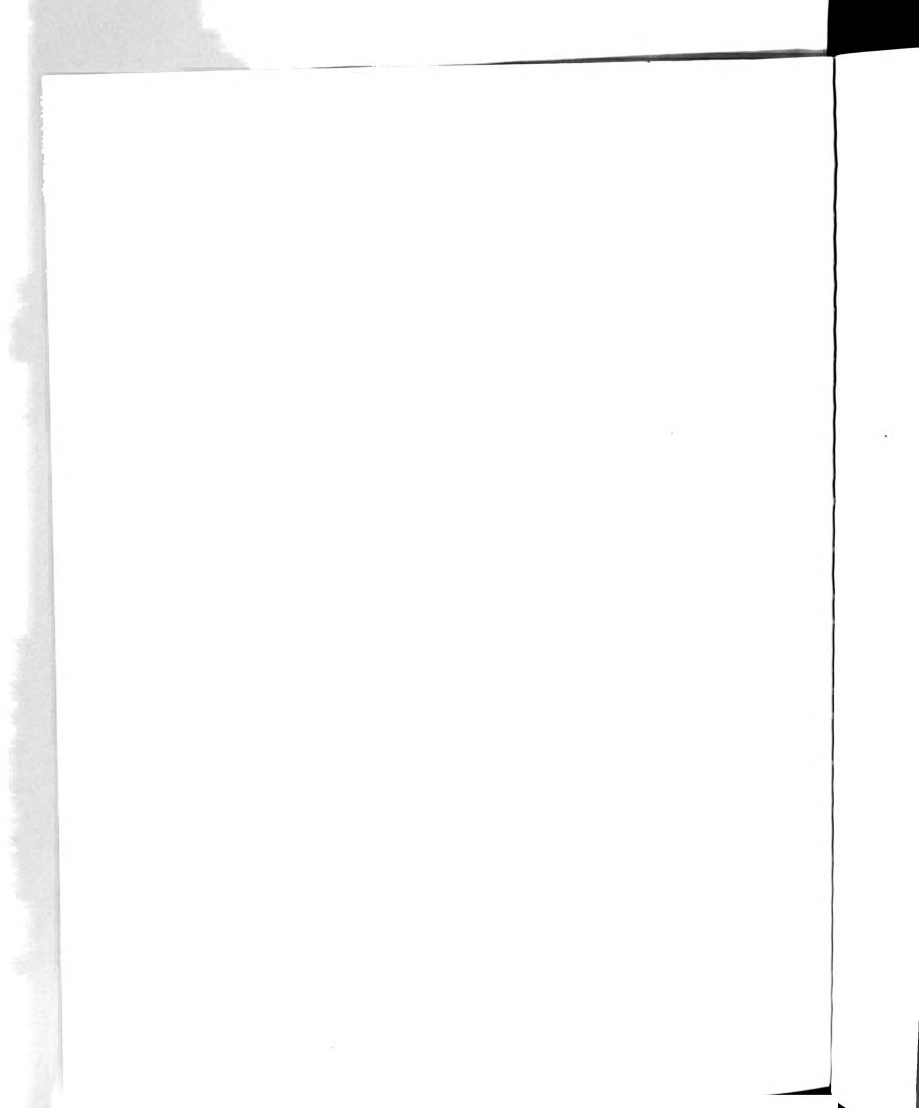


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## ABSTRACT

### AN ANALYSIS OF ACCOUNTING-TYPE ACTIVITIES PERFORMED BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS WITH IMPLICATION FOR EVALUATION OF POST-HIGH SCHOOL TERMINAL ACCOUNTING PROGRAMS

by Lawrence Mural Ozzello

The purpose of this study was to analyze accounting-type activities performed by technical accountants in order to arrive at a set of evaluative criteria related to job activities that could be employed in appraising the appropriateness of the accounting content in a terminal accounting program of a post-high school educational institution. More specifically this investigation attempted: (1) determine current and projected need for technical accountants, (2) establish a list of accounting-type activities performed by technical accountants, and (3) establish a selected criteria that could be used to assist in the evaluation of accounting content in a terminal accounting program.

#### Procedures

Data concerning the current and projected need for technical accountants were obtained by a mail questionnaire from the administrative officers of the 122 firms manufacturing durable goods in a tri-county area in Michigan. Data were also collected about the promotability of technical accountants.

An interview questionnaire of 250 accounting-type activities was developed from current textbooks and literature and reviewed by a jury

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panel of certified public accountants, accounting supervisors, and accounting instructors. Data concerning these accounting-type activities performed by technical accountants were obtained through personal interviews with ninety-nine randomly selected technical accountants classified by their superiors as: (1) employed full-time as technical accountants for which some post-high school education was now necessary but for which a baccalaureate degree was not a prerequisite; (2) having been employed as a technical accountant a minimum of one year; and (3) promotable.

An analysis was made of the responses from the interviews conducted to establish a list of accounting-type activities performed by the technical accountants in firms manufacturing durable goods. The analysis was made of the proportion of technical accountants that performed each activity and how often they were performed in total and by size of firm.

The list of accounting activities performed by technical accountants was analyzed to establish a set of criteria that could be used to assist evaluators in appraising the adequacy of accounting content in a post-high school terminal accounting program related to the durable goods manufacturing industry. Four analyses were made on the 250 accounting activities investigated to ascertain a usable cut-off point to determine which activities should be included on such an evaluative criterion list. The four analyses were: (1) proportion performing each activity, (2) rank order by performance of the

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activities, (3) frequency of performance for each activity, and (4) the universality of performance of each activity by technical accountants in all size of firm categories.

### Conclusions

The following conclusions have been drawn from an analysis of the findings as they related to: firms manufacturing durable goods in the Tri-County area, the accounting activities performed by technical accountants in those firms, and post-high school terminal accounting courses as they relate to the training of technical accountants for these firms:

1. There is an accounting position that can be identified as one in which the activities performed tend to "bridge the gap" between the bookkeeper and the accountant - technical accountant.

2. The position of technical accountant is not completely consistent. Those employed in such a capacity do not perform exactly the same set of activities.

3. There is a great enough need to warrant an educational program in the tri-county area for the training of a sizeable number of technical accountants.

4. Individuals who undertake an educational program to become a technical accountant will have, coupled with experience, sufficient training to be promotable.

5. A profile of the identifiable accounting-type activities performed by technical accountants in tri-county firms manufacturing

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durable goods is potentially useful as a guide in the determination of content for terminal accounting courses designed for initial training, in-service training, or up-grading of technical accounting employees for such firms.

6. The technical accountant performs some activities which have been considered duties of a bookkeeper as well as some of which have been considered duties of a baccalaureate degree accountant but can basically be considered as a position somewhere in between the two.

7. There appears to be an ever present need to evaluate continually the content and scope of the accounting courses in a terminal accounting program.

8. Accounting-type activities performed by technical accountants in the Tri-County firms manufacturing durable goods can be arranged into a set of criteria that could be used to assist: (1) in the evaluation of content or scope of the accounting courses in a post-high school terminal accounting program, (2) in evaluation and selection of textbooks for use in terminal accounting courses, and (3) personnel performing a guidance function with those interested in technical accounting.

9. There is a need for terminal accounting instructors to work closely with employers so they will be "on top" of actual or anticipated job market changes in the need for technical accountants and the job activities performed.

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IN FIRMS MANUFACTURING DURABLE GOODS WITH IMPLICATIONS FOR EVALUATION  
OF POST-HIGH SCHOOL TERMINAL ACCOUNTING PROGRAMS

by

Lawrence Mural Ozzello

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The writer wishes to express gratitude for the assistance so ably provided by many persons toward completion of this dissertation. A special note of sincere appreciation is extended to the chairman of his doctoral committee and director of this investigation, Dr. Peter G. Haines, who gave so generously of his time, and whose interest, assistance, and guidance were so essential in the development of the study. The writer also wishes to acknowledge the needed assistance, encouragement, and constructive criticism given for the improvement of this study by the other members of his committee, Doctors Gardner Jones, O. Donald Meaders, and Robert Poland.

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I would be remiss if I did not extend my deep appreciation to

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my parents for having started me on my way some years ago and then nurtured along the desire to complete a job once undertaken.

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## CHAPTER I

### THE PROBLEM OF THE STUDY

#### INTRODUCTION

Today, more than ever before, due to social, economic, and technical change, schools have an educational responsibility not only for the present, but also for the future. Over the years, educational institutions have been a mirror of that portion of society they serve. As society progressed slowly through a process of evolution, the schools were able to keep pace with this gradual change. Schools were able to assist in the education of an individual for the environment in which he would work and live for the rest of his life.

However, it is generally felt that with the advancing rate of technological change, schools are expected to assume a larger role in preparing individuals adequately for citizenship and more specifically, to become an economic asset in society.

Thus, if it can be assumed that a function of the school is to prepare present students so they will participate intelligently, socially, and economically in the society to which they belong, it follows that the curricula and programs must be based on this social and economic reality. There seems to be no quarrel that these reality factors, current and projected, should be considered in the planning of a school's programs.

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the teaching profession should attempt to assess the surrounding social, economic and technical conditions and that these conditions should be considered in a program of curriculum development or adjustment. Although, in such a situation, emphasis would be placed on the present, one must understand that the present is based on the past and used to picture the future. From this one could say that the basis for educational change can be found in current society, and it is the responsibility of those involved to assist in relating the contemporary society to the educational programs.

One way of determining this needed change is by investigating contemporary activities performed by individuals in the related occupational field, projecting the future, and then by translating these current and projected trends and activities into educational curricula.

### THE PROBLEM

During the past decade, and during the past five years in particular, accounting literature has devoted much of its content to two areas: (1) electronic data processing and its use in accounting, and (2) collegiate education as a prerequisite for employment in accounting.

It appears that the increased use of automated equipment and the emphasis toward a post-high school education have contributed to the shifts in the employment of accounting-type personnel. On the contemporary scene it is said that employers prefer a post-high school trained accountant to fill positions for which a high school education was formerly sufficient.

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a particular occupation is dependent upon a number of rather complex factors, including among others, one's interest, capacities, values, and certain "reality" factors. Considering the reality factors, one must view the current job market as well as the future potential of the occupational field. The individual and society cannot afford to train for occupations without a future--those that have or will be replaced in the near future due to inventions and/or automation.

The problem area of this study is shown by the paucity of accounting literature dealing with the specific education of a post-high school-trained accountant,<sup>1</sup> his accounting duties, and activities, or the occupational (job) opportunities for such a person. In view of this scarcity of established evidence it appears that post-high school terminal accounting programs<sup>2</sup> and course content have been established by referring to: (a) personal opinion or observation, (b) non-related research, and/or (c) the professional accounting programs leading to the baccalaureate degree in accounting.

Statement of the problem. The problem of this investigation was

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<sup>1</sup>Post-high school is defined as a level of education beyond high school but less than a baccalaureate degree.

<sup>2</sup>Terminal accounting program refers to those programs offered within a post-high school educational institution which could lead to direct employment as a technical accountant. These programs are also referred to as for the "employment-bound".

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to analyze accounting activities performed by technical accountants<sup>1</sup> in order to arrive at a set of criteria related to job activities that could be employed in appraising the appropriateness of a terminal accounting program in a community college or other post-high school educational institution. More specifically this investigation attempted to:

1. Determine the current and projected need for technical accountants.
2. Establish a list of accounting-type activities performed by technical accountants.
3. Determine, according to size of firm, if there are clusters of accounting-type activities performed by technical accountants.
4. Establish, from the list of accounting-type activities, selected criteria that could be used to assist in the appraising of a technical accounting program.
5. Translate the selected job activity data, performed by the technical accountant, into a set of evaluative criteria that an institution could employ to assist in appraising its post-high school terminal accounting program.

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<sup>1</sup>A technical accountant was referred to as one who performs accounting-type activities for which training in accounting beyond high school is a requisite, but for which a baccalaureate degree in accounting is not a basic prerequisite for employment. The activities were those usually included in the accounting cycle that deal with computing, recording, summarizing, classifying, and reporting accounting information such as: computing costs, payroll, etc.; recording information in ledgers and books of original entry; analyzing accounts such as receivables, payables, cost, etc.; classifying information for easy retrieval; and making such financial statements as the balance sheet, income statement, schedules, division of capital, funds statement, etc.

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Purposes of the Study. The primary purpose of the study was to analyze specific accounting activities that in turn could be used in the appraisal or evaluation of post-high school accounting programs. Closely related to this main purpose of the study were the following secondary objectives:

1. Ascertaining whether the current and projected need for technical accountants could warrant the establishment and maintenance of post-high school terminal accounting programs.
2. Obtaining of employment and job analysis data that could be employed by counseling, guidance, or educational personnel in the advising of individuals regarding the technical accounting area.
3. Establishing of a list of accounting activities performed by accounting technicians that accounting instructors could use (a) as a guide to evaluate the content or scope of their instruction and (b) to initiate in-service or retraining programs for technical accounting at the post-high school level.

#### ASSUMPTIONS

This entire study rests on the following set of assumptions:

- A. That there exist employees who are engaged in accounting-type activities for which a professional degree is not a basic requirement.
- B. That there exists a need for technically trained accountants and that this need can be projected to continue in the future.
- C. That the accounting-type activities performed by these technical accountants are identifiable.
- D. That there will be a cluster of activities performed by technical accountants according to the size of

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- E. That the clusters of accounting activities performed by technical accountants will form a base that can be translated into an arrangement that could be used to assist in appraising the appropriateness of the accounting portion of a post-high school terminal accounting program.

#### NEED FOR THE STUDY

The current explosion of knowledge in the technological areas appears to create a dilemma for business and educational institutions. Mead portrayed this situation well when she said, "No one will live in the world into which he was born, and no one will die in the world in which he worked in maturity."<sup>1</sup> On the other hand, failure to recognize societal changes would prevent the curriculum in today's schools from being alive--one in which up-to-date skills, ideas, and standards are emphasized. Ignoring the technological changes in society would only result in the preparation of students for a world that no longer exists. Therefore, educational programs need to consider not only the current rate of technological change but the process by which individuals can adjust to the changing world.

When educators consider this increasing complexity of manufacturing materials, processes, products, and the rapid expansion in the use of

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<sup>1</sup>Margaret Mead, "Thinking Ahead: Why is Education Obsolete?" Harvard Business Review, 36; November-December, 1958, p. 34.

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electronic data processing for accounting functions, there appears to be a growing recognition of and an emphasis on the need for trained accountants with a relatively high level of technical knowledge and skill in application. While those persons currently employed in technical accounting positions have acquired their knowledge and skills in many ways, there appears to be a need to provide adequate technical training at the post-high school, non-baccalaureate degree, level.

The basic need for this study developed out of the consideration given to the following items regarding terminal accounting programs in post-high school educational institutions.

1. There is no large-scale study showing the job possibilities in accounting for the graduate of a post-high school terminal accounting curriculum.
2. Previous studies have not concerned themselves with the post-high school terminal accounting program.
3. Post-high school terminal accounting programs need to be adapted to the job market.
4. Community college accounting curricula are not always geared toward the terminal student desiring employment upon the completion of the program.
5. There is an apparent need for the development of programs for training post-high school, non-baccalaureate degree, technical accountants.
6. Current employers tend to prefer workers who enter the labor market to be older and to possess a great degree of occupational preparation in their specific field.
7. Educational instructors and leaders, prospective students, and the general public need to be alerted to current information about accounting functions and activities that could be performed by prospective graduates of a two-year post-high school educational institution.

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## LIMITATIONS OF THE PROBLEM

The study was limited in the following ways:

1. Limitations as to Programs. This study dealt with the development of a list of accounting-type activities that could be used to assist in the appraising of a terminal accounting program at the post-high school level. It does not include the study of what knowledges, skills, and aptitudes are needed to perform these activities.
2. Limitations as to Scope. This study was concerned with those accounting activities for which the following was appropos:
  - (a) The employee was full-time and his primary function was that of performing accounting-type activities.
  - (b) The employee was in a position for which the employer would consider post-high school, non-baccalaureate degree, accounting education sufficient for initial employment.
  - (c) The employee was in a position from which the employer would consider promotion or advancement possible.
3. Limitations as to Area. This study was concerned with three Michigan counties, Clinton, Eaton, and Ingham, (tri-county area) as the primary service area of two post-high school institutions.
4. Limitations as to Industry. Inasmuch as a sizeable portion (29%) of the employed population in this tri-county area was working in concerns manufacturing durable goods, this study was concerned with the

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#### DEFINITION OF TERMS

Accountancy-Oriented Employees. Refers to all those doing accounting-type activities as their full-time employment in the Tri-County area and includes all accountants, technical accountants, and bookkeepers.

Accounting Activity. "An activity is a project or program, a subproject or subprogram, or any convenient division thereof to which authority is delegated. An activity is the lowest practicable coincident level of a function."<sup>2</sup>

Accounting Technician. Used interchangeably with "technical accountant." (See technical accountant)

Accounting-type Activities. Refers to those normal accounting duties required to complete the established accounting cycle and its related functions. It does not include such tasks as: answering the telephone, filing data, running errands, attending meetings, human relations, and so forth, that technical accountants may at times perform.

Bookkeeper. "One who does all the bookkeeping of an enterprise, or whose work is specialized, such as one who maintains the general ledger or works on accounts receivable. A bookkeeper may also be an accountant if, in addition, he prepares or supervises the preparation

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<sup>1</sup>Retail, service, governmental, and non-durable manufacturing firms should also be surveyed, but this does not fall within the scope of this study.

<sup>2</sup>Eric L. Kohler, A Dictionary for Accountants, (third edition, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963), p. 23.

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of financial statements from the accounts, designs the systems employed, or supervises the recording of transactions."<sup>1</sup>

Community College. "An educational institution offering instruction for persons beyond the age of the normal secondary school pupil, in a program geared to the needs and interests of the local level...."<sup>2</sup> It is further defined as a "post-high school educational institution offering a two-year program either of a terminal nature or as a preparation for further training in a college or university."<sup>3</sup>

Durable Goods. These goods and materials that are somewhat permanent in structure and depreciate over a period of years. They are primarily metal and wood products. They do not include fabrics or chemical substances.

Executive Level. Refers to positions that make policy and policy decisions for a firm such as president, vice-president, treasurer, executive secretary of the firm, etc.

First-Line Supervision. Refers to the first position of responsibility where responsibility for activities of others is experienced, such as assistant supervisor, accounts receivable supervisor, etc.

Function. "Conceived as a collection of activities having related purposes."<sup>4</sup>

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<sup>1</sup>Ibid., p. 70.

<sup>2</sup>Carter V. Good, (ed.) Dictionary of Education, (second edition, New York: McGraw-Hill Book Company, Inc., 1959), p. 108.

<sup>3</sup>Ibid., p. 305.

<sup>4</sup>Kehler, op. cit., p. 228.

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Generally Trained Accountant. Refers to a post-high school technical accounting training program applicable to all industries.

Job Analysis. "A detailed listing of duties, operations, and skills necessary to perform a clearly defined, specific job, organized into a logical sequence which may be used for teaching, employment, or classification purposes."<sup>1</sup>

Management Level. Refers to those positions that assist in the planning and organizing of the over-all work load such as assistant controllers, controllers, etc.

Occupational Information. "Systematically organized data about the nature of work, duties, responsibilities, and compensations involved, including information about employment outlook, promotional opportunities and entrance requirements with the purpose of helping persons make a vocational choice."<sup>2</sup>

Post-High School. A level of education beyond high school but less than a baccalaureate degree.

Professional Accountant. One who has as a basic requisite a baccalaureate degree in accounting or business administration with a major in accounting. In some cases, he may have a Certified Public Accountant certificate. In his daily activities he may record, classify, summarize, and report information, but may also interpret data, prepare budgets, audit books, act as a financial adviser, prepare tax information

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<sup>1</sup>Gilbert G. Weaver (chairman), Definition of Terms in Vocational and Practical Arts Education, (American Vocational Association, 1954), p. 16.

<sup>2</sup>Ibid., p. 17.

reports, design accounting systems, perform analyses of costs, make economic analyses, and other more complex activities.

Second-Line Supervision. Refers to the position where there is responsibility for a unit of work such as accounting supervisor, office supervisor, etc.

Size of Firm. Refers to the total number of employees on the payroll.

Specially Trained Accountant. Refers to a post-high school technical accounting training program for a specific industry.

Technical Accountant. (Same as Accounting Technician) One who performs accounting-type activities for which training in accounting beyond high school is a requisite, but for which a baccalaureate degree in accounting is not a prerequisite for employment. The activities were those usually included in the accounting cycle that dealt with computing, recording, summarizing, classifying, and reporting accounting information such as: computing costs, payroll, etc.; recording information in ledgers and books of original entry; analyzing accounts such as receivables, payables, cost, etc.; classifying information for easy retrieval; and making such financial statements as the balance sheet, income statement, schedules, division of capital, funds statement, etc.

Terminal Accounting Curricula. Refers to the program or programs offered within a post-high school educational institution which could lead to direct employment as a technical accountant. These are also referred to as for the "employment bound" students.

Terminal Accounting Programs. Used interchangeably with "Terminal Accounting Curricula." (See "Terminal Accounting Curricula")



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Terminal Training. Refers to the accounting education required or desired prior to the obtaining of a position as an accountant or accounting technician. It in no way implies that the learning or education is complete.

Tri-County Area. Refers to three counties in Michigan (Clinton, Eaton, and Ingham) that are the primary service areas of the Lansing post-high school educational institutions.

Vocational Guidance. "The process of assisting individuals to understand their capabilities and interests and to choose a suitable vocation."<sup>1</sup>

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<sup>1</sup>Ibid., p. 14.

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## CHAPTER II

### REVIEW OF RELATED LITERATURE

Studies and literature relating directly to the job activities performed by technical accountants or the training of these technical accountants in post-high school terminal accounting programs were virtually non-existent. Therefore, when one considers this void in the literature about technical accountants it becomes necessary to survey literature of related areas in an attempt to show the interrelationship between, (1) the role of a community college or other post-high school educational institution, (2) the developing of terminal curricula, and (3) the selected bookkeeping and accounting studies and literature as they relate to the understanding and training of technical accountants.

#### The Role of the Community College

The role or purpose of the community college as it relates to the development of terminal programs, vocational education, has been rather firmly established on paper if not always in practice.

In The Public Junior College, the yearbook committee states the objectives of a community college as a post-high school education institution as being:

Valid purposes of the public junior college can emerge only from the characteristics of society and the needs of individuals . . . . In the light of the foregoing considerations, the four major purposes of the public junior college can be identified as (a) preparation for advanced study, (b) vocational education, (c) general education, and (d) community service. Although these objectives are widely

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recognized and generally accepted, it is clear that each college has a responsibility for determining its own specific objectives.<sup>1</sup>

These objectives were further supported by Martorana in his analysis of the Michigan community colleges' stated objectives in 1957 when he wrote that Michigan community colleges agree strongly on three purposes:

- (1) the provision of courses for students who plan to go on to further collegiate study and a baccalaureate degree;
- (2) the offering of courses of a terminal occupational nature for persons seeking employment in business, industry, and some other fields immediately after leaving the community colleges; and
- (3) the provision of a broad and flexible program of continuing and adult education for out of school youth and adults in the community.<sup>2</sup>

The report also recognized the community college movement as the best potential source for occupational education.

Peterson described the multipurpose role of California junior colleges with the following statement, "To offer instruction leading to transfer to senior college; offer instruction in vocational-technical fields leading to employment; and to provide a program of general or liberal arts courses."<sup>3</sup>

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<sup>1</sup>Henry Nelson (ed.), The Public Junior College, The Fifty-fifth Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1956), pp. 68-69.

<sup>2</sup>Sebastian V. Martorana, The Community College in Michigan, Staff Study No. 1 (Lansing, Michigan: Michigan Legislative Study Committee on Higher Education, 1957), p. 61.

<sup>3</sup>B. H. Peterson, "The Role of the Junior College in California," California Education, Volume I, Number 2 (October, 1963), p. 3.

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Kimball synthesized the commonly accepted community college objectives as:

1. To provide a program of general education for all students enrolled.
2. To provide college parallel and transfer courses in the general areas of pre-professional courses and in the liberal arts.
3. To provide technical programs which are terminal with the community college and which will equip the student with job skills upon completion of the course of study in the community college.
4. To provide adult education and community service programs.
5. To provide a full program of guidance services.<sup>1</sup>

#### The Base for Developing Terminal Curricula

It has been said many times that educational curricula or programs should be a mirror of that portion of society which they serve. If one can conclude from the previous statements regarding the role of the community college that one of the multipurposes of this institution is to assist in the guidance and training of individuals with an immediate vocational goal through terminal programs, the institution should then offer such programs. These terminal or technical programs should then mimic the purposes of the interested parties: (1) the student, (2) the institution, and (3) the world of work.

Larsen considered the student aspect in this statement, "The occupational curricula must be "geared" to meet the needs of the

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<sup>1</sup>John Robert Kimball, "Analysis of Institutional Objectives in Michigan Community Colleges" (unpublished Ed.D. dissertation, Michigan State University, East Lansing, 1960), p. 7.



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prospective employees as to scope and level of course offering. Need rather than status should be the criteria applied in the selection of courses and content of courses."<sup>1</sup>

Summerer stresses both the student and the institutional aspects when he stated:

The development of educational programs which would meet the needs of students in the area served by each community college has been of vital concern since the beginning of the community college movement. The interest in appropriate educational programs has indicated the development of vocational education courses designed for the student who will terminate his formal education at the community college level.<sup>2</sup>

Ward probably best analyzed the viewpoints of the three interested parties with this statement, "The junior college program must be built upon a careful analysis of the needs of the community with constant reappraisal of the occupational trends."<sup>3</sup>

The needs of the community were stressed in a different manner along with a word of caution by Elecker, Plummer, and Richardson when they wrote:

The community college must remain fluid in its educational objectives, programs, and administrative organization in order to respond effectively to new conditions and demands as they arise. This does not mean that the college must be a pot pourri of responses

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<sup>1</sup>Milton E. Larsen, "A Study of the Characteristics of Students, Teachers, and the Curriculum of Industrial-Technical Education in the Public Community Junior Colleges of Michigan" (unpublished Ph.D. dissertation, Michigan State University, East Lansing, 1965), p. 1.

<sup>2</sup>Kenneth Summerer, "A Study of Social Status and Selected Factors Represented by Entering Freshmen and Students Completing Two Years of College Work at Flint Community Junior College" (unpublished Ed.D. dissertation, Michigan State University, East Lansing, 1965), pp. 29-30.

<sup>3</sup>Phoebe Ward, Terminal Education in the Junior College (New York: Harper & Brothers Publishers, 1947), pp. 6-7.

to real or imagined needs; there must be reason and logic behind changes and additions to college programs lest the stability and integrity of the institution be eroded.<sup>1</sup>

The over-all philosophy of the community college was eloquently phrased when Thorton stated, "The community college philosophy sees the college as a creation and servant of mankind, responsible to the will of its creator, ready to adapt to changing educational needs with appropriate educational opportunities."<sup>2</sup> He elaborated on this viewpoint with, "The junior college may, and is likely to develop a different type of curriculum suited to the larger and ever-changing civic, social, religious, and vocational needs of the entire community in which the college is located."<sup>3</sup>

In summary, it has been stated that the entire service community for an educational institution should be the base for determining the purposes, the objectives, and the programs of such a post-high school educational institution.

#### Literature Related to the Improvement of Bookkeeping and Accounting Programs

Along other necessary requirements prior to the establishment of

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<sup>1</sup>Clyde E. Blocker, Robert H. Plummer, and Richard G. Richardson, Jr., The Two-Year College: A Social Synthesis (Englewood Cliffs: Prentice-Hall, Inc., 1965), p. 69.

<sup>2</sup>James W. Thornton, Jr., The Community Junior College (New York: John Wiley and Sons, Inc., 1960), p. 34.

<sup>3</sup>Ibid., p. 51.

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a vocational education program, and more specifically a terminal accounting program for a post-high school educational institution, one must consider the activities performed by those currently in such positions. It is understood that the future cannot be predicted by "what has been" or "what is" performed by employees in a specific job classification. However, until something better is devised, the studying of past trends along with current performances gives a more accurate insight into the future than no facts at all. Devine in his summary of 185 research reports and 478 non-research articles written about bookkeeping and accounting during the 1950's found that:

The research indicated that improvement in teaching in this area could be accomplished if more were known about the jobs, the requirements for employment, and the current records and practices in use in the businesses. This would also be helpful to both the curriculum planners and the bookkeeping and accounting instructors in improving the bookkeeping and accounting courses.<sup>1</sup>

These employment characteristics could provide a basis for the deletion of obsolete materials and procedures or the addition or updating of various current materials and procedures.

Technical accounting recognition. There is a paucity of literature relating directly to a technical accountant or to a two year post-high school program for the training of accountants. However, there are many articles and research reports relating to the content that should be included in high school bookkeeping and a lesser number in reference to

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<sup>1</sup>John W. Devine, "A Comprehensive Analysis, Classification, and Synthesis of Research Findings and Thought on the Teaching of Bookkeeping and Accounting 1950-61" (unpublished Ph.D. dissertation, Indiana University, Bloomington, 1962, Vol. I and II), p. 112.

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the degree accounting program. Most reports tended to imply that there are two levels of educational training for those involved in maintaining and interpreting company records.

Devine alluded to the two levels of training for those entering the "bookkeeping-accounting" job area when he stated, "At least a high school education was desirable for bookkeeping applicants, and a college education or a certified public accountants certificate was desirable for applicants for accounting positions."<sup>1</sup>

The Dictionary of Occupational Titles<sup>2</sup> lists 17 positions related to bookkeeping and accounting for which either a high school diploma or a college degree is the basic educational requisite. Devine<sup>3</sup> also found that the terms "bookkeeper" or "accountant" were interchangeable and sometimes used when referring to a category of positions rather than to a specific job title.

However, there now appears to be a gradual shift in the trend toward the acceptance of post-high school, less than baccalaureate degree, training programs for accountants or bookkeepers for some types of employment. Lynn in giving the 1964 AICPA's opinion regarding educational requirements for accountants did indicate an awareness of a two year post-high school training for technical accountants when he stated:

Thus if you do not intend to continue your formal education beyond junior college, it would be appropriate

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<sup>1</sup>Ibid., p. 123.

<sup>2</sup>U. S. Department of Labor, Dictionary of Occupational Titles: Definitions of Titles, Third edition, Volume I, 1965 (Washington: Government Printing Office, 1965).

<sup>3</sup>Devine, op. cit., p. 114.

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to take as many accounting and business administration courses as are necessary to prepare you for your immediate vocational plans after graduation.<sup>1</sup>

In 1965 the Honorable John H. Dent went one step further when he gave a "blanket" approval of post-high school terminal programs by stating:

Far too long, in my opinion, has the bulk of the educational community refused to consider the problem of the vocationally oriented post-high school education. The nation needs the skills and services of the many who can contribute to our national growth by specialized vocational education of one and two years at the post-high school level.<sup>2</sup>

Representative Dent further recognized the value of post-high school training when he wrote about the new civil service requirements:

The federal government has taken another constructive step forward through the continuing programs of the United States Civil Service Commission to place greater emphasis on the recruitment of high quality applicants for jobs in the federal service.

The qualification standards for accounting clerk, supervisory accounting clerk, and accounting technician have been realistically revised so that educational substitutions of two years of post-high school education are fully substitutable for the GS-4 grade. In Transmittal Sheet No. 85, dated October, 1964, for inclusion in Civil Service Handbook X-118 the Civil Service Commission said (underline added)

1. The qualification standards for Clerk GS-4/6 (in the GS-300 Group) and Accounting Clerk and Supervisory Accounting Clerk GS-4/6 (in the GS-500 Group) are reissued. (The educational substitutions have been revised so that 2 years of post-high school education is fully substitutable for GS-4. This will facilitate recruitment of graduates of junior colleges and commercial schools. The length of experience required tables have also been revised to avoid

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<sup>1</sup>Edward S. Lynn, "Education and Professional Training", Journal of Accountancy, Volume 117 (June, 1964), p. 81.

<sup>2</sup>Honorable John H. Dent, "New U. S. Civil Service Standards for Accounting Technicians", The Balance Sheet (May, 1965), p. 398.

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simultaneous increments in both the general and specialized experience.)

2. The qualification standard for the Accounting Technician Series, GS-525, is reissued. (The educational substitutions have been revised so that 2 years of post-high school education that includes bookkeeping or accounting courses is fully substitutable for GS-4. This will facilitate recruitment of graduates of junior colleges and business and commercial schools.<sup>1</sup>

Research studies. Stoner interviewed 130 retail business owners having less than eleven employees to determine various types of information which might be useful in organizing a training program in retail accounting. The findings relating to accounting procedure and thus relevant to this study were:

1. Eighty-eight per cent of the businessmen were satisfied with their present accounting system even though it often was not rated highly according to the criteria.
2. Approximately one half of the businessmen who were dissatisfied with their present accounting systems wanted to add details which would give them information necessary to exercise better financial control over their businesses.
3. Not one of the five essential or the five desirable practices regarding the handling of cash was followed by all of the businesses.
4. Most of the retail businesses did not follow the desirable practice of keeping formal records of their accounts payable nor did they use a system for keeping records of purchase terms in order that cash discounts could be taken promptly.
5. "Essential" and "desirable" practices regarding sales, accounts receivable, and extending credit to new customers varied greatly and were not followed completely or consistently by the businesses.

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<sup>1</sup>Ibid.

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6. Although two thirds of the stores did not prepare financial budgets, the responsibility for most of those which were prepared was assumed by the proprietors or managers.
7. The responsibility for the preparation of comparative financial statements was evenly divided among the businessmen, their employees, and outside accounting services. No person was assigned this responsibility in slightly more than one half of the stores.
8. Many routine clerical accounting activities were being performed by the proprietors or managers.<sup>1</sup>

Stoner recommended that a training program in retail accounting developed from the findings of this study should be considered for implementation into the accounting program of the University of Pittsburgh.

Although Stoner's study does not closely parallel this one, he does attempt to solve a problem of surveying the need and using the results to establish a specific training program.

In 1957 Lees<sup>2</sup> analyzed accounting knowledges and skills needed by electrical engineers in Rhode Island as determined by personal interviews with forty of the fifty-four total sample. He found that an understanding by electrical engineers was necessary for the following accounting activities:

|                    |                      |
|--------------------|----------------------|
| Taxes              | Fixed Assets         |
| Accounts Payable   | Voucher System       |
| Expense Records    | Accounts Receivable  |
| Cost Control       | Payroll              |
| Short-Term Budgets | Inventory Evaluation |

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<sup>1</sup>James Kermit Stoner, "An Analysis of the Accounting Systems and Practices of Small, Independent Retail Businesses" (unpublished Ed.D. dissertation, The University of Pittsburgh, Pittsburgh, 1953), pp. 1-42.

<sup>2</sup>George Lees, "An Analysis of Accounting Skills and Knowledges Used by Selected Experienced Electrical Engineers in Rhode Island" (unpublished Ph.D. dissertation, University of Connecticut, Storrs, 1957).

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Lees<sup>1</sup> study was also related to this one by method of approach - the interviewing of individuals involved to assess need for possible implementation in a specific curriculum.

Ernst analyzed accounting systems of 108 selected business firms of Alva, Oklahoma with a purpose of attempting to improve accounting instruction. Data were obtained by interviews with those responsible for the accounting functions. Those findings relative to the writer's problem of surveying a local need in order to improve accounting instruction were:

1. The general journal used extensively in the textbooks was not used in many of the businesses. About one third of the businesses used sales journals; one fourth, purchases journals; and one third, general ledgers. Accounts receivable ledgers were very often a file of sales tickets and the accounts payable ledgers were the unpaid purchase invoices.
2. Twenty-one businesses maintained a perpetual inventory. The remainder of the businesses in which inventories were taken was by physical count once a year at the original cost value.
3. The standard closing procedure presented in the textbooks was used in only 27 businesses. The remainder added the columns of the special journals and posted weekly or monthly to determine income and expense.
4. Seventy-two of the businesses made volume comparisons with the preceding year. Fifteen computed per cent of net profit for the year, and twenty-seven computed costs such as cost per unit.
5. One third of the people interviewed felt that formal preparation in accounting was not essential in order to perform the accounting work in their businesses; one third, that it was not essential but helpful; and one third, that it was essential. Those reporting

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<sup>1</sup>Ibid.

that accounting preparation was not essential had less accounting training than did the other two groups.

6. Over two thirds felt that a thorough understanding of bookkeeping and accounting constituted essential preparation for accounting positions.<sup>1</sup>

Recommendations presented for improving instruction were:

1. Accounting teachers should use instructional materials that illustrate suitable records for small business and be aware of current practices in the surrounding businesses.
2. Single-entry methods should be introduced in elementary accounting.
3. Teachers should supplement the textbooks' business forms.
4. The combined cash journal should be emphasized for small businesses.
5. More time should be devoted to the study of the cash basis.
6. Various methods for closing the books should be presented.

Templeton<sup>2</sup> and Bennett<sup>3</sup> investigated requirements, characteristics, and duties performed by accountants but the details of their studies were not included here because information about job activities was obtained from management and not directly from those actually performing the activities.

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<sup>1</sup>Wilma Alice Ernst, "An Analysis of Accounting Systems and Practices with Implications for Improvement of Instruction in Accounting" (unpublished Ph.D. dissertation, Graduate College, University of Oklahoma, Norman, 1959).

<sup>2</sup>Logan Templeton, Jr., "Analysis of the Duties, Educational and Personal Requirements of Junior Accountants in Austin and Houston, Texas" (unpublished Master's thesis, Graduate School, The University of Texas, Austin, 1955).

<sup>3</sup>Leonard Eugene Bennett, "A Survey of the Educational and Personal Characteristics Required for Initial Employment of Accountants in a Selected Group of Iowa Industries" (unpublished Master's thesis, Iowa State Teachers College, Cedar Falls, 1958).



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In 1955 Moran<sup>1</sup> surveyed the activities of bookkeepers and compared them with content in the bookkeeping courses taught in the metropolitan area of Pittsburgh, Pennsylvania. Her basic purpose was to make recommendations for improving the bookkeeping instruction at the high school level. The major finding and conclusion was that it was difficult for graduates of a high school bookkeeping course to apply the obtained knowledges on the job. Employers felt the materials and content covered in the bookkeeping course were somewhat impractical and that bookkeeping should be made more realistic. Moran's study was included in this review because her purposes and some of the procedures followed were similar to this study. However, she did obtain the information from the bookkeepers by questionnaire as opposed to interviews.

#### Integrated Data Processing and Accounting

Although the implications of electronic data processing as it relates to the present and future status of accounting positions were not part of this study, it would be remiss not to include some research relative to this technological change. It has been said that data processing does not replace skilled or semi-professional employees but may relieve some unskilled workers from menial tasks so they can be used to perform more pressing functions.

Edwards found this to be true in his study when he interviewed the machine accounting personnel in forty-two companies to study the

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<sup>1</sup>Sister M. Saint Agnes Moran, "A Survey of Bookkeeping Employment to Improve Bookkeeping Instructional Materials and Equipment" (unpublished Ed.D. dissertation, New York University, New York, 1955).

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effect of automation on accounting jobs. The findings related to this study were:

1. While fewer employees were needed to perform the processing of accounting data by machine than by manual methods, there were no indications of any reductions in the total number of employees as a result of automated data processing equipment.
2. The utilization of the machines was generally for billing, inventory control, and payroll with new functions being added from time to time as necessary.
3. The advantages of the machine accounting units were: facilitation of increased business volume, reduction and simplification of extensive clerical detail, and provision of information which was not available by manual methods.
4. The study of accounting and mathematics was essential for supervisors and machine operators. Typewriting skill was required of key-punch operators.<sup>1</sup>

In addition to concluding that automation did not replace accountants, Edwards stated that due to the advantages of machine accounting, it will be used more and more extensively and have an increasing influence on the teaching of accounting. He further recommended that the study be utilized in improving the instruction in bookkeeping and accounting at the high school and college levels.

Niemi<sup>2</sup> from his findings also made similar recommendations for the inclusion of electronic data processing courses in the business curriculum.

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<sup>1</sup>Melvin Lloyd Edwards, "The Effect of Automation on Accounting Jobs" (unpublished Ph.D. dissertation, Graduate College, University of Oklahoma, Norman, 1959).

<sup>2</sup>Lee Niemi, "Electronic Data Processing and Its Implications for the Collegiate Business Curriculum" (unpublished Ph.D. dissertation, The Ohio State University, Columbus, 1959).

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Sweatt<sup>1</sup> made a comparison of manual and mechanized procedures in selected accounting areas by comparing material from eight accounting textbooks with data on similar topics obtained from interviews with personnel in twenty-five Indiana businesses successfully using mechanized accounting procedures. In his conclusions for accounting instruction Sweatt stated that data processing concepts are an integral part of accounting procedures in mechanized installations. Therefore, he stated that accounting students needed both an understanding of integrated data processing with its related concepts and general accounting concepts which are currently taught.

#### Summary

The literature indicated that one of the accepted purposes of a community college was to provide terminal courses and programs designed to equip those seeking employment with adequate skills for the job market. It was further implied that terminal courses and programs should be designed by considering the purposes and needs of the interested parties; the student, the institution, and the world of work.

Although there appeared to be a paucity of literature directly related to the vocational education of technical accountants at the community college level, various writers have indirectly alluded to this possible need in articles and studies relating to the training of bookkeepers and accountants in high school or baccalaureate degree courses and programs respectively.

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<sup>1</sup>Basil O. Sweatt, "Concept Changes Related to the Mechanization of Accounting Procedures" (unpublished Ed.D. dissertation, Indiana University, Bloomington, 1962).

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## CHAPTER III

### RESEARCH PROCEDURE AND METHODOLOGY

The study was conceptualized as containing four tasks. They were:

1. Surveying the durable goods manufacturing industry's current and projected need for technical accountants.
2. Conducting interviews with technical accountants to identify their accounting-type job activities.
3. Analyzing interview responses to establish a list of accounting activities performed.
4. Translating job data into a set of "training-need" criteria that could be used to assist in appraising the adequacy of the accounting courses in a post-high school terminal accounting program.

### GENERAL PROCEDURES

#### TASK I - A Survey of Current and Projected Need for Technical Accountants

A mail questionnaire was used to determine (a) the numbers engaged in accounting-type work for which a baccalaureate degree was not a basic requirement for employment, and (b) the projected need for technically trained non-degree accountants.

**Population and Sample.** The original population included 178 firms (see Appendix C) listed as manufacturers of durable goods in the tri-county



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area according to the Michigan Manufacturers Yearbook,<sup>1</sup> Industrial Directory of Metropolitan Lansing,<sup>2</sup> Lansing Community College,<sup>3</sup> and the local telephone books.<sup>4</sup> However, investigation by telephone conversations and personal contacts disqualified fifty-six of the original firms; twenty-two were manufacturers of non-durable goods; fourteen were distributors and non-manufacturers of durable goods; eight had gone out of business; seven were recorded under two or more names; three could not be located due to moving or improper addresses; and two requested not to be part of the study.

Thus, the final population was 122 firms (as of March, 1966) manufacturing durable goods in the tri-county area.<sup>5</sup> These firms varied in size, according to the numbers of employees, from one to 13,000.

Development of the Instrument. A questionnaire that could be used with a dual function (one that could be used as a mail questionnaire or as an interview guide) was selected as the most expedient to obtain the desired information.

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<sup>1</sup>The Directory of Michigan Manufacturers: 1965 (12th Edition Detroit: Manufacturers Publishing Company, 1965), pp. 46-335.

<sup>2</sup>Industrial Directory of Metropolitan Lansing, (Lansing: Chamber of Commerce of Greater Lansing. May, 1965), pp. 1-17.

<sup>3</sup>Tri-County Occupational Survey (Lansing: Lansing Community College files, 1966).

<sup>4</sup>Michigan Bell Telephone Directory for Lansing Area (Lansing: Michigan Bell Telephone Company, March, 1966).

<sup>5</sup>See Appendix C, pp. 175-179.

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Prior to the construction of the questionnaire, a number of survey instruments were studied, in particular the one used in the Tri-County Occupational Survey.<sup>1</sup> After many drafts and conferences with the doctoral committee, faculty, and others, a questionnaire<sup>2</sup> was designed to secure information to answer four major questions.

- a. How many bookkeepers and accountants were now employed in the tri-county area?
- b. If need be, how many of these bookkeepers and accountants could be replaced by a graduate of a post-high school non-baccalaureate educational program?
- c. What is the projected need for technically trained non-baccalaureate degree accountants?
- d. Would such technical accountants be premetable?

The instrument was then field tested in fifteen firms of which eleven responded. After a personal interview with each of the eleven respondents minor changes were made in the wording and the format.

Procedure. In May, 1966, a normative survey (mail questionnaire) was conducted with presidents, owners, or managers of the 122 firms manufacturing durable goods in the tri-county area. The questionnaire was mailed to the top local administrative officer of each firm. These officers were selected as the individuals who would best know past, current, and future needs for their firms. In some cases where the firm was decentralized, the top administrative officer had the personnel

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<sup>1</sup>Tri-County Occupational Survey, op. cit.

<sup>2</sup>See Appendix A, pp. 171-173.

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A mail follow-up of non-respondents was conducted two weeks after the initial mailing, and a second follow-up ten days later. The second follow-up was conducted by one of two methods; (1) personal interviews with the top administrative officers of those firms employing more than twenty-five employees, and (2) telephone interviews with employers of less than twenty-five employees. The telephone conversations with administrators of smaller firms indicated that they had not completed the questionnaire because they did not now, or expect to, employ an accountant or technical accountant due to the size of the firm, less than twenty-five employees.

With the additional telephone and personal interviews a 100 per cent response was obtained from the 122-firm sample.

Analysis. The data from the questionnaires were coded and double-checked for the data processing. The information was keypunched on data processing cards and verified in the Michigan State University Computer Laboratory. The procedure of counting and sorting was done mechanically by Michigan State University's 3600 Data Control computer. Tables were then constructed from the data in (1) its entirety, and (2) by size of firm. Summaries and conclusions were then made from an analysis of these tables and charts.

