	1
Community College of the Finger Lakes	1
City University of New York, Hostus Community College	1
City University of New York, La Guardia Community College	1

Ohio

Lorian County Community College	0
Sinclair Community College	0
Clark Technical College	0
Michael J. Owens Technical College	0
Columbus Technical Institute	0
Jefferson Technical College	0
Hocking Technical College	0
Muskingum Area Technical College	0
Terra Technical College	0
Northwest Technical College	1
Belmont Technical College	0
Cincinnati Technical College	0
Washington Technical College	0
Marion Technical College	0
Central Ohio Technical College	0
Edison State Community College	0

Shawnee State Community College	0
Southern State General and Technical College	0

Oregon

Blue Mountain Community College	1
Clatsop Community College	1
Lane Community College	1
Mount Hood Community College	1
Portland Community College	1
Chemeketa Community College	1
Umpqua Community College	0
Olackamas Community College	1
Rogue Community College	1

Pennsylvania

Butler County Community College	0
Community College of Philadelphia	1
Harrisburg Area Community College	0
Williamsport Area Community College	1
Community College of Allegheny County, Allegheny Campus	1
Lehigh County Community College	1
Westmoreland County Community College	1
Reading Area Community College	1

Washington

Bellevue Community College	1
Big Bend Community College	1
Centralia College	1
Clark College	1
Columbia Basin Community College	1
Everett Community College	1
Grays Harbor College	0
Green River Community College	1
Highline Community College	1
Lower Columbia College	1
Olympic College	1
Shoreline Community College	1
Skagit Valley College	1
Spokane Community College	1
Tacoma Community College	1
Walla Walla College	1
Wenatchee Valley College	1

Yakima Valley Community College	1
Fort Steilacoom Community College	1
Edmonds Community College	1
Olympic Technical Community College	1
North Seattle College	1
Seattle Community College, Central Campus	1
Seattle Community College, South Campus	1
Whatcom Community College	1

Wisconsin

Milwaukee Area Technical College	1
Madison Area Technical College	1
Lakeshore Technical Institute	1
Gateway Technical Institute at Racine	1
District One Technical Institute	1
Mid-State Technical Institute	1
North Central Technical Institute	1
Blackhawk Technical Institute	1
Gateway Technical Institute at Kenosha	1
Nicolet College Technical Institute	0
Moraine Park Technical Institute	1
Northeast Wisconsin Technical Institute	1
Fox Valley Technical Institute	1

Appendix B

HEGIS Data Lines

HEGIS Data Lines

HEGIS data used in the study was taken from the following lines on each of the HEGIS survey instruments.

Tuition and Fees	NCES Form 2300-4 6/80 Part A, Line 1
Government Appropriations: State	NCES Form 2300-4 6/80 Part A, Line 3
Government Appropriations: State	NCES Form 2300-4 6/80 Part A, Line 4
Grants, Gifts, Contracts, Endowment Income	NCES Form 2300-4 6/80 Part A, Lines 5,6,7,8,9,10,11,12,13,14
Total Current Fund Revenue	NCES Form 2300-4 6/80 Part A, Line 20
E & G Instruction	NCES Form 2300-4 6/80 Part B, Line 1
Total E & G Expenditures and MT	NCES Form 2300-4 6/80 Part B, Line 12
Faculty Salaries	NCES Form 2300-3 Pt. 1A, Row 7, Cols. 2+6 plus Part 1B, Row 14, Cols. 2+6
Fringe Benefits	NCES Form 2300-3 Pt. 1A, Row 12 Cols. 1,3,5,7,9 plus Part 3B, Row 12, Cols. 1,3,5,7,9
FTE Students	NCES Form 2300-2.3 Pt. B,I, Line 14, Cols 13+14 plus Part B,II, Line 28, Col. 15

Appendix C

Glossary of HEGIS Terms

Glossary of HEGIS Terms

The following terms and instruction are provided with the HEGIS forms to assist the respondent in completing the survey instrument.

Academic support - This category includes expenditures for the support services that are an integral part of the institution's primary missions of instruction, research, or public service. Include expenditures for libraries, museums, galleries, audio/visual services, academic computing support, ancillary support, academic administration, and personnel development, and course and curriculum development.