TASK II - Conducting Interviews with Technical Accountants to Identify their Accounting Job Activities

Personal interviews were used to determine what accounting activities were performed by technical accountants.

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Population. The population included 222 technical accountants and bookkeepers<sup>1</sup> in seventy-one firms as indicated by the owners or managers as fulfilling four basic requisites: (1) They were employed full-time as a technical accountant. Some had other tasks but accounting was the primary position. (2) They had been employed as an accountant a minimum of one year. (3) They were in positions for which a post-high school accounting education was necessary, but for which a baccalaureate degree was not a prerequisite. Some of those classified as technical accountants did have a baccalaureate degree but the administrators reiterated that it was not a job requirement. (4) The administrators considered these technical accountants promotable and did not consider them in a static position replaceable by mechanical equipment.

Sample. The name of the technical accountants, or in larger firms the position number, was obtained from the firm's administrative officer or his delegate for each of these 222 accountants and bookkeepers meeting the four above requisites. The name or position number of each technical accountant was then stratified according to company size.<sup>2</sup> The stratified names or position numbers were numbered and randomly selected using a table of random digits.<sup>3</sup>

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<sup>1</sup>Determined in Task I, see Table 5.

<sup>2</sup>Companies were categorized according to number of employees. For stratification purposes the following groupings of companies by number of employees were used: (a) 1 through 49, (b) 50 through 99, (c) 100 through 249, (d) 250 through 749, and (e) over 750.

<sup>3</sup>Philip H. DuBois, An Introduction to Psychological Statistics (New York: Harper & Row, Publishers, 1965), pp. 196-97.



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One hundred and four of these randomly stratified accountants and bookkeepers were chosen. Five of the selected interviewees later had to be invalidated for various reasons. A Chi-Square Test was used to determine goodness of fit of the total sample and of the ninety-nine selected respondents.<sup>1</sup> The sample was accepted with the probability that 80 to 90 per cent of the time such a distribution could occur when randomly selected.

Development of the Instrument. To develop a dual purpose (mail and structured interview) questionnaire consisting of accounting-type activities that could be performed by technical accountants the following set of procedures was used: (1) analysis of printed materials, (2) review by jury panel, and (3) pre-test of interview questionnaire.

1. Analysis of printed materials. Accounting books and references, theses, and dissertations<sup>2</sup> were analyzed to obtain a list of accounting units or activities that normally could be taught during the first two years of college or in a community or business college. These activities were grouped under nine major functions and a preliminary questionnaire was constructed. The nine functions were:

Making Financial Reports and Schedules

Analyzing Financial Statements and Schedules

Maintaining Ledgers

Maintaining Journals

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<sup>1</sup>See Appendix G, p. 193.

<sup>2</sup>See Appendix B, pp. 180-182.

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Preparing and Initiating Data

Recording or Posting Data

Making and Using Working Papers

Non-Classified Maintaining, Analyzing, or Performing Activities

Doing Specific Mathematical Computations

2. Review by jury panel. The questionnaire format and the listed accounting activities were reviewed by selected accounting instructors, certified public accountants, and accounting supervisors (see Appendix E) for possible additions, deletions, or changes. The members of the jury panel were selected as individuals who understood: (1) the field of accounting, (2) the educational aspects for the training of accountants, and (3) the employment requirements of firms manufacturing durable goods. Two significant changes were made from the jury's suggestions. They were: (1) an increase in the number of accounting activities listed and (2) the addition of a section relating to how often activities were performed.

The panel felt employers were most concerned that newly employed technical accounting personnel be able to function on the most often performed activities without considerable additional training. All suggestions were presented to each member prior to final approval and the questionnaire<sup>1</sup> was prepared for pre-testing.

3. Pre-test of interview questionnaire. A pre-test of the revised structured interview questionnaire was conducted with ten

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<sup>1</sup>See Appendix F, pp. 184-192.

accountants who would qualify as technical accountants. They were graduates of either a community or business college accounting program of one or two years in length; they were in positions that if replacement were necessary a non-baccalaureate degree accountant could qualify; they had been employed in the accounting field a minimum of one year and according to management they were promotable.

The trial interviews were conducted at times conducive to the interviewees' work schedules. The interview comments were constructive and in particular one of the early interviewees suggested the observing of samples of work performed by such an accountant. This comment proved to be a highly valuable suggestion. This was an informal way of verifying answers.

Although it was not part of this study to employ either job descriptions or supervisor interviews to obtain information regarding the activities performed by technical accountants, it was attempted in order to obtain additional knowledge available about technical accounting positions. No statistical analysis was done on job descriptions but from the writer's experience<sup>1</sup> it was observed that the job descriptions surveyed were incomplete and/or outdated. The supervisor, unless recently promoted, seemed somewhat removed from the actual job activities and had a general idea of what was done but had forgotten or overlooked some specific tasks performed.

The supervisors tended to omit detailed activities such as the construction and use of working papers, posting to ledgers, and verification of results in the normal accounting cycle. They, at times,

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<sup>1</sup>Eleven years as a college accounting professor, two years as an accountant, one year as an accounting supervisor, two years as a cost accounting consultant, and five years teaching personnel management.

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also overlooked some non-frequent reporting activities and special reports as sales taxes and supporting schedules.

At the conclusion of the pre-test trials some changes in wording were made to clarify the meaning and information desired.

Procedure. Clearance to arrange an interview with the randomly selected accountant or bookkeeper, technical accountant, was obtained from the firm's administrative officer or his delegate. In most cases the officer made the interview arrangements at a convenient time, at a location conducive for interviewing and furnished the requested non-confidential sample materials. In the balance of the cases the interviewer was referred directly to the accountant or bookkeeper to make the necessary arrangements.

At the suggestion of the employers, all except eight of the interviews were conducted during working hours. The remaining eight interviews were conducted at the technical accountant's convenience, usually during the evening. The average required time of all interviews was slightly more than an hour.

When samples of the technical accountant's work were available, they were scanned before or after the interview and used to assist in the verification of the interview answers or to pose further questions if necessary. Additional verification of answers was attempted by leaving a copy of the interview questionnaire with the technical accountant. The duplicate second questionnaire (ceded by company and accountant) was to be completed and mailed one week later. No interview was considered complete until the second questionnaire was received.

Upon receipt of the duplicate questionnaire, an analysis was made of the interview and the questionnaire answers. Any discrepancies were then discussed by telephone with the technical accountant. Corrections were made and the interview was considered complete.

TASK III - Analyzing Interview Responses to Establish a List of  
Accounting Job Activities

Responses from the ninety-nine verified interviews with technical accountants were analyzed in total and by size of firm to determine: (1) the proportion and frequency with which technical accountants performed each of the 250 selected accounting activities classified under nine functions, and (2) whether there were clusters of accounting activities performed by technical accountants according to the size of firm.

No attempt was made to ascertain the time involved to perform an activity or to measure the complexity of performing such an activity. For the purposes of this investigation the importance of an activity was based on the proportion of technical accountants performing the activity and the frequency with which it was performed.

The data from the interviews were coded and double-checked for data processing. The information was keypunched on data processing cards and verified in the Michigan State University Computer Laboratory. The procedure of counting, sorting, and statistical analysis was performed mechanically by Michigan State University's 3600 Data Control Computer (Version 1.01 Act). Tables were constructed from the data in total and by size of firm. Summaries and conclusions were then made from an analysis of these tables.



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### Analysis of Data

In Total. When the accounting activities were considered in total, a numerical and percentile comparison was made to determine the proportion of technical accountants performing an activity and the frequency with which it was performed. The numerical comparison was employed primarily to determine which of the activities were performed most often by technical accountants while per cent was employed to show proportion performing an activity at various frequencies - weekly, monthly, quarterly, semi-annually, or annually.<sup>1</sup>

In order to simplify analysis of the 250 selected accounting-type activities, they were classified into nine performance functions. These functions were:

Making Financial Reports and Schedules

Analyzing Financial Statements and Schedules

Maintaining Ledgers

Maintaining Journals

Preparing and Initiating Data

Recording or Posting Data

Making and Using Working Papers

Non-Classified Maintaining, Analyzing, or Performing Activities

Doing Specific Mathematical Computations

Specific analyses were made of these 250 activities by function in Chapter V.

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<sup>1</sup>See Appendix J, pp. 196-207.

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By Size of Firm. The size of firm categories were established according to the number of employees on the payroll as of January 1, 1966. For the purposes of this study, five size of firm categories were selected; (1) 1-49 employees, (2) 50-99 employees, (3) 100-249 employees, (4) 250-749 employees, and (5) 750 or more employees. The upper and lower limits for each size of firm category were established so future comparisons can be made as data becomes available from other sources.<sup>1</sup>

Analyses were made, by size of firm, of the 250 accounting-type activities in the nine performance functions to ascertain whether there were clusters of activities performed by technical accountants in any particular size of firm.

Analyses similar to those performed with the activities "in total" were employed to analyze the proportion of the activities performed by technical accountants in each of the five size of firm categories. The numerical figures were used to obtain proportions and percentages to determine proportional fluctuations.

In addition to the numerical and percentile evaluations, two null hypotheses were tested by statistical methods to assist in the determination of any variation from the norm that could indicate possible deviations and hence clusters of activities relevant to a particular size of firm classification. Chi-Square was used to test the null hypothesis, "No significant difference exists in the proportion of technical accountants performing an accounting activity when compared by firm size."

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<sup>1</sup>The United States Chamber of Commerce and the United States Bureau of Census compile data by firm sizes that could be horizontally consolidated for numerical comparisons.

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A rejection level at the .05 level of significance was used.

In order to assist in evaluating importance of a particular activity within an accounting function, the second null hypothesis, "No significant difference exists between the rank order of the accounting activities in each selected function as performed by technical accountants in the various size firms," was tested using Kendall's Coefficient of Concordance with the correction factor for ties and Chi-Square.<sup>1</sup> The .02 level of significance was used as the rejection level.

TASK IV - Translating Job Data into a Set of Criteria That Could Be Used to Assist in Appraising the Adequacy of the Accounting Courses in a Post-High School Terminal Accounting Program

Four analyses were made on the 250 accounting-type activities investigated in this study to ascertain a cut-off point or line of discretion as to which activities should be included on or excluded from a criterion list that could be used to assist in appraising the adequacy of the accounting courses in a post-high school terminal accounting program. The four analyses used to establish the line of discretion on accounting activities performed by technical accountants were: (1) the proportion of technical accountants performing each activity, (2) the rank order, by performance, of the activities in total and by size of firm, (3) the frequency of performance for each activity, and (4) the universality of performance of each activity by technical accountants in all size of firm categories.

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<sup>1</sup>Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, (New York: McGraw-Hill Book Company, Inc., 1956), p. 234.

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Proportion performing activity. An analysis of all the activities performed by 50 per cent, 33 per cent, 25 per cent, and 20 per cent of the technical accountants revealed that pertinent activities below each of these possible cut-off points (line of discretion) would have been omitted. From this analysis it was decided to include all activities performed by more than one out of five (20 per cent) of the technical accountants with other analyses determining which of the remaining activities should have been also included.

Rank order of activities. An analysis of the rank order of the activities was made in total and by size of firm to assist in the support establishment of a line of discretion. The selected line of discretion included those activities ranked, by the proportion performed by technical accountants, in the top 50 percentile. Activities that ranked lower than the top 50 percentile and were performed by less than 20 per cent of the technical accountants were included in the list of evaluative criteria if they were ranked significantly<sup>1</sup> higher in a particular size of firm when compared to the rank in total for those activities.

Frequency of performance. An analysis was made of those activities performed by less than one out of five technical accountants to determine how often they were performed. Those activities performed primarily monthly or more often were deemed essential to be included on a list for possible evaluation of a terminal accounting program.

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<sup>1</sup>Significantly higher was set at one-third of the ranks within a particular size of firm category.



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Universality of performance. An analysis was made to determine which activities were performed in each size of firm category and therefore could be included on the selected list of accounting criteria to evaluate a terminal accounting program for firms manufacturing durable goods. Special consideration was given to activities performed primarily in firms with 100 to 749 employees because firms in that size category did not employ outside data processing services nor did they have in-service training programs. Therefore, technical accountants employed by that size of firm would have to be able to perform those accounting activities with limited assistance.

Summary. After the four analyses were made on the 250 accounting activities performed by technical accountants in firms manufacturing durable goods, a line of discretion was drawn to include all activities performed by at least one out of eight technical accountants.

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## CHAPTER IV

### THE FINDINGS, PART I

#### CURRENT AND PROJECTED EMPLOYMENT STATUS OF TECHNICAL ACCOUNTANTS IN THE TRI-COUNTY AREA

One of the purposes of this investigation was to determine the current and projected need for technical accountants.

In order to determine both the current and the projected need the following points had to be investigated:

1. Were there employees performing accounting activities for which post-high school training was a requisite but a baccalaureate degree was not a prerequisite for employment?
2. How many of these employees (technical accountants) were there in the Tri-County area?
3. What employment projection will there be for technical accountants in the future?
4. Will these technical accountants be in non-promotable positions and will they be subject to replacement by mechanized equipment?

#### Does There Exist a Technical Accounting Position?

An accounting position was described as "technical" if it was one for which training beyond high school was a requisite but for which a baccalaureate degree was not a prerequisite. The findings relevant to

the presence of the technical accounting position, and the subpoints of these findings, are interwoven with the findings for these questions:

1. How does the employment trend of these positions compare with that of the total work force in the Tri-County area and also that of the total accountancy-oriented<sup>1</sup> work force?
2. How many technical accounting positions are there in the Tri-County area?
3. What is the projected future of these positions?

#### Past Employment Analysis

Past employment in the Tri-County area was analyzed for the five-year period that commenced on December 31, 1960 and ended on December 31, 1965. For this period the trends for three populations were considered: (1) the total over-all employment (2) the total accountants and bookkeepers (accountancy-oriented), and (3) the technical accountants.

Over-all trend of work force. Table 1 indicates that for the five-year period preceding this investigation, the tri-county area employment status showed a gain in the number of durable goods manufacturing firms with increased employment. Of the 122 firms in the initial population:

- . . . 6 of 10 showed an increase in work force.
- . . . 3 of 10 disclosed a reduction in work force.
- . . . 1 of 10 indicated no change in work force.

Approximately thirty per cent of the smallest firms (under fifty employees) showed a decline in employment. Of the thirty-two firms in total showing a decline, seven out of ten had less than fifty employees.

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<sup>1</sup>Refers to the total accountants, technical accountants, and bookkeepers employed in the Tri-County area.

TABLE 1

INCREASE/DECREASE IN TOTAL EMPLOYMENT SINCE 1960 IN FIRMS  
MANUFACTURING DURABLE GOODS IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM

| Classification                   | Relationship by Number of Firms |           |          |                   |       |
|----------------------------------|---------------------------------|-----------|----------|-------------------|-------|
|                                  | Increase                        | No Change | Decrease | Cannot* Determine | Total |
| <u>Total Sample</u>              |                                 |           |          |                   |       |
| N                                | 74                              | 14        | 32       | 2                 | 122   |
| %**                              | 60.7                            | 11.5      | 26.2     | 1.6               | 100.0 |
| <u>Size of Firm by Employees</u> |                                 |           |          |                   |       |
| 1- 49                            |                                 |           |          |                   |       |
| N                                | 40                              | 11        | 23       | 1                 | 75    |
| %                                | 53.3                            | 14.7      | 30.7     | 1.3               | 100.0 |
| 50- 99                           |                                 |           |          |                   |       |
| N                                | 15                              | 1         | 4        | 1                 | 21    |
| %                                | 71.4                            | 4.8       | 19.0     | 4.8               | 100.0 |
| 100-249                          |                                 |           |          |                   |       |
| N                                | 11                              | 2         | 2        |                   | 15    |
| %                                | 73.3                            | 13.3      | 13.3     |                   | 100.0 |
| 250-749                          |                                 |           |          |                   |       |
| N                                | 6                               |           | 1        |                   | 7     |
| %                                | 85.7                            |           | 14.3     |                   | 100.0 |
| 750 or more                      |                                 |           |          |                   |       |
| N                                | 2                               |           | 2        |                   | 4     |
| %                                | 50.0                            |           | 50.0     |                   | 100.0 |

\*The "cannot determine" column was primarily marked by those firms unable to locate the exact 1960 figures due to a change in the information retrieval procedure or a change in the recording system which made uniform comparison difficult.

\*\*Read percentages horizontally.

Managers of the smaller firms implied that the reduction was due to mechanization, failing to compete profitably with larger firms, and individual owners gradually phasing out the business. Two of the largest firms, 750 employees or more, indicated that their reduction was due to two non-related causes; a temporary shutdown and better production efficiency.

Trend of accountancy-oriented work force.

1. Increase/Decrease analysis. For the five-year period preceding December, 1965, forty-two of the 122 durable goods manufacturing firms in this sample showed an increase in employment of accountants and bookkeepers as shown by Table 2. During the same period twenty-one of the firms revealed a reduction of such employees.

Of the twenty-one firms that showed a reduction in the employment of accountants and bookkeepers, sixteen had less than fifty employees. Of those firms that indicated a reduction in the employment of accountants and bookkeepers 76.1 per cent were in the smallest-sized category--one through forty-nine employees. There were fifteen, or 35.7 per cent, of the forty-two firms in the same size category that showed an increase.

The number of firms that indicated a reduction of all-inclusive accountant positions also showed an increase in the use of commercial accounting services. The two smallest categories, one through forty-nine or fifty through ninety-nine employees, were the only categories of firms that employed a commercial accounting service for accounting functions other than auditing.

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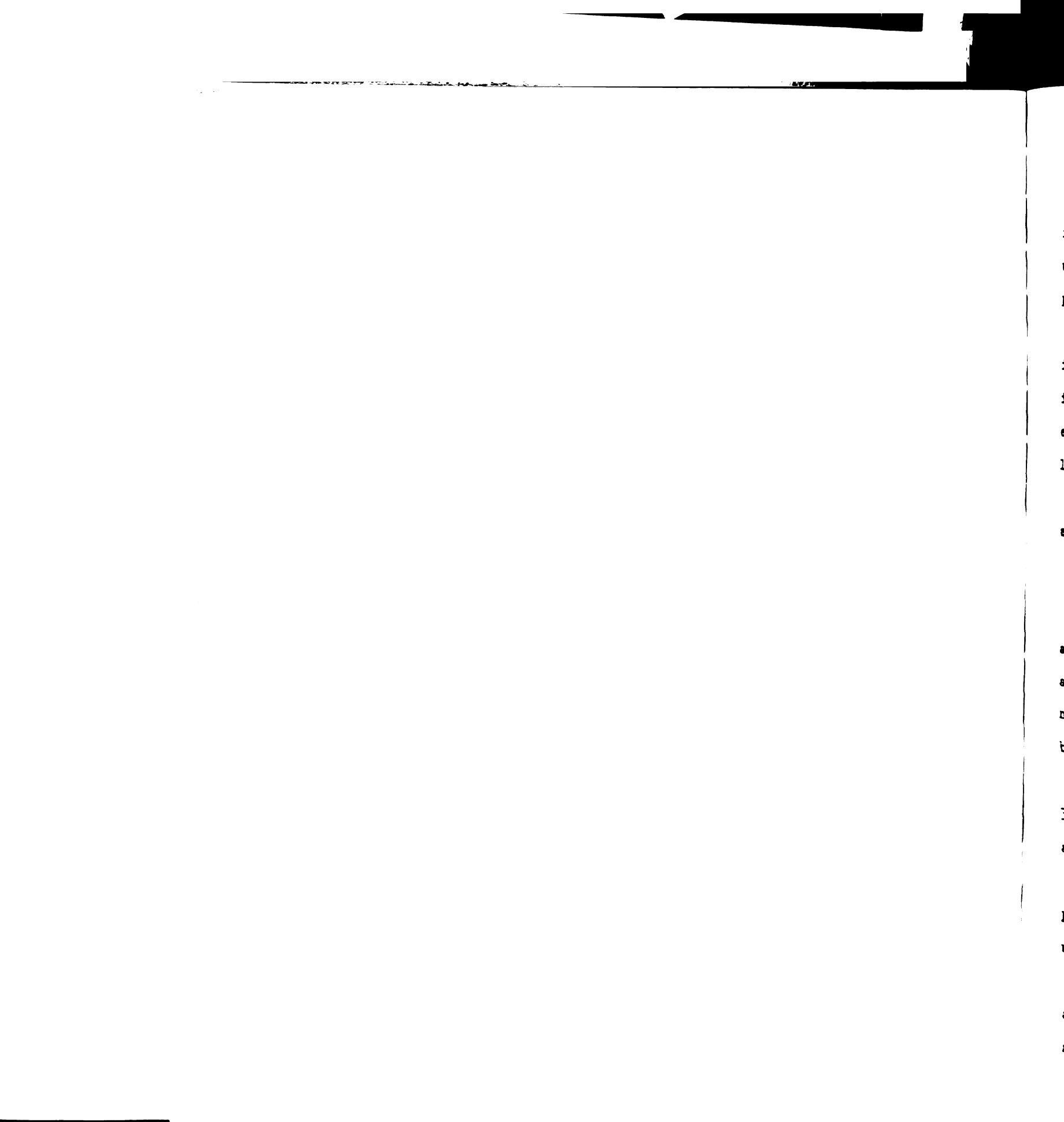
TABLE 2

INCREASE/DECREASE IN ACCOUNTANCY-ORIENTED EMPLOYMENT SINCE 1960  
IN FIRMS MANUFACTURING DURABLE GOODS IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM

| Classification                   | Relationship by Number of Firms |           |          |                   |       |
|----------------------------------|---------------------------------|-----------|----------|-------------------|-------|
|                                  | Increase                        | No Change | Decrease | Cannot* Determine | Total |
| <u>Total Sample</u>              |                                 |           |          |                   |       |
| N                                | 42                              | 55        | 21       | 4                 | 122   |
| %**                              | 34.4                            | 45.1      | 17.2     | 3.3               | 100.0 |
| <u>Size of Firm by Employees</u> |                                 |           |          |                   |       |
| 1- 49                            |                                 |           |          |                   |       |
| N                                | 15                              | 44        | 16       |                   | 75    |
| %                                | 20.0                            | 58.7      | 21.3     |                   | 100.0 |
| 50- 99                           |                                 |           |          |                   |       |
| N                                | 10                              | 9         | 1        | 1                 | 21    |
| %                                | 47.6                            | 42.8      | 4.8      | 4.8               | 100.0 |
| 100-249                          |                                 |           |          |                   |       |
| N                                | 9                               | 2         | 3        | 1                 | 15    |
| %                                | 60.0                            | 13.3      | 20.0     | 6.7               | 100.0 |
| 250-749                          |                                 |           |          |                   |       |
| N                                | 5                               |           |          | 2                 | 7     |
| %                                | 71.4                            |           |          | 28.6              | 100.0 |
| 750 or more                      |                                 |           |          |                   |       |
| N                                | 3                               |           | 1        |                   | 4     |
| %                                | 75.0                            |           | 25.0     |                   | 100.0 |

\*The "cannot determine" column was primarily marked by those firms unable to locate the exact 1960 figures due to a change in the information retrieval procedure or a change in the recording system which made uniform comparison difficult.

\*\*Read percentages horizontally.



2. Numerical employment analysis. Table 3 shows that during the five-year period considered in this numerical employment analysis, there was a 28.1 per cent increase in the total number of accountancy-oriented positions in the Tri-County area.

The numerical increase of sixty-three accountants and bookkeepers in the firms manufacturing durable goods was primarily composed of firms in the three middle-sized categories: (1) 50-99 employees, (2) 100-249 employees, and (3) 250-749 employees. Those firms also had shown the larger numbers of increases in Table 2.

The smallest and the largest-sized categories portrayed the smallest numerical and percentage increases.

#### Technical accountant trend.

1. Increase/Decrease Analysis. In review, the technical accountant was viewed as an individual primarily employed to perform accounting activities. Also, according to his employer, he would now need some post-high school accounting training but for which a baccalaureate degree was not a requisite.

As portrayed in Table 4, thirty-six of the 122 firms, or almost 30 per cent, indicated an increase in technical accountant employment and only sixteen, or 13 per cent, showed a decrease.

The decrease of technical accountants in the sixteen firms was primarily comprised of fifteen companies who employed less than fifty workers.

The percentage of firms that reported increases in technical accountant positions became respectively greater with each larger sized category.

TABLE 3

NUMERICAL EMPLOYMENT COMPARISON OF ACCOUNTANCY-ORIENTED  
POSITIONS SINCE 1960 IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM

| Classification                       | Employed in |      | Net<br>Number<br>Increase | Per Cent<br>Increase |
|--------------------------------------|-------------|------|---------------------------|----------------------|
|                                      | 1960        | 1965 |                           |                      |
| <b>Size of Firm By<br/>Employees</b> |             |      |                           |                      |
| 0- 49                                | 22          | 25   | 3                         | 13.6                 |
| 50- 99                               | 20          | 36   | 16                        | 80.0                 |
| 100-249                              | 40          | 55   | 15                        | 37.5                 |
| 250-749                              | 21          | 47   | 26                        | 123.8                |
| 750-or More                          | 118         | 121  | 3                         | 2.5                  |
| <u>Total</u>                         | 221         | 284  | 63                        | 28.1                 |



TABLE 4

INCREASE/DECREASE IN TECHNICAL ACCOUNTANT EMPLOYMENT SINCE 1960 IN FIRMS  
MANUFACTURING DURABLE GOODS IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM

| Classification                   | Relationship by Number of Firms |           |          |                      | Total |
|----------------------------------|---------------------------------|-----------|----------|----------------------|-------|
|                                  | Increase                        | No Change | Decrease | Cannot*<br>Determine |       |
| <u>Total Sample</u>              |                                 |           |          |                      |       |
| N**                              | 36                              | 67        | 16       | 3                    | 122   |
| %                                | 29.5                            | 54.9      | 13.1     | 2.5                  | 100.0 |
| <u>Size of Firm by Employees</u> |                                 |           |          |                      |       |
| 1- 49                            |                                 |           |          |                      |       |
| N                                | 14                              | 46        | 15       |                      | 75    |
| %                                | 18.7                            | 61.3      | 20.0     |                      | 100.0 |
| 50- 99                           |                                 |           |          |                      |       |
| N                                | 8                               | 12        |          | 1                    | 21    |
| %                                | 38.1                            | 57.1      |          | 4.8                  | 100.0 |
| 100-249                          |                                 |           |          |                      |       |
| N                                | 7                               | 8         |          |                      | 15    |
| %                                | 46.7                            | 53.3      |          |                      | 100.0 |
| 250-749                          |                                 |           |          |                      |       |
| N                                | 4                               | 1         |          | 2                    | 7     |
| %                                | 57.1                            | 14.3      |          | 28.6                 | 100.0 |
| 750 or more                      |                                 |           |          |                      |       |
| N                                | 3                               |           | 1        |                      | 4     |
| %                                | 75.0                            |           | 25.0     |                      | 100.0 |

\*The "cannot determine" column was primarily marked by those firms unable to locate the exact 1960 figures due to a change in the information retrieval procedure or a change in the recording system which made uniform comparison difficult.

\*\*Read percentages horizontally.

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When those positions for which no collegiate training was required were deleted from the all-inclusive accountancy-oriented positions, except for the smallest companies, few firms showed a reduction in the employment of accountants or accounting technicians.

2. Numerical Employment Analysis. As indicated by Table 5, technical accountant positions increased from 170 to 222 during the five years preceding December, 1965. This increase of fifty-two positions was a 30.6 per cent increase over the 1960 figure.

The smallest and the largest sized firm categories showed the least numerical and percentile gain. The greatest gains in technical accounting employment were in firms from the middle three categories of employees, those with fifty to 749 employees.

3. Past Supply Analysis. Due to a terminology problem this section separates technical accountants into two categories: (1) technical accountants and (2) technical bookkeepers. This was necessary so as not to confuse the company officers in supplying the answers.

Some of the firms associated an accountant with a baccalaureate degree and anyone with less formal training as a bookkeeper. Other firms associated those with a high school diploma as bookkeepers and all those with more formal education beyond high school were called accountants. Therefore, by using both terms the employers felt confident of their responses and the desired information was obtained.

Table 6 helps to bear out this confusion in terminology.

"Scarcity" or "adequacy" of "technical accountants" or "technical bookkeepers" appears to relate to a firm's definition of "accountant" or "bookkeeper." The larger firms tended to indicate an adequate



TABLE 5

NUMERICAL EMPLOYMENT COMPARISON OF TECHNICAL ACCOUNTANTS  
SINCE 1960 IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM

| Classification                       | Employed In |      | Net<br>Number<br>Increase | Per Cent<br>Increase |
|--------------------------------------|-------------|------|---------------------------|----------------------|
|                                      | 1960        | 1965 |                           |                      |
| <u>Size of Firm By<br/>Employees</u> |             |      |                           |                      |
| 0- 49                                | 21          | 23   | 2                         | 9.5                  |
| 50- 99                               | 20          | 36   | 16                        | 80.0                 |
| 100-249                              | 28          | 39   | 11                        | 39.3                 |
| 250-749                              | 16          | 33   | 17                        | 106.3                |
| 750-or More                          | 85          | 91   | 6                         | 7.1                  |
| <u>Total</u>                         | 170         | 222  | 52                        | 30.6                 |

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supply of technical bookkeepers but a scarcity of technical accountants.

TABLE 6

PAST SUPPLY OF TECHNICAL ACCOUNTANTS AND BOOKKEEPERS  
IN THE TRI-COUNTY AREA

| Classification        | Responses By Firms |        |         |              |
|-----------------------|--------------------|--------|---------|--------------|
|                       | Adequate           | Scarce | Surplus | No Reference |
| Technical Accountants |                    |        |         |              |
| N                     | 21                 | 44     | 1       | 5            |
| %                     | 29.6               | 62.0   | 1.4     | 7.0          |
| Technical Bookkeepers |                    |        |         |              |
| N                     | 46                 | 18     | 5       | 2            |
| %                     | 64.8               | 25.4   | 7.0     | 2.8          |

\*Read percentages horizontally

The interviewer discussed this with officers from forty-seven of the seventy-one firms and it appeared unanimous that if a firm called their technical accountant employees "accountants" they marked "bookkeepers" as adequate and vice-versa. Therefore, if that were the case on all seventy-one firms, sixty-two would then have indicated a scarcity in the locating of technical accountants for employment.

Projected Employment Analysis for Technical Accountants

The administrative officers of the seventy-one firms, either having had, now having, or anticipating having technical accountants, were asked to project their need for these positions through December, 1969.

Anticipated changes by firm. Of the seventy-one firms, as indicated by Table 7, forty-seven, 66.2 per cent, anticipate an increase in technical accountant positions. Only one indicated a decrease. However, twenty-one anticipate no change and two were unable to predict their technical accountant employment for the next four years.

Of the twenty-one firms that indicated no change in technical accountant positions for the next four years twenty were in the two smallest categories. Thirteen of these were in the category of one to forty-nine employees and seven were in the fifty to ninety-nine employee category.

Anticipated changes by number of positions. Figure 1 shows the anticipated number of technical accountants needed by durable goods manufacturing firms in the Tri-County area until 1970 to be 208 or fifty-two per year, calculated as follows:

$$N = I + Y(T) \qquad N = 68 + 4(35) \qquad N = 208$$

N = Anticipated need for technical accountants to 1970.

I = Anticipated increase in technical accountants by 1970.

T = Annual turnover of technical accountants.

Y = Number of years.

This indicates that prior to 1970 there is a need for an additional supply of technical accountants almost as great (94%) as the present work force of 222. These figures could be conservative as the formula used was based on a constant yearly change and not on the projected increase in technical accountant employment which would also affect turnover.

TABLE 7

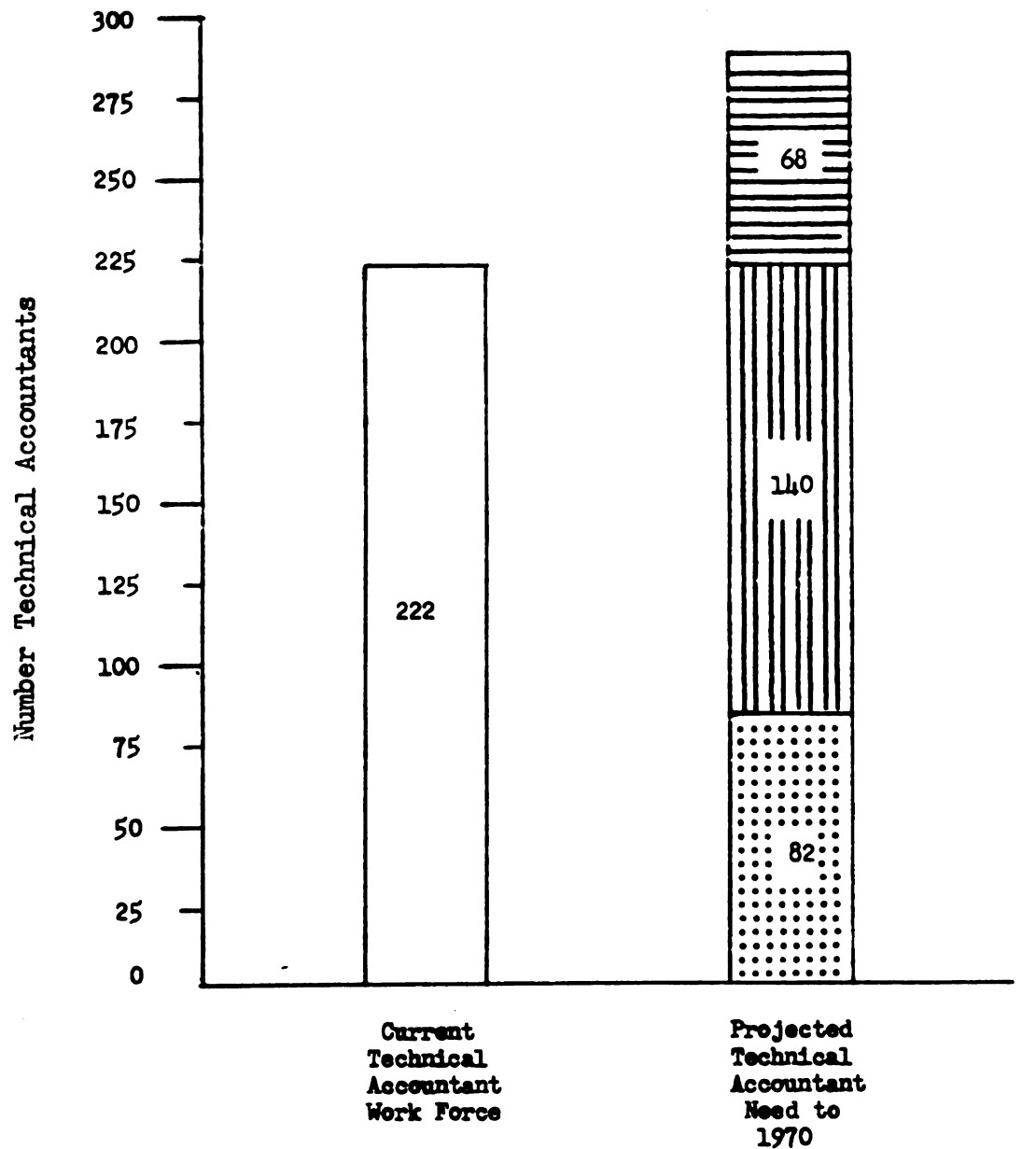
ANTICIPATED CHANGES IN TECHNICAL ACCOUNTING EMPLOYMENT TO 1970  
IN FIRMS MANUFACTURING DURABLE GOODS IN THE TRI-COUNTY AREA  
BY TOTAL AND SIZE OF FIRM





| Classification                   | Relationship by Number of Firms |           |          |                  |       |
|----------------------------------|---------------------------------|-----------|----------|------------------|-------|
|                                  | Increase                        | No Change | Decrease | Cannot Determine | Total |
| <u>Total Sample</u>              |                                 |           |          |                  |       |
| N                                | 47                              | 21        | 1        | 2                | 71    |
| %                                | 66.2                            | 29.6      | 1.4      | 2.8              | 100.0 |
| <u>Size of Firm by Employees</u> |                                 |           |          |                  |       |
| 1- 49                            |                                 |           |          |                  |       |
| N                                | 12                              | 13        |          | 1                | 26    |
| %                                | 46.2                            | 50.0      |          | 3.8              | 100.0 |
| 50- 99                           |                                 |           |          |                  |       |
| N                                | 13                              | 7         |          |                  | 20    |
| %                                | 65.0                            | 35.0      |          |                  | 100.0 |
| 100-249                          |                                 |           |          |                  |       |
| N                                | 12                              |           | 1        | 1                | 14    |
| %                                | 85.7                            |           | 7.1      | 7.2              | 100.0 |
| 250-749                          |                                 |           |          |                  |       |
| N                                | 7                               |           |          |                  | 7     |
| %                                | 100.0                           |           |          |                  | 100.0 |
| 750 or more                      |                                 |           |          |                  |       |
| N                                | 3                               | 1         |          |                  | 4     |
| %                                | 75.0                            | 25.0      |          |                  | 100.0 |

\*Read percentages horizontally

FIGURE 1

COMPARISON OF CURRENT AND ADDITIONAL PROJECTED NEED FOR  
TECHNICAL ACCOUNTANTS TO 1970 FOR FIRMS MANUFACTURING  
DURABLE GOODS IN THE TRI-COUNTY AREA



-  Technical Accountant Work Force January, 1966 (222)
-  Estimated Number of 1966 Technical Accountants Remaining in that Position in 1970
-  Anticipated Increase in Technical Accountants by 1970 (68)
-  Anticipated Four-Year Turnover of Technical Accountants (140)



### Employability of Technical Accountants

All of the seventy-one firms, either having had or anticipating having positions for which a technical accountant could qualify, did state their willingness to employ such a person. However, at times a technical accountant could be competing with a baccalaureate degree accountant for the same position and the best one would naturally be given preference.

Considered under employability were three questions:

- (1) Would you prefer a specially or a generally trained technical accountant?
- (2) Would you promote a technical accountant?
- (3) If a technical accountant is promotable, to what level would promotion be possible?

### Specially trained<sup>1</sup> over generally trained<sup>2</sup> technical accountant.

Table 8 shows that five out of seven firms preferred a technical accountant specially trained for firms manufacturing durable goods. Twelve (1 in 6) of the firms indicated that they did not prefer the technical accountant specially trained for manufacturing of durable goods over the technical accountant regularly trained in our post-high school institutions. At the same time, ten of the firms were unsure or hesitant to answer the question.

The smaller firms with no facilities for in-service training

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<sup>1</sup>Refers to a post-high school technical accounting training program for a specific industry.

<sup>2</sup>Refers to a post-high school technical accounting training program applicable to all industries.



preferred the technical accountant specifically trained for their industry. Of those firms having less than one hundred employees, slightly over 78 per cent preferred the specially trained technical accountant. Fifteen per cent of those firms with under fifty employees were unsure.

TABLE 8

WILLINGNESS TO EMPLOY SPECIALLY TRAINED OVER GENERALLY  
TRAINED TECHNICAL ACCOUNTANTS  
IN TOTAL AND BY SIZE OF FIRM

| Response | Firm Responses by Number of Employees |       |        |       |         |       |         |       |                |       | Total |       |
|----------|---------------------------------------|-------|--------|-------|---------|-------|---------|-------|----------------|-------|-------|-------|
|          | 1- 49                                 |       | 50- 99 |       | 100-249 |       | 250-749 |       | 750<br>or More |       |       |       |
|          | N                                     | %*    | N      | %     | N       | %     | N       | %     | N              | %     | N     | %     |
| Yes      | 20                                    | 76.9  | 16     | 80.0  | 6       | 42.8  | 4       | 57.1  | 3              | 75.0  | 49    | 69.0  |
| No       | 2                                     | 7.7   | 2      | 10.0  | 4       | 28.6  | 3       | 42.9  | 1              | 25.0  | 12    | 16.9  |
| Unsure   | 4                                     | 15.4  | 2      | 10.0  | 4       | 28.6  |         |       |                |       | 10    | 14.1  |
| Total    | 26                                    | 100.0 | 20     | 100.0 | 14      | 100.0 | 7       | 100.0 | 4              | 100.0 | 71    | 100.0 |

\*Read percentages vertically

The firms with one hundred or more employees also favored those technically trained for the industry but to a lesser degree. Of the twenty-five firms in this category, 52 per cent preferred the specially trained technical accountant and 32 per cent preferred the regularly trained while 16 per cent were unsure.

Promotability of technical accountants. As indicated by Table 9, fifty of the seventy-one firms would rate technical accountants as promotable while fourteen firms were unsure. Seven firms stated that

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they would not be able to promote a technical accountant.

TABLE 9

PROMOTABILITY OF TECHNICAL ACCOUNTANTS  
IN TOTAL AND BY SIZE OF FIRM

| Response | Firm Responses by Number of Employees |       |        |       |         |       |         |       |                |       | Total |       |
|----------|---------------------------------------|-------|--------|-------|---------|-------|---------|-------|----------------|-------|-------|-------|
|          | 1- 49                                 |       | 50- 99 |       | 100-249 |       | 250-749 |       | 750<br>or More |       |       |       |
|          | N                                     | %*    | N      | %     | N       | %     | N       | %     | N              | %     |       |       |
| Yes      | 15                                    | 57.7  | 18     | 90.0  | 7       | 50.0  | 6       | 85.7  | 4              | 100.0 | 50    | 70.4  |
| No       | 6                                     | 23.1  | 1      | 5.0   |         |       |         |       |                |       | 7     | 9.9   |
| Unsure   | 5                                     | 19.2  | 1      | 5.0   | 7       | 50.0  | 1       | 14.3  |                |       | 14    | 19.7  |
| Total    | 26                                    | 100.0 | 20     | 100.0 | 14      | 100.0 | 7       | 100.0 | 4              | 100.0 | 71    | 100.0 |

\*Read percentages vertically

The seven firms where promotion was not possible were single proprietorships or partnerships too small to have a supervisor or a family owned business where hiring relatives was practiced. Six of these had less than fifty employees and all seven had less than one hundred.

Level of promotability. Table 9 indicated that in fifty of the seventy-one firms technical accountants were promotable. Table 10 then portrays the level of promotability within those fifty firms.

First-line supervision<sup>1</sup> leads the list with twenty of the fifty

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<sup>1</sup>Refers to the first position of promotability where responsibility for activities of others is experienced, such as assistant supervisor, accounts receivable supervisor, etc.

TABLE 10

**LEVEL OF PROMOTABILITY FOR TECHNICAL ACCOUNTANTS  
IN TOTAL AND BY SIZE OF FIRM**

| Level<br>of<br>Promotability | Firm Responses By Number of Employees |       |       |       |         |       |         |       |                |       | Total |       |
|------------------------------|---------------------------------------|-------|-------|-------|---------|-------|---------|-------|----------------|-------|-------|-------|
|                              | 1-49                                  |       | 50-99 |       | 100-249 |       | 250-749 |       | 750<br>or More |       |       |       |
|                              | N                                     | %*    | N     | %     | N       | %     | N       | %     | N              | %     | N     | %     |
| Supervision                  |                                       |       |       |       |         |       |         |       |                |       |       |       |
| First Line                   | 11                                    | 73.3  | 6     | 33.3  | 1       | 14.3  | 2       | 33.3  |                |       | 20    | 40.0  |
| Second Line                  | 1                                     | 6.7   | 3     | 16.7  | 3       | 42.8  |         |       |                |       | 7     | 14.0  |
| Management                   | 1                                     | 6.7   | 4     | 22.2  | 2       | 28.6  | 3       | 50.0  | 1              | 25.0  | 11    | 22.2  |
| Executive Officer            |                                       |       |       |       | 1       | 14.3  |         |       | 2              | 50.0  | 3     | 6.0   |
| Cannot Predict               | 2                                     | 13.3  | 5     | 27.8  |         |       | 1       | 16.7  | 1              | 25.0  | 9     | 18.0  |
| Total                        | 15                                    | 100.0 | 18    | 100.0 | 7       | 100.0 | 6       | 100.0 | 4              | 100.0 | 50    | 100.0 |

\*Read percentages vertically

firms, or 40 per cent, checking this as the promotability level of a technical accountant. Second-line supervision<sup>1</sup> was indicated by seven of the fifty firms, or 14 per cent. The management level<sup>2</sup> was the promotional level designated by eleven, or 22 per cent, of the firms, while three indicated the executive level.<sup>3</sup> These percentages would have been greater had 18 per cent or nine of the fifty firms been able to predict a promotability level for the technical accountant.

The nine firms not being able to make the above prediction indicated that the hesitancy to predict was due to one or more of the following: (1) mergers, (2) being a new firm, (3) a change in procedure, or (4) being too small to anticipate the future.

In total forty-one of the fifty firms did indicate a promotability level for technical accountants. The smaller firms tended to have a lower level of promotability than did the larger firms.

### Summary

Past employment analysis. As portrayed by Figure 2 during the five-year period from December, 1960 to December, 1965, the total work force in seventy-four of the 122, or 61 per cent of the firms increased. At the same time accountancy-oriented positions and technical accounting

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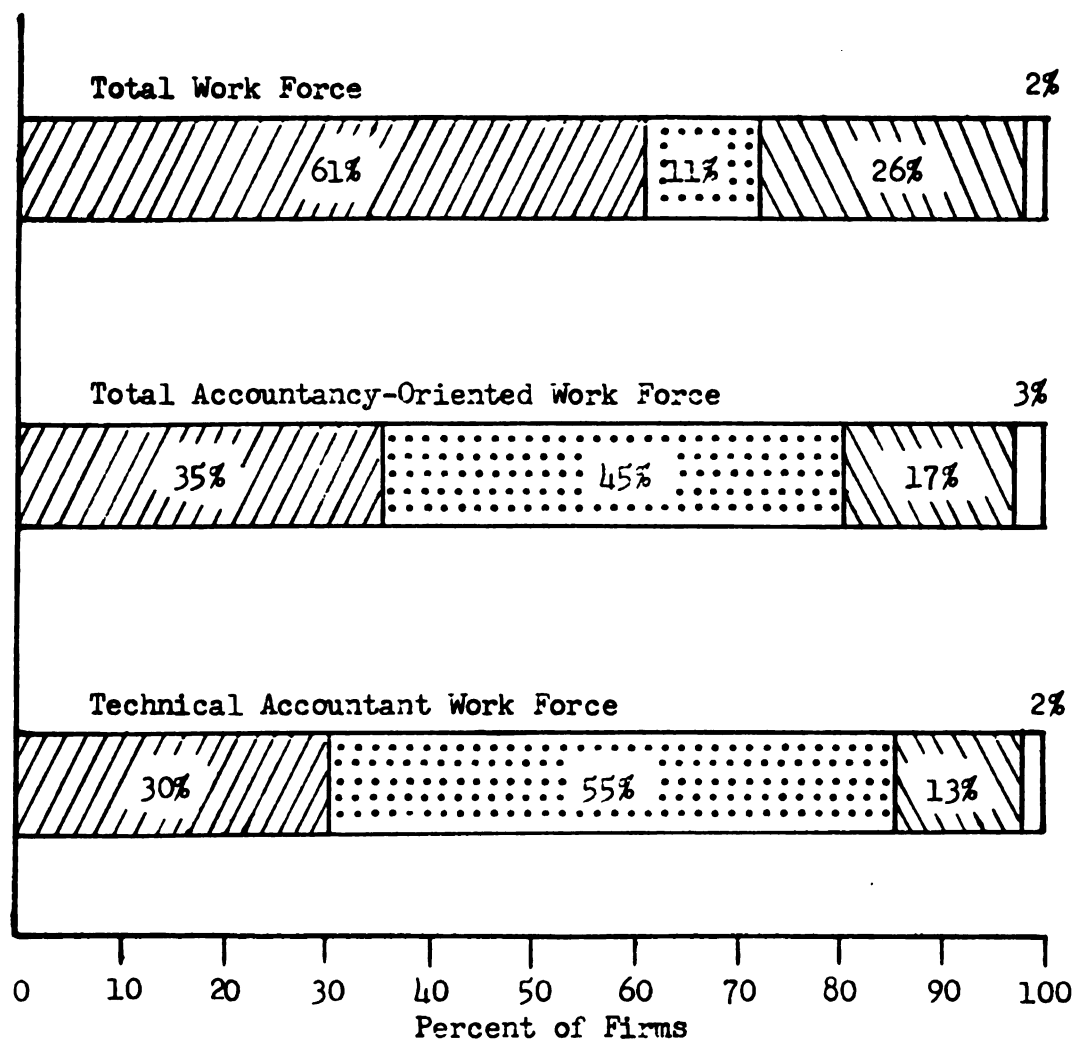
<sup>1</sup>Refers to the position where there is responsibility for a unit of work such as accounting supervisor, office supervisor, etc.

<sup>2</sup>Refers to those positions that assist in the planning and organizing of the over-all work load such as assistant controllers, controllers, etc.

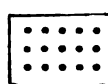
<sup>3</sup>Refers to positions that make policy and policy decisions for a firm such as treasurer, secretary, etc.

FIGURE 2

INCREASE/DECREASE COMPARISON OF TRI-COUNTY  
EMPLOYMENT SINCE 1960 BY FIRMS  
MANUFACTURING DURABLE GOODS



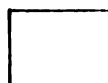
Increase



No Change



Decrease



Cannot Determine



positions also increased in forty-two and thirty-six of the firms respectively.

Though accountancy-oriented positions as well as technical accounting positions did not increase in as many firms as did the overall work force, they both showed approximately a 30 per cent increase. This lesser increase can be partially explained by the use of automated equipment.

However, during the same period thirty-two firms showed a decrease in the total work force employment while only seventeen and sixteen firms indicated a reduction in total accountancy-oriented or technical accounting positions respectively.

Tables 2 and 4 indicated that most firms showing a decrease in the employment of accountancy-oriented positions had forty-nine or less employees.

The lesser reduction in accountancy-oriented and technical accounting positions was partially explained by the increased requirements for financial records and reports.

Table 11 portrays the relationships between total accountancy-oriented and technical accounting positions. It can be noted that slightly more than 75 per cent of all accountancy positions are regarded by the firm's administrative officers as technical accountants. At the same time over 80 per cent of the increase in accountancy-oriented positions during the five-year period were considered technical accountants.



TABLE 11

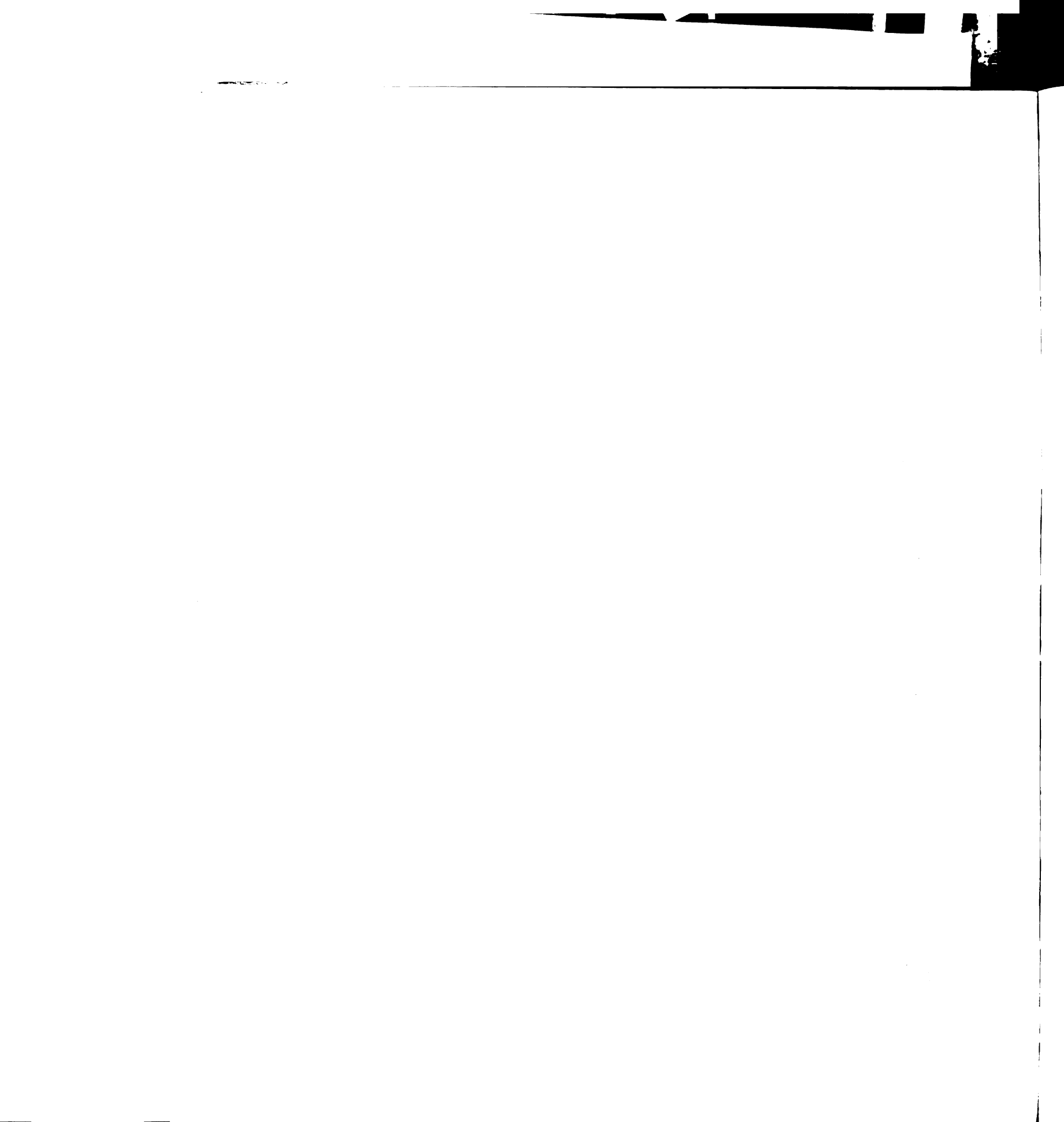
COMPARISON OF TOTAL ACCOUNTANCY-ORIENTED POSITIONS WITH  
TECHNICAL ACCOUNTANTS EMPLOYED IN THE  
TRI-COUNTY AREA

| Positions                   | Employed<br>in<br>1960 | Employed<br>in<br>1965 | Net<br>Number<br>Increase | Per Cent<br>Increase |
|-----------------------------|------------------------|------------------------|---------------------------|----------------------|
| Accountancy-Oriented*       | 221                    | 284                    | 63                        | 28.1                 |
| Technical Accountants       | 170                    | 222                    | 52                        | 30.6                 |
| Per Cent Technical To Total | 76.9                   | 78.2                   | 82.5                      |                      |

\*Figures include technical accountants

Projected employment analysis. Technical accounting employment was anticipated to increase at least until 1970 in two out of every three firms (Table 7). The net increase in the supply of technical accountants was estimated at fifty-two per year (Appendix H).

Employability of technical accountants. Almost 70 per cent of the firms preferred technical accountants specifically trained for their industry (Table 8). Table 9 indicated that fifty of the seventy-one firms would promote technical accountants and fourteen were unsure.



## CHAPTER V

### THE FINDINGS, PART II

#### ANALYSIS OF ACCOUNTING FUNCTIONS AND ACTIVITIES PERFORMED BY TECHNICAL ACCOUNTANTS

Two of the purposes of this investigation were to determine: (a) a profile of the accounting activities performed by technical accountants in firms manufacturing durable goods; and (b) whether there were clusters of accounting activities performed by technical accountants according to the size of firms.<sup>1</sup> The analysis in this chapter attempts to cover those two purposes.

In order to determine the accounting activities performed by technical accountants in total and by size of firm, ninety-nine interviews were conducted with accountants and bookkeepers classified by their employers as answering to the description of a technical accountant. The interview questionnaire<sup>2</sup> consisted of 250 accounting activities categorized under nine accounting functions. These functions were:

Making Financial Reports and Schedules

Analyzing Financial Statements and Schedules

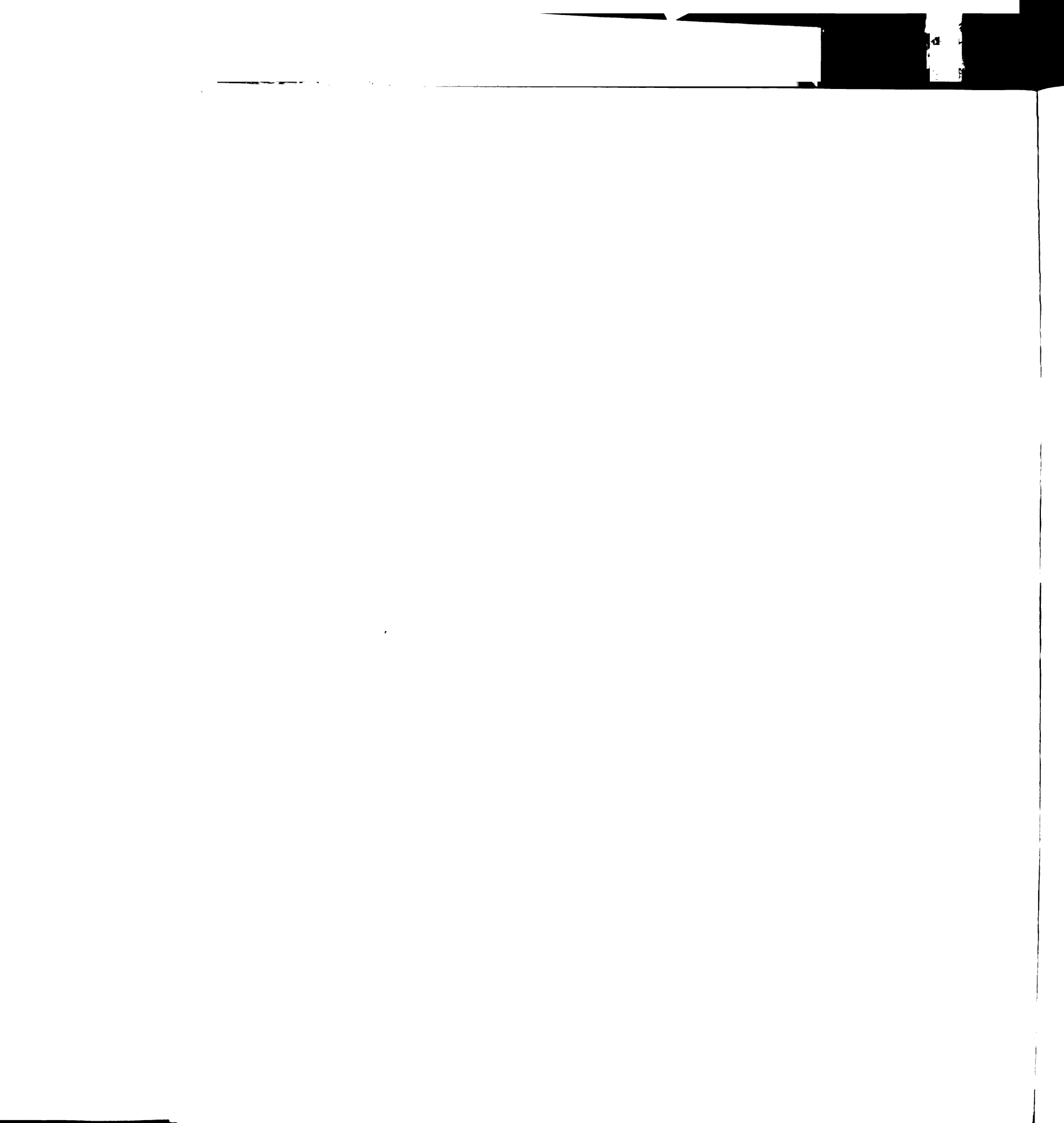
Maintaining Ledgers

Maintaining Journals

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<sup>1</sup>Refers to the number of employees on the payroll. Five classifications, according to size, were used: (a) 1-49, (b) 50-99, (c) 100-249, (d) 250-749, and (e) 750 and over.

<sup>2</sup>See Appendix F, pp. 184-192.



Preparing and Initiating Data

Recording or Posting Data

Making and Using Working Papers

Non-Classified Maintaining, Analyzing, or Performing Activities

Doing Specific Mathematical Computations

Each of the nine functions were covered individually according to the two purposes above and summarized in total at the conclusion of this chapter.

## FUNCTIONS

### Making Financial Reports and Schedules

One of the culminating functions performed by accountants has always been the making of financial reports and schedules for management. In today's economy another report recipient, the government, is also interested in a company's activities and reports. It was the purpose of this section to determine the extent technical accountants participate in the actual making of these schedules and reports.

Proportion performing activity. Of the ninety-nine technical accountants interviewed, ninety-seven made at least one financial report or schedule during the past year. However, Table 12 shows that the most often performed individual activity, in this function, the accounts receivable schedule, was made by only six out of ten (57%) of those technical accountants interviewed. The making of an accounts receivable schedule was closely followed in the proportion of technical accountants performing the various activities in this function with:

TABLE 12

ACTIVITIES OF MAKING FINANCIAL STATEMENTS AND SCHEDULES PERFORMED  
BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Type Statement or Schedule                       | Proportion Performing Activity |      |                      |       |                  |       |
|--|--------------------------------|------|----------------------|-------|------------------|-------|
|  | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |       |
|  | N                              | %    | N                    | %     | N                | %     |
| Accounts Receivable Schedule                     | 56                             | 56.6 | 54                   | 96.4  | 2                | 3.6   |
| Accounts Payable Schedule                        | 50                             | 50.5 | 48                   | 96.0  | 2                | 4.0   |
| Income Statement                                 | 48                             | 48.5 | 40                   | 83.3  | 8                | 16.7  |
| Balance Sheet                                    | 45                             | 45.5 | 34                   | 75.6  | 11               | 24.4  |
| F.I.C.A. Tax Reports                             | 45                             | 45.5 | 25                   | 55.5  | 20               | 44.5  |
| Manufacturing Expense Schedule                   | 44                             | 44.4 | 39                   | 88.6  | 5                | 11.4  |
| Cost of Goods Sold Schedule                      | 44                             | 44.4 | 37                   | 84.1  | 7                | 15.9  |
| Employee Withholding Tax Reports                 | 44                             | 44.4 | 22                   | 50.0  | 22               | 50.0  |
| Materials Consumed Schedule                      | 42                             | 42.4 | 27                   | 88.1  | 5                | 11.9  |
| Federal Unemployment Compensation<br>Tax Reports | 41                             | 41.4 | 3                    | 7.3   | 38               | 92.7  |
| Cost of Goods Manufactured Schedule              | 38                             | 38.4 | 32                   | 84.2  | 6                | 15.8  |
| General and Administrative Expense<br>Schedule   | 37                             | 37.4 | 33                   | 89.2  | 4                | 10.8  |
| State Unemployment Compensation<br>Tax Reports   | 37                             | 37.4 | 6                    | 16.2  | 31               | 83.8  |
| Selling Expense Schedule                         | 36                             | 36.4 | 31                   | 86.1  | 5                | 13.9  |
| State Sales Tax Reports                          | 28                             | 28.3 | 28                   | 100.0 | -                | -     |
| Efficiency Reports                               | 27                             | 27.3 | 23                   | 85.2  | 4                | 14.8  |
| Production Budget                                | 25                             | 25.3 | 14                   | 56.0  | 11               | 44.0  |
| Operating Budget                                 | 24                             | 24.2 | 8                    | 33.4  | 16               | 66.6  |
| Property Tax Reports                             | 24                             | 24.2 | -                    | -     | 24               | 100.0 |
| Cost of Production Statement                     | 23                             | 23.2 | 17                   | 73.9  | 6                | 26.1  |
| Credit Rating Reports                            | 22                             | 22.2 | 20                   | 90.8  | 2                | 9.2   |
| Capital Statement                                | 22                             | 22.2 | 11                   | 50.0  | 11               | 50.0  |
| Alternative Cost Reports                         | 19                             | 19.2 | 17                   | 89.5  | 2                | 10.5  |
| Consolidated Income Statement                    | 18                             | 18.2 | 16                   | 88.9  | 2                | 11.1  |
| Retained Earnings Statement                      | 18                             | 18.2 | 5                    | 27.8  | 13               | 72.2  |
| Consolidated Balance Sheet                       | 17                             | 17.2 | 13                   | 76.5  | 4                | 23.5  |
| Departmental Statements                          | 15                             | 15.2 | 14                   | 93.3  | 1                | 6.7   |
| Cash Budget                                      | 15                             | 15.2 | 9                    | 60.0  | 6                | 40.0  |
| Capital Budget                                   | 15                             | 15.2 | 7                    | 46.6  | 8                | 53.4  |
| Federal Excise Tax Reports                       | 14                             | 14.1 | 4                    | 28.6  | 10               | 71.4  |
| Company Income Tax Reports                       | 14                             | 14.1 | 2                    | 14.3  | 12               | 85.7  |
| Making Sales Budgets                             | 13                             | 13.1 | 7                    | 53.8  | 6                | 46.2  |

TABLE 12 (continued)

| Type Statement or Schedule                | Proportion Performing Activity |      |         |      |     |      |
|---|--------------------------------|------|---------|------|-----|------|
|   | Total                          |      | Monthly |      | QSA |      |
|   | N                              | %    | N       | %    | N   | %    |
| Source and Application of Funds Statement | 12                             | 12.1 | 5       | 41.7 | 7   | 58.3 |
| Cash Flow Statement                       | 11                             | 11.1 | 6       | 54.6 | 5   | 45.4 |
| Branch and Division Statements            | 9                              | 9.1  | 8       | 88.9 | 1   | 11.1 |
| Research and Development Budget           | 6                              | 6.1  | 2       | 33.3 | 4   | 33.7 |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Fifty-six, or 56.6 per cent, of the ninety-nine interviewed made an accounts receivable schedule; of those that performed the activity fifty-four or 96.4 per cent did so at least once per month and two did so only once per QSA(quarterly, semi-annually, or annually).

- . . . 5 out of 10 (51%) making an accounts payable schedule
- . . . 5 out of 10 (49%) making an income statement
- . . . 5 out of 10 (46%) making a balance sheet
- . . . 5 out of 10 (46%) making out F.I.C.A. tax reports

It was interesting to note that excluding the first two ranked activities, the making of accounts receivable and accounts payable schedules which were normally considered as activities performed by bookkeepers, many activities within this function were considered as within the realm of duties for a four-year degree accountant. Table 12 indicates that technical accountants do perform some activities which have been considered duties of a bookkeeper as well as some of which have been considered duties of a four-year degree accountant.

All those accounting activities investigated in this study under the function of Making Accounting Reports and Schedules were performed by at least some of the ninety-nine technical accountants.

Table 12 shows that two out of three of the activities were performed primarily, fifty per cent or more of the time, at least once monthly. Of the ten activities in this function performed primarily QSA,<sup>1</sup> four were tax reports and the remaining six related directly to the quarterly or yearly fiscal reports. If one were to exclude long-term governmental reports, annual reports, and long-term budgets, at least seventy-five per cent of those performing the activities did so at least once per month.

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<sup>1</sup>Refers to those activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.



Activities performed by size of firm. The accounting activities in the Making Financial Reports and Schedules Function that were performed by technical accountants in total were also performed by technical accountants in the various-sized firms.<sup>1</sup> Only five of the thirty-six accounting reports and schedules were not performed in all of the five size categories of firms. Of the activities not performed by technical accountants: (a) research and development budgets were not made in the two smallest or the largest sized firm classifications; (b) capital statements, retained earnings statements, and source and application of funds statements were not made in firms employing between 250 and 749 employees; and (c) cash flow statements were not made in the firms with 50 to 99 employees. These five reports were all performed by less than one out of four of the technical accountants interviewed and three of these by less than one out of eight. Therefore, it could be said that technical accountants did perform the function of Making Financial Reports and Schedules in each of the five size of firm categories.

A further analysis of Table 13 generally shows that as firms became larger there appeared to be a less proportionate share of technical accountants performing any given activity. This could be explained by the fact that those employed in smaller firms must perform a larger number of activities while those in the larger firms become more specialized. However, it was noted that in firms having 100-249 employees a greater proportion of the technical accountants performed the accounting activities than did those in firms having 50-99 employees.

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<sup>1</sup>See Table 13

TABLE 13

**FINANCIAL REPORTS AND SCHEDULES MADE BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Type Report or Schedule                          | Percent Performing Activity** |                 |           |             |             |                |
|--|-------------------------------|-----------------|-----------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |           |             |             |                |
|  |                               | 1-49            | 50-99     | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| <b>No. Technical Accountants Per Category</b>    | <b>99</b>                     | <b>11</b>       | <b>18</b> | <b>20</b>   | <b>15</b>   | <b>35</b>      |
| Accounts Receivable Schedule                     | 57*                           | 73              | 78        | 70          | 40          | 40             |
| Accounts Payable Schedule                        | 51*                           | 73              | 78        | 65          | 33          | 29             |
| Income Statement                                 | 49                            | 64              | 50        | 55          | 60          | 34             |
| Balance Sheet                                    | 46*                           | 82              | 56        | 50          | 47          | 26             |
| F.I.C.A. Tax Reports                             | 46*                           | 91              | 61        | 50          | 27          | 29             |
| Manufacturing Expense Schedule                   | 44                            | 46              | 39        | 70          | 47          | 31             |
| Cost of Goods Sold Schedule                      | 44*                           | 55              | 56        | 60          | 60          | 20             |
| Employee Withholding Tax Reports                 | 44*                           | 91              | 61        | 50          | 20          | 29             |
| Materials Consumed Schedule                      | 42                            | 36              | 50        | 65          | 47          | 26             |
| Federal Unemployment Compensation<br>Tax Reports | 41                            | 82              | 50        | 55          | 27          | 23             |
| Cost of Goods Manufactured Schedule              | 38                            | 46              | 39        | 65          | 33          | 23             |
| General and Administrative Expense<br>Schedule   | 37                            | 46              | 39        | 50          | 53          | 20             |
| State Unemployment Compensation<br>Tax Reports   | 37*                           | 82              | 56        | 45          | 20          | 17             |
| Selling Expense Schedule                         | 36                            | 55              | 44        | 45          | 33          | 23             |
| State Sales Tax Reports                          | 28                            | 46              | 33        | 45          | 13          | 17             |
| Efficiency Reports                               | 27                            | 18              | 11        | 45          | 20          | 31             |
| Production Budget                                | 25*                           | 27              | 11        | 20          | 60          | 20             |
| Operating Budget                                 | 24                            | 27              | 11        | 15          | 47          | 26             |
| Property Tax Reports                             | 24                            | 46              | 33        | 35          | 27          | 6              |
| Cost of Production Statement                     | 23                            | 27              | 22        | 25          | 33          | 17             |
| Credit Rating Reports                            | 22*                           | 27              | 22        | 30          | 40          | 9              |
| Capital Statement                                | 22*                           | 36              | 22        | 45          | -           | 14             |
| Alternative Cost Reports                         | 19*                           | 18              | 6         | 50          | 27          | 6              |
| Consolidated Income Statement                    | 18                            | 36              | 22        | 20          | 13          | 11             |
| Retained Earnings Statement                      | 18*                           | 27              | 28        | 35          | -           | 9              |
| Consolidated Balance Sheet                       | 17                            | 36              | 22        | 15          | 13          | 11             |
| Departmental Statements                          | 15                            | -               | 6         | 10          | 33          | 20             |
| Cash Budget                                      | 15*                           | 46              | 11        | 10          | 20          | 9              |
| Capital Budget                                   | 15                            | 9               | 6         | 20          | 13          | 20             |
| Federal Excise Tax Reports                       | 14                            | 18              | 17        | 30          | 7           | 6              |
| Company Income Tax Reports                       | 14                            | 36              | 22        | 20          | 7           | 3              |
| Sales Budget                                     | 13                            | 27              | 17        | 10          | 20          | 6              |

TABLE 13 (continued)

| Type Report or Schedule         | Percent Performing Activity |                 |       |             |             |                |
|---------------------------------|-----------------------------|-----------------|-------|-------------|-------------|----------------|
|                                 | In<br>Total                 | By Size of Firm |       |             |             |                |
|                                 |                             | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Source and Application of Funds |                             |                 |       |             |             |                |
| Statement                       | 12                          | 9               | 17    | 30          | -           | 6              |
| Cash Flow Statement             | 11                          | 27              | -     | 30          | 7           | 3              |
| Branch and Division Statements  | 9                           | 9               | 6     | 15          | 13          | 6              |
| Research and Development Budget | 6                           | -               | -     | 15          | 20          | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 57 per cent of the ninety-nine technical accountants interviewed made an accounts receivable schedule. The doing of this activity was performed by: 73 per cent of those in firms having 1-49 employees, 78 per cent of those in firms having 50-99 employees, etc.

One could also notice that the two middle-sized firm categories, those employing from 100-749 employees, had a greater percentage of their technical accountants making reports and schedules dealing with some phase of cost accounting.

When the thirty-six accounting activities in the Making Financial Reports and Schedules Function were ranked in order by the proportion performed according to each size of firm category, Appendix K, a horizontal comparison of the rankings revealed that there were few accounting activity ranks that varied more than the one-third (12 ranks) allowable rank variation.<sup>1</sup> Those activities that varied more than the acceptable one-third total rank variation when classified by size of firm were placed in two categories; (1) those ranking twelve or more higher<sup>2</sup> than the average for the activity, and (2) those ranking twelve or more lower<sup>3</sup> than the average for a particular activity.

Those activities that were ranked higher than twelve ranks above the average in a particular firm-size category were:

- . . . Cash Budgets in firms having 1-49 employees.
- . . . Alternative Cost Reports in firms having 100-249 employees.
- . . . Production Budgets, Research, and Development Budgets, and Credit Rating Reports in firms having 250-749 employees.

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<sup>1</sup>This approach was recommended in an interview by Dr. Karl Hereford, former research design professor, College of Education, Michigan State University, East Lansing, Michigan, June 10, 1966.

<sup>2</sup>Refers to those that were ranked above the total rank for an activity due to a greater proportion of technical accountants performing the activity within a particular firm-size category.

<sup>3</sup>Refers to those that were ranked below the total rank for an activity due to a lesser proportion of technical accountants performing the activity within a particular firm-size category.

- . . . Operating Budgets and Departmental Statements in firms with more than 250 employees.
- . . . Efficiency Reports and Capital Budgets in firms with 750 or more employees.

Those activities that were ranked lower than twelve ranks below the average in a particular firm-size category were:

- . . . Efficiency Reports in firms having 1-99 employees.
- . . . Operating Budget in firms having 100-249 employees.
- . . . F.I.C.A. Tax Reports, Employee Withholding Tax Reports, State Sales Tax Reports, and Capital Statement. \*

#### Analysis and Interpretation of Financial Reports and Schedules

The function of analyzing and interpreting financial reports and schedules has been normally considered a duty of the degree accountant. However, Table 14 shows that technical accountants also perform the activities within this function.

Proportion performing activity. Four out of ten technical accountants analyzed accounts receivable but less than one of three performed any of the other twenty-four analysis or interpretation activities investigated in this study. Of the seven most performed activities in this function, three were closely associated with various analyses of accounts receivable while seven of the eight least performed were analyses associated with stockholders' equity in the business. Further analysis indicated that as the proportion of technical accountants performing an activity decreased the frequency of performance tended to change from at least once monthly to QSA (at least once quarterly, semi-annually, or annually).

TABLE 14

ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS PERFORMED BY  
TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Type Analysis or Interpretation                       | Proportion Performing Activity |      |                      |      |                  |      |
|---|--------------------------------|------|----------------------|------|------------------|------|
|   | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |      | QSA <sup>d</sup> |      |
|   | N                              | %    | N                    | %    | N                | %    |
| Analyze Accounts Receivable                           | 41                             | 41.4 | 37                   | 90.3 | 4                | 9.7  |
| Analyze Per Cent Costs to Sales                       | 32                             | 32.3 | 26                   | 81.2 | 6                | 18.8 |
| Analyze Per Cent Expenses to Sales                    | 30                             | 30.3 | 24                   | 80.0 | 6                | 20.0 |
| Comparative Analysis of Income Statements             | 26                             | 26.3 | 18                   | 69.3 | 8                | 30.7 |
| Comparative Analysis of Balance Sheets                | 22                             | 22.2 | 12                   | 54.5 | 7                | 45.5 |
| Analyze Accounts Receivable Turnover                  | 21                             | 21.2 | 9                    | 42.9 | 12               | 57.1 |
| Analyze Average Collection Period on Receivables      | 20                             | 20.2 | 9                    | 45.0 | 11               | 55.0 |
| Determine Per Cent Return on Investment               | 19                             | 19.2 | 12                   | 63.2 | 7                | 36.8 |
| Determine Average Cost Per Unit Manufactured          | 18                             | 18.2 | 14                   | 77.8 | 4                | 22.2 |
| Determine Average Cost Per Unit Sold                  | 18                             | 18.2 | 14                   | 77.8 | 4                | 22.2 |
| Analyze Working Capital                               | 18                             | 18.2 | 9                    | 50.0 | 9                | 50.0 |
| Determine and Analyze Current Ratio                   | 16                             | 16.2 | 9                    | 56.3 | 7                | 43.7 |
| Determine Per Cent Increase or Decrease Per Item      | 13                             | 13.1 | 7                    | 53.8 | 6                | 46.2 |
| Determine and Analyze Receivables to Sales Ratio      | 13                             | 13.1 | 8                    | 61.5 | 5                | 38.5 |
| Determine Inventory Turnover                          | 12                             | 12.1 | 5                    | 41.7 | 7                | 58.3 |
| Determine Sales to Asset Ratio                        | 11                             | 11.1 | 6                    | 54.5 | 5                | 45.5 |
| Determine Acid Test Ratio                             | 10                             | 10.1 | 4                    | 40.0 | 6                | 60.0 |
| Determine Book Value Per Share of Stock               | 10                             | 10.1 | 4                    | 40.0 | 6                | 60.0 |
| Determine Per Cent Earnings to Total Assets           | 9                              | 9.1  | 4                    | 44.5 | 5                | 55.5 |
| Determine Plant Assets to Long-Term Liabilities Ratio | 8                              | 8.1  | 2                    | 25.0 | 6                | 75.0 |
| Determine Equity to Asset Ratio                       | 7                              | 7.1  | 1                    | 14.3 | 6                | 85.7 |
| Determine Dollar Earnings Per Share of Stock          | 7                              | 7.1  | 1                    | 14.3 | 6                | 85.7 |
| Determine Dividends Per Share of Stock                | 6                              | 6.1  | 2                    | 33.3 | 4                | 66.7 |



TABLE 14 (continued)

| Type Analysis or Interpretation        | Proportion Performing Activity |     |         |   |     |       |
|--|--------------------------------|-----|---------|---|-----|-------|
|  | Total                          |     | Monthly |   | QSA |       |
|  | N                              | %   | N       | % | N   | %     |
| Determine Per Cent Dividend Yield      | 5                              | 5.1 | -       | - | 5   | 100.0 |
| Determine Liabilities to Capital Ratio | 5                              | 5.1 | -       | - | 5   | 100.0 |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Forty-one, or 41.4 per cent, of the ninety-nine interviewed analyzed accounts receivable; of those that performed the activity thirty-seven, or 90.3 per cent, did so at least once per month and four did so only once per QSA (quarterly, semi-annually, or annually).



Activities performed by size of firm. Table 15 indicates that the analysis and interpretation activities performed by a minimum of one out of eight (12.5%) technical accountants were also performed at least once in each of the five size of firm categories.

The smallest firms, those having 1-49 employees, appeared to have the largest percentage of their technical accountants performing analysis and interpretation activities. When the proportion of technical accountants performing the activities in the other firm size categories was compared with the smallest category it showed: (1) the 50-99 size category had a slight decline, (2) the 100-249 size category almost equalled the smallest category, and (3) the two largest firm size categories, 250-749 and 750 and over, showed a considerable decrease. In fact, less than one out of four of the technical accountants in firms having more than 750 employees performed any specific one of the twenty-five activities in this function; in most cases it was less than one out of ten.

When the twenty-five activities in the function of Analysis and Interpretation of Financial Reports and Schedules were ranked according to proportion performed by technical accountants in total and by size of firm, Appendix L, few varied beyond the acceptable one-third (more than eight ranks) allowable rank variation. However, it was noted that almost one-half of the significant variations were in the 50-99 employee size category.

These activities that were ranked higher than eight ranks above the average in a particular firm-size category were:

. . . Determining Inventory Turnover in firms having 1-49 employees.

TABLE 15

**ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS PERFORMED BY  
TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Type Analysis or Interpretation                          | Percent Performing Activity** |                 |           |             |             |                |
|--|-------------------------------|-----------------|-----------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |           |             |             |                |
|  |                               | 1-49            | 50-99     | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| <b>No. Technical Accountants Per Category</b>            | <b>99</b>                     | <b>11</b>       | <b>18</b> | <b>20</b>   | <b>15</b>   | <b>35</b>      |
| Analyze Accounts Receivable                              | 41                            | 73              | 50        | 55          | 40          | 20             |
| Analyze Per Cent Costs to Sales                          | 32                            | 36              | 28        | 50          | 47          | 17             |
| Analyze Per Cent Expenses to Sales                       | 30*                           | 36              | 28        | 45          | 53          | 11             |
| Comparative Analysis of Income<br>Statements             | 26                            | 36              | 28        | 35          | 40          | 11             |
| Comparative Analysis of Balance<br>Sheets                | 22                            | 36              | 28        | 30          | 27          | 9              |
| Analyze Accounts Receivable Turnover                     | 21                            | 18              | 22        | 20          | 33          | 17             |
| Analyze Average Collection Period<br>on Receivables      | 20                            | 36              | 17        | 10          | 27          | 20             |
| Determine Per Cent Return on<br>Investment               | 19                            | 18              | 22        | 30          | 20          | 11             |
| Determine Average Cost Per Unit<br>Manufactured          | 18                            | 18              | 11        | 20          | 33          | 14             |
| Determine Average Cost Per Unit Sold                     | 18                            | 18              | 6         | 25          | 13          | 23             |
| Analyze Working Capital                                  | 18                            | 36              | 22        | 10          | 33          | 9              |
| Determine and Analyze Current Ratio                      | 16                            | 27              | 28        | 20          | 13          | 6              |
| Determine Per Cent Increase or<br>Decrease Per Item      | 13                            | 18              | 6         | 10          | 13          | 17             |
| Determine and Analyze Receivables<br>to Sales Ratio      | 13*                           | 18              | 11        | 20          | 7           | 11             |
| Determine Inventory Turnover                             | 12                            | 36              | -         | 15          | 13          | 9              |
| Determine Sales to Asset Ratio                           | 11                            | 18              | 11        | 25          | -           | 6              |
| Determine Acid Test Ratio                                | 10                            | 18              | 17        | 15          | 7           | 3              |
| Determine Book Value Per Share<br>of Stock               | 10*                           | 27              | 22        | 15          | -           | -              |
| Determine Per Cent Earnings to<br>Total Assets           | 9*                            | 9               | 17        | 10          | 20          | -              |
| Determine Plant Assets to Long-Term<br>Liabilities Ratio | 8*                            | 18              | 11        | 10          | -           | 6              |
| Determine Equity to Asset Ratio                          | 7                             | 18              | 17        | 10          | -           | -              |
| Determine Dollar Earnings Per<br>Share of Stock          | 7*                            | 9               | 17        | 15          | -           | -              |



TABLE 15 (continued)

| Type Analysis or Interpretation           | Percent Performing Activity |                 |       |             |             |                |
|---|-----------------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total                 | By Size of Firm |       |             |             |                |
|   |                             | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Determine Dividends Per Share of<br>Stock | 6*                          | 9               | 11    | 15          | -           | -              |
| Determine Per Cent Dividend Yield         | 5                           | 9               | 6     | 10          | -           | 3              |
| Determine Liabilities to Capital<br>Ratio | 5                           | 9               | 11    | 10          | -           | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\* All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 41 per cent of the technical accountants interviewed analyzed accounts receivable. The doing of this activity was performed by: 73 per cent of those in firms having 1-49 employees, 50 per cent of those in firms having 50-99 employees, etc.

- . . . Determining Book Value Per Share of Stock, Equity to Asset Ratio, and Dollar Earnings Per Share of Stock in firms having 50-99 employees.
- . . . Determining Sales to Asset Ratio in firms having 100-249 employees.
- . . . Determining Per Cent Earnings to Total Assets in firms having 250-749 employees.
- . . . Determining Per Cent Increase Per Item and Average Cost Per Unit Sold in firms having more than 750 employees.

Those activities that were ranked lower than eight ranks below the average in a particular firm-size category were:

- . . . Analyze Accounts Receivable in firms having 1-49 employees.
- . . . Determining Average Cost Per Unit Manufactured and Sold, Per Cent Increase or Decrease Per Item, and Inventory Turnover in firms having 50-99 employees.
- . . . Analyzing Average Collection Period on Receivables and Analyzing Working Capital in firms having 100-249 employees.

### Maintaining Ledgers

The responsibility for maintaining a ledger has been considered a task of a bookkeeper as well as of an accountant. This investigation found it also to be a task of a technical accountant as nine out of ten maintained or were responsible for some type of ledger.<sup>1</sup>

Proportion performing activity. Table 16 indicates the specific type ledger with the proportion and frequency by which the technical accountants performed these activities. One can observe that few of the activities performed were done so less frequently than once per month

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<sup>1</sup>See Table 30, p. 117.

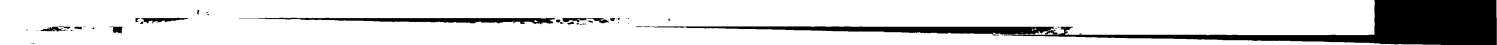


TABLE 16

LEDGERS MAINTAINED BY TECHNICAL ACCOUNTANTS IN FIRMS  
MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Ledger Maintained                    | Proportion Performing Activity |      |                      |       |                  |      |
|--------------------------------------|--------------------------------|------|----------------------|-------|------------------|------|
|                                      | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|                                      | N                              | %    | N                    | %     | N                | %    |
| Accounts Receivable                  | 53                             | 53.5 | 53                   | 100.0 | -                | -    |
| Payroll                              | 51                             | 51.5 | 51                   | 100.0 | -                | -    |
| Accounts Payable or Vouchers Payable | 47                             | 47.5 | 47                   | 100.0 | -                | -    |
| General Ledger                       | 39                             | 39.4 | 14                   | 36.0  | 25               | 64.0 |
| Plant (Fixed Asset)                  | 36                             | 36.4 | 36                   | 100.0 | -                | -    |
| Expense                              | 31                             | 31.3 | 31                   | 100.0 | -                | -    |
| Cost                                 | 28                             | 28.3 | 28                   | 100.0 | -                | -    |
| Materials or Stores                  | 22                             | 22.2 | 22                   | 100.0 | -                | -    |
| Notes Receivable                     | 16                             | 16.2 | 16                   | 100.0 | -                | -    |
| Notes Payable                        | 15                             | 15.2 | 15                   | 100.0 | -                | -    |
| Finished Goods                       | 15                             | 15.2 | 15                   | 100.0 | -                | -    |
| Factory                              | 15                             | 15.2 | 14                   | 93.3  | 1                | 6.7  |
| Insurance Register                   | 11                             | 11.1 | 10                   | 90.0  | 1                | 9.1  |
| Stockholders                         | 9                              | 9.1  | 5                    | 55.5  | 4                | 44.5 |
| Branch                               | 6                              | 6.1  | 6                    | 100.0 | -                | -    |
| Subscribers                          | 2                              | 2.0  | 2                    | 100.0 | -                | -    |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Fifty-three, or 53.5 per cent, of the ninety-nine interviewed maintained an accounts receivable ledger; of those that performed the activity 100 per cent did so at least once per month.

and that of the sixteen ledgers maintained by technical accountants:

- . . . Only five of them were maintained by more than one out of three.
- . . . Only one-half, eight, of them were maintained by more than one out of five.

While four out of ten maintained or were responsible for a general ledger, almost nine out of ten, 86 per cent, were responsible for some subsidiary ledger. Of the subsidiary ledgers maintained by technical accountants:

- . . . One-half maintained the accounts receivable ledger, payroll ledger, and/or accounts payable ledger.
- . . . One-third maintained the plant ledger and/or expense ledger.
- . . . One-fourth maintained the cost ledger and/or materials ledger.

The remaining subsidiary ledgers were maintained by a lesser proportion of the technical accountants.

Activities performed by size of firm. Table 17 shows that except for those ledgers maintained by less than one-eighth of the technical accountants, all others were maintained in each of the five size of firm categories. However, there generally was an inverse relationship to size of firm; as firms increased in size a less proportionate number of the technical accountants performed the activities included in this function.

A larger per cent of those employed in the middle-size firms, 100-249 employees, performed technical manufacturing activities. More specifically, they performed more of what is normally referred to as "cost accounting" ledger activities such as maintaining cost ledgers, materials or stores ledgers, factory ledgers, and finished goods ledgers





TABLE 17

LEDGERS MAINTAINED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM

| Ledger Maintained                      | Percent Performing Activity** |                 |       |             |             |                |
|--|-------------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |       |             |             |                |
|  |                               | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| No. Technical Accountants Per Category | 99                            | 11              | 18    | 20          | 15          | 35             |
| Accounts Receivable                    | 54*                           | 91              | 78    | 70          | 40          | 26             |
| Payroll                                | 52*                           | 91              | 83    | 60          | 33          | 26             |
| Accounts Payable or Vouchers Payable   | 48                            | 64              | 72    | 60          | 33          | 29             |
| General Ledger                         | 39                            | 64              | 39    | 55          | 33          | 26             |
| Plant (Fixed Asset)                    | 36                            | 46              | 39    | 40          | 47          | 26             |
| Expense                                | 31                            | 55              | 22    | 40          | 33          | 23             |
| Cost                                   | 28*                           | 36              | 11    | 55          | 40          | 14             |
| Materials or Stores                    | 22                            | 27              | 6     | 30          | 33          | 20             |
| Notes Receivable                       | 16                            | 27              | 17    | 30          | 7           | 9              |
| Notes Payable                          | 15                            | 27              | 22    | 20          | 7           | 9              |
| Finished Goods                         | 15                            | 9               | 6     | 30          | 27          | 9              |
| Factory                                | 15                            | 9               | 11    | 30          | 20          | 9              |
| Insurance Register                     | 11                            | 27              | 17    | 15          | -           | 6              |
| Stockholders                           | 9                             | 9               | 17    | 25          | -           | -              |
| Branch                                 | 6                             | -               | 6     | 10          | 7           | 6              |
| Subscribers                            | 2                             | -               | -     | 10          | -           | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 54 per cent of the ninety-nine technical accountants interviewed maintained an accounts receivable ledger. The doing of this activity was performed by: 91 per cent of those in firms having 1-49 employees, 78 per cent of those in firms having 50-99 employees, etc.

than did those employed in the smaller or larger firms.

When the sixteen ledger activities performed by technical accountants were ranked in order by total and by size of firm according to the proportionate number performing the activity very little variation appeared as shown in Appendix M. The only activity varying more than the accepted one-third of the ranks (5) was the maintaining of a materials or stores ledger in firms having 50-99 employees where it received a rank lower than the accepted range.

### Maintaining Journals

The maintaining of journals has often been considered largely a bookkeeping function and performed by a bookkeeper. This investigation showed that technical accountants also perform that function. In fact, seven out of ten technical accountants interviewed for this study maintained some type of journal.<sup>1</sup>

Proportion performing activity. As shown by Table 18 of the ninety-nine technical accountants interviewed:

- . . . Almost five out of ten were responsible for the general journal and/or the sales journal.
- . . . Four out of ten were responsible for the cash receipts and/or the check register.