Auxiliary enterprises - This category includes those essentially self-supporting operations which exist to furnish a service to students, faculty, or staff, and which charge a fee that is directly related to, although not necessarily equal to, the cost of the service. Examples are residence halls, food services, college stores, and intercollegiate athletics.

Educational general mandatory transfers - Mandatory transfers from current funds are those that must be made in order to fulfill a binding legal obligation of the institution. Report mandatory debt-service provisions relating to academic and

administrative buildings, including (1) amounts set aside for debt retirement and interest, and (2) required provisions for renewal and replacements to the extent not financed from other sources.

Endowment income - Report: (1) the unrestricted income of endowment and similar funds; (2) restricted income of endowment and similar funds to the extent expended for current operating purposes; and (3) income from funds held in trust by others under irrevocable trusts. Do not include capital gains or losses. If any such gains are spent for current operations, these should be treated as transfers, not revenue.

Governmental appropriations - Governmental appropriations include all amounts received from or made available to the institution through acts of a legislative body, except grants or contracts. These funds are for meeting current operating expenses and NOT for specific projects or programs. Examples are Federal landgrant appropriations and Federal revenue sharing funds.

Governmental grants and contracts - Report revenue from governmental agencies which are for specific research projects or other types of programs. Examples are research projects, training programs, and similar activities for which amounts are received or expenditures are reimbursable under the terms of a government

grant or contract. Amount equal to direct costs incurred would be recorded as charges against current fund revenues. Related indirect costs recovered should be reported as unrestricted revenues. Do not include BEOGs.

Group life insurance - Report expenditures by the institution to support the group life insurance program.

Guaranteed disability income protection plan - Report expenditures through insurance or otherwise, for long-term disability income payments (defined as salary in excess of 6 months) and not covered in other retirement or insurance plans listed on this form. These payments are not to consist of the accumulation of unused sick-leave benefits.

Independent operations - Include all funds expended for operations that are independent of or unrelated to the primary missions of the institution, although they may indirectly contribute to the enhancement of these programs. This category is generally limited to expenditures of a major Federally Funded Research and Development Center. Do not include expenditures of operations owned and managed as investments of the Institution's endowment funds.

Instruction - Expenditures of the colleges, schools, departments and other instructional divisions of the institution and expenditures for departmental research and public service which

are not separately budgeted should be included in this classification. Include expenditures for both credit and noncredit activities. Exclude expenditures for academic administration where the primary function is administation (e.g., academic deans). This category includes the following subcategories: general academic instruction; occupational and vocational instruction; special session instruction; community education; preparatory and adult basic education; and remedial and tutorial instruction conducted by the teaching faculty for the institution's students.

Instructional faculty - For purposes of this part of the survey, the instructional faculty is defined as those members of the Instruction/Research staff who are employed on a full-time basis and whose major regular assignment is instruction, including those with released time for research. Instructional faculty on sabbatical leave should be reported at their regular salaries even though the faculty member may be receiving a reduced annuity while on leave. Replacements for those on sabbatical leave should not be reported. Faculty on leave without pay should not be reported. Full-time replacements for those on leave without pay should be reported. Chairmen of departments should be reported (if they have no other administrative title and hold a faculty rank) at their contracted faculty salary. Do not report

the salaries of: (1) faculty (such as members of religious orders) whose services are valued by bookkeeping entries rather than by full cash transactions, unless the salary is determined on the same basis as lay faculty, or (2) faculty who, as members of military organizations, are paid on a different salary scale than civilian employees.

Institutional support - Report expenditures for the day-to-day operational support of the institution, excluding expenditures for physical plant operations. Include general administrative services, executive direction and planning, legal and fiscal operations, and community relations.

Mandatory transfers for auxiliary enterprises - Report the amount transferred from current funds for mandatory debt service provisions relating to auxiliary enterprises. Examples include maintenance reserves.

Mandatory transfers for independent operations - Report the amount transferred from current funds for mandatory debt service provisions relating to independent operations.

Medical/dental plans - Report contributions to insurance plans which provide for hospital, medical, surgical, or dental care.