The combined cash journal, often taught in all bookkeeping and accounting classes was maintained by only one of ninety-nine technical accountants. However, almost all the journals were maintained by at least 25 per cent or more of the technical accountants at a frequency

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<sup>1</sup>See Table 30, p. 117.

TABLE 18

JOURNALS MAINTAINED BY TECHNICAL ACCOUNTANTS IN FIRMS  
MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Journal Maintained               | Proportion Performing Activity |      |                      |       |                  |     |
|----------------------------------|--------------------------------|------|----------------------|-------|------------------|-----|
|                                  | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |     |
|                                  | N                              | %    | N                    | %     | N                | %   |
| Sales                            | 48                             | 48.5 | 48                   | 100.0 | -                | -   |
| General Journal                  | 45                             | 45.5 | 44                   | 97.8  | 1                | 2.2 |
| Cash Receipts                    | 42                             | 42.4 | 42                   | 100.0 | -                | -   |
| Check Register                   | 37                             | 37.4 | 37                   | 100.0 | -                | -   |
| Petty Cash Register              | 31                             | 31.3 | 31                   | 100.0 | -                | -   |
| Purchases                        | 27                             | 27.3 | 27                   | 100.0 | -                | -   |
| Sales Returns and Allowances     | 26                             | 26.3 | 26                   | 100.0 | -                | -   |
| Voucher Register                 | 25                             | 25.3 | 24                   | 96.0  | 1                | 4.0 |
| Cash Payment                     | 13                             | 13.1 | 13                   | 100.0 | -                | -   |
| Purchases Returns and Allowances | 9                              | 9.1  | 9                    | 100.0 | -                | -   |
| Combined Cash                    | 1                              | 1.0  | 1                    | 100.0 | -                | -   |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Forty-eight, or 48.5 per cent, of the ninety-nine interviewed maintained a sales journal; or those that performed the activity 100 per cent did so at least once per month.

of at least once per month. Only three of the eleven journals were maintained by less than one out of four technical accountants and each was normally part of another more advanced journal; e.g. cash payments journal as part of check register, combined cash journal as part of the cash receipts journal and the check register, and the purchases returns and allowances journal as part of the purchases journal and the voucher register.

Activities performed by size of firm. All journals maintained by at least one out of ten of the technical accountants were also performed in each of the firm size categories with the exception of the cash payments journal as shown by Table 19. However, most accountants consider the cash payments journal as a simplified check register and both do serve the same purpose. The firm with over 750 employees having four technical accountants to maintain cash payment journals was in the process of modernizing its accounting system whereby the cash payments journal will be replaced by an up-to-date system.

When the activities were ranked in total and by size of firm, few rankings varied more than the acceptable one-third of the total number of activities.<sup>1</sup> When compared to the total rankings:

- . . . The voucher register was ranked higher, more often performed, in the largest sized category, 750 or more employees.
- . . . The cash receipts journal was ranked lower, less often performed, in the firms employing 250-749 employees.

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<sup>1</sup>See Appendix N, p. 213.

TABLE 19

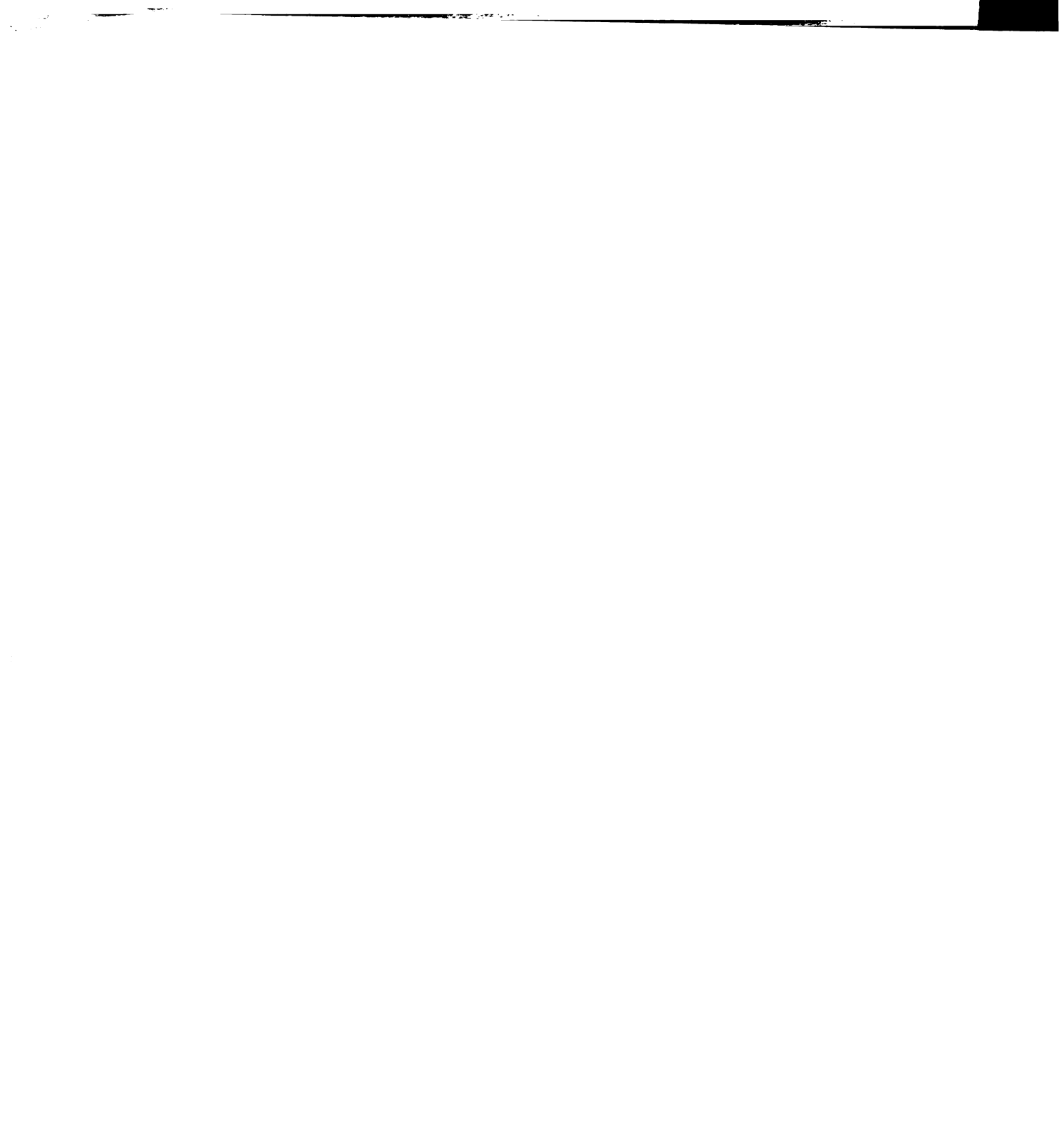
**JOURNALS MAINTAINED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Journal Maintained                     | Percent Performing Activity** |                 |       |             |             |                |
|--|-------------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |       |             |             |                |
|  |                               | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| No. Technical Accountants Per Category | 99                            | 11              | 18    | 20          | 15          | 35             |
| Sales                                  | 49*                           | 91              | 67    | 65          | 33          | 23             |
| General                                | 46*                           | 73              | 44    | 70          | 60          | 17             |
| Cash Receipts                          | 42*                           | 73              | 78    | 65          | 13          | 14             |
| Check Register                         | 37*                           | 73              | 44    | 65          | 33          | 9              |
| Petty Cash Register                    | 31*                           | 46              | 61    | 50          | 13          | 9              |
| Purchases                              | 27*                           | 64              | 50    | 20          | 13          | 14             |
| Sales Returns and Allowances           | 26*                           | 36              | 28    | 60          | 20          | 6              |
| Voucher Register                       | 25                            | 27              | 22    | 50          | 20          | 14             |
| Cash Payment                           | 13*                           | -               | 39    | 5           | 7           | 11             |
| Purchases Returns and Allowances       | 9                             | 9               | 17    | 20          | 7           | -              |
| Combined Cash                          | 1                             | -               | -     | 5           | -           | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 49 per cent of the ninety-nine technical accountants interviewed maintained a sales journal. The doing of this activity was performed by: 91 per cent of those in firms having 1-49 employees, 67 per cent of those in firms having 50-99 employees, etc.



### Preparing and Initiating Data

Of the ninety-nine technical accountants interviewed in this study, ninety-three prepared or initiated some specific data or the supporting data to be transferred to journals.<sup>1</sup>

Proportion performing activities. Table 20 indicates that all of the twenty-one activities in this function having to do with the preparing or initiating data or supporting data for journal entries were done by more than 14 per cent of the technical accountants. A large percentage, seventy-five or more, of all activities were performed at least monthly except those which are normally classified as the annual activities such as closing and reversing entries, data for tax valuation, and supply inventories.

Approximately six out of ten prepared normal operating journal entries, and the same proportion made correcting entries. This appears significant inasmuch as many accounting teachers spend considerable instruction time on preparing and recording the journal entries and pass over without equal stress how to make corrections for possible errors or omissions. Five out of six technical accountants preparing or initiating entries also had to write explanations for them - a task normally omitted by accounting teachers as unimportant.

Activities performed by size of firm. As shown in Table 21, all the preparing and initiating activities considered in this function were performed by technical accountants in the five size of firm categories

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<sup>1</sup>See Table 30, p. 117.



TABLE 20

PREPARING OR INITIATING DATA ACTIVITIES PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| To Prepare or Initiate  | Proportion Performing Activity |      |                      |       |                  |      |
|---|--------------------------------|------|----------------------|-------|------------------|------|
|   | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|   | N                              | %    | N                    | %     | N                | %    |
| Regular Journal Entries or<br>Journal Vouchers                | 64                             | 64.6 | 63                   | 98.4  | 1                | 1.6  |
| Entries for Corrections                                       | 59                             | 59.6 | 52                   | 88.2  | 7                | 11.8 |
| Adjusting Entries   | 56                             | 56.6 | 45                   | 80.4  | 11               | 19.6 |
| Explanations for Each Journal Entry                           | 52                             | 52.5 | 52                   | 100.0 | -                | -    |
| Expense Accounts  | 43                             | 43.4 | 42                   | 97.7  | 1                | 2.3  |
| Closing Entries   | 42                             | 42.4 | 11                   | 26.2  | 31               | 73.8 |
| Bank Deposits   | 40                             | 40.4 | 40                   | 100.0 | -                | -    |
| Bank Reconciliations  | 38                             | 38.4 | 38                   | 100.0 | -                | -    |
| Social Security Forms (W-4, W-2)                              | 36                             | 36.4 | 27                   | 75.0  | 9                | 25.0 |
| Data for Electronic Equipment-<br>To be used later on Reports | 35                             | 35.4 | 35                   | 100.0 | -                | -    |
| Reversing Entries   | 34                             | 34.3 | 13                   | 38.3  | 21               | 61.7 |
| Entries for Direct and Indirect Costs                         | 32                             | 32.3 | 31                   | 96.9  | 1                | 3.1  |
| Entries for the Purchase of Materials                         | 31                             | 31.3 | 31                   | 100.0 | -                | -    |
| Insurance Forms   | 28                             | 28.3 | 26                   | 92.9  | 2                | 7.1  |
| Entries to Record Waste & Scrap<br>Materials                  | 27                             | 27.3 | 26                   | 95.3  | 1                | 3.7  |
| Supplies Inventories  | 25                             | 25.3 | 14                   | 56.0  | 11               | 44.0 |
| Entries to Adjust Inventory Cards                             | 24                             | 24.2 | 21                   | 87.5  | 3                | 12.5 |
| Entries for the Return of Materials<br>to Stores              | 23                             | 23.2 | 23                   | 100.0 | -                | -    |
| Entries to Record Defective Work                              | 19                             | 19.2 | 19                   | 100.0 | -                | -    |
| Entries for the Issuance of Materials                         | 18                             | 18.2 | 17                   | 94.4  | 1                | 5.6  |
| Tax Valuation Sheets  | 14                             | 14.1 | 3                    | 21.5  | 11               | 78.5 |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Sixty-four, or 64.6 per cent, of the ninety-nine interviewed prepared or initiated regular journal entries or journal vouchers; of those that performed the activity sixty-three, or 98.4 per cent, did so at least once per month and one did so only once per QSA (quarterly, semi-annually, or annually).

TABLE 21

PREPARING OR INITIATING DATA ACTIVITIES PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM

|   | Percent Performing Activity** |                 |       |             |             |                |
|---|-------------------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total                   | By Size of Firm |       |             |             |                |
|   |                               | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| To Prepare or Initiate  |                               |                 |       |             |             |                |
| No. Technical Accountants Per Category                        | 99                            | 11              | 18    | 20          | 15          | 35             |
| Regular Journal Entries or Journal<br>Vouchers                | 65                            | 55              | 56    | 65          | 80          | 66             |
| Entries for Corrections                                       | 60*                           | 64              | 33    | 50          | 87          | 66             |
| Adjusting Entries   | 57                            | 46              | 56    | 45          | 60          | 66             |
| Explanations for Each Journal Entry                           | 53*                           | 73              | 22    | 45          | 60          | 63             |
| Expense Accounts  | 43                            | 46              | 56    | 50          | 33          | 37             |
| Closing Entries   | 42                            | 46              | 44    | 50          | 53          | 31             |
| Bank Deposits   | 40*                           | 82              | 67    | 60          | 13          | 14             |
| Bank Recenciliations  | 38*                           | 64              | 61    | 60          | 13          | 17             |
| Withholding Tax Forms (W-4, W-2)                              | 36*                           | 73              | 61    | 40          | 7           | 23             |
| Data for Electronic Equipment-<br>To be used later on Reports | 35*                           | 9               | 6     | 50          | 47          | 46             |
| Reversing Entries   | 34*                           | 27              | 44    | 45          | 53          | 17             |
| Entries for Direct and Indirect Costs                         | 32*                           | 46              | 22    | 45          | 53          | 17             |
| Entries for the Purchase of Materials                         | 31*                           | 55              | 22    | 50          | 40          | 14             |
| Insurance Forms   | 28*                           | 64              | 28    | 35          | 27          | 14             |
| Entries to Record Waste &<br>Scrap Materials                  | 27*                           | 27              | -     | 15          | 60          | 34             |
| Supplies Inventories  | 25                            | 55              | 28    | 15          | 20          | 23             |
| Entries to Adjust Inventory Cards                             | 24                            | 46              | 22    | 25          | 40          | 11             |
| Entries for the Return of Materials<br>to Stores              | 23                            | 27              | 6     | 20          | 40          | 26             |
| Entries to Record Defective Work                              | 19*                           | 27              | -     | 10          | 40          | 23             |
| Entries for the Issuance of Materials                         | 18*                           | 18              | -     | 15          | 47          | 17             |
| Tax Valuation Sheets  | 14*                           | 36              | 17    | 25          | 13          | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 65 per cent of the ninety-nine technical accountants interviewed prepared or initiated regular journal entries or journal vouchers. The doing of this activity was performed by: 55 per cent of those in firms having 1-49 employees, 56 per cent of those in firms having 50-99 employees, etc.

except three cost accounting entries not performed in companies having 50-99 employees and one property tax activity not performed in the largest size category, 750 or more employees.

When one observes the percentage of the activities performed within each company size category, no consistent pattern seemed to emerge. Although all the technical accountants performed the activities in each size category, the percentages were not consistent. The activities in this function were generally performed by technical accountants to a greater degree in the smaller size firm categories, but some were performed contrary to this pattern with larger firms having the greatest proportion performing the activities. Those activities that could be considered routine such as preparing W-2 and W-4 forms, bank deposits, bank reconciliations, insurance forms, etc., were performed to a greater degree in the smaller size categories.

The rank order of the activities according to size of firm, Appendix O, also supported the idea that there was no consistent pattern of proportion performing the activities in this function. In fact, almost one out of five, 18 per cent, of the activities exceed the one-third (7 ranks) allowable variation in rank with the greatest deviations observed in the smallest, 1-49 employees, and the two largest categories, 250-749 and over 750 employees. Those activities that were ranked higher than the over-all average by more than the seven allowable ranks in a particular firm-size category were:

- . . . Insurance forms and supplies inventory data in firms having 1-49 employees.
- . . . Entries to record waste and scrap materials and for the issuance of materials in firms having 250-749 employees.

- . . . Entries to record waste and scrap materials to stores, and defective work in firms having more than 750 employees.

Those activities that were ranked lower than the over-all average by more than the seven allowable ranks in a particular firm-size category were:

- . . . Adjusting entries in firms having 1-49 employees.
- . . . Explanations for each journal entry and data for electronic equipment-to be used later for reports in firms having 50-99 employees.
- . . . Adjusting entries in firms having 100-249 employees.
- . . . Expense accounts, bank deposits and reconciliations, and withholding tax forms (W-4, W-2) in firms having 250-749 employees.
- . . . Bank deposits in firms having more than 750 employees.

#### Recording or Posting Data

Accounting data must be recorded in some convenient permanent place for current or future reference. This manually or machine recording or transferring of accounting data is referred to as posting. The actual recording or posting is considered an essential but routine function normally performed by a bookkeeper, accounting clerk, or electronic data processing. This investigation was concerned with the number of technical accountants performing or having responsibility for the specific activities within the function. Table 30 shows that seven out of ten technical accountants participating in this study had responsibility for one or more of the recording or posting activities.

Proportion performing activity. Table 22 indicates that all those recording and posting activities investigated in this study were performed

TABLE 22

RECORDING OR POSTING ACTIVITIES PERFORMED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| To Record or Post   | Proportion Performing Activity |      |                      |       |                  |      |
|---|--------------------------------|------|----------------------|-------|------------------|------|
|   | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|   | N                              | %    | N                    | %     | N                | %    |
| Adjusting Entries to Ledgers  | 50                             | 50.5 | 39                   | 78.0  | 11               | 22.0 |
| Data to Ledgers from Original Set of<br>Books or Electronic Data Run-off Sheets | 43                             | 43.4 | 43                   | 100.0 | -                | -    |
| Closing Entries to Ledgers  | 37                             | 37.4 | 14                   | 37.8  | 23               | 62.2 |
| Reversing Entries   | 37                             | 37.4 | 11                   | 29.7  | 26               | 70.3 |
| Purchase of Materials   | 35                             | 35.4 | 35                   | 100.0 | -                | -    |
| Return of Materials to Stores   | 27                             | 27.3 | 27                   | 100.0 | -                | -    |
| Open a Set of Books   | 26                             | 26.3 | 1                    | 3.8   | 25               | 96.2 |
| Issuance of Materials   | 22                             | 22.2 | 21                   | 95.4  | 1                | 4.6  |
| Waste & Scrap Material to Ledgers   | 22                             | 22.2 | 20                   | 90.8  | 2                | 9.2  |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Fifty, or 50.5 per cent, of the ninety-nine interviewed posted adjusting entries to ledgers; of those that performed the activity thirty-nine, or 78.0 per cent, did so at least once per month and eleven did so only once per QSA (quarterly, semi-annually, or annually).

by technical accountants. The activities associated with the posting of adjusting entries were performed by the greatest proportion - one out of every two of the participants. The first four activities, arranged by number of technical accountants performing the activity, were normal accounting or bookkeeping cycle entries for the posting of regular, adjusting, closing and reversing entries.

While at least one out of five of the technical accountants performed each of the nine activities in the Recording and Posting Data Function, they were not performed with equal frequency. Of the nine activities categorized under this function, three closely related entries were performed primarily on a QSA basis. The three QSA associated activities were the posting of closing entries, opening a set of books, and reversing entries.

Activities performed by size of firm. As shown by Table 23, all of the activities classified under the Recording and Posting Data Function were performed by technical accountants in each of the five size of firm categories. It appeared that the smallest and medium sized firms (1-49 and 100-249 employees) had the largest proportion performing these activities. However, when arranged in rank order by performance, Appendix P, only the largest category deviated more than the allowed one-third of the ranks. This seems to indicate that the proportion of technical accountants performing activities does vary by size of firm but the rank order remains approximately the same when compared with the over-all rank order of the activities.

TABLE 23

RECORDING OR POSTING ACTIVITIES PERFORMED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM

| To Record or Post  | Percent Performing Activity** |                 |       |             |             |                |
|--|-------------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |       |             |             |                |
|  |                               | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| No. Technical Accountants Per Category   | 99                            | 11              | 18    | 20          | 15          | 35             |
| Adjusting Entries to Ledgers   | 51                            | 73              | 39    | 55          | 53          | 46             |
| Data to Ledgers from Original Set of<br>Books or Electronic Data Run-off<br>Sheets | 43                            | 46              | 28    | 65          | 47          | 37             |
| Closing Entries to Ledgers   | 37*                           | 73              | 39    | 50          | 40          | 17             |
| Reversing Entries  | 37*                           | 64              | 39    | 55          | 53          | 11             |
| Purchase of Materials  | 35*                           | 64              | 39    | 50          | 33          | 17             |
| Return of Materials to Stores  | 27                            | 27              | 6     | 35          | 27          | 34             |
| Open a Set of Books  | 26                            | 36              | 22    | 35          | 27          | 20             |
| Issuance of Materials  | 22*                           | 18              | 11    | 25          | 47          | 17             |
| Waste & Scrap Material to Ledgers  | 22                            | 27              | 11    | 20          | 40          | 20             |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 51 per cent of the ninety-nine technical accountants interviewed posted adjusting entries to ledgers. The doing of this activity was performed by: 73 per cent of those in firms having 1-49 employees, 39 per cent of those in firms having 50-99 employees, etc.

### Making and Using Working Papers

The use of multi-column working papers to compile data into a manageable form has been employed by both bookkeepers and accountants. The purpose of this section was to determine the extent to which technical accountants employed working papers to assist in the compiling of data for reports and schedules.

Proportion performing activities. Table 24 shows that slightly more than four out of ten technical accountants use working papers for making the trial balance, financial statements, and/or work in process papers; one out of three for tax reports, depreciation, and/or allocation of costs; one out of four for insurance and/or the post-closing trial balance. However, only five of the technical accountants either made or used working papers to consolidate company divisions or branches. The lack of using working papers to consolidate divisions or branches could be explained by the fact that most small firms had no branches and the larger firms were wholly owned subsidiaries of firms based elsewhere.

The working papers, excluding those for depreciation and the post-closing trial balance, were primarily employed at least monthly. Of those working papers used QSA, most were performed quarterly.<sup>1</sup> The post-closing trial balance working papers were used annually 50 per cent of the time. It was interesting to note that in today's world of modernisation and machinery 26 per cent of the ninety-nine accountants were currently involved with the almost non-purposeful activity - the

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<sup>1</sup>See Appendix J, pp. 196-207.



TABLE 24

WORKING PAPERS MADE AND USED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Working Papers For                  | Proportion Performing Activity |      |                      |      |                  |      |
|-------------------------------------|--------------------------------|------|----------------------|------|------------------|------|
|                                     | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |      | QSA <sup>d</sup> |      |
|                                     | N                              | %    | N                    | %    | N                | %    |
| Trial Balance                       | 44                             | 44.4 | 38                   | 86.4 | 6                | 13.6 |
| Financial Statements                | 44                             | 44.4 | 35                   | 79.5 | 9                | 20.5 |
| Work in Process (Cost Sheets)       | 43                             | 43.4 | 34                   | 79.0 | 9                | 21.0 |
| Tax Reports                         | 34                             | 34.3 | 19                   | 55.9 | 15               | 44.1 |
| Depreciation on Assets              | 33                             | 33.3 | 15                   | 45.4 | 18               | 54.6 |
| Allocating Costs                    | 33                             | 33.3 | 24                   | 72.8 | 9                | 27.2 |
| Insurance Expirations               | 27                             | 27.3 | 17                   | 63.0 | 10               | 37.0 |
| Post-Closing Trial Balance          | 26                             | 26.3 | 9                    | 34.6 | 17               | 65.4 |
| Consolidating Divisions or Branches | 5                              | 5.1  | 4                    | 80.0 | 1                | 20.0 |

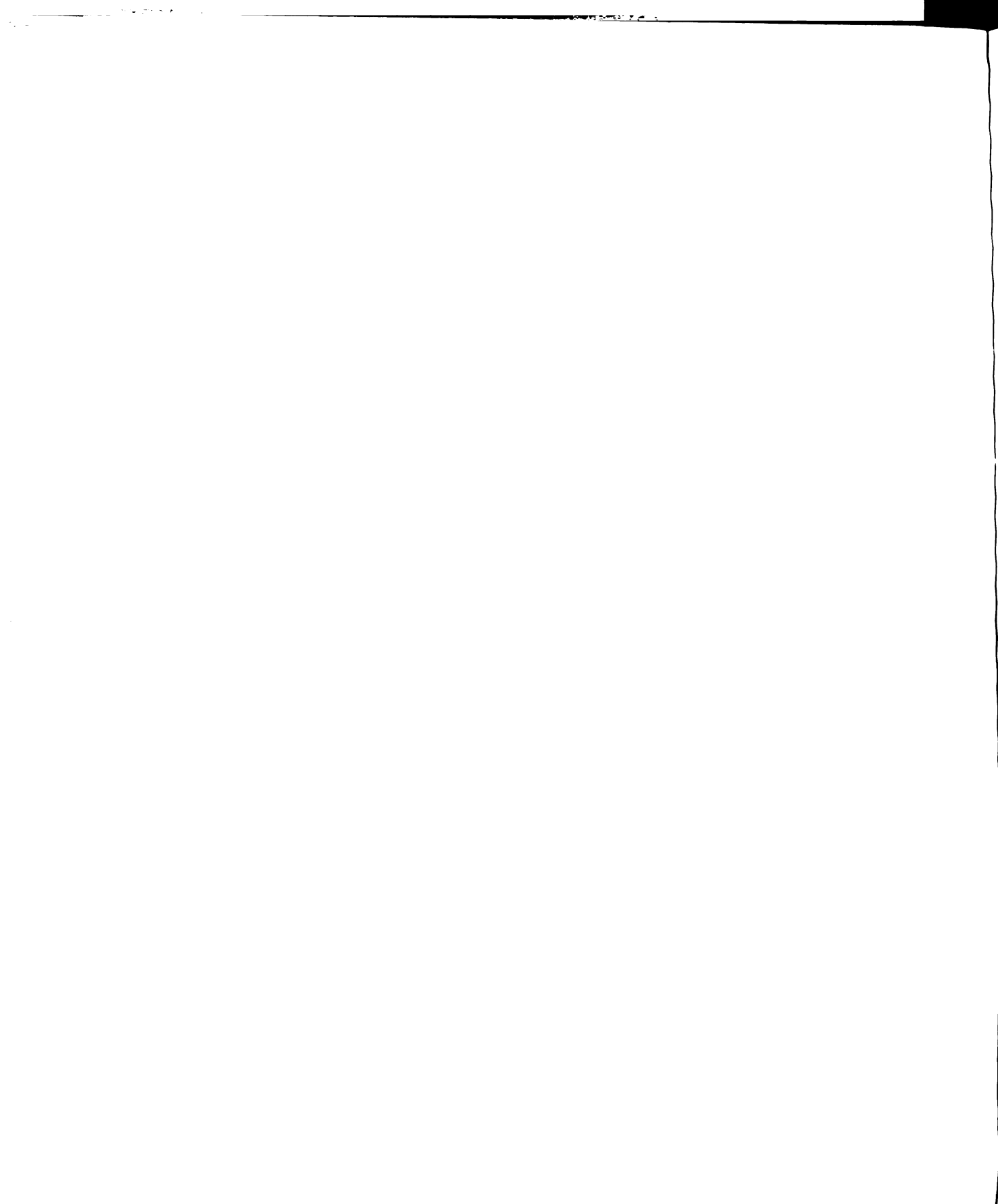
<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Forty-four, or 44.4 per cent, of the ninety-nine interviewed made or used trial balance working papers; of those that performed the activity thirty-eight, or 86.4 per cent, did so at least once per month and six did so only once per QSA (quarterly, semi-annually, or annually).



using of working papers for the post-closing trial balance.

Activities performed by size of firm. The percentage of activities performed by technical accountants in each of the five categories generally decreased as the firm size became larger as shown by Table 25. All the activities in this function were performed by technical accountants in each size category except for the activity of using working papers to consolidate divisions and branches which was not performed by the smallest firm size category. Small firms would not normally have divisions or branches.

When a comparison was made of total over-all rankings with ranks by firm size categories, the one-third (3 ranks) allowable rank variation in this function was surpassed in five categories.<sup>1</sup> The working paper activities that were ranked lower than the over-all average by more than the three allowable ranks in a particular firm-size category were:

- . . . Post-closing trial balance in firms having 1-49 and 100-249 employees.
- . . . Trial balance in firms having more than 750 employees.
- . . . Tax reports in firms having 100-249 employees.

The working papers for allocating costs were ranked higher than the one-third allowable variation in firms having 250-749 employees.

#### Non-Classified Maintaining, Analyzing, or Performing Activities

In any position there appears to be activities performed that do not blend themselves into neat categories and the position of technical accountant was no exception. These non-classified activities are

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<sup>1</sup>See Appendix Q, p. 216.

TABLE 25

**WORKING PAPERS MADE AND USED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Working Papers For<br>No. Technical Accountants Per Category | Percent Performing Activity** |                 |       |             |             |                |
|--|-------------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                   | By Size of Firm |       |             |             |                |
|  |                               | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
|  | 99                            | 11              | 18    | 20          | 15          | 35             |
| Trial Balance  | 44*                           | 73              | 61    | 60          | 40          | 20             |
| Financial Statements   | 44*                           | 91              | 56    | 45          | 40          | 26             |
| Work in Process (Cost Sheets)                                | 43*                           | 64              | 50    | 60          | 47          | 23             |
| Tax Reports  | 34*                           | 82              | 61    | 30          | 20          | 14             |
| Depreciation on Assets                                       | 33                            | 55              | 39    | 40          | 33          | 20             |
| Allocating Costs   | 33*                           | 27              | 39    | 40          | 53          | 20             |
| Insurance Expirations  | 27*                           | 46              | 50    | 30          | 13          | 14             |
| Post-Closing Trial Balance                                   | 26*                           | 64              | 39    | 45          | 13          | 3              |
| Consolidating Divisions or Branches                          | 5                             | -               | 6     | 5           | 7           | 6              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 44 per cent of the ninety-nine technical accountants interviewed used working papers for making a trial balance. The doing of this activity was performed by: 73 per cent of those in firms having 1-49 employees, 61 per cent of those in firms having 50-99 employees, etc.

necessary and performed periodically but are not considered a major portion of any one of the standard accounting cycle functions. Almost all the technical accountants interviewed performed some of these forty-two non-classified maintaining, analyzing, or performing activities in this function.

Proportion performing activity. One can observe from Table 26 that the four most often performed activities were routine tasks that could be quickly performed and more so, could be readily taught to a student or new employee. An employee would have to have little bookkeeping or accounting background to learn and perform these four activities that were performed by at least four out of ten of the technical accountants in this investigation.

These activities performed by approximately one-third of the technical accountants were primarily cost accounting oriented. An analysis of the forty-two activities considered in this function indicated that these activities related to cost accounting were performed by at least one out of six technical accountants and when arranged in order by numbers of technical accountants performing the activities, the cost accounting items ranked primarily in the upper one-half of the list.

Of the activities performed by 10 per cent or less of the interviewees, eight out of the thirteen were related in some form to the handling of negotiable instruments and of these, judgment notes and bailment leases were not handled by any of the participating technical accountants. Only three of the forty-two activities in this function, rule and balance accounts and establish or design a system of internal

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TABLE 26

NON-CLASSIFIED MAINTAINING, ANALYZING, OR PERFORMING ACTIVITIES DONE  
BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Type Activity   | Proportion Performing Activity |      |                      |       |                  |      |
|---|--------------------------------|------|----------------------|-------|------------------|------|
|   | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|   | N                              | %    | N                    | %     | N                | %    |
| Verify Balances of Control Accounts<br>with Subsidiary Ledger                       | 61                             | 61.6 | 61                   | 100.0 | -                | -    |
| Check Postings and Totals   | 54                             | 54.5 | 53                   | 98.2  | 1                | 1.8  |
| Foot and Balance Ledger Accounts  | 46                             | 46.5 | 44                   | 95.6  | 2                | 4.4  |
| Foot, Balance, and Total Columns<br>in Special Journals                             | 43                             | 43.4 | 42                   | 97.7  | 1                | 2.3  |
| Maintain Withholding Tax Records  | 35                             | 35.4 | 29                   | 82.8  | 6                | 17.2 |
| Check Creditor Invoices and Statements  | 34                             | 34.3 | 32                   | 94.2  | 2                | 5.8  |
| Maintain Job Cost Sheets  | 33                             | 33.3 | 32                   | 97.0  | 1                | 3.0  |
| Analyze Material Cost Variance  | 32                             | 32.3 | 29                   | 90.6  | 3                | 9.4  |
| Analyze Labor Cost Variance   | 31                             | 31.3 | 28                   | 90.3  | 3                | 9.7  |
| Analyze Indirect Costs  | 29                             | 29.3 | 28                   | 96.6  | 1                | 3.4  |
| Compare Costs with the Budget   | 28                             | 28.3 | 24                   | 85.7  | 4                | 14.3 |
| Reconcile and Balance Accounts  | 27                             | 27.3 | 13                   | 48.1  | 14               | 51.9 |
| Analyze Sales   | 26                             | 26.3 | 26                   | 100.0 | -                | -    |
| Maintain Insurance Records<br>(expirations and premiums)                            | 26                             | 26.3 | 22                   | 84.7  | 4                | 15.3 |
| Handle Collection of Outstanding Debts  | 25                             | 25.3 | 23                   | 92.0  | 2                | 8.0  |
| Analyze Distribution Costs  | 25                             | 25.3 | 22                   | 88.0  | 3                | 12.0 |
| Analyze Administrative Costs  | 24                             | 24.2 | 22                   | 91.7  | 2                | 8.3  |
| Maintain State Sales Tax Records  | 23                             | 23.2 | 22                   | 95.7  | 1                | 4.3  |
| Analyze Overhead Cost Variance  | 23                             | 23.2 | 21                   | 91.3  | 2                | 8.7  |
| Determine Estimated Costs   | 23                             | 23.2 | 19                   | 82.7  | 4                | 17.3 |
| Authorize Payment of Vouchers   | 22                             | 22.2 | 22                   | 100.0 | -                | -    |
| Compare Manufacturing and<br>Distributing Costs                                     | 22                             | 22.2 | 16                   | 72.7  | 6                | 27.3 |
| Determine the Base for Distribution<br>of Service Department Costs to<br>Production | 20                             | 20.3 | 13                   | 65.0  | 7                | 35.0 |
| Handle Promissory Notes   | 18                             | 18.2 | 18                   | 100.0 | -                | -    |
| Maintain Waste, Spoilage, &<br>Shrinkage Records                                    | 18                             | 18.2 | 17                   | 94.4  | 1                | 5.6  |
| Maintain Departmental Records   | 18                             | 18.2 | 16                   | 88.8  | 2                | 11.2 |
| Act as a Paying Cashier   | 17                             | 17.2 | 17                   | 100.0 | -                | -    |
| Maintain Perpetual Inventories  | 16                             | 16.2 | 14                   | 87.5  | 2                | 12.5 |
| Audit Internal Accounting Activities  | 16                             | 16.2 | 14                   | 87.5  | 2                | 12.5 |

TABLE 26 (continued)

| Type Activity                            | Proportion Performing Activity |      |                      |       |                  |      |
|--|--------------------------------|------|----------------------|-------|------------------|------|
|  | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|  | N                              | %    | N                    | %     | N                | %    |
| Handle Sight Drafts with Bill of Ladings | 10                             | 10.1 | 9                    | 90.0  | 1                | 10.0 |
| Design a System of Internal Control      | 9                              | 9.1  | 2                    | 22.2  | 7                | 77.8 |
| Establish a System of Internal Check     | 9                              | 9.1  | 2                    | 22.2  | 7                | 77.8 |
| Eliminate Reciprocal Accounts            | 8                              | 8.1  | 7                    | 87.5  | 1                | 12.5 |
| Handle Collateral Notes                  | 8                              | 8.1  | 6                    | 75.0  | 2                | 25.0 |
| Use Red Ink to Draw Lines                | 8                              | 8.1  | 6                    | 75.0  | 2                | 25.0 |
| Handle Conditional Sales                 | 7                              | 7.1  | 7                    | 100.0 | -                | -    |
| Discount Notes                           | 6                              | 6.1  | 5                    | 83.3  | 1                | 16.7 |
| Handle Chattel Mortgages                 | 5                              | 5.1  | 4                    | 80.0  | 1                | 20.0 |
| Handle Time Drafts                       | 5                              | 5.1  | 4                    | 80.0  | 1                | 20.0 |
| Handle Trade Acceptances                 | 4                              | 4.0  | 4                    | 100.0 | -                | -    |
| Handle Judgment Notes                    | 0                              | 0.0  | -                    | -     | -                | -    |
| Handle Bailment Leases                   | 0                              | 0.0  | -                    | -     | -                | -    |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Sixty-one, or 61.6 per cent, of the ninety-nine interviewed verified balances of control accounts with a subsidiary ledger; of those that performed the activity 100 per cent did so at least once per month.



control, were performed QSA, and the remaining were performed at a frequency of at least once per month.

Activities performed by size of firm. Table 27 shows that as firms increased in size generally a less proportionate number of technical accountants performed any given activity. However, one could observe a significant difference in the pattern of performance in this function as compared to the others. An increased number showed a bell-type curve portraying the percentages by size of firm as the smallest and largest had the least per cent of the activities performed by technical accountants, while the technical accountants in the middle sized companies performed the activities at a greater percentile rate. The technical accountants in the next to smallest sized firms, 50-99, continued to perform the activities at a lesser rate than either of the adjacent size categories.

Table 27 also shows that a larger proportion of the technical accountants in firms having between 100 and 749 employees performed cost accounting activities.

When the forty-two activities in this function were ranked in total and by size of firm according to the proportion performed by technical accountants, Appendix R, few varied more than the one-third allowable (14 ranks) deviation in rankings. Of the eight activities that had a deviation of more than the allowable fourteen ranks, four were bookkeeping activities not as prevalent or important to the larger firms. The other deviations were cost or departmental activities not as important to the smaller firms. The use of red ink to draw lines was unimportant, according to rankings, in four of the five firm size categories. However,

TABLE 27

**NON-CLASSIFIED MAINTAINING, ANALYZING, OR PERFORMING ACTIVITIES DONE  
BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Type Activity   | Percent Performing Activity** |                 |           |             |             |                |
|---|-------------------------------|-----------------|-----------|-------------|-------------|----------------|
|   | In<br>Total                   | By Size of Firm |           |             |             |                |
|   |                               | 1-49            | 50-99     | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| <b>No. Technical Accountants Per Category</b>                                       | <b>99</b>                     | <b>11</b>       | <b>18</b> | <b>20</b>   | <b>15</b>   | <b>35</b>      |
| Verify Balances of Control Accounts<br>with Subsidiary Ledger                       | 62                            | 55              | 56        | 65          | 73          | 60             |
| Check Postings and Totals   | 55                            | 64              | 50        | 55          | 67          | 49             |
| Foot and Balance Ledger Accounts  | 47                            | 73              | 44        | 50          | 47          | 37             |
| Foot, Balance, and Total Columns in<br>Special Journals                             | 43                            | 73              | 44        | 60          | 27          | 31             |
| Maintain Withholding Tax Records  | 35                            | 82              | 39        | 40          | 27          | 20             |
| Check Creditor Invoices and Statements  | 34*                           | 73              | 28        | 55          | 27          | 17             |
| Maintain Job Cost Sheets  | 33*                           | 64              | 22        | 45          | 40          | 20             |
| Analyze Material Cost Variance  | 32                            | 36              | 22        | 50          | 47          | 20             |
| Analyze Labor Cost Variance   | 31                            | 36              | 22        | 60          | 40          | 14             |
| Analyze Indirect Costs  | 29                            | 27              | 22        | 45          | 47          | 17             |
| Compare Costs with the Budget   | 28                            | 27              | 11        | 25          | 40          | 34             |
| Reconcile and Balance Accounts  | 27*                           | 46              | 28        | 55          | 27          | 6              |
| Analyze Sales   | 26*                           | 55              | 17        | 40          | 40          | 9              |
| Maintain Insurance Records<br>(expirations and premiums)                            | 26*                           | 55              | 28        | 30          | 20          | 17             |
| Handle Collection of Outstanding Debts  | 25                            | 55              | 28        | 30          | 33          | 9              |
| Analyze Distribution Costs  | 25                            | 36              | 11        | 40          | 40          | 14             |
| Analyze Administrative Costs  | 24                            | 27              | 17        | 40          | 40          | 11             |
| Maintain State Sales Tax Records  | 23                            | 36              | 28        | 30          | 27          | 11             |
| Analyze Overhead Cost Variance  | 23*                           | 27              | 17        | 40          | 47          | 6              |
| Determine Estimated Costs   | 23*                           | 46              | 6         | 30          | 40          | 14             |
| Authorize Payment of Vouchers   | 22                            | 36              | 28        | 35          | 27          | 6              |
| Compare Manufacturing and<br>Distributing Costs                                     | 22                            | 27              | 6         | 35          | 40          | 14             |
| Determine the Base for Distribution<br>of Service Department Costs to<br>Production | 20*                           | 18              | -         | 35          | 53          | 9              |
| Handle Promissory Notes   | 18                            | 46              | 22        | 15          | 13          | 11             |
| Maintain Waste, Spoilage, &<br>Shrinkage Records                                    | 18*                           | 27              | -         | 15          | 40          | 17             |
| Maintain Departmental Records   | 18                            | 9               | 6         | 15          | 40          | 20             |
| Act as a Paying Cashier   | 17                            | 36              | 28        | 20          | 7           | 9              |
| Maintain Perpetual Inventories  | 16*                           | 36              | 11        | 15          | 33          | 6              |
| Audit Internal Accounting Activities  | 16                            | 9               | 11        | 25          | 33          | 9              |



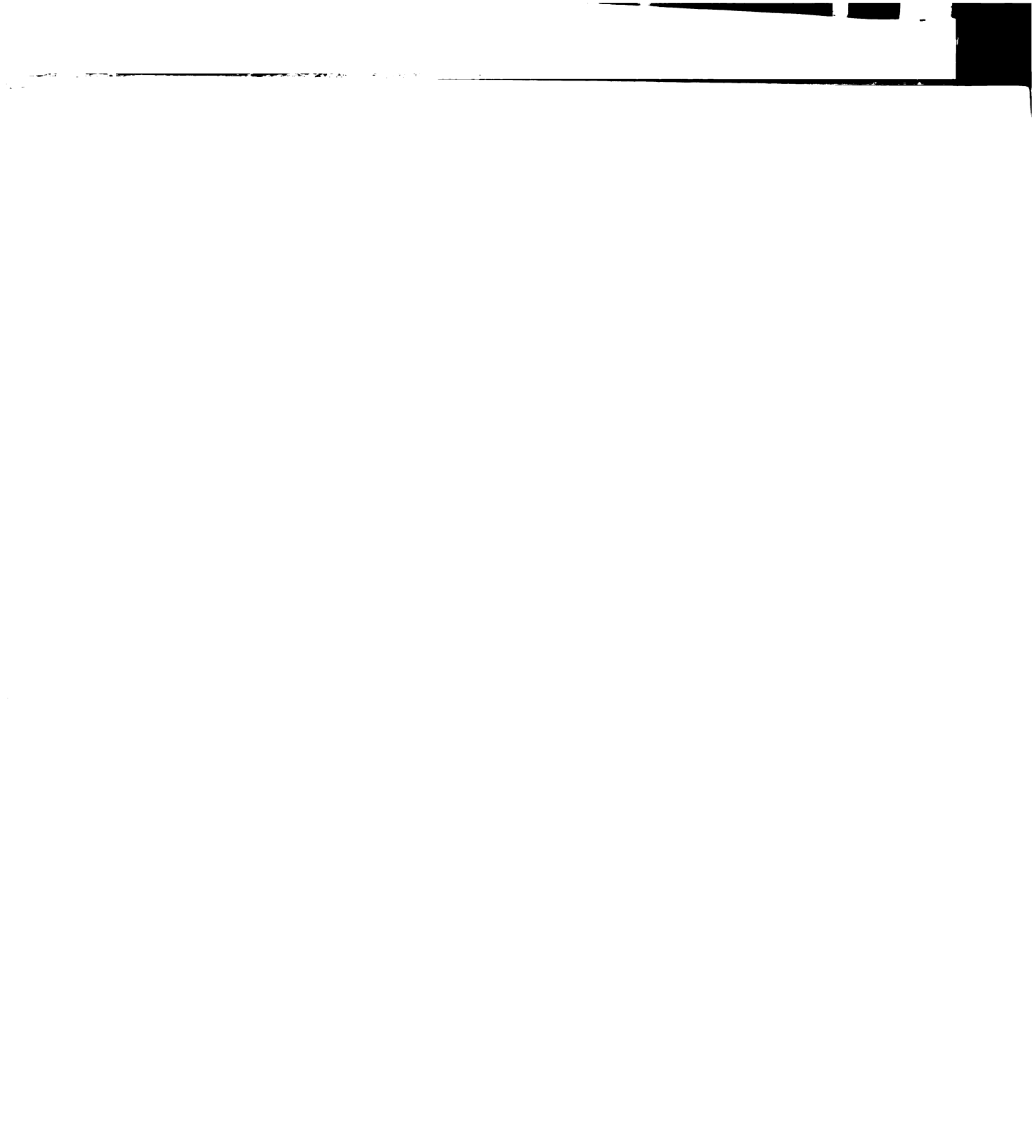
TABLE 27 (continued)

| Type Activity                               | Percent Performing Activity |                 |       |             |             |                |
|---|-----------------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total                 | By Size of Firm |       |             |             |                |
|   |                             | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Handle Sight Drafts with Bill<br>of Ladings | 10                          | 18              | -     | 20          | 20          | 3              |
| Design a System of Internal Control         | 9                           | 18              | 6     | 15          | 20          | -              |
| Establish a System of Internal Check        | 9                           | 18              | 11    | 15          | 13          | -              |
| Eliminate Reciprocal Accounts               | 8                           | 9               | 6     | 5           | 13          | 9              |
| Handle Collateral Notes                     | 8*                          | 18              | 17    | 10          | 7           | -              |
| Use Red Ink to Draw Lines                   | 8                           | -               | 28    | 10          | 7           | -              |
| Handle Conditional Sales                    | 7                           | 9               | 6     | 10          | 13          | 3              |
| Discount Notes                              | 6                           | 18              | -     | 15          | 7           | -              |
| Handle Chattel Mortgages                    | 5                           | 18              | 11    | 5           | -           | -              |
| Handle Time Drafts                          | 5                           | 9               | -     | 15          | 7           | -              |
| Handle Trade Acceptances                    | 4                           | 9               | -     | 10          | 7           | -              |
| Handle Judgment Notes                       | 0                           | -               | -     | -           | -           | -              |
| Handle Bailment Leases                      | 0                           | -               | -     | -           | -           | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 62 per cent of the ninety-nine technical accountants interviewed verified balances of control accounts with a subsidiary ledger. The doing of this activity was performed by: 55 per cent of these in firms having 1-49 employees, 56 per cent of these in firms having 50-99 employees, etc.



in firms having from 50-99 employees, red lines were employed by technical accountants to indicate slow or no-pay customers in the accounts receivable ledger. Only one of the ninety-nine participants ruled ledger accounts with red lines.