Operation and maintenance of plant - Report all expenditures for operations established to provide service and maintenance related to campus grounds and facilities used for educational and general

purposes. Do not include expenditures made from the institutional plant funds accounts.

Other benefits in kind with cash options - Personal benefits in kind are reported only if the faculty member has, without the imposition of conditions, the option of taking a cash payment if the person prefers to use the money in some other way. Since the objective is the measurement of income available for personal consumption, as distinct from professional purposes, benefits of a professional nature (such as convention travel, membership fees, grading assistance, faculty clubs, etc.) should not be included.

Other sources: revenue - Include all items of revenue not covered elsewhere. Examples are interest income and gains (net of losses) from investments of unrestricted current funds. Include revenues resulting from the sale and services of internal service departments to persons or agencies external to the institution (e.g., the sale of computer time).

Private gifts, grants and contracts - Private gifts and grants include revenues from private donors for which no legal consideration is involved. Private contracts include those funds for which specific goods and services must be provided to the funder as stipulation for receipt of funds. Include only those gifts, grant, and contracts that are directly related to

instruction, research, or public service. Monies received as a result of gifts, grants, or contracts from a foreign government would be reported here.

Public service expenditures - Report all funds budgeted specifically for public service and expended for activities established primarily to provide noninstructional services beneficial to groups external to the institution. Examples are seminars and projects provided to particular sectors of the community. Include expenditures for community services and cooperative extension services.

Research - This category includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. Do not report nonresearch sponsored programs (e.g., training programs).

Retirement plans (other than Social Security) - Report contributions by your institution. A vested retirement plan is defined as one in which the full amount of the contribution by the institution, state and local government, with accumulations thereon, will be made available as benefit in case of death while in service and with no forfeiture in case of resignation or dismissal from the institution.

Salary contracts - Report the salaries of faculty on either 9 month or 12 month bases. For purposes of this survey, the term 9 month salary applies to faculty who teach for two semesters, three quarters, two trimesters, two four-month sessions or the equivalent. Those faculty members teaching on any of these bases should be reported in the section of this part of the survey entitled 9 month salaries. Faculty employed for the entire year should be reported in the section of the form entitled 12 month salaries. These faculty members are usually employed for 11 months of teaching with one month of vacation. Faculty should be reported as having 9 month or 12 month salaries on the basis of the contract period, not on the basis of the number of installments in which salaries are paid.

Sales and services of auxiliary enterprises - Report here all revenues generated by the auxiliary enterprise operations of the institution. Auxiliary enterprises are managed as essentially self-supporting activities. Examples are residence halls, food services, student health services, college union, college stores, barber shops, etc.

Sales and services of educational activities - Report revenues derived from the sales of goods or services that are incidental to the conduct of instruction, research, or public service. Examples include film rentals, scientific and literary

publications, testing services, university presses, and dairy products.

Scholarships and fellowships - This category applies only to monies given in the form of outright grants and trainee stipends to individuals enrolled in formal coursework, either for credit or not. Do not report Federal Basic Educational Opportunity Grants, ROTC scholarship, or other programs where the institution is not allowed to select the recipient of the grant. Aid to students in the form of tuition or fee remissions should be included. (Exclude those remissions which are granted because of faculty or staff status. Charge these to staff benefits.) Do not report College Work Study program expenses here; report these expenses where the student served. If necessary, estimate.

Social Security taxes - If covered by Social Security, report the F.I.C.A. taxes calculated at the rate effective January 1, 1979 (6.13% of the first $22,900 (or $1,404 maximum) earned per employee).

Student services - Report funds expended for admissions, registrar activities, and 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. Examples are career guidance, counseling, financial aid administration, student

health services (except when operated as self-supporting auxiliary enterprise).

Tenure - Of the number of instructional faculty being reported at each rank, also report the number who have tenure at each of those ranks. If a position is tenured, but the person holding it has not yet earned the tenure privilege, the person should not be counted as having tenure. Furthermore, do not count tenured persons as having tenure if their salaries were not included in the total salary outlay for that academic rank. If not of the instructional faculty at a particular rank are tenured, please enter a zero in that space.

Tuition and fees - Report all tuition and fees assessed against students for current operating purposes. Include tuition and fee remissions or exemptions even though there is no intention of collecting from the student. Include here those tuitions and fees which are remitted to the State as an offset to the State appropriation. (Charges by room, board, and other services rendered by auxiliary enterprises are not reported here.)

Tuition plan - Report cash payments and the dollar value of tuition waivers and exhanges for dependents of faculty members to attend another institution or your own institution.

Unemployment compensation taxes - Report the taxes (not benefits) to be paid under this law. If the institution is self-insured,

report the estimated amount which would otherwise be paid to the State.

Workmen's Compensation-Report the taxes (not benefits) to be paid under this law. If the institution is self-insured, report the estimated amount which would otherwise be paid to the State.

Appendix D

Institutions Contacted for Information

Institutions Contacted for Information

Listing of institutions contacted to resolve conflicts in status of collective bargaining.

Institutions	Person/Office Contacted
Chaffey College, Cal.	P. Hartley, President, Faculty Union
Coastline Community College, Cal.	Dr. Decker, Dean of Instruction
Corning Community College, NY	Mr. Harter, Dean of Business Services
Fresno City College, Cal.	Dr. Ellish, Dean of Instruction
Grays Harbor, Wash.	Dr. Wyly, Dean of Instruction
Harrisburg, Pa.	Dr. Solon, Dean of Academic Affairs
Linn-Benton Community College, Ore.	Dr. Keyser, Vice President for Instruction
Napa Valley College, Cal.	Dr. Fox, Dean of Administrative Services
Nicolet College and Technical Institute, Wisc.	Dr. Steiger Dean of Instruction
Northwestern Michigan College, Mich.	Dr. Miller, President

Olympic College, Wash.	Dr. Milander, President
Spokane Community College, Wash.	Dr. McMulkin, Dean of Instruction
Treasure Valley Community College, Ore.	Mr. Haynes, Dean of Instruction
Umpqua Community College, Ore.	Mr. Plummer, Dean of Instruction
Victor Valley College, Cal.	Dr. Holten, Vice President for Instruction
West Hills College, Cal.	Dr. Sirman, Dean of Instruction
Yuba College, Cal.	Mr. Grover, Union Representative

Appendix E

Crosstabulations of Each Variable

Crosstabulation of variable one: full-time faculty salary divided by E & G expenditures + MT

		E & G Expenditures + MT			
	Frequency Percent Row Pct Col Pct	0 to 8914807	8914808 to 17262766	17262767 to 70819650	Total
full-time faculty salary	0 to 1973004	184 57.68 90.64 88.04	12 3.76 5.91 16.90	7 2.19 3.45 17.95	203 63.64
	1973005 to 4095599	22 6.90 28.57 10.53	50 15.67 64.94 70.42	5 1.57 6.49 12.82	77 24.14
	4095600 to 16621100	3 0.94 7.69 1.44	9 2.82 23.08 12.68	27 8.46 69.23 69.23	39 12.23
	TOTAL	209 64.52	71 22.26	39 12.23	319 100.00

Crosstabulation of variable two: faculty fringe benefits divided by E & G expenditures + MT

		E & G Expenditures + MT			
	Frequency Percent Row Pct Col Pct	0 to 8914807	8914808 to 17262766	17262767 to 70819650	Total
faculty fringe benefits	0 to 206784	177 55.49 73.75 84.69	41 12.85 17.08 57.75	22 6.90 9.17 56.41	240 75.24
	206785 to 644163	29 9.09 69.05 13.88	13 4.08 30.95 18.31	0 0.00 0.00 0.00	42 13.17
	644164 to 3290415	3 0.94 8.11 1.44	17 5.33 45.95 23.94	17 5.33 45.95 43.59	37 11.60
	TOTAL	209 65.52	71 22.26	39 12.23	319 100.00

Crosstabulation of variable three: E & G expenditures + MT divided by FTE students

		FTE Students			
	Frequency Percent Row Pct Col Pct	0 to 5336	5336 to 10373	10374 to 39212	Total
E & G Expenditures + MT	0 to 8914807	183 57.37 87.56 89.71	26 8.15 12.44 32.91	0 0.00 0.00 0.00	209 65.52
	8914808 to 17262766	19 5.96 26.76 9.31	44 13.79 61.97 55.70	8 2.51 11.27 22.22	71 22.26
	17262767 to 70819650	2 0.63 5.13	9 2.82 23.08	28 8.78 71.79	39 12.23
	TOTAL	204 63.95	79 24.76	36 11.29	319 100.00