It was interesting to note that "ruling and balancing of ledger accounts" was performed by one out of four of the interviewees. This activity has often been considered by accountants as busy-work activity performed in only the smallest of firms where the same set of books is used year after year. This investigation determined that the ruling and balancing of accounts was still in use and in all size of firm categories although the larger firms performed it to a lesser degree.

#### Mathematical Computations

It has been said those who were "good with mathematics could also be good in accounting." This section attempted to determine just what mathematical computations were made by technical accountants in firms manufacturing durable goods. Most, 98 per cent, of the technical accountants did perform some mathematical computations.<sup>1</sup>

Proportion performing activity. Although most of the technical accountants did perform mathematical computations, Table 28 shows that the most often performed activity, computations for F.I.C.A. taxes, was performed by only four out of ten technical accountants. Of the nineteen activities under this function performed by 30 per cent or more of the technical accountants, twelve pertained to payroll, payroll taxes, or payroll deductions. The balance of the more often performed activities

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<sup>1</sup>See Table 30, p. 117.

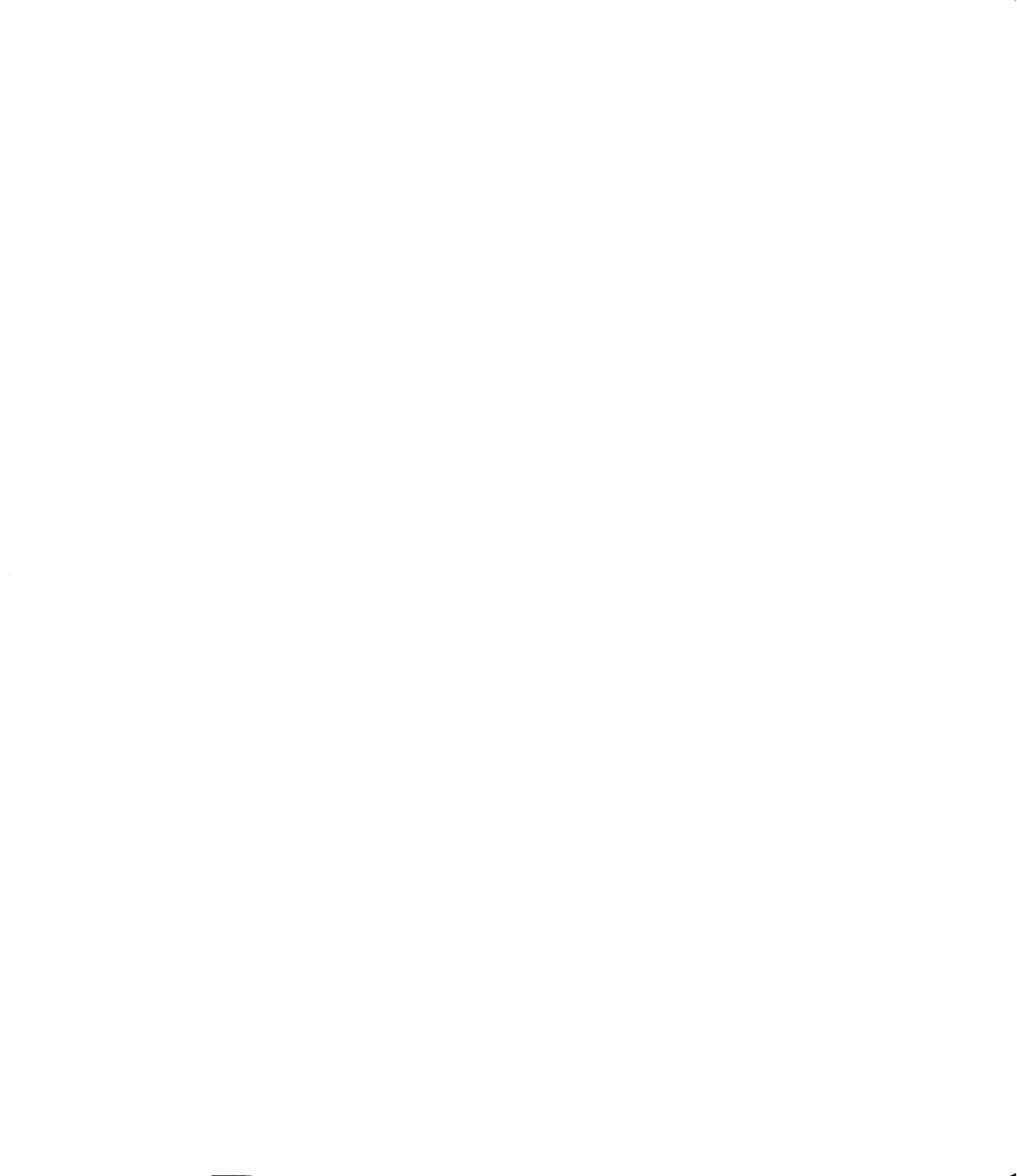
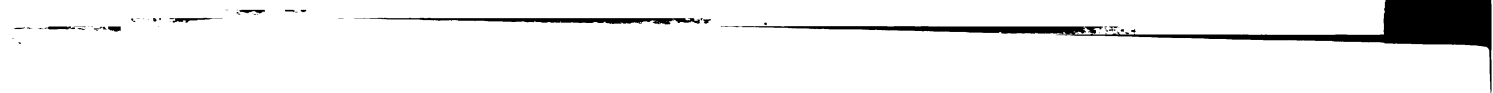


TABLE 28

MATHEMATICAL COMPUTATION ACTIVITIES PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY FREQUENCY OF PERFORMANCE<sup>a</sup>)

| Mathematical Computations For         | Proportion Performing Activity |      |                      |       |                  |      |
|---------------------------------------|--------------------------------|------|----------------------|-------|------------------|------|
|                                       | Total <sup>b</sup>             |      | Monthly <sup>c</sup> |       | QSA <sup>d</sup> |      |
|                                       | N                              | %    | N                    | %     | N                | %    |
| F.I.C.A. Taxes                        | 44                             | 44.4 | 40                   | 90.9  | 4                | 9.1  |
| Vacation and Holiday Pay              | 40                             | 40.4 | 32                   | 80.0  | 8                | 20.0 |
| Data for Adjusting Entries            | 40                             | 40.4 | 30                   | 75.0  | 10               | 25.0 |
| Overtime Payroll                      | 39                             | 39.4 | 39                   | 100.0 | -                | -    |
| State Unemployment Taxes              | 39                             | 39.4 | 15                   | 38.4  | 24               | 61.6 |
| Federal Unemployment Taxes            | 39                             | 39.4 | 13                   | 33.4  | 26               | 66.6 |
| Payroll by Hour or Day Rate           | 38                             | 38.4 | 38                   | 100.0 | -                | -    |
| Payroll Time Cards                    | 38                             | 38.4 | 38                   | 100.0 | -                | -    |
| Percentages                           | 37                             | 37.4 | 37                   | 100.0 | -                | -    |
| Invoicing Customers                   | 36                             | 36.4 | 36                   | 100.0 | -                | -    |
| Inventories by Physical Count         | 35                             | 35.4 | 1                    | 2.9   | 34               | 97.1 |
| Payroll Job Tickets                   | 34                             | 34.3 | 34                   | 100.0 | -                | -    |
| Cash Discounts                        | 34                             | 34.3 | 34                   | 100.0 | -                | -    |
| Workmen's Compensation                | 34                             | 34.3 | 24                   | 70.6  | 10               | 29.4 |
| Bonuses                               | 34                             | 34.3 | 17                   | 50.0  | 17               | 50.0 |
| Group Life Insurance Premiums         | 32                             | 32.3 | 32                   | 100.0 | -                | -    |
| Medical and Hospitalization Plan      |                                |      |                      |       |                  |      |
| Premiums                              | 32                             | 32.3 | 32                   | 100.0 | -                | -    |
| Allocation of Costs to Job            | 32                             | 32.3 | 31                   | 96.9  | 1                | 3.1  |
| Using Cost Standards                  | 31                             | 31.3 | 30                   | 96.8  | 1                | 3.2  |
| Allocating Costs to Departments       | 23                             | 23.2 | 20                   | 86.9  | 3                | 13.1 |
| Insurance Data                        | 23                             | 23.2 | 20                   | 87.0  | 3                | 13.0 |
| Perpetual Inventory Records           | 23                             | 23.2 | 20                   | 87.0  | 3                | 13.0 |
| Straight Line Depreciation            | 23                             | 23.2 | 9                    | 39.1  | 14               | 60.9 |
| Pension and Annuity Payments          | 22                             | 22.2 | 16                   | 72.7  | 6                | 27.3 |
| Trade Discounts                       | 21                             | 21.2 | 20                   | 100.0 | -                | -    |
| Determining Overabsorbed Overhead     | 21                             | 21.2 | 17                   | 80.9  | 4                | 19.1 |
| Uncollectible Accounts                | 21                             | 21.2 | 12                   | 57.1  | 9                | 42.9 |
| Payroll Shift Premiums                | 20                             | 20.2 | 20                   | 100.0 | -                | -    |
| Determining Underabsorbed Overhead    | 20                             | 20.2 | 16                   | 80.0  | 4                | 20.0 |
| Inventories by Fifo Method            | 20                             | 20.2 | 11                   | 55.0  | 9                | 45.0 |
| Determining the Base for Distributing |                                |      |                      |       |                  |      |
| Service Department Costs to           |                                |      |                      |       |                  |      |
| Production                            | 19                             | 19.2 | 11                   | 57.9  | 8                | 42.1 |
| Inventories by Cost or Market Costing | 19                             | 19.2 | 9                    | 47.4  | 10               | 52.6 |
| Depreciation by Declining             |                                |      |                      |       |                  |      |
| Balance Method                        | 18                             | 18.2 | 5                    | 27.8  | 13               | 72.2 |



TABLE 28 (continued)

| Mathematical Computations For                              | Proportion Performing Activity |      |         |       |     |       |
|--|--------------------------------|------|---------|-------|-----|-------|
|  | Total                          |      | Monthly |       | QSA |       |
|  | N                              | %    | N       | %     | N   | %     |
| Interest Receivable  | 17                             | 17.2 | 16      | 94.1  | 1   | 5.9   |
| Obsolescence   | 17                             | 17.2 | 7       | 41.2  | 10  | 58.8  |
| Cost Estimating  | 16                             | 16.2 | 16      | 100.0 | -   | -     |
| Allocating Costs to Divisions                              | 16                             | 16.2 | 15      | 93.8  | 1   | 6.2   |
| Interest Payable   | 16                             | 16.2 | 13      | 81.2  | 3   | 18.8  |
| Allocating Costs to Process                                | 15                             | 15.2 | 11      | 73.3  | 4   | 26.7  |
| Cost-Volume Relationships                                  | 15                             | 15.2 | 10      | 66.7  | 5   | 33.3  |
| Establishing Standards                                     | 15                             | 15.2 | 8       | 53.3  | 7   | 46.7  |
| Foreign Exchange Equivalents                               | 14                             | 14.1 | 11      | 78.6  | 3   | 21.4  |
| Inventories by Average Cost Method                         | 14                             | 14.1 | 11      | 78.6  | 3   | 21.4  |
| Break-Even Analysis  | 13                             | 13.1 | 3       | 23.1  | 10  | 76.9  |
| Determining Whether to Make or Buy an Item                 | 12                             | 12.1 | 8       | 66.7  | 4   | 33.3  |
| Determining Replacement Costs for Equipment                | 12                             | 12.1 | 6       | 50.0  | 6   | 50.0  |
| Mark-Up of Prices  | 10                             | 10.1 | 8       | 80.0  | 2   | 20.0  |
| Determining the Cost of Carrying Inventories               | 10                             | 10.1 | 4       | 40.0  | 6   | 60.0  |
| Rent   | 9                              | 9.1  | 9       | 100.0 | -   | -     |
| Determining Sale Price for Equipment                       | 9                              | 9.1  | 5       | 55.6  | 4   | 44.4  |
| Determining When to Purchase Inventories                   | 8                              | 8.1  | 8       | 100.0 | -   | -     |
| Determining Budget Variances                               | 8                              | 8.1  | 6       | 75.0  | 2   | 25.0  |
| Mark-Down of Prices  | 8                              | 8.1  | 5       | 62.5  | 3   | 37.5  |
| Determining Volume Variances                               | 8                              | 8.1  | 5       | 62.5  | 3   | 37.5  |
| Determining Best Method of Financing                       | 8                              | 8.1  | 2       | 25.0  | 6   | 75.0  |
| What Inventories to Purchase                               | 7                              | 7.1  | 7       | 100.0 | -   | -     |
| Payroll by Per Unit or Piece                               | 6                              | 6.1  | 6       | 100.0 | -   | -     |
| Determining Number Days Inventory Needed                   | 6                              | 6.1  | 5       | 83.3  | 1   | 16.7  |
| Determining How Much to Purchase - Economic Order Quantity | 6                              | 6.1  | 3       | 50.0  | 3   | 50.0  |
| Price-Level Adjustments                                    | 6                              | 6.1  | 2       | 33.3  | 4   | 66.7  |
| Depreciation by Sum-Of-Digits Method                       | 6                              | 6.1  | -       | -     | 6   | 100.0 |
| Determining Cost of By-Products                            | 5                              | 5.1  | 5       | 100.0 | -   | -     |
| Determining Fixed Costs of Joint Products                  | 4                              | 4.0  | 4       | 100.0 | -   | -     |
| Determining Variable Costs of Joint Products               | 4                              | 4.0  | 4       | 100.0 | -   | -     |
| Payroll by Incentive Plans                                 | 3                              | 3.0  | 3       | 100.0 | -   | -     |
| Patents  | 3                              | 3.0  | 1       | 33.3  | 2   | 66.7  |

TABLE 28 (continued)

| Mathematical Computations For                        | Proportion Performing Activity |     |         |       |     |       |
|--|--------------------------------|-----|---------|-------|-----|-------|
|  | Total                          |     | Monthly |       | QSA |       |
|  | N                              | %   | N       | %     | N   | %     |
| Depreciation by Units of Production                  | 3                              | 3.0 | 1       | 33.3  | 2   | 66.7  |
| Cash Dividends                                       | 3                              | 3.0 | -       | -     | 3   | 100.0 |
| Inventories by Weighted Average Method               | 2                              | 2.0 | 1       | 50.0  | 1   | 50.0  |
| Organization Costs                                   | 2                              | 2.0 | -       | -     | 2   | 100.0 |
| Depletion  | 2                              | 2.0 | -       | -     | 2   | 100.0 |
| Stock Dividends                                      | 2                              | 2.0 | -       | -     | 2   | 100.0 |
| Division of Partnership Profits                      | 2                              | 2.0 | -       | -     | 2   | 100.0 |
| Inventories by Lifo Method                           | 1                              | 1.0 | 1       | 100.0 | -   | -     |
| Determining Semi-Variable Costs of<br>Joint Products | 1                              | 1.0 | 1       | 100.0 | -   | -     |
| Franchises   | 1                              | 1.0 | -       | -     | 1   | 100.0 |
| Annuities  | 1                              | 1.0 | -       | -     | 1   | 100.0 |
| Copyrights   | 1                              | 1.0 | -       | -     | 1   | 100.0 |
| Trademarks and Names                                 | 1                              | 1.0 | -       | -     | 1   | 100.0 |
| Goodwill   | 0                              | 0.0 | -       | -     | -   | -     |
| Yield on Bonds                                       | 0                              | 0.0 | -       | -     | -   | -     |

<sup>a</sup>See Appendix J for more detailed frequency of performance data - weekly, monthly, quarterly, semi-annually, and annually.

<sup>b</sup>Total possible responses per activity were ninety-nine.

<sup>c</sup>Refers to those activities performed at least once per month.

<sup>d</sup>Activities performed less frequently than monthly but at least once quarterly, semi-annually, or annually.

NOTE: This table should be read as follows: Forty-four, or 44.4 per cent, of the ninety-nine interviewed performed mathematical computations for F.I.C.A. Taxes; of those that performed the activity forty, or 90.9 per cent, did so at least once per month and four did so only once per QSA (quarterly, semi-annually, or annually).



were computations for adjusting entries, regular percentages, cash discounts, physical inventory, billing customers, cost standards, and allocation of costs to jobs.

Except for those activities primarily done at a set period of time such as physical inventories taken yearly or state unemployment taxes computed quarterly etc., the mathematical computations were done at least once per month.

Of those activities performed by less than 10 per cent of the technical accountants in firms manufacturing durable goods were these activities that normally give, from the writer's experience, first-year accounting students the most difficulty such as determining:

|                           |  |
|---------------------------|--|
| sale price of equipment   | number of days inventory needed        |
| budget variances          | depreciation by sum-of-digits method   |
| volume variances          | cost of by-products                    |
| mark-down of prices       | inventories by weighted average method |
| best method of financing  | organization costs                     |
| economic order quantities | division of partnership profits        |
| stock dividends           | inventories by "Lifo" method           |
| goodwill                  | depreciation by units of production    |
| yield on bonds            |  |

Only one-half of the eighty-one specific mathematical activities investigated in this study were performed by more than one out of eight, 12.5 per cent, of those interviewed and many of the lesser performed activities were done QSA.

Activities performed by size of firm. Table 29 shows that usually the technical accountants performed proportionately more specific mathematical computations in the smaller companies with a gradual decrease to the largest sized firms. However, the technical accountants in the firms having 50-99 employees tended to perform fewer mathematical

TABLE 29

**MATHEMATICAL COMPUTATION ACTIVITIES PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS  
IN TOTAL AND BY SIZE OF FIRM**

| Mathematical Computations For                 | Percent Performing Activity** |                 |           |             |             |                |
|---|-------------------------------|-----------------|-----------|-------------|-------------|----------------|
|   | In<br>Total                   | By Size of Firm |           |             |             |                |
|   |                               | 1-49            | 50-99     | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| <b>No. Technical Accountants Per Category</b> | <b>99</b>                     | <b>11</b>       | <b>18</b> | <b>20</b>   | <b>15</b>   | <b>35</b>      |
| F.I.C.A. Taxes                                | 44*                           | 100             | 61        | 50          | 13          | 29             |
| Vacation and Holiday Pay                      | 40*                           | 100             | 50        | 40          | 13          | 29             |
| Data for Adjusting Entries                    | 40                            | 36              | 28        | 40          | 40          | 49             |
| Overtime Payroll                              | 39*                           | 100             | 56        | 40          | 7           | 26             |
| State Unemployment Taxes                      | 39*                           | 91              | 56        | 45          | 13          | 23             |
| Federal Unemployment Taxes                    | 39*                           | 91              | 50        | 45          | 13          | 26             |
| Payroll by Hour or Day Rate                   | 38*                           | 91              | 56        | 50          | 7           | 20             |
| Payroll Time Cards                            | 38*                           | 91              | 50        | 45          | 7           | 26             |
| Percentages                                   | 37                            | 55              | 22        | 30          | 33          | 46             |
| Invoicing Customers                           | 36                            | 73              | 28        | 50          | 27          | 26             |
| Inventories by Physical Count                 | 35                            | 36              | 22        | 40          | 60          | 29             |
| Payroll Job Tickets                           | 34                            | 64              | 28        | 40          | 20          | 31             |
| Cash Discounts                                | 34*                           | 64              | 39        | 45          | 27          | 20             |
| Workmen's Compensation                        | 34*                           | 91              | 50        | 50          | 7           | 11             |
| Bonuses                                       | 34                            | 64              | 50        | 40          | 13          | 23             |
| Group Life Insurance Premiums                 | 32*                           | 73              | 56        | 35          | 7           | 17             |
| Medical and Hospitalization Plan              |                               |                 |           |             |             |                |
| Premiums                                      | 32*                           | 91              | 44        | 35          | 7           | 17             |
| Allocation of Costs to Job                    | 32*                           | 73              | 17        | 40          | 47          | 17             |
| Using Cost Standards                          | 31*                           | 18              | -         | 45          | 60          | 31             |
| Allocating Costs to Departments               | 23*                           | 18              | 6         | 20          | 60          | 20             |
| Insurance Data                                | 23*                           | 55              | 28        | 45          | -           | 9              |
| Perpetual Inventory Records                   | 23*                           | 46              | 11        | 15          | 40          | 20             |
| Straight Line Depreciation                    | 23*                           | 36              | 22        | 25          | 47          | 9              |
| Pension and Annuity Payments                  | 22                            | 36              | 28        | 25          | 20          | 14             |
| Trade Discounts                               | 21*                           | 55              | 11        | 35          | 13          | 11             |
| Determining Overabsorbed Overhead             | 21*                           | 18              | -         | 35          | 40          | 17             |
| Uncollectible Accounts                        | 21                            | 46              | 6         | 30          | 27          | 14             |
| Payroll Shift Premiums                        | 20                            | 46              | 22        | 30          | 7           | 11             |
| Determining Underabsorbed Overhead            | 20*                           | 18              | -         | 35          | 33          | 17             |
| Inventories by Fifo Method                    | 20*                           | 36              | 22        | 10          | 33          | 14             |
| Determining the Base for Distributing         |                               |                 |           |             |             |                |
| Service Department Costs to                   |                               |                 |           |             |             |                |
| Production                                    | 19*                           | 18              | -         | 30          | 53          | 9              |
| Inventories by Cost or Market Costing         | 19*                           | 9               | 11        | 25          | 60          | 6              |
| Depreciation by Declining Balance             |                               |                 |           |             |             |                |
| Method  | 18                            | 27              | 17        | 20          | 27          | 11             |

TABLE 29 (continued)

| Mathematical Computations For                                | Percent Performing Activity |                 |       |             |             |                |
|--|-----------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                 | By Size of Firm |       |             |             |                |
|  |                             | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Interest Receivable  | 17                          | 46              | 17    | 15          | 27          | 6              |
| Obsolescence   | 17                          | 18              | -     | 35          | 27          | 11             |
| Cost Estimating  | 16*                         | 9               | -     | 20          | 47          | 11             |
| Allocating Costs to Divisions                                | 16                          | 18              | -     | 35          | 20          | 11             |
| Interest Payable   | 16*                         | 46              | 11    | 20          | 20          | 6              |
| Allocating Costs to Process                                  | 15                          | 18              | 11    | 20          | 27          | 9              |
| Cost-Volume Relationships                                    | 15*                         | 9               | -     | 15          | 53          | 9              |
| Establishing Standards                                       | 15                          | 18              | -     | 25          | 27          | 11             |
| Foreign Exchange Equivalents                                 | 14*                         | -               | -     | 5           | 20          | 29             |
| Inventories by Average Cost Method                           | 14                          | 9               | -     | 20          | 40          | 9              |
| Break-Even Analysis  | 13*                         | *27             | 11    | 15          | 33          | -              |
| Determining Whether to Make or<br>Buy an Item                | 12                          | 27              | 6     | 10          | 27          | 6              |
| Determining Replacement Costs for<br>Equipment               | 12                          | 36              | -     | 15          | 20          | 6              |
| Mark-Up of Prices  | 10                          | 27              | 6     | 10          | 13          | 6              |
| Determining the Cost of Carrying<br>Inventories              | 10                          | -               | 6     | 15          | 27          | 6              |
| Rent   | 9*                          | 36              | 11    | 15          | -           | -              |
| Determining Sale Price for Equipment                         | 9*                          | 27              | -     | 15          | 20          | -              |
| Determining When to Purchase<br>Inventories                  | 8                           | 18              | 11    | 10          | 7           | 3              |
| Determining Budget Variances                                 | 8*                          | 9               | -     | 5           | 33          | 3              |
| Mark-Down of Prices  | 8                           | 9               | -     | 15          | 20          | 3              |
| Determining Volume Variances                                 | 8*                          | 9               | 6     | 5           | 27          | 3              |
| Determining Best Method of Financing                         | 8*                          | 18              | 11    | 20          | -           | -              |
| Determining What Inventories to<br>Purchase                  | 7                           | 27              | 11    | 5           | 7           | -              |
| Payroll by Per Unit or Piece                                 | 6                           | 9               | 11    | -           | -           | 9              |
| Determining Number Days Inventory<br>Needed                  | 6                           | -               | 17    | 5           | 7           | 3              |
| Determining How Much to Purchase-<br>Economic Order Quantity | 6                           | 9               | 11    | 10          | 7           | -              |
| Price-Level Adjustments                                      | 6                           | 9               | 6     | 5           | 13          | 3              |
| Depreciation by Sum-Of-Digits Method                         | 6*                          | 9               | 6     | -           | 27          | -              |
| Determining Cost of By-Products                              | 5                           | 9               | -     | 5           | -           | 9              |
| Determining Fixed Costs of Joint<br>Products                 | 4                           | -               | -     | 5           | 13          | 3              |
| Determining Variable Costs of Joint<br>Products              | 4                           | -               | -     | 5           | 13          | 3              |
| Payroll by Incentive Plans                                   | 3                           | 9               | 11    | -           | -           | -              |
| Patents  | 3                           | -               | 6     | 5           | 7           | -              |

TABLE 29 (continued)

| Mathematical Computations For                        | Percent Performing Activity |                 |       |             |             |                |
|--|-----------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                 | By Size of Firm |       |             |             |                |
|  |                             | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Depreciation by Units of Production                  | 3                           | 9               | -     | -           | 7           | 3              |
| Cash Dividends                                       | 3                           | -               | 6     | 10          | -           | -              |
| Inventories by Weighted Average<br>Method            | 2                           | 9               | 6     | -           | -           | -              |
| Organization Costs                                   | 2                           | 9               | -     | 5           | -           | -              |
| Depletion  | 2*                          | 18              | -     | -           | -           | -              |
| Stock Dividends                                      | 2                           | 9               | -     | 5           | -           | -              |
| Division of Partnership Profits                      | 2                           | 9               | -     | -           | -           | 3              |
| Inventories by Life Method                           | 1                           | -               | -     | 5           | -           | -              |
| Determining Semi-Variable Costs<br>of Joint Products | 1                           | -               | -     | -           | 7           | -              |
| Franchises   | 1                           | -               | -     | 5           | -           | -              |
| Annuities  | 1                           | 9               | -     | -           | -           | -              |
| Copyrights   | 1                           | -               | -     | 5           | -           | -              |
| Trademarks and Names                                 | 1                           | -               | -     | 5           | -           | -              |
| Goodwill   | 0                           | -               | -     | -           | -           | -              |
| Yield on Bonds                                       | 0                           | -               | -     | -           | -           | -              |

\*The null hypothesis, "no significant difference exists in the proportion of technical accountants performing the accounting activity when compared by size of firm," was rejected at the .05 level of significance.

\*\*All per cents were rounded off to the nearest whole percent.

NOTE: This table should be read as follows: 44 per cent of the ninety-nine technical accountants interviewed performed mathematical computations for F.I.C.A. Taxes. The doing of this activity was performed by: 100 per cent of those in firms having 1-49 employees, 61 per cent of those in firms having 50-99 employees, etc.



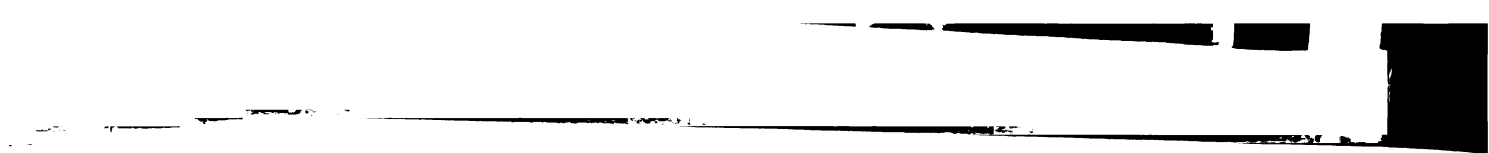


activities than did the adjacent smaller or larger classification. Also, the technical accountants in the firm size category of 50-99 employees did not perform many of the computations done by their counterparts in the four other firm size categories. In particular, many cost accounting mathematical computations performed by more than 10 per cent of the technical accountants were not performed by the technical accountants in firms with 50-99 employees.

When the activities were ranked in total and by size of firm according to the proportion performed, only two of the size of firm categories deviated beyond the one-third, 27 ranks, allowable difference.<sup>1</sup> The technical accountants in firms having 50-99 employees did not proportionately perform as many cost accounting computations as did the group as a whole but did perform more payroll computations. Those technical accountants in firms having 250-749 employees were just the opposite; they performed a greater proportion of cost accounting and less payroll computations. The middle and the largest sized firm classifications did not vary more than one-third of the ranks in any of the eighty-one specific mathematical computations.

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<sup>1</sup>See Appendix S, pp. 219-221.



## SUMMARY

Proportion Performing Activities

An analysis of Table 30 shows that the nine accounting functions considered in this investigation were performed to some degree by at least seven out of ten technical accountants employed in firms manufacturing durable goods. Those functions requiring routine tasks as well as those considered more advanced or complicated were performed by the least proportionate number of technical accountants. This tended to show that a technical accountant performed accounting functions somewhat more advanced than those normally done by a bookkeeper and less advanced than those done by a degree accountant. Therefore, one might say that a technical accountant was a "bridge the gap" employee. His level of activities included the entire spectrum of accounting activities from simple record keeping to complex analysis of statements, but his major duties appeared to be somewhere between those two extremes.

Although a large majority of the technical accountants did perform some phase of each function, an analysis of the individual functions, as portrayed in Table 31, revealed that only eleven of the 250 accounting activities were performed by 50 per cent or more of the technical accountants.<sup>1</sup> It was further revealed that of the 250 selected accounting activities that could normally be taught in the first two years of post-high school education only 102 were performed by 25 per cent or more of the technical accountants in firms manufacturing durable goods. This

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<sup>1</sup>See Appendix J, pp. 196-207.

TABLE 30

PERCENT OF TECHNICAL ACCOUNTANTS PERFORMING SPECIFIC ACCOUNTING  
FUNCTIONS IN FIRMS MANUFACTURING DURABLE GOODS  
(IN TOTAL AND BY SIZE OF FIRM)

| Accounting Functions<br>No. Technical Accountants per<br>Category      | Percent of Respondents Performing |                 |       |             |             |                |
|--|-----------------------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total                       | By Size of Firm |       |             |             |                |
|  |                                   | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
|  | 99                                | 11              | 18    | 20          | 15          | 35             |
| Making Financial Reports<br>and Schedules                              | 98.0                              | 90.0            | 100.0 | 100.0       | 100.0       | 97.1           |
| Analyzing Financial Reports<br>and Schedules                           | 74.8                              | 72.7            | 66.7  | 80.0        | 100.0       | 65.7           |
| Maintaining Ledgers  | 89.9                              | 90.9            | 94.4  | 95.0        | 86.7        | 85.7           |
| Maintaining Journals   | 72.7                              | 90.9            | 94.4  | 90.0        | 86.7        | 40.0           |
| Initiating or Preparing<br>Data  | 93.9                              | 100.0           | 83.3  | 90.0        | 100.0       | 97.1           |
| Recording or Posting Data  | 71.7                              | 81.8            | 55.6  | 70.0        | 60.0        | 82.7           |
| Making and Using Working<br>Papers                                     | 79.8                              | 90.9            | 83.3  | 85.0        | 86.7        | 68.6           |
| Non-classified* Maintaining,<br>Analyzing, or Performing<br>Activities | 94.9                              | 100.0           | 83.3  | 100.0       | 100.0       | 94.3           |
| Doing Specific Mathematical<br>Computations                            | 97.0                              | 100.0           | 88.9  | 100.0       | 100.0       | 100.0          |

\*Refers to activities not included in the above classifications.



TABLE 31

CUMULATIVE NUMBER OF ACTIVITIES PERFORMED IN EACH ACCOUNTING FUNCTION  
BY VARIOUS PERCENTAGES OF TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS

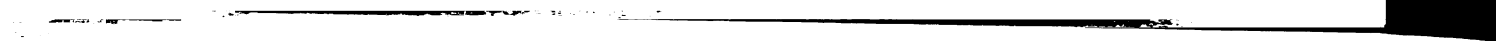
| Accounting Function   | Number<br>of<br>Activities | Cumulative Number Performed<br>by Percent Technical Accountants |         |     |     |              |
|---|----------------------------|---|---------|-----|-----|--------------|
|   |                            | 50%   | 33 1/3% | 25% | 20% | Below<br>20% |
| Making Financial Reports<br>and Schedules                             | 36                         | 2   | 14      | 17  | 22  | 14           |
| Analyzing Financial Statements<br>and Schedules                       | 25                         | 0   | 1       | 4   | 7   | 18           |
| Maintaining Ledgers   | 16                         | 2   | 5       | 7   | 8   | 8            |
| Maintaining Journals  | 11                         | 0   | 4       | 8   | 8   | 3            |
| Preparing and Initiating<br>Data                                      | 21                         | 4   | 11      | 16  | 18  | 3            |
| Recording or Posting Data   | 9                          | 1   | 5       | 7   | 9   | 0            |
| Making and Using Working<br>Papers                                    | 9                          | 0   | 6       | 8   | 8   | 1            |
| Non-Classified Maintaining,<br>Analyzing, or Performing<br>Activities | 42                         | 2   | 7       | 16  | 23  | 19           |
| Doing Specific Mathematical<br>Computations                           | 81                         | 0   | 15      | 19  | 30  | 51           |
| Total   | 250                        | 11  | 68      | 102 | 133 | 117          |

NOTE: This table should be read as follows: There were thirty-six accounting activities in the function of Making Financial Reports and Schedules. Two of these activities were performed by 50 per cent or more of the technical accountants; fourteen, including the two in the 50 per cent category, were performed by at least 33 1/3 per cent of technical accountants, etc. Fourteen of the activities were performed by less than 20 per cent of the technical accountants.

indicates that 60 per cent of the activities included in textbooks to be taught were actually performed by less than 25 per cent of the technical accountants in the firms represented by this study.

A further analysis of the most often performed activities, Appendix J, revealed that those activities normally learned quite rapidly by students were most often performed such as : making an accounts receivable or payable schedule, analyzing accounts receivable or comparing per cent costs to sales, maintaining accounts receivable ledgers, etc. On the other hand many activities that normally are difficult for students to comprehend were least performed such as: computing yield on bonds, goodwill, annuities, stock dividends, etc. It appears that a large portion of the more often performed activities were those more easily taught to students and those least performed seemed to be the most difficult for students to master.

When one considers that the most often performed activity was performed by only 64 of the 99 technical accountants, one-third of the teaching effort was not directly utilized. Over 95 per cent of the activities were performed by less than one-half of the technical accountants, which indicates an apparent current loss of teacher and student effort of 50 per cent or greater. However, it must be pointed out that few technical accountants would ever be expected to perform all the accounting job activities investigated in this study. Those employed in the larger firms, over 250 employees, unless promoted or transferred, would perform similar specialized activities each fiscal period. Therefore, the 50 per cent possible loss of learning effort as mentioned above does not indicate the actual need for training because information





beyond that of one's sphere of job activities would be essential in understanding of the total business operation.

### By Size of Firm

To determine whether there were clusters of accounting activities performed according to the five size of firm categories two types of analyses were made: (1) a statistical analysis using Kendall's coefficient of concordance and Chi Square;<sup>1</sup> and (2) a general analysis using observation, proportion, and numerical rankings.

Statistical analysis. The rank order relationship by size of firm of the various accounting activities in each of the nine selected accounting functions was tested by Kendall's coefficient of concordance with the correction factor for ties and by Chi-Square. For each of the functions the null hypothesis, "no significant difference exists between the rank order of the accounting activities in each selected function as performed by technical accountants in the various size firms," was rejected in each of the nine selected accounting functions at the .02 or less level of significance.<sup>2</sup> Therefore, there was a significant difference in the rankings of accounting activities within each accounting function when arranged by size of firm.

When each of the 250 accounting activities were tested by Chi-Square for the null hypothesis, "no significant difference exists in the

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<sup>1</sup>Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, (New York: McGraw-Hill Book Company, Inc., 1956), pp. 229-238.

<sup>2</sup>See Appendix T, p. 222.

proportion of technical accountants performing the accounting activity when compared by size of firm," 101 of the activities were rejected at the .05 level of significance.<sup>1</sup> This indicates that there was a difference in proportion performed by technical accountants when analyzed by the five size of firm categories for those 101 accounting activities rejected at the .05 level of significance.

A further study of the 101 activities with a difference in proportion performed according to size of firm showed three patterns of proportion performed. First, and the most prevalent, the technical accountants in the smaller firms, 1-49 employees, performed the accounting activities to a greater extent than did each of the succeeding larger firm size categories. Second, those activities associated with cost accounting were most often performed in the middle size firm categories, 100-249 and 250-749 employees, with a lesser proportion performing them in firms employing less than 100 or more than 750 employees. Third, those activities associated with larger companies such as departmental reports, were performed to a lesser degree in each succeeding smaller firm size category.

General Analysis. An analysis of Table 30, which classified the functions performed according to size of firm, revealed a general consistency of pattern that when the per cent of a function was lower for one size of firm it also tended to be lower for the other firm size categories. Although this function pattern was somewhat consistent,

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<sup>1</sup>See Tables 13, 15, 17, 19, 21, 23, 25, 27, and 29

there was considerable percentile variation within and between functions in total and by size of firm. An example of this was the function of Maintaining Journals which was done by a generally lesser proportion of technical accountants in the various firm size categories but was performed by nine out of ten technical accountants in firms having 50-99 employees while by only four of ten in firms with over 750 employees.

When one considered all of the 250 accounting activities in total, there tended to be a gradual decrease, as the firms became larger, in the proportion of technical accountants performing an activity. This pattern of performance generally remained the same except in firms having 50-99 employees. In this size of firm category a smaller proportion of the technical accountants performed the accounting activities than did their counterparts in the adjacent firm size categories, 1-49 or 100-249 employees. The only explanation to the investigator for this smaller per cent of performance was that firms having 50-99 employees were large enough to begin specialization but employed outside data processing or public accounting services to perform the bulk of the accounting activities.

Although there was a significant difference in the proportion performing the specific accounting activities in the five size of firm categories, no definite cluster of activities was associated with any one of them. The activities performed by at least 20 per cent of the technical accountants were performed in all size of firm categories.

However, those activities associated with cost accounting were far more often performed in the medium sized firms, 100-249 and 250-749 employees, while those associated with the payroll were performed more in the smaller firm size categories, 1-49 and 50-99 employees.

## CHAPTER VI

### THE FINDINGS, PART III

#### DETERMINATION OF EVALUATIVE CRITERIA

One of the purposes of this study was to show how data could be selected from a list of job activities to form a set of criteria that could be utilized to assist in the evaluation of the content in the accounting courses of a post-high school terminal accounting program.

##### Selection of Criteria

The selection of any type criterion contains the assumption that a line of discretion must be drawn. In the reading of material the reader must consciously or unconsciously determine the level of significance (line of discretion) for a particular passage or statement. This line, which one might call a "line of discretion," can be determined by personal observation or opinion and/or an objective base. The person or persons involved in a local curriculum or program study must also draw a line to assess which criteria ought to be employed in the evaluation of a program.

The review of literature showed that local factors<sup>1</sup> should be considered as a base to determine a "line of discretion" for selecting criteria to be employed in the evaluation of post-high school terminal

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<sup>1</sup>Refers to the service area of a post-high school educational institution.

accounting programs. Some of the factors that could be used to assist in the establishing of a line of discretion for selecting criteria to evaluate such accounting programs are: (1) current and projected local job market for technical accountants, (2) in-service training programs used by the firms, (3) use of outside data processing services by firms for accounting data and reports, (4) objectives of the post-high school educational institution, (5) facilities available, (6) staff available, (7) accounting functions and activities performed by technical accountants, (8) availability of interested students, etc.

The use of job activities has been an accepted criterion, along with others, employed in the evaluation of a terminal program of study in educational institutions. Consequently, this study used as a base the accounting functions and activities performed by technical accountants employed by firms manufacturing durable goods in the tri-county area. From these functions and activities an attempt was made to select criteria that could be used to evaluate content in the accounting courses in a post-high school terminal accounting program (Figure 3). A line of discretion was drawn to determine which of the 250 accounting-type activities<sup>1</sup> investigated should be included. This line of discretion was based on the following series of analyses of the data: (1) the proportion of technical accountants performing the activity, (2) the rank order, by performance, of the activities in total and by size of firm, (3) the frequency of performance, and (4) the universality of performance of the activities by the technical accountants in all size of firm categories.

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<sup>1</sup>See Appendix J, pp. 196-207.



## FIGURE 3

AN EVALUATIVE CRITERION BY WHICH POST-HIGH SCHOOL  
PERSONNEL CAN EVALUATE OR DETERMINE CONTENT  
OF TECHNICAL ACCOUNTING PROGRAMS FOR  
DURABLE GOODS MANUFACTURERS<sup>1</sup>

PART I: ACCOUNTING ACTIVITIES CLASSIFIED BY SELECTED ACCOUNTING CYCLE  
FUNCTIONS

Financial Statements, Reports, and Schedules

Financial Statements

Balance Sheet  
Income Statement  
Cost of Production  
Capital Statement (Including Retained Earnings)  
Consolidated Statements  
Source and Application of Funds  
Cash Flow Statement

Schedules

Accounts Receivable  
Accounts (Vouchers) Payable  
Manufacturing Expense  
Cost of Goods Sold  
Materials Consumed  
Cost of Goods Manufactured  
General and Administrative Expense  
Selling Expense

Reports-Tax

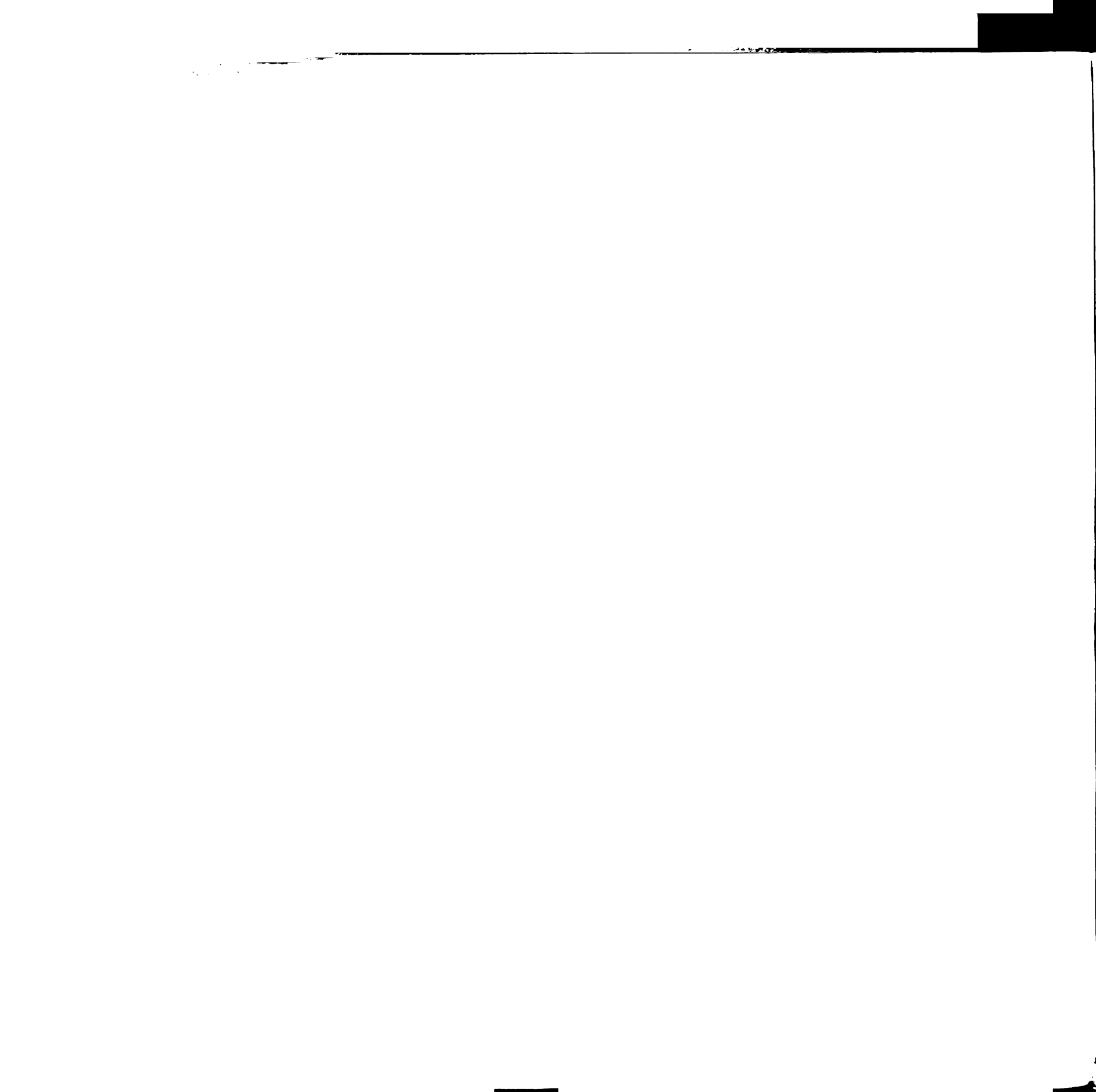
F.I.C.A.  
Employee Withholding  
Federal Unemployment Compensation  
State Unemployment Compensation  
State Sales  
Property  
Federal Excise  
Company Income

Reports-General

Efficiency  
Credit Rating  
Alternative Cost  
Departmental

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<sup>1</sup>A list by function of evaluative criteria from activities performed by technical accountants in firms manufacturing durable goods in the tri-county area.