Crosstabulation of variable four: Tuition and Fee Revenue divided by Total Current Fund Revenue

		Total Current Fund Revenue			
	Frequency Percent Row Pct Col Pct	0 to 9744069	9744070 to 18615622	18615623 to 76650585	Total
Tuition and Fee Revenue	0 to 1733052	187 58.62 85.00 92.12	25 7.84 11.36 32.89	8 2.51 3.64 20.00	220 68.97
	1733053 to 3890603	16 5.02 27.12 7.88	40 12.54 67.80 52.63	3 0.94 5.08 7.50	59 18.50
	3890604 to 18492258	0 0.00 0.00 0.00	11 3.45 27.50 14.47	29 9.09 72.50 72.50	40 12.54
	TOTAL	203 63.64	76 23.82	40 12.54	319 100.00

Crosstabulation of variable five: governmental appropriations: state by total current fund revenue

		Total Current Fund Revenue			
	Frequency Percent Row Pct Col Pct	0 to 9744069	9744070 to 18615622	18615623 to 76650685	Total
Government Appropriations: State	0 to 4140840	188 58.93 87.44 92.61	26 8.15 12.09 34.21	1 0.31 0.47 2.50	215 67.40
	4140841 to 8501630	15 4.70 24.59 7.39	36 11.29 59.02 47.37	10 3.13 16.39 25.00	61 19.12
	8501631 to 42757121	0 0.00 0.00 0.00	14 4.39 32.56 18.42	29 9.09 67.44 72.50	43 13.48
	TOTAL	203 63.64	76 23.82	40 12.54	319 100.00

Crosstabulation of variable six: governmental appropriations: local
by total current fund revenue

		Total Current Fund Revenue			
	Frequency Percent Row Pct Col Pct	0 to 9744069	9744070 to 18615622	18615623 to 76650685	Total
Government Appropriations: Local	0 to 2030504	174 54.55 81.69 85.71	31 9.72 14.55 40.79	8 2.51 3.76 20.00	213 66.77
	2030505 to 4780898	29 9.09 41.43 14.29	34 10.66 48.57 44.74	7 2.19 10.00 17.50	70 21.94
	4780899 to 28593056	0 0.00 0.00 0.00	11 3.45 30.56 14.47	25 7.84 69.44 62.50	36 11.29
	TOTAL	203 63.64	76 23.82	40 12.54	319 100.00

Crosstabulation of variable seven: revenue from grants, gifts, contracts and endowment by total current fund revenue

		Total Current Fund Revenue			
	Frequency Percent Row Pct Col Pct	0 to 9744069	9744070 to 18615622	18615623 to 76650685	Total
Revenue from grants, gifts, contracts and endowment	0 to 815318	170 53.29 77.63 83.74	40 12.54 18.26 52.63	9 2.82 4.11 22.50	219 68.65
	815319 to 1953896	28 8.78 41.18 13.79	28 8.78 41.18 36.84	12 3.76 17.65 30.00	68 21.32
	1953896 to 8571854	5 1.57 15.63 2.46	8 2.51 25.00 10.53	19 5.96 59.38 47.50	32 10.03
	TOTAL	203 63.64	76 23.82	40 12.54	319 100.00

Crosstabulation of variable eight: FTE students by number of full-time faculty

		Number of Full-Time Faculty				
	Frequency Percent Row Pct Col Pct	0 to 17	18 to 107	108 to 197	198 to 771	Total
FTE Students	0 to 5336	6 1.88 2.94 100.00	173 54.23 84.80 88.27	24 7.52 11.76 32.00	1 0.31 0.49 2.38	204 63.95
	5337 to 10373	0 0.00 0.00 0.00	23 7.21 29.11 11.73	41 12.85 51.90 54.67	15 4.70 18.99 35.71	79 24.76
	10374 to 39212	0 0.00 0.00 0.00	0 0.00 0.00 0.00	10 3.13 27.78 13.33	26 8.15 72.22 81.90	35 11.29
	TOTAL	6 1.88	196 61.44	75 23.51	42 13.17	319 100.00