**Budgets**

Production  
Operating  
Cash

**Analysis and Interpretation of Financial Statements****Percentile Analysis**

Costs to Sales  
Expenses to Sales  
Return on Investment  
Increase or Decrease per Item

**Ratio Analysis**

Receivables to Sales  
Current Ratio

**Comparative Analysis**

Income Statements  
Balance Sheets

**General Analysis**

Accounts Receivable  
Accounts Receivable Turnover  
Average Collection Period on Receivables  
Average Cost Per Unit Manufactured  
Average Cost Per Unit Sold  
Inventory Turnover  
Working Capital

**Maintaining Ledgers****General Ledger****Subsidiary Ledgers**

Accounts Receivable  
Accounts or Vouchers Payable  
Payroll  
Plant (Fixed Asset)  
Materials or Stores  
Finished Goods  
Factory  
Cost  
Expense  
Notes Receivable or Payable

**Maintaining Journals****General Journal**

**Special Journals**

- Sales
- Cash Receipts
- Check Register
- Purchases
- Voucher Register
- Sales Returns and Allowances
- Petty Cash

**Preparing and Initiating Data****Journal Entries or Journal Vouchers for**

- Normal Transaction Entries
- Adjusting Entries
- Closing Entries
- Correcting Entries
- Reversing Entries
- Explanations on all Entries

**Cost Accounting Entries**

- Direct and Indirect Cost Entries
- Purchases of Materials Entries
- Issuance of Materials
- Return of Material to Stores
- Record Scrap and Waste Materials
- Record Defective Work
- Adjust Inventory Cards

**General**

- Expense Accounts
- Bank Deposits and Reconciliations
- Withholding Tax Forms (W-2, W-4)
- Data for Storage in Electronic Equipment
- Insurance Forms
- Supplies Inventories
- Tax Valuation Sheets

**Recording or Posting Data**

**To General Ledger**

**To Subsidiary Ledgers**

**Miscellaneous**

- For Purchase of Materials
- For Issuance of Materials

**Making and Using Working Papers For**

Financial Statements

Work in Process (Cost Sheets)

Tax Reports

Depreciation

Allocating Costs

Insurance Expirations

**PART II: ACCOUNTING ACTIVITIES PERFORMED AS SPECIAL TASKS--NOT NORMALLY  
CLASSIFIED AS ACCOUNTING CYCLE FUNCTIONS**

**Non-Classified Maintaining, Analyzing, or Performing Activities****Cost Accounting Activities**

Maintain Job Cost Sheets

Analyze Material Cost Variance

Analyze Labor Cost Variance

Analyze Indirect Costs

Compare Costs with Budget

Analyze Overhead Cost Variance

Determine Estimated Costs

Compare Manufacturing and Distributing Costs

Determine the Base for Distribution of Service

Department Costs to Production

Maintain Waste, Spoilage, and Shrinkage Records

Maintain Perpetual Inventories

**Record Keeping Activities**

Verify Balances of Control Accounts with

Subsidiary Ledger

Check Postings and Totals

Foot and Balance Ledger Accounts

Foot, Balance, and Total Columns in

Special Journals

Maintain Withholding Tax Records

Rule and Balance Accounts

Maintain Insurance Records

(expirations and premiums)

Maintain State Sales Tax Records

Maintain Departmental Records

**Miscellaneous**

- Check Creditor Invoices and Statements
- Analyze Sales
- Handle Collection of Outstanding Debts
- Analyze Distribution Costs
- Analyze Administrative Costs
- Authorize Payment of Vouchers
- Handle Promissory Notes
- Act as a Paying Cashier
- Audit Internal Accounting Activities

**PART III: ACCOUNTING ACTIVITIES BASED ON MATHEMATICAL COMPUTATIONS****Mathematical Computation Activities For****Payroll Deductions**

- F.I.C.A. Taxes
- Group Life Insurance Premiums
- Medical and Hospitalization Plan Premiums

**Payroll**

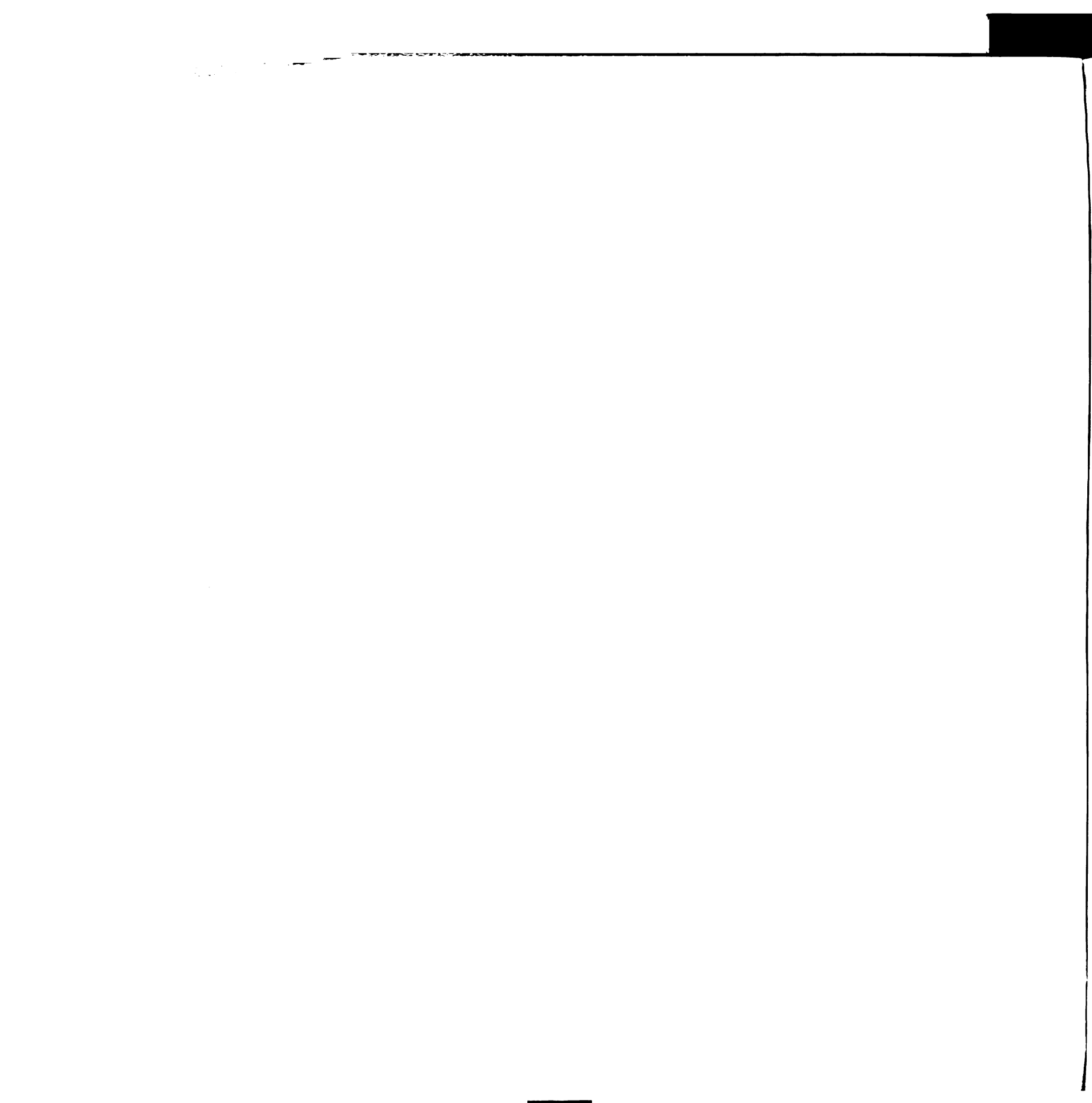
- Vacation and Holiday Pay
- Overtime Payroll
- Payroll by Hour or Day Rate
- Payroll Time Cards
- Payroll Job Tickets
- Bonuses
- Payroll Shift Premiums

**Employer's Payroll Costs**

- State Unemployment Compensation Taxes
- Federal Unemployment Compensation Taxes
- Workmen's Compensation
- Pension and Annuity Payments

**Cost Accounting Data**

- Physical Inventories
- Allocation of Costs to Job
- Allocation of Costs to Departments
- Using Cost Standards
- Perpetual Inventories
- Straight Line Method Depreciation
- Declining Balance Method Depreciation
- Determining Overabsorbed Overhead
- Determining Underabsorbed Overhead
- Using FIFO Method of Inventorying
- Using Average Cost Method of Inventorying
- Using Cost or Market Costing for Inventories



Determining Base for Distributing Service  
Department Costs to Production  
Obsolescence  
Cost Estimating  
Allocation of Costs to Divisions  
Allocation of Costs to Process  
Cost-Volume Relationships  
Establishing Standards  
Determining Whether to Make or Buy an Item

**Miscellaneous**

Data for Adjusting Entries  
Use of Percentages  
Invoicing Customers  
Cash Discounts  
Insurance Data  
Trade Discounts  
Uncollectible Accounts  
Interest Receivable  
Interest Payable

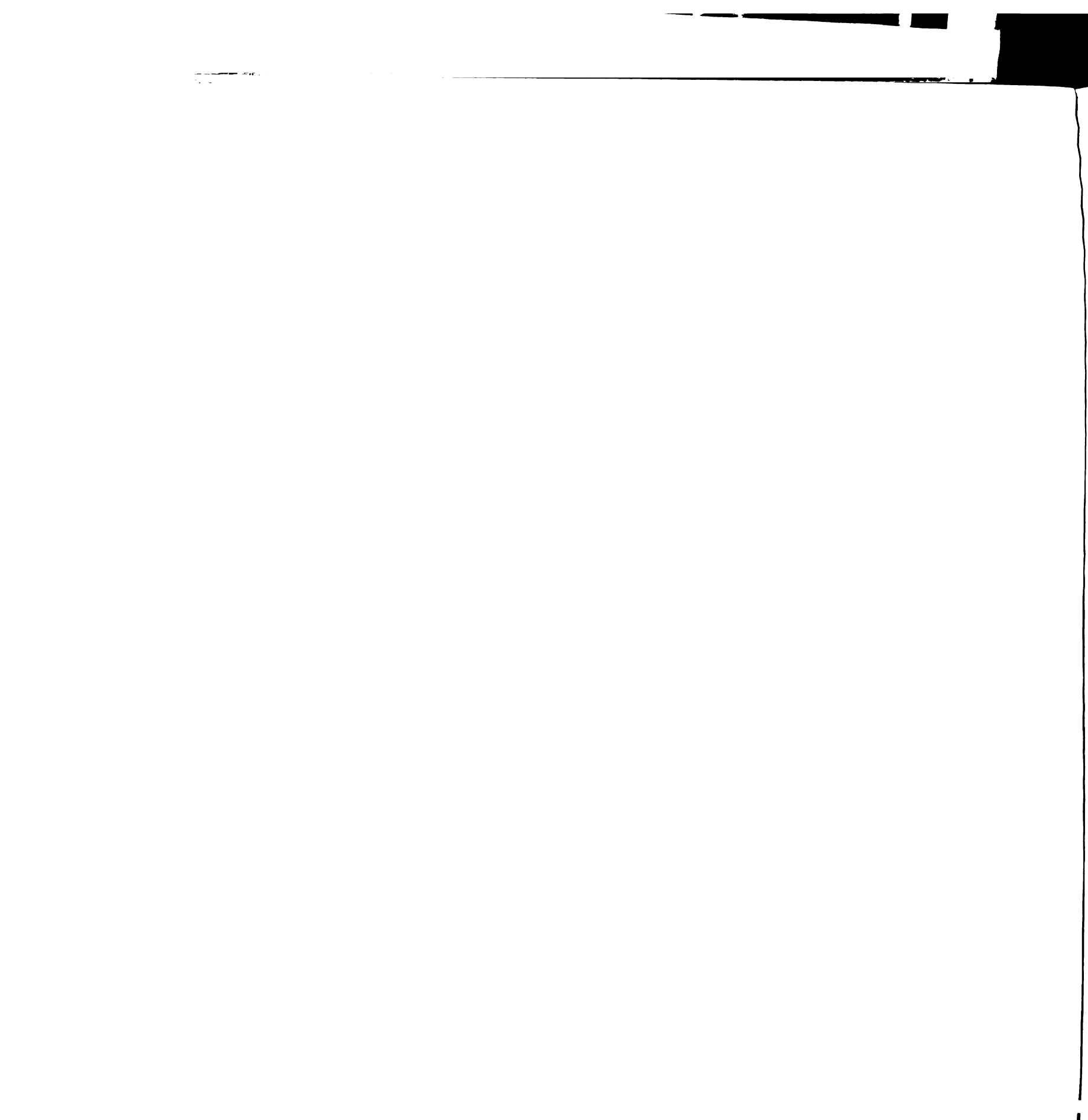
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**NOTE:** These accounting-type activities investigated in this study but not included in this evaluative criterion due to the lack of performance by technical accountants in firms manufacturing durable goods can be observed in Appendix U, pp. 223-224.

Proportion performing activities. For this study a line of discretion was drawn to include all these activities performed by at least one out of eight of the technical accountants interviewed. In the attempt to draw this line of discretion for inclusion or exclusion from the list of 250 researched activities, a series of analyses were made dealing with the proportion of technical accountants that performed each activity. For example, if only those activities performed by fifty per cent or more of the technical accountants were to be included in the list of criteria, only eleven of the 250 activities would have been selected with 239 activities excluded. The excluded items (96%) would surely include many activities that should be employed to evaluate a technical accounting program.

Similar analyses were made of those activities performed by the 33 per cent, 25 per cent, and 20 per cent of the technical accountants respectively and they portrayed a situation similar to that of the 50 per cent tentative cut-off line in that some apparently necessary evaluative activities were excluded from a list of criteria. Therefore, those activities performed by a lesser proportion of technical accountants such as, one out of six, one out of eight, or one out of ten technical accountants were then analysed individually by the other analyses mentioned prior to final selection for the evaluative criterion list.

Rank order of activities. An analysis of the rank order of the various activities presented a picture similar to the "proportion performing the activities." These activities ranked in the top 50 per





cent of ranks were also performed by more than one out of five technical accountants.<sup>1</sup> The activities ranked in the bottom 25 percentile were also performed by 10 per cent or less of the technical accountants employed by firms manufacturing durable goods. This double comparison, by "proportion performing" and by "rank order," shows that 25 per cent of the accounting activities were performed by one out of ten or less of these technical accountants.

Universality of performance. Analysis revealed that in general, all activities performed by 20 per cent or more of the technical accountants in total were also performed by the technical accountants in each size of firm category. Due to the availability of contracted outside assistance or in-service training programs in the smaller and largest firms, respectively, these activities performed by less than 20 per cent of the interviewees were analyzed primarily by the performance in medium sized firms.<sup>2</sup>

In the attempt to draw a discretionary line for inclusion or exclusion of activities for the evaluative criteria list, an analysis of the proportion of technical accountants performing the activities by size of firm was necessary. This analysis centered around two pieces of data neither of which were directly a purpose of this study. All the firms with 750 or more employees had in-service training programs for up-dating and up-grading their accountants and hence, were geared to do

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<sup>1</sup>See Appendix J, pp. 196-207.

<sup>2</sup>Medium sized firms included those with 100 to 749 employees.

part of the educational process on the job. Most of the firms with less than 100 employees contracted outside data processing services and/or public accounting services who could perform the complicated and seldom performed activities. The two middle size categories, 100-249 and 250-749 employees, did not employ data processing services, did not have established up-grading or training sessions, and did not employ public accountants except for annual audits and reports. Therefore, technical accountants employed by medium sized firms, 100 to 749 employees, needed more training at the time of employment than those in the smaller or larger sized firms.

Frequency of performance. Those activities performed by less than 20 per cent of the technical accountants were analyzed on frequency of performance (how often) with those seldom performed, QSA, (quarterly, semi-annually, or annually) considered as being the least important. Although no attempt was made in this study to classify activities into a priority listing by importance to employers, it was felt by the jury panel<sup>1</sup> that industry was most concerned that a new employee be able to perform those "often performed" activities without further assistance or training.

Summary. Considering the proportion performing an activity, the rank order of performance, performance by size of firm, and frequency of performance, those activities deemed essential for a criteria list<sup>2</sup>

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<sup>1</sup>See Appendix E, p. 183.

<sup>2</sup>See Figure 3, pp. 125-130.

to evaluate a post-high school technical accounting program were:

- . . . Performed by more than one out of eight technical accountants interviewed.
- . . . Ranked in the top 50 per cent by proportion performed.
- . . . Performed in all firm size categories.
- . . . Given preferential treatment when performed primarily in medium sized firms.

Those of the 250 accounting-type activities not included on the evaluative criteria list were:<sup>2</sup>

- . . . Performed infrequently, QSA.
- . . . Performed by less than one out of eight technical accountants.
- . . . Performed primarily in either firms having less than 100 or more than 750 employees.

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<sup>1</sup>See Appendix U, pp. 223-224.



## CHAPTER VII

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### NATURE OF THE STUDY

This study was an investigation to analyze accounting activities performed by technical accountants in order to arrive at a set of criteria of job activities that could be employed in appraising the appropriateness of the accounting courses in a terminal accounting program in a community college or other post-high school educational institution. More specifically this investigation attempted to:

1. Determine the current and projected need for technical accountants.
2. Establish a list of accounting-type activities performed by technical accountants.
3. Determine, according to size of firm, if there were clusters of accounting-type activities performed by technical accountants.
4. Establish, from the list of accounting-type activities, selected criteria that could be used to assist in the appraising of the accounting courses of a technical accounting program.
5. Translate the selected job activity data, performed by the technical accountant, into a set of evaluative criteria that a post-high school institution could employ to assist

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in appraising the accounting courses in its terminal accounting program.

### Need for the Study

The basic need for this study developed out of the consideration given to the following facts and assumptions regarding terminal accounting programs in post-high school educational institutions:

1. There was no large scale study showing the job possibilities in accounting for the graduate of a post-high school terminal accounting curriculum.
2. Previous studies have not concerned themselves with the post-high school terminal accounting program.
3. Post-high school terminal accounting programs need to be adapted to the job market.
4. Community college accounting curricula are not always geared toward the terminal student desiring employment upon the completion of the program.
5. There is an apparent need for the development of programs for training post-high school, non-baccalaureate degree, technical accountants.
6. Current employers tend to prefer workers who enter the labor market to be elder and to possess a great degree of occupational preparation in their specific field.
7. Educational instructors and leaders, prospective students, and the general public need to be alerted to current information about accounting functions and activities that could be performed by prospective graduates of a two-year post-high school educational institution.

### Limitations of the Study

The study was limited to those firms manufacturing durable goods in a tri-county (Clinton, Eaton, and Ingham) area in Michigan. It was farther limited to include only those employees for which the following was appropes:

- (1) The employee was full-time and his primary function was that of performing accounting-type activities.
- (2) The employee was in a position for which the employer would consider post-high school, non-baccalaureate degree, accounting education sufficient for initial employment.
- (3) The employee was in a position from which the employer would consider promotion or advancement possible.

#### METHOD AND PROCEDURE

The study was divided into four tasks for the collection and analysis of data.

The first task was a mail questionnaire to survey 122 firms manufacturing durable goods in a tri-county area in Michigan (Clinton, Eaton, and Ingham) to determine (1) the number engaged in accounting-type work for which a baccalaureate degree was not a basic requirement for employment, and (2) the current and projected need for technically trained non-degree accountants. The questionnaire was mailed to the top local administrative officer in each firm and with follow-up letters and telephone calls a 100 per cent response was obtained.

The second task was to assess what accounting activities were performed by technical accountants. The accounting activities performed were determined by a personal interview with each of the ninety-nine stratified randomly selected sample (by size of firm) of technical accountants from a total population of 222. These technical



accountants were described by management as fulfilling four basic requisites: (1) they were employed full-time as a technical accountant; (2) they had been employed as a technical accountant a minimum of one year; (3) they were in positions for which a post-high school accounting education was necessary but for which a baccalaureate degree was not a prerequisite; (4) the firm's administrative officers considered these technical accountants promotable and did not consider them in a static position replaceable by mechanical equipment. A Chi-Square test was used to determine goodness of fit of the total sample and of the ninety-nine selected respondents.

The third task was to analyze the responses from the ninety-nine interviews conducted in Task II to establish a list of accounting job activities performed by technical accountants.

Due to the methodology and purpose the primary type of analysis was based on the actual number and per cent of technical accountants performing an activity. However, when the proportion performing a function or activity was considered by size of firm two statistical tests were used. A Chi-Square analysis was performed to test the null hypothesis, "No significant difference exists in the proportion of technical accountants performing an accounting activity when compared by size of firm" using a rejection level at the .05 level of significance, and the null hypothesis, "No significant difference exists between the rank order of the accounting activities in each selected function as performed by technical accountants in the various size firms" was tested by Kendall's Coefficient of Concordance with a correction factor for ties and Chi-Square using a .02 level of significance as the

rejection level.<sup>1</sup>

The fourth task was the establishing of a set of criteria that could be used to assist evaluators in the appraising the adequacy of the accounting portion of a post-high school terminal accounting program. Four analyses were made on the 250 accounting-type activities investigated in this study to ascertain a useable cut-off point as to which activities should be included or excluded on such a criterion list. The four analyses were: (1) the proportion of technical accountants performing each activity, (2) the rank order by performance of the activities in total and by size of firm, (3) the frequency of performance for each activity, and (4) the universality of performance of each activity by technical accountants in all size of firm categories.

## FINDINGS

All findings in this study relate to the firms manufacturing durable goods in the Tri-County area and the technical accountants employed by these firms.

### Past and Current Data Related to Technical Accounting Positions

1. There is in the firm manufacturing durable goods a position that could be called a "technical accountant" or "accounting technician." Considerable confusion existed as to who ought to be called a bookkeeper or an accountant; some bookkeepers performed the tasks of accountants and vice-versa. Many individuals, though called bookkeepers or accountants, were performing accounting tasks on the fringe area

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<sup>1</sup>Siegel, op. cit., p. 234.

normally considered between the two positions--they are actually technical accountants.

2. Commercial data processing services were not used by any durable goods manufacturing firm having more than 100 employees.

3. The total accounting positions increased from 1960 through 1965 in the tri-county firms manufacturing durable goods. The total accounting-type positions increased 28.1 per cent whereas the subclassification of technical accountants increased 30.6 per cent.

4. The greatest increase of technical accountants during the 1960 to 1965 period appeared in the middle size firms, those having 50 to 749 employees.

5. Most firms (87%) indicated a scarcity in the past and present supply of technical accountants in the Tri-County area. (Scarcity as used here referred to the difficulty in locating qualified technical accountants as indicated by administrative officers of the firms. In some cases when desired personnel could not be located the firms employed a data processing service.)

#### Projected Need for Technical Accountants

6. Two out of every three firms indicated an anticipated increase in the employment of technical accountants at least until 1970, the period of this study. For this four-year period preceding 1970, there was an anticipated need for an additional 208 technical accountants (approximately 52 per year) in Tri-County firms manufacturing durable goods. The anticipated need of 208 technical accountants was a total replacement or increase of 94 per cent of the present work force.

7. Primarily the smaller firms (100 or less employees) anticipated "no change" in technical accounting positions to 1970. Only one firm with more than 100 employees anticipated "no change" in technical accountant employment.

8. Seven out of ten employers preferred technical accountants specifically trained for manufacturing firms over those generally trained in a regular post-high school terminal accounting program. This tendency was greater for smaller firms, less than 100 employees.

#### Future of Technical Accountants

9. Five out of every seven firms indicated that technical accountants were promotable. Of the fifty firms (70.4%) that indicated promotion was possible for technical accountants, twenty-seven indicated the level of promotability to be either first or second line supervision; eleven indicated the management level; three indicated the executive level; and nine could not predict.

10. The seven firms (16%) that indicated promotion was not possible for technical accountants were: (a) single proprietorships or partnerships too small to have a supervisor, or (b) a family owned business where the hiring of relatives was practiced.

#### Accounting Functions and Activities Performed by Technical Accountants Employed in Firms Manufacturing Durable Goods

11. The activities performed by the largest proportion of technical accountants were also performed most often, while those least performed were done so primarily once per QSA, (quarterly, semi-annually, or annually).

12. Ninety-seven of the ninety-nine technical accountants made at least one financial report or schedule during the past year. However, the report or schedule most frequently made, the schedule of accounts receivable, was performed by only six out of ten of the technical accountants. This diversity was quite common as evidenced by the fact that the balance of the reports were performed by one-half or less of the technical accountants.

13. Most of the financial reports and schedules were made monthly--about two out of three were made primarily at least once per month.

14. Of the financial reports and schedules not made at least monthly, most were governmental reports, annual reports, and long-term budgets.

15. Three out of four technical accountants did perform some type of analysis and interpretation of financial reports and schedules. However, the single most performed analysis and interpretation activity was the analysis of accounts receivable by four out of ten technical accountants. The balance of these activities were performed by less than one out of three technical accountants.

16. Nine out of ten technical accountants were responsible for maintaining some type of a ledger. However, the accounts receivable, accounts (vouchers) payable, payroll, general, or plant ledgers were the only ledgers maintained by more than one out of three technical accountants.

17. Seven out of ten technical accountants were responsible for the maintaining of some form of journal, but less than one-half of the



technical accountants were responsible for any one particular journal.

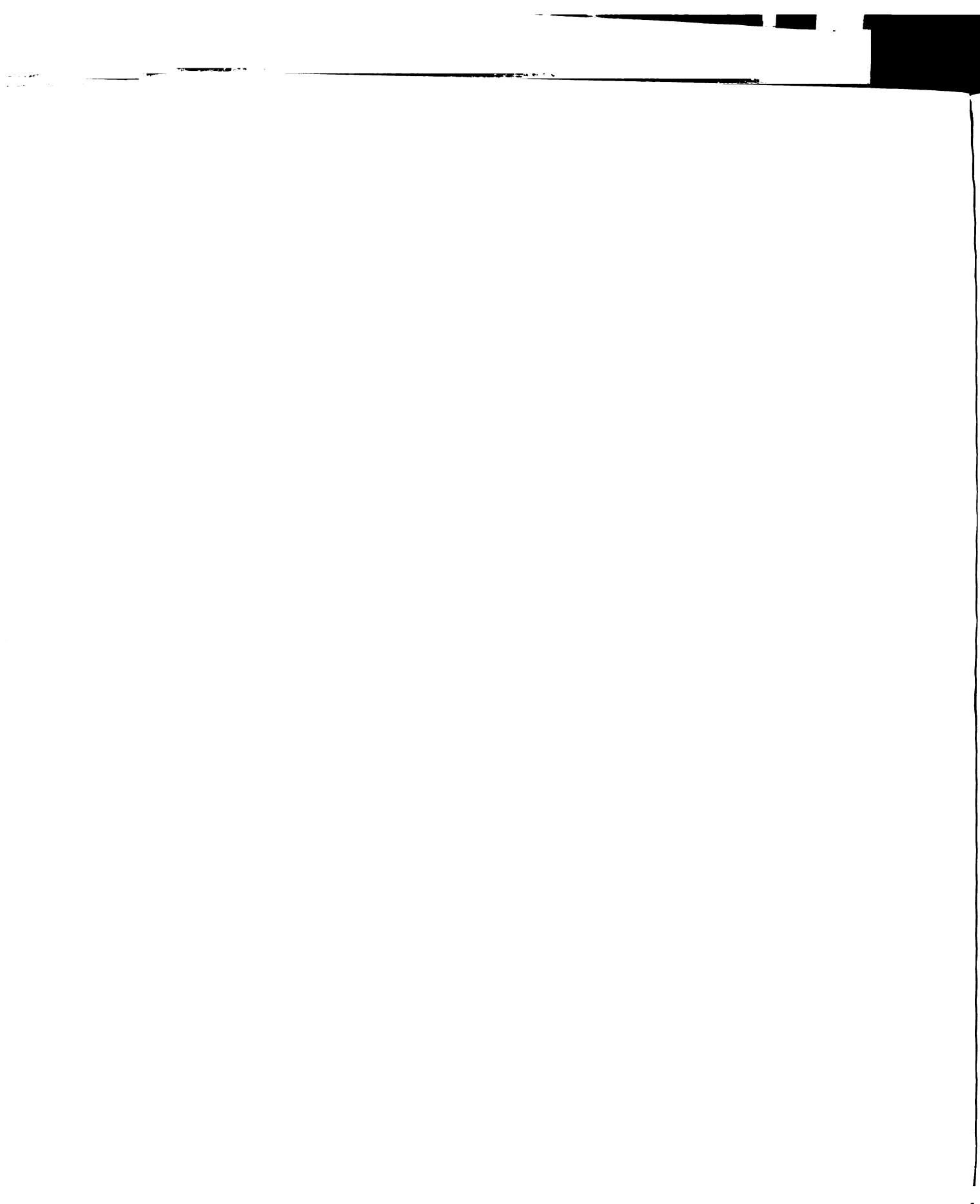
18. Most (94%) of the technical accountants had to initiate or prepare data for permanent records. The most performed activity in this category was the preparing of basic journal entries or journal vouchers by two out of three technical accountants. The making of correcting entries was ranked second of the activities in the proportion performed by technical accountants in this function.

19. Seven out of ten technical accountants performed some recording or posting function but the most performed activity, posting adjusting entries, was performed by only five out of ten technical accountants.

20. Eight out of ten technical accountants employed some form of working papers to assist them in performing the accounting activities. Working papers for the trial balance, financial statements, and work in process were most employed by technical accountants with 44, 44, and 43 per cent respectively doing so.

21. Most (95%) of the technical accountants also performed accounting duties not classified as normal accounting-cycle activities. The most performed activities in this category were those that could be taught in a short period of time, such as "to verify balances with control accounts." One-third of the activities performed by technical accountants in this category were considered activities related to cost accounting.

22. The mathematical computations most performed by technical accountants were related to payroll or payroll taxes. The least performed (by less than 10 per cent of the technical accountants)





mathematical computations were those most difficult for accounting students to comprehend, such as the sum-of-the-digits method of figuring depreciation.

23. Those activities performed by the greatest proportion of technical accountants in firms manufacturing durable goods were those that can be learned quite rapidly such as: making accounts receivable or accounts payable schedules, comparing per cent costs to sales, etc.

24. Those activities performed by the least proportion of technical accountants in firms manufacturing durable goods were those often considered difficult for students to master, such as computing yield on bonds, goodwill, annuities, etc.

Accounting Activities Performed by Technical Accountants According to Size of the Firms Manufacturing Durable Goods

25. Generally, the smaller the firm the greater the proportion of technical accountants that performed an activity. As firms became larger, a lesser proportion of technical accountants performed the activities. This could be explained by the fact that when one works for a larger firm more specialization is practiced.

26. Those activities performed by at least one out of five technical accountants were also performed by technical accountants in each of the five size of firm categories.

27. The cluster of activities related to payroll was performed by a considerably larger proportion of technical accountants in firms having less than 100 employees.

28. The cluster of activities related to cost accounting was performed by a larger proportion of technical accountants in the



middle sized firms, 100 to 749 employees, than by those size firms with less than 100 or more than 750 employees.

29. These activities related to department or division reports were most often performed by technical accountants in the largest size of firm categories with a lesser proportion in each smaller size category.

30. These accounting activities normally considered routine, of a record keeping nature, were performed most in smaller firms by technical accountants and to a lesser degree in each succeeding larger firm category.

### CONCLUSIONS

The conclusions of this investigation are based on an analysis of the findings and are presented in three parts: (1) the initial investigation determining the existence of technical accountants and the current and projected need for technical accountants, (2) the identification of accounting activities performed by technical accountants in total and by size of firm, and (3) the application of data for use by post-high school educational institutions.

These conclusions relate only to: (1) firms manufacturing durable goods in the tri-county area; (2) accounting-type activities as performed by technical accountants employed by firms manufacturing durable goods; and (3) post-high school terminal accounting courses for training technical accountants for the durable goods manufacturing industry in the tri-county area.

### Conclusions Based on the Initial Investigation

1. There is an accounting position that can be identified as one in which the activities performed tend to "bridge the gap" between the bookkeeper and the accountant.

2. The position of technical accountant is not completely consistent. Those employed in such a capacity do not perform exactly the same set of activities.

3. There is a great enough need for technical accountants to warrant an educational program in the tri-county area for the training of a sizeable number of technical accountants.

4. Individuals who undertake an educational program to become a technical accountant will have, coupled with experience, sufficient training to be promotable to first or second level supervisory positions and in some firms to management or executive level positions.

### Identification of Accounting Activities Performed by Technical Accountants

1. A profile of the identifiable accounting-type activities performed most often by technical accountants in tri-county firms manufacturing durable goods is potentially useful as a guide in the determination of content for terminal accounting courses designed for initial training, in-service training, or up-grading of technical accounting employees for firms manufacturing durable goods.

2. The technical accountant does perform some activities which have been considered duties of a bookkeeper as well as some of which have been considered duties of a baccalaureate degree accountant but can basically be considered as a position somewhere in between the two.

However, the activities are not completely common to all technical accounting positions but do tend to cluster according to size of firm.

#### Application of Data for Post-High School Educational Institutions

1. There appears to be an ever present need to evaluate continually the content and scope of the accounting courses in a terminal accounting program.

2. Accounting-type activities performed by technical accountants in the Tri-County firms manufacturing durable goods can be arranged into a set of criteria that could be used to assist: (1) in the evaluation of content or scope of the accounting courses in a post-high school terminal accounting program, (2) in the evaluation and selection of textbooks for use in terminal accounting courses, and (3) personnel performing a guidance function with those interested in technical accounting.

3. There is a need for terminal accounting instructors to work closely with employers so they will be "on top" of changes or anticipated changes in the job market from both the need for technical accountants and job activities performed.

#### RECOMMENDATIONS

The following recommendations are derived from the findings and conclusions of this investigation as well as on the assumption that the current economic level of business operation will continue. For the purpose of clarity, the recommendations are presented in two sections: (1) general recommendations, and (2) educational implications for application of findings and conclusions.

### General Recommendations

1. There is a need in the Tri-County area for post-high school programs (curricula) geared toward the training of technical accountants for firms manufacturing durable goods. These programs should be designed to produce thirty to fifty graduates per year if the local projected needs are to be met. Considering the normal educational drop and failure rate in post-high school technical curricula, from sixty to eighty students may have to enroll yearly in order to graduate this needed number.

2. There is a need to use an evaluative set of criteria based on current and projected job information, similar to that presented in Figure 3, to assist in the planning and evaluating post-high school accounting courses in the terminal accounting program.

3. There should be a set of technical accounting evaluative criteria established for the service area of each post-high school educational institution and these criteria should be constantly up-dated.

4. Post-high school educational institutions should consider establishing in-service, refresher, retraining, or up-dating courses for the following type individuals so they can more readily progress in a satisfactory manner in the mechanized business world:

- a. Experienced bookkeepers with only high school training.
- b. Graduates of post-high school terminal accounting programs.
- c. Employees who learned their skills on the job.
- d. Individuals who may need retraining due to having been or are likely to be replaced by electronic data processing.



5. This study should be replicated in procedure using as a base other fields of employment such as retailing and distribution, government, service, and non-durable manufacturing to see whether there is a body of accounting knowledge and activities common to technical accountants in all five areas.

6. There is a need for a study to isolate those competencies needed to adequately perform the duties and responsibilities of the position of technical accountant.

#### Educational Implications

Any research and more specifically any list of criteria is of little value without a purpose and a tentative plan for its use or application. This study was no exception. The list of evaluative criteria (Figure 3) could be employed to assist in the (1) evaluation of content in technical accounting courses by instructors or the department head, (2) establishment of teaching goals for technical accounting courses, (3) evaluation of textbooks to be used in technical accounting courses, (4) guidance function performed by educational personnel in helping individuals in the making of a career choice, and (5) communicating, by employers, the pre-employment requirements for technical accounting personnel.

Course and program content evaluation. Instructors and department heads should be concerned about their involvement in a continuous evaluation of the program or programs of an educational institution. Those involved with terminal programs should be even more concerned because their product, the graduates, may be employed in productive



positions without further educational assistance. The true evaluation of any terminal vocational program is the ability of its graduates to assume productively their position in the labor market.

If a terminal accounting program is to meet the current and projected need for technical accountants, those evaluating the accounting content of such a program must have up-to-date data by which to perform the evaluation. Therefore, a continuous evaluation program ought to be carried on to assure adequate pre-employment training for current and projected positions. This evaluation can be done subjectively or objectively with the latter the most reliable but it depends upon the availability of a set of objective evaluative criteria arranged in useable form. For this reason, Figure 4 was designed to show one possible arrangement of the data from the list of evaluative criteria<sup>1</sup> that could be employed to assist the instructors or the department head in the evaluation of accounting content in a post-high school technical accounting program for firms manufacturing durable goods.

The accounting courses in a technical accounting program intended to equip a student for future employment in the tri-county durable goods manufacturing industry ought to cover the activities listed in Figure 4 so that the technical accountant can perform these activities on the job with little or no additional instruction. Consequently, if a course (or courses) is said to be designed so that a graduate can successfully perform the activities within the limited realm

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<sup>1</sup>See Figure 3, pp. 125-130.



FIGURE 4

PROPOSED INSTRUMENT FOR EVALUATING ACCOUNTING CONTENT IN A POST-HIGH SCHOOL  
TECHNICAL ACCOUNTING PROGRAM FOR FIRMS MANUFACTURING DURABLE  
GOODS IN THE TRI-COUNTY AREA

**Directions:** For each activity indicate with an "X" in one of the four columns the answer most representative for graduates of your program.

**Explanation of columns:**

- A. Without Direction = has ability and experience to perform this activity without assistance.
- B. With Direction = has some experience or practice and can perform the activity with a little guidance or direction.
- C. With On-the-Job Training = has adequate background so that with further training on the job can perform the activity.
- D. Not Covered in Program = those activities not taught or covered in the program.

**PART I: ACCOUNTING ACTIVITIES CLASSIFIED BY SELECTED ACCOUNTING CYCLE FUNCTIONS**

| Accounting Activity by Function                     | Program Graduate Can Perform |                |                          | Not Covered in Program |
|---|------------------------------|----------------|--------------------------|------------------------|
|   | Without Direction            | With Direction | With On-the-Job Training |                        |
| <u>Financial Statements, Reports, and Schedules</u> |                              |                |                          |                        |
| Financial Statements                                |                              |                |                          |                        |
| Balance Sheet . . . . .                             |                              |                |                          |                        |
| Income Statement . . . . .                          |                              |                |                          |                        |
| Cost of Production . . . . .                        |                              |                |                          |                        |
| Capital Statement (Including retained Earnings)     |                              |                |                          |                        |
| Consolidated Statements . . . . .                   |                              |                |                          |                        |
| Source and Application of Funds . . . . .           |                              |                |                          |                        |
| Cash Flow Statement . . . . .                       |                              |                |                          |                        |
| Schedules   |                              |                |                          |                        |
| Accounts Receivable . . . . .                       |                              |                |                          |                        |
| Accounts (Vouchers) Payable . . . . .               |                              |                |                          |                        |
| Manufacturing Expense . . . . .                     |                              |                |                          |                        |
| Cost of Goods Sold . . . . .                        |                              |                |                          |                        |
| Materials Consumed . . . . .                        |                              |                |                          |                        |
| Cost of Goods Manufactured . . . . .                |                              |                |                          |                        |
| General and Administrative Expense . . . . .        |                              |                |                          |                        |
| Selling Expense . . . . .                           |                              |                |                          |                        |
| Reports-Tax   |                              |                |                          |                        |
| F.I.C.A. . . . .                                    |                              |                |                          |                        |
| Employee Withholding . . . . .                      |                              |                |                          |                        |
| Federal Unemployment Compensation . . . . .         |                              |                |                          |                        |
| State Unemployment Compensation . . . . .           |                              |                |                          |                        |
| State Sales . . . . .                               |                              |                |                          |                        |
| Property . . . . .                                  |                              |                |                          |                        |
| Federal Excise . . . . .                            |                              |                |                          |                        |
| Company Income . . . . .                            |                              |                |                          |                        |
| Budgets   |                              |                |                          |                        |
| Production . . . . .                                |                              |                |                          |                        |
| Operating . . . . .                                 |                              |                |                          |                        |
| Cash . . . . .                                      |                              |                |                          |                        |

NOTE: Reduced in scale for dissertation binding purposes.



FIGURE 4 (continued)

## PART I: (continued)

| Accounting Activity by Function                                   | Program Graduate Can Perform |                |                          | Not Covered in Program |
|---|------------------------------|----------------|--------------------------|------------------------|
|   | Without Direction            | With Direction | With On-the-Job Training |                        |
| <b>Reports-General</b>  |                              |                |                          |                        |
| Efficiency . . . . .  |                              |                |                          |                        |
| Credit Rating . . . . .   |                              |                |                          |                        |
| Alternative Cost . . . . .  |                              |                |                          |                        |
| Departmental . . . . .  |                              |                |                          |                        |
| <b><u>Analysis and Interpretation of Financial Statements</u></b> |                              |                |                          |                        |
| <b>Percentile Analysis</b>  |                              |                |                          |                        |
| Costs to Sales . . . . .  |                              |                |                          |                        |
| Expenses to Sales . . . . .                                       |                              |                |                          |                        |
| Return on Investment . . . . .                                    |                              |                |                          |                        |
| Increase or Decrease per Item . . . . .                           |                              |                |                          |                        |
| <b>Ratio Analysis</b>   |                              |                |                          |                        |
| Receivables to Sales . . . . .                                    |                              |                |                          |                        |
| Current Ratio . . . . .   |                              |                |                          |                        |
| <b>Comparative Analysis</b>                                       |                              |                |                          |                        |
| Income Statements . . . . .                                       |                              |                |                          |                        |
| Balance Sheets . . . . .  |                              |                |                          |                        |
| <b>General Analysis</b>   |                              |                |                          |                        |
| Accounts Receivable . . . . .                                     |                              |                |                          |                        |
| Accounts Receivable Turnover . . . . .                            |                              |                |                          |                        |
| Average Collection Period on Receivables . . . . .                |                              |                |                          |                        |
| Average Cost Per Unit Manufactured . . . . .                      |                              |                |                          |                        |
| Average Cost Per Unit Sold . . . . .                              |                              |                |                          |                        |
| Inventory Turnover . . . . .                                      |                              |                |                          |                        |
| Working Capital . . . . .   |                              |                |                          |                        |
| <b><u>Maintaining Ledgers</u></b>                                 |                              |                |                          |                        |
| General Ledger . . . . .  |                              |                |                          |                        |
| <b>Subsidiary Ledgers</b>   |                              |                |                          |                        |
| Accounts Receivable . . . . .                                     |                              |                |                          |                        |
| Accounts or Vouchers Payable . . . . .                            |                              |                |                          |                        |
| Payroll . . . . .   |                              |                |                          |                        |
| Plant (Fixed Asset) . . . . .                                     |                              |                |                          |                        |
| Materials or Stores . . . . .                                     |                              |                |                          |                        |
| Finished Goods . . . . .  |                              |                |                          |                        |
| Factory . . . . .   |                              |                |                          |                        |
| Cost . . . . .  |                              |                |                          |                        |
| Expense . . . . .   |                              |                |                          |                        |
| Notes Receivable or Payable . . . . .                             |                              |                |                          |                        |
| <b><u>Maintaining Journals</u></b>                                |                              |                |                          |                        |
| General Journal . . . . .   |                              |                |                          |                        |

FIGURE 4 (continued)

| PART I: (continued)                                |                              |                |                          |                        |
|--|------------------------------|----------------|--------------------------|------------------------|
| Accounting Activity by Function                    | Program Graduate Can Perform |                |                          | Not Covered in Program |
|  | Without Direction            | With Direction | With On-the-Job Training |                        |
| <u>Special Journals</u>                            |                              |                |                          |                        |
| Sales . . . . .                                    |                              |                |                          |                        |
| Cash Receipts . . . . .                            |                              |                |                          |                        |
| Check Register . . . . .                           |                              |                |                          |                        |
| Purchases . . . . .                                |                              |                |                          |                        |
| Voucher Register . . . . .                         |                              |                |                          |                        |
| Sales Returns and Allowances . . . . .             |                              |                |                          |                        |
| Petty Cash . . . . .                               |                              |                |                          |                        |
| <u>Preparing and Initiating Data</u>               |                              |                |                          |                        |
| Journal Entries or Journal Vouchers for            |                              |                |                          |                        |
| Normal Transaction Entries . . . . .               |                              |                |                          |                        |
| Adjusting Entries . . . . .                        |                              |                |                          |                        |
| Closing Entries . . . . .                          |                              |                |                          |                        |
| Correcting Entries . . . . .                       |                              |                |                          |                        |
| Reversing Entries . . . . .                        |                              |                |                          |                        |
| Explanations on All Entries . . . . .              |                              |                |                          |                        |
| Cost Accounting Entries                            |                              |                |                          |                        |
| Direct and Indirect Cost Entries . . . . .         |                              |                |                          |                        |
| Purchases of Materials Entries . . . . .           |                              |                |                          |                        |
| Issuance of Materials . . . . .                    |                              |                |                          |                        |
| Return of Material to Stores . . . . .             |                              |                |                          |                        |
| Record Scrap and Waste Materials . . . . .         |                              |                |                          |                        |
| Record Defective Work . . . . .                    |                              |                |                          |                        |
| Adjust Inventory Cards . . . . .                   |                              |                |                          |                        |
| General  |                              |                |                          |                        |
| Expense Accounts . . . . .                         |                              |                |                          |                        |
| Bank Deposits and Reconciliations . . . . .        |                              |                |                          |                        |
| Withholding Tax Forms (W-2, W-4) . . . . .         |                              |                |                          |                        |
| Data for Storage in Electronic Equipment . . . . . |                              |                |                          |                        |
| Insurance Forms . . . . .                          |                              |                |                          |                        |
| Supplies Inventories . . . . .                     |                              |                |                          |                        |
| Tax Valuation Sheets . . . . .                     |                              |                |                          |                        |
| <u>Recording or Posting Data</u>                   |                              |                |                          |                        |
| To General Ledger                                  |                              |                |                          |                        |
| To Subsidiary Ledgers                              |                              |                |                          |                        |
| Miscellaneous                                      |                              |                |                          |                        |
| For Purchase of Materials . . . . .                |                              |                |                          |                        |
| For Issuance of Materials . . . . .                |                              |                |                          |                        |

FIGURE 4 (continued)

| PART I: (continued)  |                              |                |                          |
|--|------------------------------|----------------|--------------------------|
| Accounting Activity by Function  | Program Graduate Can Perform |                |                          |
|  | Without Direction            | With Direction | With On-the-Job Training |
| Not Covered in Program   |                              |                |                          |
| <u>Making and Using Working Papers for</u>   |                              |                |                          |
| Financial Statements . . . . .   |                              |                |                          |
| Work in Process (Cost Sheets) . . . . .  |                              |                |                          |
| Tax Reports . . . . .  |                              |                |                          |
| Depreciation . . . . .   |                              |                |                          |
| Allocating Costs . . . . .   |                              |                |                          |
| Insurance Expirations . . . . .  |                              |                |                          |
| PART II: ACCOUNTING ACTIVITIES PERFORMED AS SPECIAL TASKS--NOT NORMALLY CLASSIFIED AS ACCOUNTING CYCLE FUNCTIONS |                              |                |                          |
| <u>Non-Classified Maintaining, Analyzing, or Performing Activities</u>   |                              |                |                          |
| Cost Accounting Activities   |                              |                |                          |
| Maintain Job Cost Sheets . . . . .   |                              |                |                          |
| Analyze Material Cost Variance . . . . .   |                              |                |                          |
| Analyze Labor Cost Variance . . . . .  |                              |                |                          |
| Analyze Indirect Costs . . . . .   |                              |                |                          |
| Compare Costs With Budget . . . . .  |                              |                |                          |
| Analyze Overhead Cost Variance . . . . .   |                              |                |                          |
| Determine Estimated Costs . . . . .  |                              |                |                          |
| Compare Manufacturing and Distributing Costs . . . . .   |                              |                |                          |
| Determine the Base for Distribution of Service Department Costs to Production . . . . .                          |                              |                |                          |
| Maintain Waste, Spoilage, and Shrinkage Records . . . . .  |                              |                |                          |
| Maintain Perpetual Inventories . . . . .   |                              |                |                          |
| Record Keeping Activities  |                              |                |                          |
| Verify Balances of Control Accounts with Subsidiary Ledger . . . . .   |                              |                |                          |
| Check Postings and Totals . . . . .  |                              |                |                          |
| Foot and Balance Ledger Accounts . . . . .   |                              |                |                          |
| Foot, Balance, and Total Columns in Special Journals . . . . .   |                              |                |                          |
| Maintain Withholding Tax Records . . . . .   |                              |                |                          |
| Rule and Balance Accounts . . . . .  |                              |                |                          |
| Maintain Insurance Records . . . . .   |                              |                |                          |
| Maintain State Sales Tax Records . . . . .   |                              |                |                          |
| Maintain Departmental Records . . . . .  |                              |                |                          |
| Miscellaneous  |                              |                |                          |
| Check Creditor Invoices and Statements . . . . .   |                              |                |                          |
| Analyze Sales . . . . .  |                              |                |                          |
| Handle Collection of Outstanding Debts . . . . .   |                              |                |                          |
| Analyze Distribution Costs . . . . .   |                              |                |                          |
| Analyze Administrative Costs . . . . .   |                              |                |                          |
| Authorize Payment of Vouchers . . . . .  |                              |                |                          |
| Handle Promissory Notes . . . . .  |                              |                |                          |
| Act as a Paying Cashier . . . . .  |                              |                |                          |
| Audit Internal Accounting Activities . . . . .   |                              |                |                          |





FIGURE 4 (continued)

## PART III: ACCOUNTING ACTIVITIES BASED ON MATHEMATICAL COMPUTATIONS

| Accounting Activity by Function  | Program Graduate Can Perform |                |                          | Not Covered in Program |
|--|------------------------------|----------------|--------------------------|------------------------|
|  | Without Direction            | With Direction | With On-the-Job Training |                        |
| <u>Mathematical Computation Activities for</u>                                     |                              |                |                          |                        |
| Payroll Deductions   |                              |                |                          |                        |
| F.I.C.A. Taxes . . . . .   |                              |                |                          |                        |
| Group Life Insurance Premiums . . . . .  |                              |                |                          |                        |
| Medical and Hospitalization Plan Premiums . . . . .                                |                              |                |                          |                        |
| Payroll  |                              |                |                          |                        |
| Vacation and Holiday Pay . . . . .   |                              |                |                          |                        |
| Overtime Payroll. . . . .  |                              |                |                          |                        |
| Payroll by Hour or Day Rate . . . . .  |                              |                |                          |                        |
| Payroll Time Cards . . . . .   |                              |                |                          |                        |
| Payroll Job Tickets . . . . .  |                              |                |                          |                        |
| Bonuses . . . . .  |                              |                |                          |                        |
| Payroll Shift Premiums . . . . .   |                              |                |                          |                        |
| Employer's Payroll Costs   |                              |                |                          |                        |
| State Unemployment Compensation Taxes . . . . .                                    |                              |                |                          |                        |
| Federal Unemployment Compensation Taxes . . . . .                                  |                              |                |                          |                        |
| Workmen's Compensation . . . . .   |                              |                |                          |                        |
| Pension and Annuity Payments . . . . .   |                              |                |                          |                        |
| Cost Accounting Data   |                              |                |                          |                        |
| Physical Inventories . . . . .   |                              |                |                          |                        |
| Allocation of Costs to Job . . . . .   |                              |                |                          |                        |
| Allocation of Costs to Departments . . . . .                                       |                              |                |                          |                        |
| Using Cost Standards . . . . .   |                              |                |                          |                        |
| Perpetual Inventories . . . . .  |                              |                |                          |                        |
| Straight Line Method Depreciation . . . . .  |                              |                |                          |                        |
| Declining Balance Method Depreciation . . . . .                                    |                              |                |                          |                        |
| Determining Overabsorbed Overhead . . . . .  |                              |                |                          |                        |
| Determining Underabsorbed Overhead . . . . .                                       |                              |                |                          |                        |
| Using FIFO Method of Inventorying . . . . .  |                              |                |                          |                        |
| Using Average Cost Method of Inventorying . . . . .                                |                              |                |                          |                        |
| Using Cost or Market Costing for Inventories . . . . .                             |                              |                |                          |                        |
| Determining Base for Distributing Service Department Costs to Production . . . . . |                              |                |                          |                        |
| Obsolescence . . . . .   |                              |                |                          |                        |
| Cost Estimating . . . . .  |                              |                |                          |                        |
| Allocation of Costs to Divisions . . . . .   |                              |                |                          |                        |
| Allocation of Costs to Process . . . . .   |                              |                |                          |                        |
| Cost-Volume Relationships . . . . .  |                              |                |                          |                        |
| Establishing Standards . . . . .   |                              |                |                          |                        |
| Determining Whether to Make or Buy an Item . . . . .                               |                              |                |                          |                        |
| Miscellaneous  |                              |                |                          |                        |
| Data for Adjusting Entries . . . . .   |                              |                |                          |                        |
| Use of Percentages . . . . .   |                              |                |                          |                        |
| Invoicing Customers . . . . .  |                              |                |                          |                        |
| Cash Discounts . . . . .   |                              |                |                          |                        |
| Insurance Data . . . . .   |                              |                |                          |                        |
| Trade Discounts . . . . .  |                              |                |                          |                        |
| Uncollectible Accounts . . . . .   |                              |                |                          |                        |
| Interest Receivable . . . . .  |                              |                |                          |                        |
| Interest Payable . . . . .   |                              |                |                          |                        |

of that discipline, those evaluating such a program should find the column entitled "Without Direction" in Figure 4 checked most of the time and "With Direction" checked second most often. Those courses said to be a vehicle in training for the "employment bound" should not have had either "With On-the-Job Training" or "Not Covered in Program" checked for any activity that was deemed necessary for employment.

Establishing teaching goals. Those involved with the planning of a terminal technical or general accounting program in a post-high school institution need guidelines to assist them in the establishing of teaching goals or objectives. Instructors and department heads could employ a criterion similar to Figure 4 to assist them in the establishment of these goals for an accounting course or courses in a technical accounting program.

The instructors and their department head understanding the local conditions could determine, by placing "X" marks in appropriate columns for each activity, the goals for each activity and thus, could also determine the teaching effort needed and the student progress required prior to the students accepting a position in the "world of work." For example, if it was determined that a future technical accountant should be able to perform an activity "without direction," the teaching effort would have to be concentrated on the application of knowledge in performing that activity. In this case, practical application of the knowledge would have to be the determining factor in teaching and measuring student progress. If on the other hand, those involved were to check that a student should be able to perform an

activity after having had additional "on-the-job training" the classroom goal would probably be one of giving general or background information.

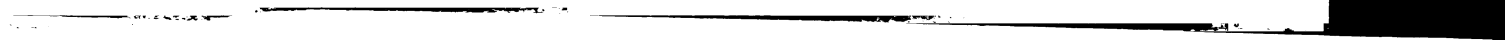
Evaluation and selection of textbooks. According to the preface in most accounting textbooks, the books were written with one of two purposes in mind: (1) to be used as a segment of a four-year program leading to a baccalaureate degree in accounting; or (2) to present a managerial emphasis with little stress on application. Inasmuch as few accounting books have been written with the terminal student or technical accounting courses directly in mind, it has been necessary to evaluate and select textbooks for technical accounting program with extreme care.

The list of evaluative criteria for technical accounting programs (Figure 3) could be employed as a guide in judging content desired in textbooks used in such a terminal accounting program for firms manufacturing durable goods in the tri-county area. A textbook evaluator could construct a comparative worksheet showing the needed accounting functions and activities vertically, similar to Figure 3 or Figure 4, and with a separate column horizontally for each textbook being considered. One could then indicate for each function or activity the adequacy of which each activity was covered in the textbook. A predetermined code could work most advantageously such as: 1 = adequate coverage, 2 = adequate coverage if supplementary material were used, 3 = inadequate, and 4 = not covered. This type textbook analysis would enable an evaluator to objectively select the most appropos textbook and therefore know in advance what additional units of instruction would have to be provided through supplementary material.

Guidance for career choice. The list of evaluative criteria for technical accountants employed by firms manufacturing durable goods in the tri-county area (Figure 3) could be used by those guiding or assisting students in the choice of a career. The list shows the type of accounting activity one could expect to perform on taking a job as a technical accountant in a durable goods manufacturing firm. Using these data along with the understanding of an individual's likes and dislikes, goals and ambitions, and abilities and limitations those performing the guidance function could assist students in deciding their future as to their becoming a technical accountant.

Employment requirements. Communicating an employer's expectations of a new employee has always been difficult. The placement bureau or office could have a potential employer check those accounting activities from Figure 3 deemed most significant for successfully filling a vacancy. The activities could be arranged with column headings depicting expected level of achievement such as: (1) employee must be able to perform, (2) must understand, (3) should know, or (4) nice to know. When this classifying of the technical accounting criterion list was completed, placement officials would have an indication of the depth, operational level, and technical accounting proficiency required of a new employee in a given firm. Placement personnel then could better assist in the matching of students or graduates to jobs in such firms.

Similar indications could also designate specific needs for "in-service" and "up-grading" training performable by post-high school institutions.



### A Post Script

For more than fifteen years the researcher has been involved as an accountant, accounting supervisor, accounting consultant, and a teacher of accounting and with this experience plus the findings in this study feels the following comments are justified:

Content. The content in a terminal accounting program should not parallel that offered for transfer to or in a 4-year collegiate institution. The terminal accounting student needs tools which he can immediately put to use in the performance of duties as a technical accountant. Then, through a planned continuing education program he can obtain the additional recommended theory of accounting and the peripheral niceties.

More specifically, a technical accountant needs: (1) more contact and experience with everyday cost accounting problems and activities that deal with the reporting and controlling functions of business; (2) experience in completing governmental reports as well as miscellaneous management reports in reference to budgets, efficiency, and profits; and (3) experience in the basic systems and procedures of accounting so as to more understandably perform the daily functions and activities.

On the other hand, much of that which is now normally taught from collegiate textbooks could be eliminated or altered. It appeared from this study that many of the concepts difficult for students to comprehend were little used in industry by technical accountants. Examples of these are the sum-of-the-digits method of computing depreciation, purchase and sale of stocks and bonds, Lifo method of

inventorying, ruling accounts, division of partnership profits, dissolving partnerships, consolidating branch reports, etc. (See Appendix U for additional items.)

Instructional Procedure. The procedure of lecturing for period after period is not appropos for the training of technicians. A technician learns by "doing" and it is the "doing" that keeps him progressing toward a goal. Therefore, the classroom ought to be a simulated accounting office with office procedures. The utilization of cases, practice sets, laboratory periods, demonstrations, problems, and cooperative training, flavored with individualized instruction would do much to assure a technical program's success.

Guidance. The individual normally interested in a terminal type program is not the 4-year oriented student, except in rare cases. The vocationally oriented individual is interested in learning by doing so as to be able to obtain a respectable position and perform satisfactorily on the job. Therefore, only these should be encouraged who are interested in performing the type activities classified as technical accounting. Those intending to complete a baccalaureate degree in accounting should not be encouraged to enroll in a terminal accounting program. The person entering a terminal accounting program could very well be someone who could not successfully compete in a regular 4-year program.

Instructors. Inasmuch as the content in a terminal accounting program should not be identical to the typical baccalaureate accounting

program, the students do not necessarily have the same interests or abilities, nor do they anticipate performing the same function when they graduate; and it could be that the technical accounting instructor might well also be different. It has often been said that teachers teach as they were taught. Most accounting teachers are baccalaureate degree oriented and hence may not be able or want to adjust to the teaching of strictly terminal accounting data. Instructors tend to want to prove that their teaching and their students are as good as those in the "university" and teach accordingly. For this reason, an accounting instructor or a recent graduate with a Master's or Doctor's Degree in accounting may not qualify as a first-choice instructor for such a program.

What are the alternatives? First, the selecting of exceptional technical accountants with a "flare" for helping others and then give him the necessary training helpful in presenting information advantageously. This person could very well not be a college graduate. (This would be similar to procedures used by the trades in employing teachers.) Secondly, the instructor could well be one presently employed as a bookkeeping or accounting teacher but who thoroughly understands the activities as performed by accounting technicians in industry. Thirdly, the instructor has to be interested in the development of teaching units and materials as present texts may not wholly stress that which should be covered.



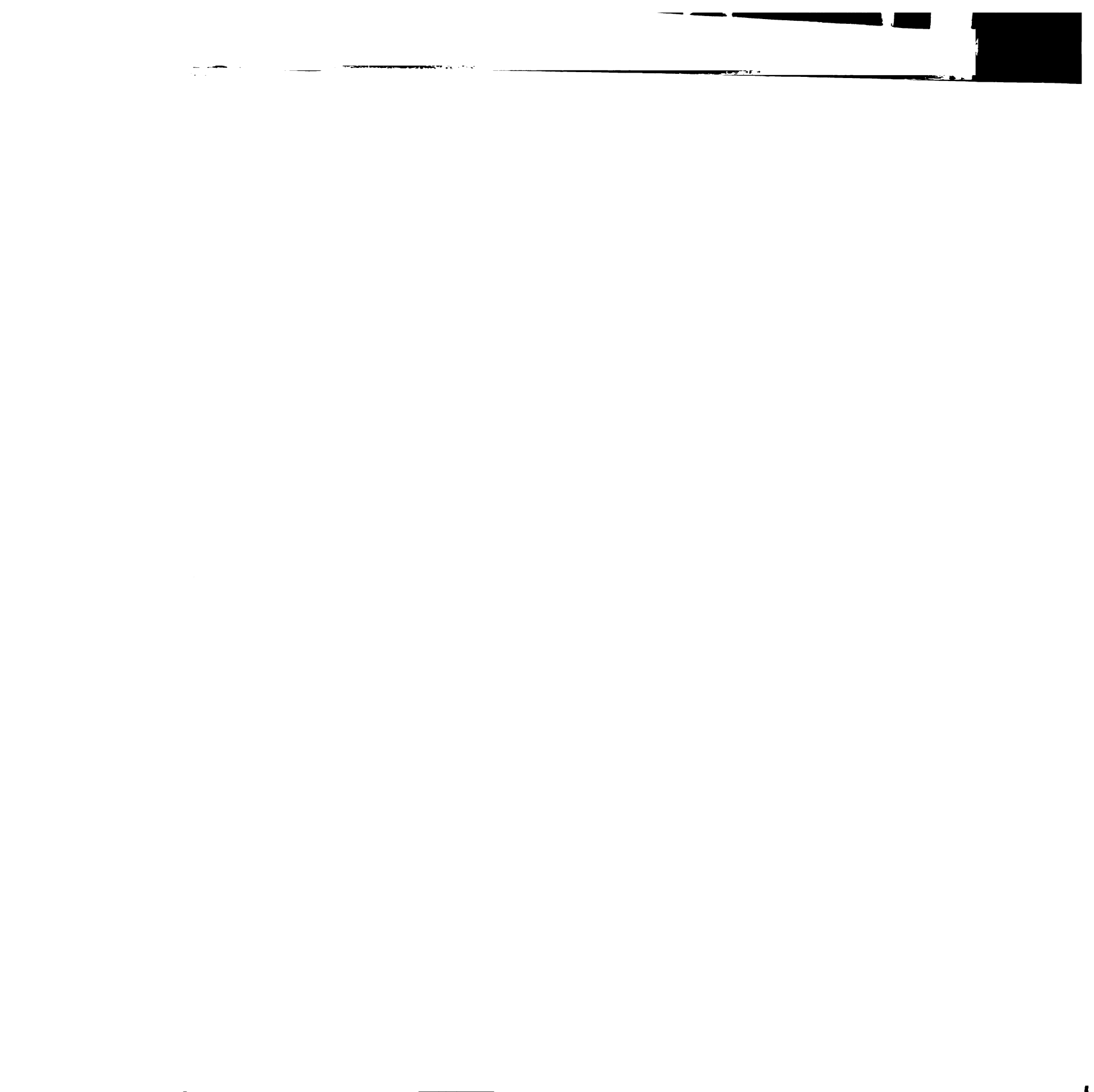
Summary

In conclusion, the writer would be remiss if it was not mentioned that any criteria based on present activities and used to evaluate a course, a program, a textbook, etc. must be used with mature judgment. No single list or criterion should ever be employed alone to judge effectiveness or non-effectiveness of a terminal course or program in a post-high school institution. However, along with other evaluative instruments or conditions, an up-to-date evaluative criterion based on current practices as performed in this study can be helpful in maintaining or establishing a technical accounting program for the "world of work."

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## **APPENDICES**

APPENDIX A  
Michigan State University  
Research and Development Program  
In Vocational - Technical Education  
320 Erickson - 355-1769

CONFIDENTIAL

Tri-County  
Technical Accounting  
Survey

The purpose of this questionnaire is to obtain information which provides insight into the current and projected need for technical accountants in the tri-county area. Your responses will help guide us in our effort to meet the changing needs for accountants in our area from the student's and employer's standpoint.

## SECTION I

Company Name \_\_\_\_\_ Telephone \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_

Name of Person Reporting \_\_\_\_\_ Title \_\_\_\_\_

What are the major products that you manufacture? \_\_\_\_\_

How many (total) full-time employees do you have in the tri-county area? \_\_\_\_\_

How does this total employment compare with 1960? (check one)

\_\_\_\_\_ An increase

\_\_\_\_\_ Is the same

\_\_\_\_\_ A decrease

\_\_\_\_\_ Information not available

In order to discuss specific accounting competencies with some of your accounting personnel, whom should we contact for clearance?

Name \_\_\_\_\_ Position \_\_\_\_\_

\*\*\*\*\*

## SECTION II

The balance of this questionnaire pertains to the employment policies and functions for accounting personnel. If you are not familiar with this area, you may want to pass the questionnaire to the controller or accounting supervisor for completion.

If this questionnaire is compiled by someone other than listed above, please indicate name and position.

Name \_\_\_\_\_ Position \_\_\_\_\_

Please supply, in the table below, the information as it relates to your firm for the category of full-time accountants and bookkeepers.

| Type of Job | Average Number of Positions |      | Anticipated Annual Average Employment 1965-1970 (Check One for Each) |      |           |                  | Anticipated Number of Increase or Decrease In Positions To 1970 |
|-------------|-----------------------------|------|--|------|-----------|------------------|---|
|             | 1960                        | 1965 | In-crease  | Same | De-crease | Cannot Determine |   |
| Accountant  |                             |      |  |      |           |                  |   |
| Bookkeeper  |                             |      |  |      |           |                  |   |



## APPENDIX A (continued)

Assume for a moment that in the near future you have to employ someone for each of your present bookkeeping and accounting positions. In your recruiting interviews you find many who can perform the following accounting activities:

Record information in journals and ledgers  
 Keep records of accounts receivable and payable  
 Summarize accounting information  
 Classify accounting information for easy retrieval  
 Compute payroll, bad debts, depreciation, cost, etc.  
 Allocate departmental costs  
 Analyze accounts such as - accounts receivable, inventories, equipment, payables, costs, expenses, etc.  
 Make out the financial statements - balance sheet, income statement, cash flow, schedules, etc.

How many bookkeeping and accounting positions are there within your firm for which persons with these qualifications could qualify?

\*\*\*\*\*

## SECTION III

In this section we are interested in those bookkeepers and accountants for which you consider desirable or essential for initial employment an accounting education beyond high school, but less than a 4-year college degree. (i.e. community college or business college)

(In these two years, accounting students usually take one year of Accounting Principles, and at least one term each of Cost Accounting, Intermediate Accounting, Accounting Procedures and Systems, and at times Tax Accounting)

Please supply the information in the table below as it relates to your firm for the above category of accountants and bookkeepers.

| Type of Job | Average Number of Positions |      | Past Supply of Qualified Applicants (Check One For Each) |        |         | Anticipated Annual Average Employment 1966-1970 (Check One For Each) |      |           |                  | Anticipated Number of Increase or Decrease In Positions To 1970 | Anticipated Annual Turnover* To 1970 |
|-------------|-----------------------------|------|--|--------|---------|--|------|-----------|------------------|---|--------------------------------------|
|             | 1960                        | 1965 | Ade-quate  | Scarce | Surplus | In-crease  | Same | De-crease | Cannot Determine |   |                                      |
| Accountant  |                             |      |  |        |         |  |      |           |                  |   |                                      |
| Bookkeeper  |                             |      |  |        |         |  |      |           |                  |   |                                      |

\*Turnover may be due to promotion, retirement, marriage, leaving the firm, etc.

Would you employ a community college graduate who had a special accounting program geared toward the manufacturers of durable goods in preference to a graduate of a general two-year accounting program?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Unsure



MICHIGAN STATE UNIVERSITY EAST LANSING • MICHIGAN 48823

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COLLEGE OF EDUCATION • DEPARTMENT OF SECONDARY EDUCATION AND CURRICULUM  
RESEARCH AND DEVELOPMENT PROGRAM IN VOCATIONAL-TECHNICAL EDUCATION • ERICKSON HALL

How do you do? I am Lawrence Ozzello, presently employed by Michigan State University in the Research and Development Project for Vocational Education. We are conducting a survey in cooperation with the Lansing Community College and Lansing Business University to determine what accounting programs ought to be offered and what should be taught in the courses.

Will you help us?

We are surveying the current and projected needs for technical accountants in the Tri-County (Clinton, Eaton, and Ingham) area for firms manufacturing durable goods. The study should have the following outcomes or results that could benefit students, schools, and industry:

1. The local need for accountants will be known, so practical advising can be made for potential accountants.
2. Due to a specific determined need, potential accountants will receive practical advice about the job market; and local colleges will be able to adjust their training programs for accountants accordingly.
3. Specific training of accountants for durable goods manufacturers will be possible.
4. It will help fulfill part of my requirements for a doctor's degree.

Before you put this questionnaire down; will you, or will you have someone else, complete it and then insert it in the self-addressed envelope? We need your help. We realize the enclosed short survey instrument will take a few minutes, but through its results we hope to save you time and effort in the future. It should help us adjust the training and educational procedures to the local situation.

Lawrence Ozzello  
Project Director

## APPENDIX C

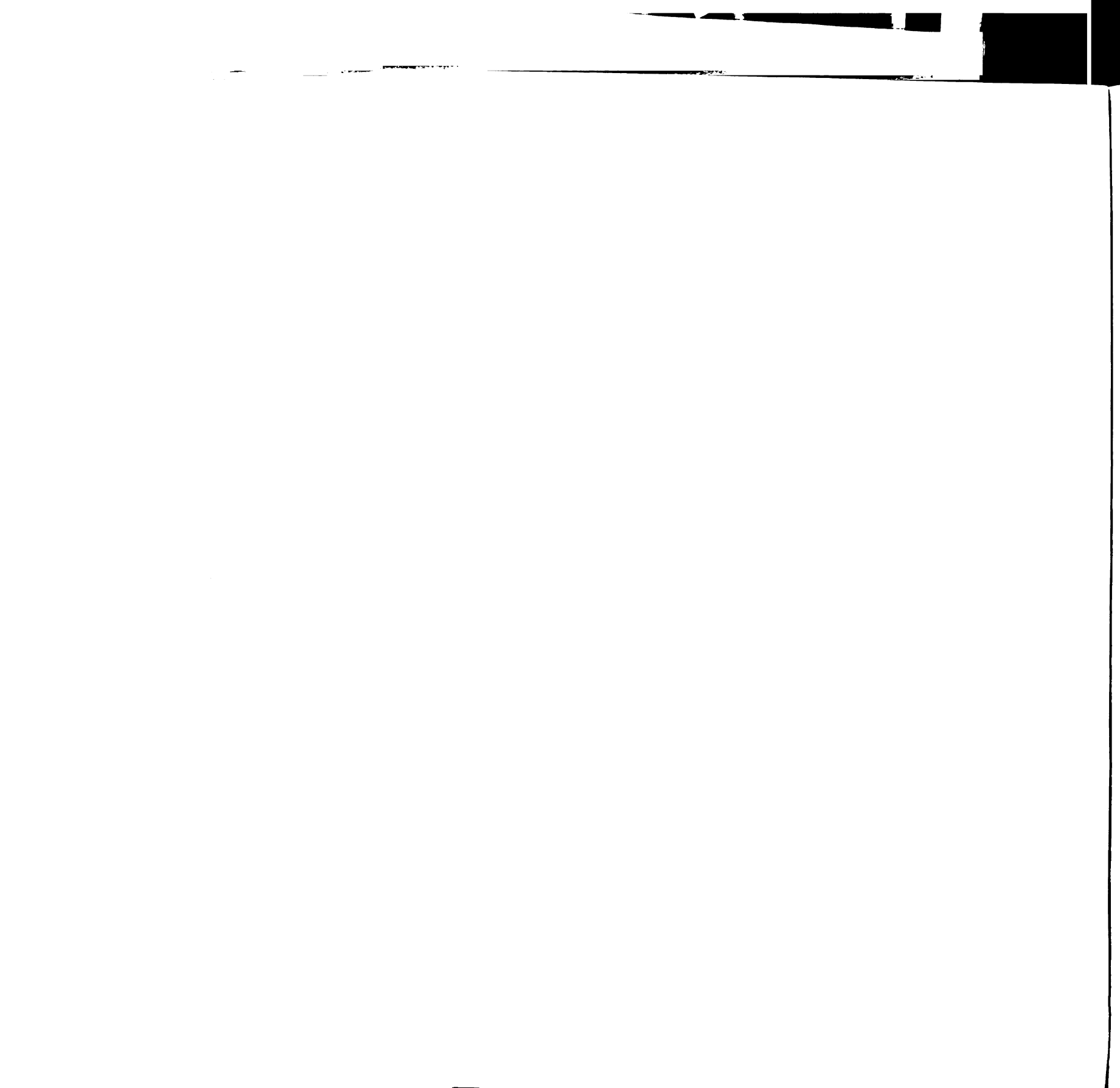
DURABLE GOODS MANUFACTURING FIRMS CONSIDERED IN THIS STUDY  
LISTED ALPHABETICALLY BY CITY

| <u>City</u>  | <u>Code<br/>Number</u> | <u>Firm</u>                      | <u>Address</u>                        |
|--------------|------------------------|----------------------------------|---------------------------------------|
| Bath         | 001                    | Allied Disposal Company,         | 5293 Ollice Road                      |
| Bellevue     | 002                    | A & A Wood Products,             | 9900 Jones Road                       |
|              | 003                    | *American Door Co. Inc.,         | 222 S. Williams                       |
|              | 004                    | *Cheney Limestone Co.,           | 8038 Pease Road                       |
|              | 005                    | *Econoway Manufacturing Co.,     | 722 N. Main                           |
| Charlotte    | 006                    | *Aluminum Extrusions, Inc.,      | 5030 Lovett                           |
|              | 007                    | *Automatic Screw Products,       | 205 S. Lincoln                        |
|              | 008                    | Baird, Ralph H.,                 | Lansing Road                          |
|              | 009                    | *Beach Manufacturing Co.,        | 202 Merrill                           |
|              | 010                    | *Charlotte Chair Co.,            | 202 Pearl                             |
|              | 011                    | *Charlotte Electric Motors,      | 124 N. Lincoln                        |
|              | 012                    | Century Cabinet Co.,             | 202 Lansing                           |
|              | 013                    | *Charlotte Wood Products,        | 411 N. Wash                           |
|              | 014                    | *Emery Machine & Tool Co.,       | 316 West First                        |
|              | 015                    | *Palmer Frank Cabt.,             | 411 N. Wash                           |
|              | 016                    | *General Aluminum Products, Inc. | 1023 Reynolds Road                    |
|              | 017                    | *Johnson Iron Industry,          | 742 West Sheperd                      |
|              | 018                    | *Johnson Lumber Mfg. Co.,        | 863 N. Cochran                        |
|              | 019                    | *Kerekes Machine & Model,        | 699 Lansing Road                      |
|              | 020                    | Northern Concrete Pipe,          | 5281 Old Lansing Road                 |
|              | 021                    | Nu-Way Industries,               | 604 W. Seminary                       |
|              | 022                    | *Omni Aluminum Extrusions,       | 530 W. Lovett                         |
|              | 023                    | Owens-Illinois Glass Containers, | 500 Packard Hwy.                      |
|              | 024                    | Scheib Industries,               | 2342 Chester Rd. Box 244              |
|              | 025                    | *Sterling Type Foundry,          | 118 W. Henry                          |
|              | 026                    | Ed. K. Smith Industry,           | 215 S. Bostwich                       |
|              | 027                    | *Tackey's Machine Shop,          | 219 Lansing                           |
|              | 028                    | *World Magnetics, Inc.           |                                       |
| DeWitt       | 029                    | Kewalk, Herbert R. (Oils),       | 1545 Dill Road                        |
| Diamondale   | 030                    | Grable & Sons Metal Products,    | 116 Bridge                            |
| Eaton Rapids | 031                    | *Brothwell Tool & Die,           | 7444 Bellvue Hwy.                     |
|              | 032                    | *Eaton Rapids Stamping Division, | Allied<br>Products Corp., 501 Marilyn |
|              | 033                    | *Eaton Stamping Co.,             | E. Haven P. O. Box 40                 |
|              | 034                    | *Goodnee's Tool Products,        | 4908 Whittum Rd.                      |



## APPENDIX C (continued)

| <u>City</u>  | <u>Code<br/>Number</u> | <u>Firm</u>                                | <u>Address</u>           |
|--------------|------------------------|--|--------------------------|
|              | 035                    | Holmes Rubber Stamp Service,               | 204 E. South             |
|              | 036                    | *Miller Furance Mfg. Co.,                  | Plains Road, Box 177     |
|              | 037                    | Union Bag - Camp Paper Corp.,              | 233 N. Main              |
| East Lansing | 038                    | Hale's Forge, Inc.,                        | 732 Lake Lansing Rd.     |
|              | 039                    | Superior Brass & Aluminum Casting Company, | 4893 Dawn Avenue         |
| Grand Ledge  | 040                    | *Grand Ledge Chair Company,                | 101 Perry                |
|              | 041                    | *I & G Mold Corp.,                         | 220 N. Bridge            |
|              | 042                    | Jenkins Die Sinking Co.,                   | 130 Orchard              |
|              | 043                    | *Ledge's Industries,                       | 520 N. Clinton           |
|              | 044                    | Parson's Chemical Works,                   | Grand Ledge Hwy.         |
| Holt         | 045                    | *Arnold Concrete Products,                 | Hogsback Road            |
|              | 046                    | *Central Die Sinking Co.,                  | 2200 Depot               |
|              | 047                    | Max Goodrich Mfg. & Hydraulics,            | 2182 N. Cedar            |
|              | 048                    | *Holt Products Company,                    | 1875 Walnut Street       |
|              | 049                    | *Lede Iron Works,                          | 2055 N. Cedar            |
|              | 050                    | Metro Metal Mfg. Co.,                      | 1740 Hall                |
|              | 051                    | *Palmer Engineering, Inc.,                 | 4171 East Delhi          |
|              | 052                    | Spartan Asphalt Paving Co.,                | S. Cedar                 |
|              | 053                    | Spartan Plastics Inc.,                     | 1857 S. Cedar            |
|              | 054                    | Spartan Sign, Inc.,                        | S. Cedar                 |
|              | 055                    | Stanley Mfg. Co.,                          | 2202 N. Cedar            |
| Laingsburg   | 056                    | Scripco Mfg. Co.,                          | 9805 E. Round Lake Rd.   |
|              | 057                    | Tisch-Graft Mfg. Co.,                      | Tisch Bldg.              |
| Lansing      | 058                    | *Abrams Instrument Corporation,            | 606 East Shiawassee      |
|              | 059                    | *Adams Tool & Engineering, Inc.            | 1313 South Waverly Road  |
|              | 060                    | *Air-Lift Company,                         | 2330 West Main Street    |
|              | 061                    | *Allied Mill Equipment Co.,                | 2812 North Logan         |
|              | 062                    | *Allis Chalmers Mfg.,                      | W. U.S. 16, Box 5157     |
|              | 063                    | Amiss Block Plant,                         | 201 North Detroit Street |
|              | 064                    | Ivan W. Anderson,                          | 2305 North High Street   |
|              | 065                    | *Atlas Drop Forge Division                 | Dana Corporation,        |
|              |                        | 209 W. Mt. Hope Avenue                     |                          |
|              | 066                    | *Auto-Air Industries, Inc.,                | 1234 South Holmes        |
|              | 067                    | *Berg Abrasives,                           | 1010 East Jolly Road     |
|              | 068                    | *Bradford Machine Tool Company,            | 722 Porter Street        |
|              | 069                    | *C.E. & H. Die & Tool Corp.,               | 4315 Wainwright          |
|              | 070                    | *Capital Casting Co.,                      | 1714 Sunset              |
|              | 071                    | *Capitol Plating Company,                  | 1801 Bassett             |
|              | 072                    | *Capitol Tool Grinding,                    | 437 N. Rosemary          |



## APPENDIX C (continued)

| <u>City</u> | <u>Code<br/>Number</u> | <u>Firm</u>   | <u>Address</u>                        |
|-------------|------------------------|---|---------------------------------------|
|             | 073                    | *Central Plating Co.,   | 327 Spring                            |
|             | 074                    | Carrier Stephens Company,   | 221 Depot Street                      |
|             | 075                    | Chemstyle, Inc.,  | 5801 W. Mt. Hope Avenue               |
|             | 076                    | *Centrifugal Fusing Company, Subsidiary of<br>Campbell, Wyant & Cannon Foundry Co., | 727 McKinley Street                   |
|             | 077                    | *D. & H. Die Company,   | 830 River                             |
|             | 078                    | *Dall Steel Products Co.,   | 750 East Main Street                  |
|             | 079                    | *Demmer Tool & Die Co.,   | 3525 Capitol City Blvd.               |
|             | 080                    | Detroit Ball Bearing Company of Michigan,   | 138 North Cedar Street                |
|             | 081                    | *Douglas Steel Fabricating Corp.,   | 1312 South Waverly Road               |
|             | 082                    | *Emco Industries, Inc.,   | 704 East Oakland St.                  |
|             | 083                    | *Federal Drop Forge Co.,  | 2200 South Washington Ave.            |
|             | 084                    | W. R. Grace & Company, Davison Chemical<br>Division,                                | 2401 North High Street                |
|             | 085                    | *Fisher Body Division, General Motors Corp.,  | 401 Verlinden Avenue                  |
|             | 086                    | *Feete Industries,  | 1010 S. Washington,<br>P. O. Box 9172 |
|             | 087                    | Friden's Agency,  | 4616 N. Grand River                   |
|             | 088                    | Gates Rubber Co.,   | 314 Townsend Street                   |
|             | 089                    | *Globe Products Corp.,  | 1818 Bassett Avenue                   |
|             | 090                    | Graf Tools Company,   | 610 Allen Street                      |
|             | 091                    | *The Hausman Steel Company, Capitol Steel<br>Division,                              | 1408 Fuller Street                    |
|             | 092                    | *Ideal Finishing Corp.,   | 4425 Tranter                          |
|             | 093                    | *Industrial Blacksmithing Co. Inc.,   | 3415 Annelium Road                    |
|             | 094                    | *Industrial Metal Products Corp.,   | 3417 West St. Joseph Street           |
|             | 095                    | *Industrial Pattern,  | 326 South Hosmer Street               |
|             | 096                    | *Industrial Welding, Inc.,  | 2200 Olds Avenue                      |
|             | 097                    | *Jet Die & Engineering, Inc.,   | 1109 River St.                        |
|             | 098                    | *John Bean Division, FMC Corporation,   | 1305 South Cedar Street               |
|             | 099                    | John Henry Co.,   | 735 East Michigan Avenue              |
|             | 100                    | K & C Metal Finishing Co.,  | 1215 River St.                        |
|             | 101                    | Kamm Machine Tool & Die Works,  | 807 W. Shiawassee                     |
|             | 102                    | Kish Industries, Inc.,  | 1301 Turner Street                    |
|             | 103                    | *Lake Manufacturing Co.,  | 411 E. Kalamazoo                      |
|             | 104                    | *Lans Corp.,  | 704 Sheridan                          |
|             | 105                    | *Lansing Automatic Screw Co.,   | 1412 N. Larch                         |
|             | 106                    | *Lansing Company, Division of A.J. Industries,                                      | 521 North Cedar Street                |

## APPENDIX C (continued)

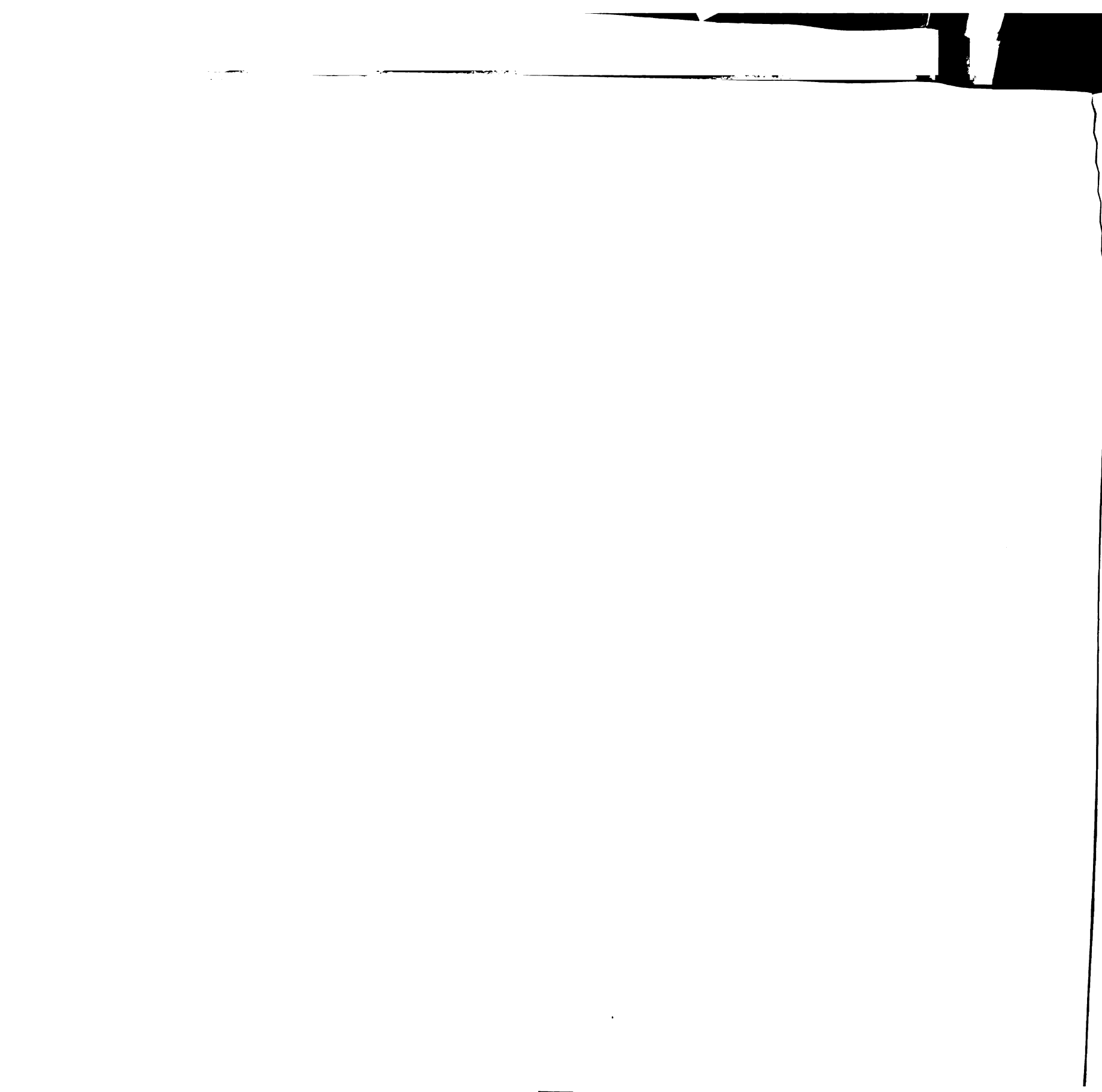
| <u>City</u> | <u>Code<br/>Number</u> | <u>Firm</u>  | <u>Address</u>                      |
|-------------|------------------------|--|-------------------------------------|
|             | 107                    | *Lansing Die Sinking Co.,                              | 618 East Oakland Ave.               |
|             | 108                    | *Lansing Drop Forge Co.,                               | 2807 South Logan St.                |
|             | 109                    | *Lansing Metal Plating Co.,                            | 717 Walker St.                      |
|             | 110                    | *Lansing Pattern & Mfg. Co.,                           | 700 E. Oakland St.                  |
|             | 111                    | *Lansing Stamping Company, Metal Fle Subsidiary,       | 1159 South Pennsylvania Avenue      |
|             | 112                    | *Lansing Tool & Die Co.,                               | 700 Porter Street                   |
|             | 113                    | *Lansing Welding Co.,                                  | 801 East Howe Avenue                |
|             | 114                    | *Inland Steel & Iron Co.,                              | 927 Harris St.                      |
|             | 115                    | *Lindell Drop Forge Co.,                               | 2830 South Logan St.                |
|             | 116                    | *Lundberg Screw Products Co.,                          | 2101 West Willow                    |
|             | 117                    | *McConnell Sheet Metal, Inc.,                          | 943 Center St.                      |
|             | 118                    | *Machine Tool Electric Corp.,                          | 3300 Lansing Rd.                    |
|             | 119                    | *Melling Forging Company, Avis Industrial Corp.        | 1709 Thompson Street, P. O. Box 516 |
|             | 120                    | *Metal Machining Co.,                                  | 214 North Larch St.                 |
|             | 121                    | *Michigan Die & Tool Co.,                              | 700 E. Kalamazoo                    |
|             | 122                    | *Mississippi Valley Structural Steel Co.,              | 901 River Street                    |
|             | 123                    | *Motor Wheel Corp.,                                    | 1600 North Larch Street             |
|             | 124                    | *Multi-Lead Tool & Engineering Co.,                    | 2538 West Main Street               |
|             | 125                    | *Novo Pump & Engine Division, American Marsh<br>Pumps, | 702 Porter Street                   |
|             | 126                    | Nu-Way Industries, Inc.,                               | 1301 North Turner St.               |
|             | 127                    | *Oldsmobile Division, General Motors Corp.,            | 1014 Townsend                       |
|             | 128                    | *Olofsson Corp.,                                       | 2727 Lyons Avenue                   |
|             | 129                    | Phillips Brothers Screw Products Co.,                  | 2909 South Logan Street             |
|             | 130                    | *Phillips Manufacturing Co.,                           | 3435 West Holmes Rd.                |
|             | 131                    | Pitney Bowes,  | 2518 S. Cedar                       |
|             | 132                    | *Planet Corporation,                                   | 1820 Sunset Avenue                  |
|             | 133                    | Plastics Manufacturing Inc.,                           | 416 E. South St.                    |
|             | 134                    | Plummer Machinery Co.,                                 | 419 N. Cedar Street                 |
|             | 135                    | *Precision Boring Tool Co.,                            | 700 E. Oakland St.                  |
|             | 136                    | Production Equipment Systems, Inc.,                    | 102 North Pennsylvania Avenue       |
|             | 137                    | *Qualatrol Mfg. & Foundry Co. Inc.,                    | 327 South Hill Street               |
|             | 138                    | Renaud Plastics, Inc.,                                 | 5656 S. Cedar Street                |
|             | 139                    | *Sarvis Manufacturing Co.,                             | 700 East South St.                  |
|             | 140                    | *Sellhart Manufacturing Co.,                           | 411 East Kalamazoo                  |
|             | 141                    | *Servicemaster of Lansing,                             | 1604 Wood Street                    |
|             | 142                    | *Simon Iron & Steel Corp.,                             | 1900 West Willow St.                |
|             | 143                    | *Sky-Walk Corp.,                                       | 409 West Gier Street                |
|             | 144                    | *Titus the Tinner,                                     | 511 East Saginaw Street             |

## APPENDIX C (continued)

| <u>City</u> | <u>Code<br/>Number</u> | <u>Firm</u>                                     | <u>Address</u>                        |
|-------------|------------------------|---|---------------------------------------|
|             | 145                    | Trane Company,                                  | 506 N. Washington                     |
|             | 146                    | *Tranter Manufacturing Inc.,                    | 735 E. Hazel St.                      |
|             | 147                    | *Universal Gear Division of American Marsh Co., | 702 Porter Street                     |
|             | 148                    | *Universal Steel Company of Michigan,           | 1800 West Willow Street, P.O. Box 211 |
|             | 149                    | WHW Machine & Tool Co.,                         | 406 Olds Avenue                       |
|             | 150                    | *Warner & Swasey Company, Duplex Division,      | 830 East Hazel Street                 |
|             | 151                    | *White Motor Company, Lansing Division,         | 1331 South Washington Avenue          |
|             | 152                    | Wilson Machine Shop,                            | 124 E. Madison                        |
|             | 153                    | *Wohlert Corporation,                           | 708 E. Grand River Ave.               |
|             | 154                    | Wolverine Company,                              | 310 S. Charles Street                 |
|             | 155                    | George Worthington Co.,                         | 1611 N. Grand River                   |
|             | 156                    | Wright and Phillips,                            | 303 E. Grand River                    |
| Leslie      | 157                    | *Jackson Automatic Products Co., Aerequip       | Corp.-Industrial Div., 614 Mill       |
|             | 158                    | *Butler Industries,                             | 815 Rice                              |
| Malliken    | 159                    | *Eaton Model & Pattern, Inc.,                   | M-43                                  |
| Okemos      | 160                    | Garthal Chemical Co.,                           | 4015 Dobie Road                       |
|             | 161                    | Clark Eng. Co.,                                 | Route 1                               |
| Olivet      | 162                    | *Air-Way Manufacturing Co.,                     | 586 N. Main                           |
|             | 163                    | *M N R Tool Engraving, Inc.,                    | 7904 McDonald Rd.                     |
|             | 164                    | *Dolplum Company,                               | 205 N. Main                           |
|             | 165                    | *Macward Couplings, Inc.,                       | 7898 U.S. 27                          |
|             | 166                    | *Masterbilt Products Corp.,                     | 719 N. Main                           |
|             | 167                    | *Olivet Machine Tool Engraving Co.,             | 425 N. Main                           |
|             | 168                    | *Olivet Products Co., Div. Peterson Mfg. Corp.  | 5886 Marshall Road                    |
| St. Johns   | 169                    | *Advance Castings Co.,                          | 508 Mead                              |
|             | 170                    | Burton Mixer & Mfg. Co.,                        | 508 N. Mead                           |
|             | 171                    | *Federal Mogul Division,                        | 310 E. Steel                          |
|             | 172                    | Richard C. Johnson,                             | 1520 S. Francis Rd.                   |
|             | 173                    | Randolphs Ready-Mix Concrete,                   | N. U.S. 27                            |
|             | 174                    | *St. Johns Tool & Die, Inc.,                    | 108 E. Railroad                       |
|             | 175                    | *Saylor-Beall Mfg. Co.,                         | 400 N. Kibbie                         |
|             | 176                    | *Sealed Power Corp.,                            | 916 W. State                          |
| Stockbridge | 177                    | *Stockbridge Mfg. Co.,                          | East Main                             |
| Westphalia  | 178                    | Westphalia Milling Co.,                         | Box 156                               |

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\*Firms employed as sample to determine current and projected need for technical accountants.