Crosstabulation of variable nine: full-time faculty salary
by number of full-time faculty

		Number of full-time faculty				
	Frequency Percent Row Pct Col Pct	0 to 17	18 to 107	108 to 197	198 to 771	Total
Full-time faculty	0 to 1973004	6 1.88 2.96 100.00	180 56.43 88.67 91.84	11 3.45 5.42 14.67	6 1.88 2.96 14.29	203 63.64
	1973005 to 4095599	0 0.00 0.00 0.00	16 5.02 20.78 8.16	56 17.55 72.73 74.67	5 1.57 6.49 11.90	77 24.14
	4095600 to 16621100	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 2.51 20.51 10.67	31 9.72 79.49 73.81	39 12.23
	TOTAL	6 1.88	196 61.44	75 23.51	42 13.17	319 100.00

Crosstabulation of variable ten: Instructional Costs
by E & G expenditures + MT

		E & G Expenditures + MT			
	Frequency Percent Row Pct Col Pct	566848 to 8914807	8914808 to 17262766	17262767 to 70819650	Total
Instructional Costs	0 to 5105144	200 62.70 96.15 95.69	8 2.51 3.85 11.27	0 0.00 0.00 0.00	208 65.20
	5105143 to 9743296	9 2.82 13.24 4.31	56 17.55 82.35 78.87	3 0.94 4.41 7.69	68 21.32
	9743297 to 38316095	0 0.00 0.00 0.00	7 2.19 16.28 9.86	36 11.29 83.72 92.31	43 13.48
	TOTAL	209 65.52	71 22.26	39 12.23	319 100.00

Appendix F

Matched Institutions by State

Matched Institutions by State

A listing of the 41 pair of institutions used in the regression analysis. The pairs are divided by state. The first institution in the pair does not have faculty collective bargaining.

California

Cabrillo College	College of the Redwoods
Lassen College	Gavilan College
Lake Tahoe Community College	Palo Verde College
San Bernardino Valley College	Shasta College
Cerritos College	Saddleback Community College

Florida

Seminole Community College	Indian River Community College

Illinois

Black Hawk College	City College of Chicago: Harry S. Truman
Spoon River College	John A. Logan College
Elgin Community College	Waubonsee Community College
Illinois Eastern Community College: Olwey Central	City College of Chicago: Olive-Harvey
Rock Valley College	Moraine Valley Community College
Southeastern Illinois College	Highland Community College
College of Dupage	William Rainey Harper College
Parkland College	Belleville Area College
Rend Lake College	Sauk Valley College
Lincoln Land Community College	Prairie State College
Kishwaukee College	Carl Sandburg College
Kankakee Community College	Illinois Valley Community College

Illinois Eastern Community College: Lincoln Trail	Illinois Eastern Community College: Frontier
Oakton Community College	Lake Land College
John Wood Community College	McHenry County College

Iowa

Ellsworth Community College	Iowa Lakes Community College: South
Marshalltown Community College	Clinton Community College
North Iowa Area Community College	Scott Community College
Indian Hills Community College	Southeastern Community College

Kansas

Allen County Community Junior College	Labette Community College
Nedsho County Community Junior College	Cowley County Community Junior College
Barton County Community Junior College	Hutchison Community Junior College
Seward County Community Junior College	Independence Community Junior College
Haskell Indian Junior College	Garden City Community College

Maryland

Essex Community College	Community College of Baltimore

Michigan

Southwestern Michigan College	Monroe County Community College
Lake Michigan College	St. Clair County Community College
Northwestern Michigan College	Highland Park Community College

Nebraska

Nebraska Western College	Mid-Plains Community College

Ohio

Washington Technical College	Northwest Technical College
Edison State Community College	Shawnee State Community College

Oregon

Umpqua Community College	Blue Mountain Community College

Pennsylvania

Harrisburg Area Community College	Williamsport Area Community College

Washington

Grays Harbor College	Wenatchee Valley College

Wisconsin

Nicolet College Technical Institute	Blackhawk Technical Institute

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