## APPENDIX D

MATERIALS ANALYZED TO OBTAIN INITIAL LIST OF ACCOUNTING-TYPE  
ACTIVITIES OFTEN TAUGHT DURING FIRST TWO YEARS IN A  
POST-HIGH SCHOOL EDUCATIONAL INSTITUTION

## BOOKS

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- Anthony, Robert N. Management Accounting Principles. Homewood, Illinois: Richard D. Irwin, Inc., 1965.
- Bierman, Harold, Jr. Financial and Managerial Accounting: An Introduction. New York and London: Macmillan Co., 1963.
- Brock, Horace R., Palmer, Charles E., and Archer, Fred C. Cost Accounting Theory and Practice. Chicago, Illinois: Gregg Division-McGraw Hill Book Company, 1965.
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- Matz, Adolph, Curry, Othel J., and Frank, George W. Cost Accounting. 3d ed. Cincinnati: South-Western Publishing Co., 1962.
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- Wixon, Rufus (ed.) Accountants Handbook. New York: The Ronald Press Company, 1965.

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- Hill, Martha Frances. "A Comparative Study of Bookkeeping Principles and Activities Used on the Job as Presented in Textbooks and by Teachers." Unpublished Ed.D. dissertation, University of Kentucky, 1954.





## APPENDIX D (continued)

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**APPENDIX E****Accounting Activity Questionnaire****JURY PANEL****Certified Public Accountants --**

**Mr. James Finney, Former Executive Secretary  
Michigan Association of Certified Public  
Accountants, Lansing, Michigan**

**Mr. David Price, Price-Waterhouse and Company,  
Battle Creek, Michigan**

**Mr. John Wood, Arthur Anderson and Company,  
Chicago, Illinois**

**Accounting Supervisors --**

**Mr. Albert E. Brandli, Controller, Fisher Body  
Division, General Motors Corporation,  
Lansing, Michigan**

**Mr. James G. Corkrey, Controller, John Bean  
Division, Ford Motor Car Company,  
Lansing, Michigan**

**Mr. Robert Krueger, Accounting Manager,  
Melling Forging Division, Avis Industrial  
Corperation, Lansing, Michigan**

**Accounting Professors --**

**Dr. Renald Copeland, Penn State University  
University Park, Pennsylvania**

**Dr. Charles Lawrence, Michigan State  
University, East Lansing, Michigan**

**Dr. Howard Lynne, Meerhead State College  
Meerhead, Minnesota**

## APPENDIX F

Michigan State University  
 Research and Development Program  
 In Vocational - Technical Education  
 320 Erickson - 355-1769

CONFIDENTIAL

Tri-County  
 Technical Accounting  
 Survey

The purpose of this questionnaire is to obtain information which provides insight into the current and projected need for technical accountants in the tri-county area. Your responses will help guide us in our effort to meet the changing needs for accountants in our area from the accountant's standpoint.

## SECTION I

Company Name \_\_\_\_\_ Telephone \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_

Name of Person Interviewed \_\_\_\_\_ Title \_\_\_\_\_

Does your firm have a job description of your position? \_\_\_\_\_

How many years have you worked for this firm? \_\_\_\_\_

How many years of bookkeeping and accounting experience do you have? \_\_\_\_\_

Did you graduate from high school? \_\_\_\_\_ What year? \_\_\_\_\_

Did you attend college? \_\_\_\_\_ How many years? \_\_\_\_\_ Where? \_\_\_\_\_

**DIRECTIONS:** Indicate by a check mark (✓) in the appropriate column or columns below any of the following special courses you may have had in high school, night school, college, special classes, etc.

| Special Courses                      | High School | College<br>(4-year) | College<br>(2-year) | Business<br>College | Adult Evening<br>Classes | In-Service<br>Training by<br>a Firm | Others |  |
|--------------------------------------|-------------|---------------------|---------------------|---------------------|--------------------------|-------------------------------------|--------|--|
|                                      |             |                     |                     |                     |                          |                                     |        |  |
| Bookkeeping                          |             |                     |                     |                     |                          |                                     |        |  |
| Recordkeeping                        |             |                     |                     |                     |                          |                                     |        |  |
| Advanced Bookkeeping                 |             |                     |                     |                     |                          |                                     |        |  |
| Elementary Accounting                |             |                     |                     |                     |                          |                                     |        |  |
| Intermediate Accounting              |             |                     |                     |                     |                          |                                     |        |  |
| Cost Accounting                      |             |                     |                     |                     |                          |                                     |        |  |
| Tax Accounting                       |             |                     |                     |                     |                          |                                     |        |  |
| Advanced Accounting                  |             |                     |                     |                     |                          |                                     |        |  |
| Accounting Systems and<br>Procedures |             |                     |                     |                     |                          |                                     |        |  |
| Controllership                       |             |                     |                     |                     |                          |                                     |        |  |
| Other Special Courses:               |             |                     |                     |                     |                          |                                     |        |  |
|                                      |             |                     |                     |                     |                          |                                     |        |  |
|                                      |             |                     |                     |                     |                          |                                     |        |  |



**DIRECTIONS:**

**Section A** Indicate by a check mark (✓) in either the "Yes" or "No" column whether or not you are involved in the performing, constructing, or working with the accounts, functions, and activities listed.

**Section B** If your answer to Section A was "Yes", indicate by a check mark (✓) the average frequency (time) which you usually perform this activity.

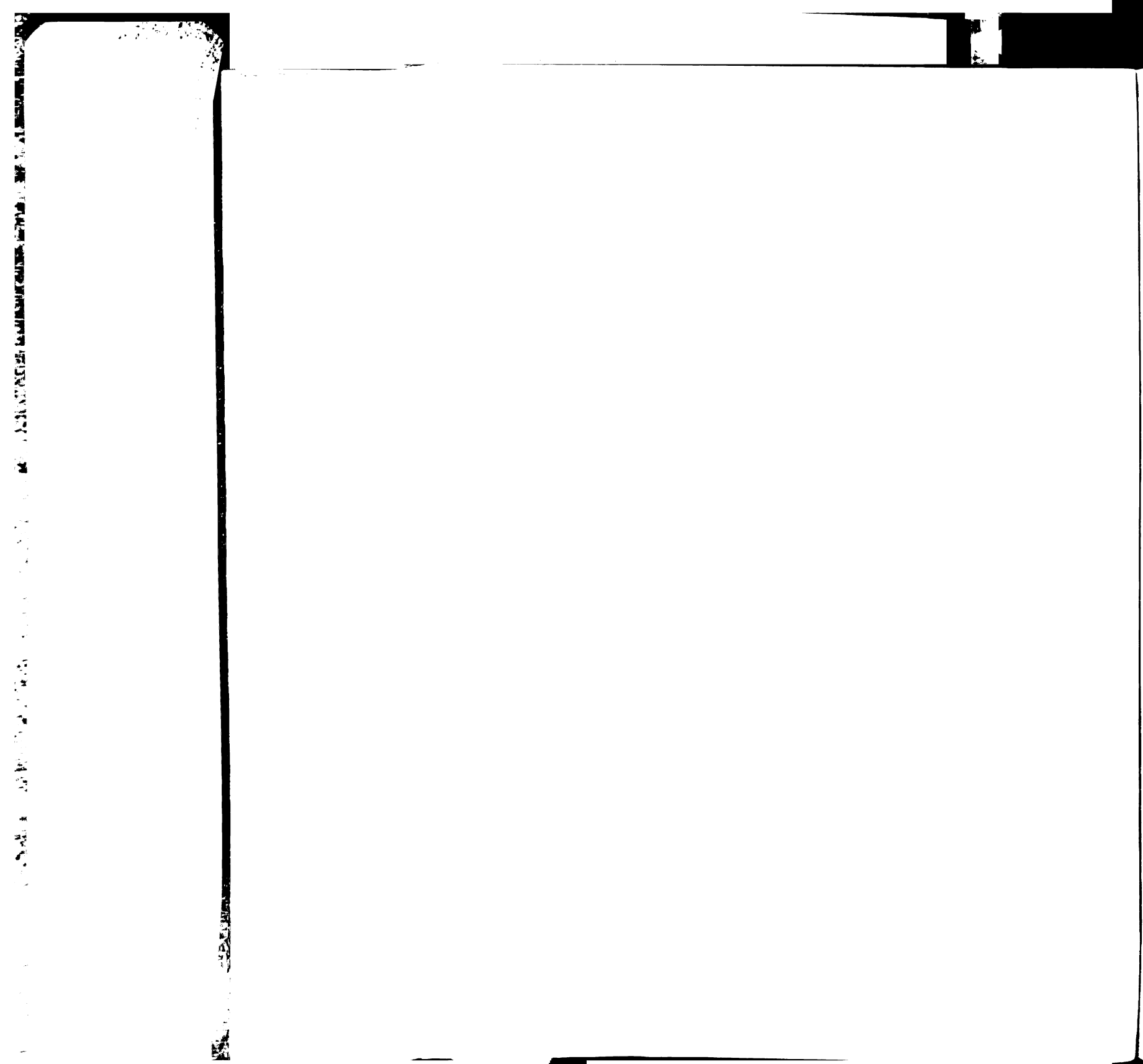
| SECTION A  |     |    | SECTION B   |         |           |               |          |
|--|-----|----|---|---------|-----------|---------------|----------|
| Are You Directly Involved With The<br>Constructing, Performing, and/or Analyzing These<br>Function, Activities, and/or Accounts? |     |    | Average Frequency<br>Which These Special<br>Activities Are<br>Usually Performed |         |           |               |          |
|  | Yes | No | Weekly  | Monthly | Quarterly | Semi-Annually | Annually |
| FUNCTIONS, ACTIVITIES, AND ACCOUNTS  |     |    |   |         |           |               |          |
| FINANCIAL REPORTS AND SCHEDULES  |     |    |   |         |           |               |          |
| Balance Sheet (Financial Position)   |     |    |   |         |           |               |          |
| Income Statement (Profit and Loss)   |     |    |   |         |           |               |          |
| Capital Statement  |     |    |   |         |           |               |          |
| Retained Earnings Statement (Surplus)  |     |    |   |         |           |               |          |
| Source and Application of Funds Statement  |     |    |   |         |           |               |          |
| Cash Flow Statement  |     |    |   |         |           |               |          |
| Budgets:   |     |    |   |         |           |               |          |
| Cash   |     |    |   |         |           |               |          |
| Capital  |     |    |   |         |           |               |          |
| Operating  |     |    |   |         |           |               |          |
| Sales  |     |    |   |         |           |               |          |
| Production (Manufacturing)   |     |    |   |         |           |               |          |
| Research and Development   |     |    |   |         |           |               |          |
| Tax Reports:   |     |    |   |         |           |               |          |
| Income Tax (Company)   |     |    |   |         |           |               |          |
| Employee Withholding   |     |    |   |         |           |               |          |
| F.I.C.A.   |     |    |   |         |           |               |          |
| Federal Unemployment Compensation  |     |    |   |         |           |               |          |
| State Unemployment Compensation  |     |    |   |         |           |               |          |
| State Sales Tax  |     |    |   |         |           |               |          |
| Federal Excise Tax   |     |    |   |         |           |               |          |
| Property Tax   |     |    |   |         |           |               |          |
| Schedules of:  |     |    |   |         |           |               |          |
| Accounts Receivable  |     |    |   |         |           |               |          |
| Accounts Payable   |     |    |   |         |           |               |          |
| Cost of Goods Sold   |     |    |   |         |           |               |          |
| Selling Expenses   |     |    |   |         |           |               |          |
| General and Administrative Expenses  |     |    |   |         |           |               |          |
| Manufacturing Expense  |     |    |   |         |           |               |          |
| Cost of Goods Manufactured   |     |    |   |         |           |               |          |
| Materials Consumed   |     |    |   |         |           |               |          |
| Cost of Production Statement   |     |    |   |         |           |               |          |
| Alternative Cost Reports   |     |    |   |         |           |               |          |
| Efficiency Reports   |     |    |   |         |           |               |          |
| Credit Rating Reports (Dunn & Bradstreet, etc.)  |     |    |   |         |           |               |          |

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| SECTION A  |     |    | SECTION B |         |           |               |          |
|--|-----|----|-----------|---------|-----------|---------------|----------|
| FUNCTIONS, ACTIVITIES, AND ACCOUNTS                | Yes | No | Weekly    | Monthly | Quarterly | Semi-Annually | Annually |
|  |     |    |           |         |           |               |          |
| <b>FINANCIAL REPORTS AND SCHEDULES (continued)</b> |     |    |           |         |           |               |          |
| Departmental Statements                            |     |    |           |         |           |               |          |
| Branch and Division Statements                     |     |    |           |         |           |               |          |
| Consolidated Statements:                           |     |    |           |         |           |               |          |
| Balance Sheet                                      |     |    |           |         |           |               |          |
| Income Statement                                   |     |    |           |         |           |               |          |
|  |     |    |           |         |           |               |          |
| <b>FINANCIAL STATEMENT ANALYSIS</b>                |     |    |           |         |           |               |          |
| Ratios:  |     |    |           |         |           |               |          |
| Current Ratio                                      |     |    |           |         |           |               |          |
| Acid Test Ratio (Liquid Assets)                    |     |    |           |         |           |               |          |
| Receivables to Sales Ratio                         |     |    |           |         |           |               |          |
| Equity to Assets Ratio                             |     |    |           |         |           |               |          |
| Sales to Asset Ratio                               |     |    |           |         |           |               |          |
| Plant Assets to Long-Term Liabilities Ratio        |     |    |           |         |           |               |          |
| Liabilities to Capital Ratio                       |     |    |           |         |           |               |          |
| Percentages:                                       |     |    |           |         |           |               |          |
| Expenses to Sales                                  |     |    |           |         |           |               |          |
| Cost to Sales                                      |     |    |           |         |           |               |          |
| Return on Investment                               |     |    |           |         |           |               |          |
| Dividend Yield                                     |     |    |           |         |           |               |          |
| Increase or Decrease Per Item                      |     |    |           |         |           |               |          |
| Earnings to Total Assets                           |     |    |           |         |           |               |          |
| Comparative Analysis:                              |     |    |           |         |           |               |          |
| Balance Sheet                                      |     |    |           |         |           |               |          |
| Income Statement                                   |     |    |           |         |           |               |          |
| Analysis of Accounts Receivable                    |     |    |           |         |           |               |          |
| Accounts Receivable Turnover                       |     |    |           |         |           |               |          |
| Average Collection Period (on Receivables)         |     |    |           |         |           |               |          |
| Working Capital                                    |     |    |           |         |           |               |          |
| Inventory Capital                                  |     |    |           |         |           |               |          |
| Dollar Earnings Per Share of Stock                 |     |    |           |         |           |               |          |
| Dividends Per Share of Stock                       |     |    |           |         |           |               |          |
| Book Value Per Share of Stock                      |     |    |           |         |           |               |          |
| Average Cost Per Unit Sold                         |     |    |           |         |           |               |          |
| Average Cost Per Unit Manufactured                 |     |    |           |         |           |               |          |
|  |     |    |           |         |           |               |          |
| <b>MACHINES USED</b>                               |     |    |           |         |           |               |          |
| Ten-Key Adding                                     |     |    |           |         |           |               |          |
| Calculator   |     |    |           |         |           |               |          |
| Dictating Equipment                                |     |    |           |         |           |               |          |
| Telephone  |     |    |           |         |           |               |          |
| Cash Register                                      |     |    |           |         |           |               |          |
| Check Protector                                    |     |    |           |         |           |               |          |
| Comptometer  |     |    |           |         |           |               |          |
| Bookkeeping (Posting)                              |     |    |           |         |           |               |          |
|  |     |    |           |         |           |               |          |
|  |     |    |           |         |           |               |          |
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| SECTION A                            |     |    | SECTION B |         |           |               |          |
|--------------------------------------|-----|----|-----------|---------|-----------|---------------|----------|
| FUNCTIONS, ACTIVITIES, AND ACCOUNTS  | Yes | No | Weekly    | Monthly | Quarterly | Semi-Annually | Annually |
|                                      |     |    |           |         |           |               |          |
| <b>WORKING PAPERS USED</b>           |     |    |           |         |           |               |          |
| Trial Balance                        |     |    |           |         |           |               |          |
| Post-Closing Trial Balance           |     |    |           |         |           |               |          |
| Worksheets for:                      |     |    |           |         |           |               |          |
| Financial Statements                 |     |    |           |         |           |               |          |
| Consolidating Divisions or Branches  |     |    |           |         |           |               |          |
| Allocating Costs                     |     |    |           |         |           |               |          |
| Tax Reports                          |     |    |           |         |           |               |          |
| Work in Process (Cost Sheets)        |     |    |           |         |           |               |          |
| Schedules:                           |     |    |           |         |           |               |          |
| Depreciation on Assets               |     |    |           |         |           |               |          |
| Insurance Expiration                 |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |
| <b>JOURNALS MAINTAINED</b>           |     |    |           |         |           |               |          |
| General                              |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |
| Special                              |     |    |           |         |           |               |          |
| Cash Receipts                        |     |    |           |         |           |               |          |
| Cash Payments                        |     |    |           |         |           |               |          |
| Check Register                       |     |    |           |         |           |               |          |
| Combined Cash                        |     |    |           |         |           |               |          |
| Sales                                |     |    |           |         |           |               |          |
| Sales Returns and Allowances         |     |    |           |         |           |               |          |
| Purchases                            |     |    |           |         |           |               |          |
| Purchase Returns and Allowances      |     |    |           |         |           |               |          |
| Voucher Register                     |     |    |           |         |           |               |          |
| Petty Cash Register                  |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |
| <b>LEDGERS MAINTAINED</b>            |     |    |           |         |           |               |          |
| General                              |     |    |           |         |           |               |          |
| Subsidiary                           |     |    |           |         |           |               |          |
| Accounts Receivable                  |     |    |           |         |           |               |          |
| Notes Receivable                     |     |    |           |         |           |               |          |
| Payroll                              |     |    |           |         |           |               |          |
| Accounts Payable or Vouchers Payable |     |    |           |         |           |               |          |
| Notes Payable                        |     |    |           |         |           |               |          |
| Plant (Fixed Assets)                 |     |    |           |         |           |               |          |
| Materials or Stores Ledger           |     |    |           |         |           |               |          |
| Finished Goods                       |     |    |           |         |           |               |          |
| Cost                                 |     |    |           |         |           |               |          |
| Expense                              |     |    |           |         |           |               |          |
| Factory                              |     |    |           |         |           |               |          |
| Stockholders                         |     |    |           |         |           |               |          |
| Subscribers                          |     |    |           |         |           |               |          |
| Insurance Register                   |     |    |           |         |           |               |          |
| Branch Ledger                        |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |
|                                      |     |    |           |         |           |               |          |

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| SECTION A   |                              |    | SECTION B |         |           |               |          |
|---|------------------------------|----|-----------|---------|-----------|---------------|----------|
| FUNCTIONS, ACTIVITIES, AND ACCOUNTS   | Yes                          | No | Weekly    | Monthly | Quarterly | Semi-Annually | Annually |
|   | TO MAINTAIN, ANALYZE, OR DO: |    |           |         |           |               |          |
| Maintain  |                              |    |           |         |           |               |          |
| Waste, Spoilage, and Shrinkage Records  |                              |    |           |         |           |               |          |
| Withholding Tax Records   |                              |    |           |         |           |               |          |
| State Sales Tax Records   |                              |    |           |         |           |               |          |
| Insurance Records (expirations and premiums)                                  |                              |    |           |         |           |               |          |
| Perpetual Inventories   |                              |    |           |         |           |               |          |
| Job Cost Sheets   |                              |    |           |         |           |               |          |
| Departmental Records  |                              |    |           |         |           |               |          |
| Analyze   |                              |    |           |         |           |               |          |
| Sales   |                              |    |           |         |           |               |          |
| Cost Variance for   |                              |    |           |         |           |               |          |
| Labor   |                              |    |           |         |           |               |          |
| Material  |                              |    |           |         |           |               |          |
| Overhead  |                              |    |           |         |           |               |          |
| Indirect Costs  |                              |    |           |         |           |               |          |
| Administrative Costs  |                              |    |           |         |           |               |          |
| Distribution Costs  |                              |    |           |         |           |               |          |
| Compare Costs with the Budget   |                              |    |           |         |           |               |          |
| Compare Manufacturing and Distributing Costs                                  |                              |    |           |         |           |               |          |
| Check Creditor Invoices and Statements  |                              |    |           |         |           |               |          |
| Determine Estimated Costs   |                              |    |           |         |           |               |          |
| Determine the Base for Distribution of Service                                |                              |    |           |         |           |               |          |
| Department Costs to Production  |                              |    |           |         |           |               |          |
| Design a System of Internal Control   |                              |    |           |         |           |               |          |
| Establish a System of Internal Check  |                              |    |           |         |           |               |          |
| Audit Internal Accounting Activities  |                              |    |           |         |           |               |          |
| Authorize Payment of Vouchers   |                              |    |           |         |           |               |          |
| Eliminate Reciprocal Accounts (Between Main Office and Divisions or Branches) |                              |    |           |         |           |               |          |
| Add (Foot) and Balance Ledger Accounts  |                              |    |           |         |           |               |          |
| Add (Foot), Balance, and Total Columns in Special Journals                    |                              |    |           |         |           |               |          |
| Rule and Balance Accounts   |                              |    |           |         |           |               |          |
| Use Red Ink to Draw Lines   |                              |    |           |         |           |               |          |
| Check Postings and Totals   |                              |    |           |         |           |               |          |
| Verify Balances of Control Account with Subsidiary Ledger                     |                              |    |           |         |           |               |          |
| Discount Notes  |                              |    |           |         |           |               |          |
| Work with:  |                              |    |           |         |           |               |          |
| Promissory Notes  |                              |    |           |         |           |               |          |
| Trade Acceptances   |                              |    |           |         |           |               |          |
| Time Drafts   |                              |    |           |         |           |               |          |
| Collateral Notes  |                              |    |           |         |           |               |          |
| Judgment Notes  |                              |    |           |         |           |               |          |
| Sight Draft with Bill of Lading   |                              |    |           |         |           |               |          |
| Bailment Lease  |                              |    |           |         |           |               |          |
| Conditional Sales   |                              |    |           |         |           |               |          |
| Chattel Mortgage  |                              |    |           |         |           |               |          |
| Handle Collection of Outstanding Debts  |                              |    |           |         |           |               |          |
| Act as a Paying Cashier   |                              |    |           |         |           |               |          |

| SECTION A  |     |    | SECTION B |         |           |               |          |
|--|-----|----|-----------|---------|-----------|---------------|----------|
| FUNCTIONS, ACTIVITIES, AND ACCOUNTS                        |     |    | Weekly    | Monthly | Quarterly | Semi-Annually | Annually |
|  | Yes | No |           |         |           |               |          |
| COMPUTATIONS FOR:  |     |    |           |         |           |               |          |
| Payroll and Wages  |     |    |           |         |           |               |          |
| Handle Time Cards  |     |    |           |         |           |               |          |
| Handle Job Tickets   |     |    |           |         |           |               |          |
| Figure Payroll   |     |    |           |         |           |               |          |
| Per Hour or Day  |     |    |           |         |           |               |          |
| Per Piece or Unit  |     |    |           |         |           |               |          |
| Incentive Combination                                      |     |    |           |         |           |               |          |
| Overtime   |     |    |           |         |           |               |          |
| Shift Premiums   |     |    |           |         |           |               |          |
| Vacation and Holiday Pay                                   |     |    |           |         |           |               |          |
| Bonuses  |     |    |           |         |           |               |          |
| Pension and Annuity Payments                               |     |    |           |         |           |               |          |
| Group Life Insurance Premiums                              |     |    |           |         |           |               |          |
| Medical and Hospitalization Plan Premiums                  |     |    |           |         |           |               |          |
| Payroll Taxes  |     |    |           |         |           |               |          |
| F.I.C.A.   |     |    |           |         |           |               |          |
| Unemployment   |     |    |           |         |           |               |          |
| State  |     |    |           |         |           |               |          |
| Federal  |     |    |           |         |           |               |          |
| Workmen's Compensation                                     |     |    |           |         |           |               |          |
| Inventories  |     |    |           |         |           |               |          |
| Amount on Hand   |     |    |           |         |           |               |          |
| Physical Count   |     |    |           |         |           |               |          |
| Perpetual  |     |    |           |         |           |               |          |
| Method:  |     |    |           |         |           |               |          |
| Fifo   |     |    |           |         |           |               |          |
| Lifo   |     |    |           |         |           |               |          |
| Average Cost   |     |    |           |         |           |               |          |
| Weighted Average   |     |    |           |         |           |               |          |
| Cost or Market Costing                                     |     |    |           |         |           |               |          |
| Determine Cost of Carrying Inventories                     |     |    |           |         |           |               |          |
| Determining the No. of Days Inventory Needed               |     |    |           |         |           |               |          |
| Determining When to Purchase                               |     |    |           |         |           |               |          |
| Determining What to Purchase                               |     |    |           |         |           |               |          |
| Determining How Much to Purchase (Economic Order-Quantity) |     |    |           |         |           |               |          |
| Determining Whether to Make or Buy an Item                 |     |    |           |         |           |               |          |
| Percentages  |     |    |           |         |           |               |          |
| Interest Receivable  |     |    |           |         |           |               |          |
| Interest Payable   |     |    |           |         |           |               |          |
| Mark-up  |     |    |           |         |           |               |          |
| Mark-down  |     |    |           |         |           |               |          |
| Trade Discounts  |     |    |           |         |           |               |          |
| Cash Discounts   |     |    |           |         |           |               |          |
| Yield on Bonds   |     |    |           |         |           |               |          |
| Annuities  |     |    |           |         |           |               |          |
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|--|---|
| <b>DIRECTIONS:</b> Indicate by a check mark (✓) which of these systems are appropriate to your firm. |   |
| <b>Type Organization:</b><br>Proprietorship _____<br>Partnership _____<br>Corporation _____          | <b>Tax Basis:</b><br>Cash _____<br>Accrual _____  |
| <b>Bookkeeping System:</b><br>Single Entry _____<br>Double Entry _____                               | <b>System of Cost Accounting:</b><br>Job Order _____<br>Process _____<br><br>Standard _____<br>Direct _____ |
| <b>Sales Method:</b><br>Cash Only _____<br>Cash and/or Credit _____                                  |   |



## APPENDIX G

CHI-SQUARE TEST FOR SIGNIFICANCE OF DIFFERENCE IN SAMPLE  
AND POPULATION FREQUENCIES FOR SIZE OF FIRM<sup>1</sup>

| Size of Firm<br>By Employees | Population |       | Interviewees |             | $(F_o - F_t)$ | $(F_o - F_t)^2$ | $\frac{(F_o - F_t)^2}{f_t}$ |
|------------------------------|------------|-------|--------------|-------------|---------------|-----------------|-----------------------------|
|                              | No.        | %     | observed     | theoretical |               |                 | $f_t$                       |
| 0-49                         | 23         | 10.36 | 11           | 10.3        | .7            | .49             | .0476                       |
| 50-99                        | 36         | 16.22 | 18           | 16.0        | 2.0           | 4.00            | .2500                       |
| 100-249                      | 39         | 17.56 | 20           | 17.4        | 2.6           | 6.76            | .3885                       |
| 250-749                      | 33         | 14.86 | 15           | 14.7        | .3            | .09             | .0061                       |
| 750-                         | 91         | 41.0  | 35           | 40.6        | 5.6           | 31.36           | .7724                       |
| Total                        | 222        | 100.0 | 99           | 99.0        |               |                 |                             |
| Chi square                   |            |       |              |             |               |                 | 1.4646                      |

NOTE: Chi square of 1.47 with four degrees freedom could occur by chance more than 80 per cent of the time and thus showing no sample bias other than fluctuations that are inherent in random samples.

<sup>1</sup>Leonard J. West. "Sampling Techniques" The Delta Pi Epsilon Journal, Volume V Number 4 (July, 1963), pp. 118-121.



## APPENDIX H

ANTICIPATED TRI-COUNTY EMPLOYMENT MARKET TO 1970  
FOR TECHNICAL ACCOUNTANTS

| Classification           | Anticipated            |                    |                 |                 |
|--------------------------|------------------------|--------------------|-----------------|-----------------|
|                          | Net Number<br>Increase | Annual<br>Turnover | Need To<br>1970 | Annual<br>Need* |
| Technical<br>Accountants | 68                     | 35                 | 208             | 52              |

\*Annual need was determined by dividing the net number of increase by the four years and adding to the answer the annual turnover.



\_\_\_\_\_

## APPENDIX I

INCREASE/DECREASE COMPARISON OF TRI-COUNTY  
EMPLOYMENT SINCE 1960

| Type<br>Position                  | Relationship by Number of Firms |              |          |                     | Total |
|-----------------------------------|---------------------------------|--------------|----------|---------------------|-------|
|                                   | Increase                        | No<br>Change | Decrease | Cannot<br>Determine |       |
| <u>Total Work Force</u>           |                                 |              |          |                     |       |
| N                                 | 74                              | 14           | 32       | 2                   | 122   |
| %**                               | 60.7                            | 11.5         | 26.2     | 1.6                 | 100.0 |
| <u>Accountancy-<br/>Oriented*</u> |                                 |              |          |                     |       |
| N                                 | 42                              | 55           | 21       | 4                   | 122   |
| %                                 | 34.4                            | 45.1         | 17.2     | 3.3                 | 100.0 |
| <u>Technical<br/>Accountants</u>  |                                 |              |          |                     |       |
| N                                 | 36                              | 67           | 16       | 3                   | 122   |
| %                                 | 29.5                            | 54.9         | 13.1     | 2.5                 | 100.0 |

\*Includes technical accountants  
 \*\*Read percentages horizontally



# APPENDIX J

## ACCOUNTING ACTIVITIES PERFORMED BY TECHNICAL ACCOUNTANTS ARRANGED IN RANK ORDER BY PROPORTION PERFORMING THE ACTIVITY

| Rank<br>Order <sup>a</sup> | Activity  | Proportion Performing Activity |             |             |              |              |                |                |                        |                        |               |               |
|----------------------------|---|--------------------------------|-------------|-------------|--------------|--------------|----------------|----------------|------------------------|------------------------|---------------|---------------|
|                            |   | Total <sup>b</sup><br>N        | Weekly<br>N | Weekly<br>% | Monthly<br>N | Monthly<br>% | Quarterly<br>N | Quarterly<br>% | Semi-<br>Annually<br>N | Semi-<br>Annually<br>% | Annually<br>N | Annually<br>% |
| 1                          | Prepare Journal Entries for Original Set of Books         | 64                             | 1           | 1.6*        | 62           | 96.8         | -              | -              | -                      | -                      | 1             | 1.6           |
| 2                          | Verify Balances of Control Account with Subsidiary Ledger | 61                             | 1           | 1.6         | 60           | 98.4         | -              | -              | -                      | -                      | -             | -             |
| 3                          | Prepare Entries for Corrections                           | 59                             | 4           | 6.8         | 48           | 81.4         | 5              | 8.5            | -                      | -                      | 2             | 3.3           |
| 4.5                        | Making Accounts Receivable Schedules                      | 56                             | 8           | 14.3        | 46           | 2.1          | 2              | 3.6            | -                      | -                      | -             | -             |
| 4.5                        | Prepare Adjusting Entries                                 | 56                             | -           | -           | 45           | 80.4         | 2              | 3.6            | -                      | -                      | 9             | 16.0          |
| 6                          | Check Postings and Totals                                 | 54                             | 5           | 9.3         | 48           | 88.9         | 1              | 1.8            | -                      | -                      | -             | -             |
| 7                          | Maintain Accounts Receivable Ledger                       | 53                             | 32          | 60.4        | 21           | 39.6         | -              | -              | -                      | -                      | -             | -             |
| 8                          | Include Explanations for Each Journal Entry               | 52                             | 4           | 7.7         | 48           | 92.3         | -              | -              | -                      | -                      | -             | -             |
| 9                          | Maintain Payroll Ledger                                   | 51                             | 42          | 82.4        | 9            | 17.6         | -              | -              | -                      | -                      | -             | -             |
| 10.5                       | Making Accounts Payable Schedules                         | 50                             | 8           | 16.0        | 40           | 80.0         | 2              | 4.0            | -                      | -                      | -             | -             |
| 10.5                       | Post Adjusting Entries to Ledgers                         | 50                             | -           | -           | 39           | 78.0         | 1              | 2.0            | -                      | -                      | 10            | 20.0          |
| 12.5                       | Maintain Sales Journal                                    | 48                             | 31          | 64.6        | 17           | 35.4         | -              | -              | -                      | -                      | -             | -             |
| 12.5                       | Making Income Statements                                  | 48                             | -           | -           | 40           | 83.3         | 5              | 10.4           | 1                      | 2.1                    | 2             | 4.2           |

<sup>a</sup>Numerical rank of the 250 accounting activities according to the number of technical accountants performing the activity.

<sup>b</sup>The total possible responses per activity were ninety-nine.

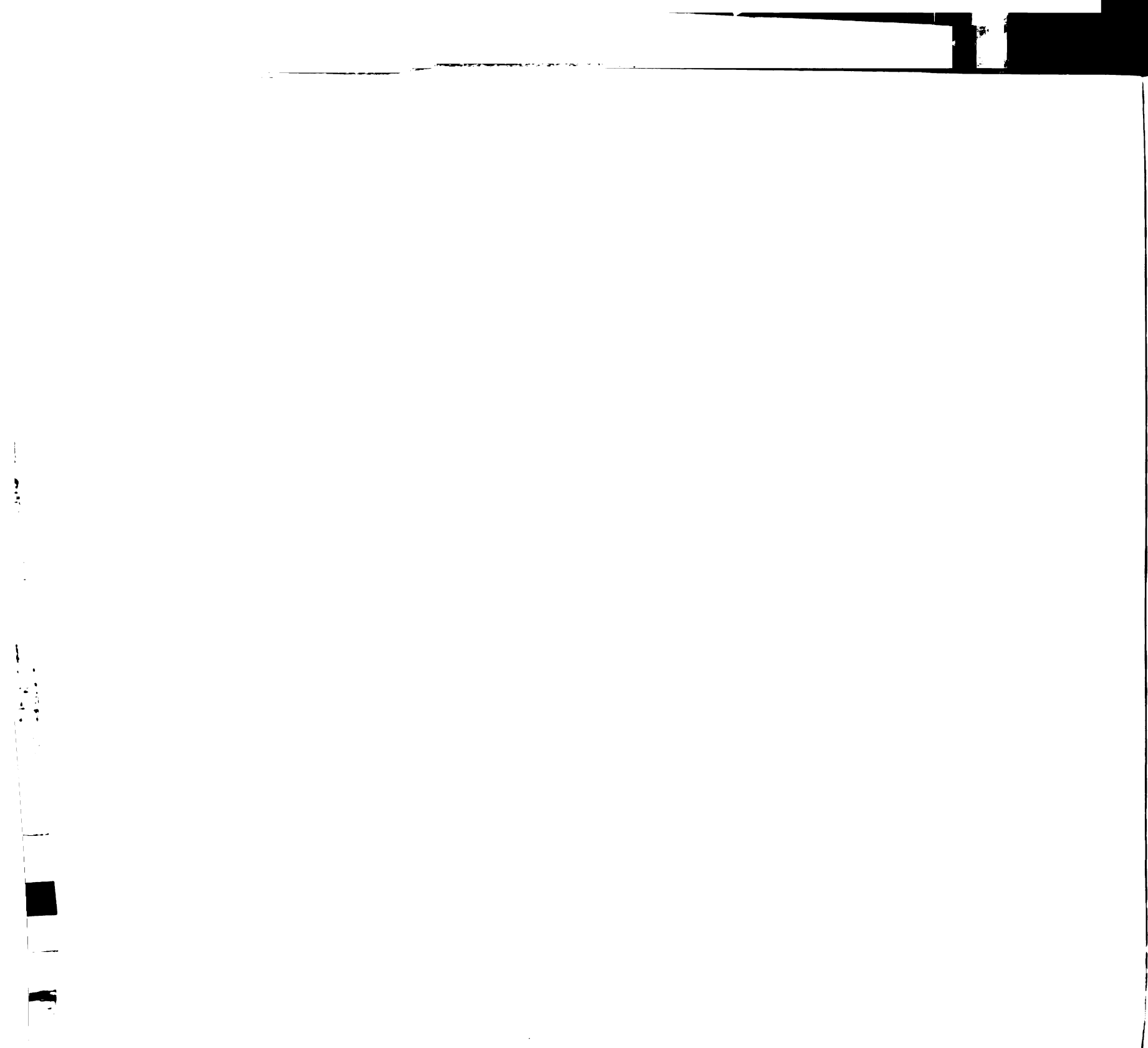
\*Read percentages horizontally; e.g. 1.6% of the 64 responses were performed weekly, 96.8% of the 64 responses were performed monthly.

APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |         |         |         |         |       |           |   |               |         |          |   |
|---------------|---|--------------------------------|---------|---------|---------|---------|-------|-----------|---|---------------|---------|----------|---|
|               |   | Total                          |         | Weekly  |         | Monthly |       | Quarterly |   | Semi-Annually |         | Annually |   |
|               |   | N                              | %       | N       | %       | N       | %     | N         | % | N             | %       | N        | % |
| 14            | Maintain Accounts Payable Ledger or Vouchers Payable                              | 47                             | 32 68.1 | 15 31.9 | -       | -       | -     | -         | - | -             | -       | -        | - |
| 15            | Add (Foot) and Balance Ledger Accounts  | 46                             | -       | 44 95.6 | 1 2.2   | -       | -     | -         | - | -             | 1 2.2   | -        | - |
| 17            | Making Balance Sheets   | 45                             | -       | 34 75.6 | 5 11.0  | 3 6.7   | -     | -         | - | -             | 3 6.7   | -        | - |
| 17            | Maintain General Journal  | 45                             | 9 20.0  | 35 77.8 | 1 2.2   | -       | -     | -         | - | -             | -       | -        | - |
| 17            | Making F.I.C.A. Tax Reports   | 45                             | 1 2.2   | 24 53.3 | 18 40.0 | -       | -     | -         | - | -             | 2 4.5   | -        | - |
| 21.5          | Compute F.I.C.A. Taxes  | 44                             | 29 65.9 | 11 25.0 | 3 6.8   | 1 2.3   | -     | -         | - | -             | -       | -        | - |
| 21.5          | Making Manufacturing Expense Schedules  | 44                             | 4 9.1   | 35 79.5 | 5 11.4  | -       | -     | -         | - | -             | -       | -        | - |
| 21.5          | Use Trial Balance Working Papers  | 44                             | -       | 38 86.4 | 6 13.6  | -       | -     | -         | - | -             | -       | -        | - |
| 21.5          | Making Cost of Goods Sold Schedules   | 44                             | 1 2.3   | 36 81.8 | 6 13.6  | 1 2.3   | -     | -         | - | -             | -       | -        | - |
| 21.5          | Use Worksheets for Financial Statements   | 44                             | -       | 35 79.5 | 7 15.9  | 1 2.3   | -     | -         | - | -             | 1 2.3   | -        | - |
| 21.5          | Making Employee Withholding Tax Reports   | 44                             | 2 4.5   | 20 45.5 | 18 40.9 | -       | -     | -         | - | -             | 4 9.1   | -        | - |
| 25.5          | Post Data to Ledgers from Original Set of Books or Electronic Data Run-off Sheets | 43                             | 6 14.0  | 37 86.0 | -       | -       | -     | -         | - | -             | -       | -        | - |
| 25.5          | Prepare Expense Accounts  | 43                             | 24 55.8 | 18 41.9 | -       | -       | -     | -         | - | -             | 1 2.3   | -        | - |
| 27.5          | Add (Foot) Balance, and Total Columns in Special Journals                         | 43                             | -       | 42 97.7 | -       | -       | -     | -         | - | -             | 1 2.3   | -        | - |
| 27.5          | Use Worksheets for Work in Process (Cost Sheets)                                  | 43                             | 9 20.9  | 25 58.1 | 6 14.0  | -       | -     | -         | - | -             | 3 7.0   | -        | - |
| 30            | Maintain Cash Receipts Journal  | 42                             | 30 71.4 | 12 28.6 | -       | -       | -     | -         | - | -             | -       | -        | - |
| 30            | Making Materials Consumed Schedules   | 42                             | 8 19.0  | 29 69.1 | 5 11.9  | -       | -     | -         | - | -             | -       | -        | - |
| 30            | Prepare Closing Entries   | 42                             | -       | 11 26.2 | -       | -       | -     | -         | - | -             | 31 73.8 | -        | - |
| 32.5          | Make Analysis of Accounts Receivable  | 41                             | 6 14.7  | 31 75.6 | 1 2.4   | 1 2.4   | -     | -         | - | -             | 2 4.9   | -        | - |
| 32.5          | Making Federal Unemployment Compensation Tax Reports                              | 41                             | -       | 3 7.3   | 8 19.5  | 1 2.4   | 1 2.4 | -         | - | -             | 29 70.8 | -        | - |
| 35            | Prepare Bank Deposits   | 40                             | 37 92.5 | 3 7.5   | -       | -       | -     | -         | - | -             | -       | -        | - |

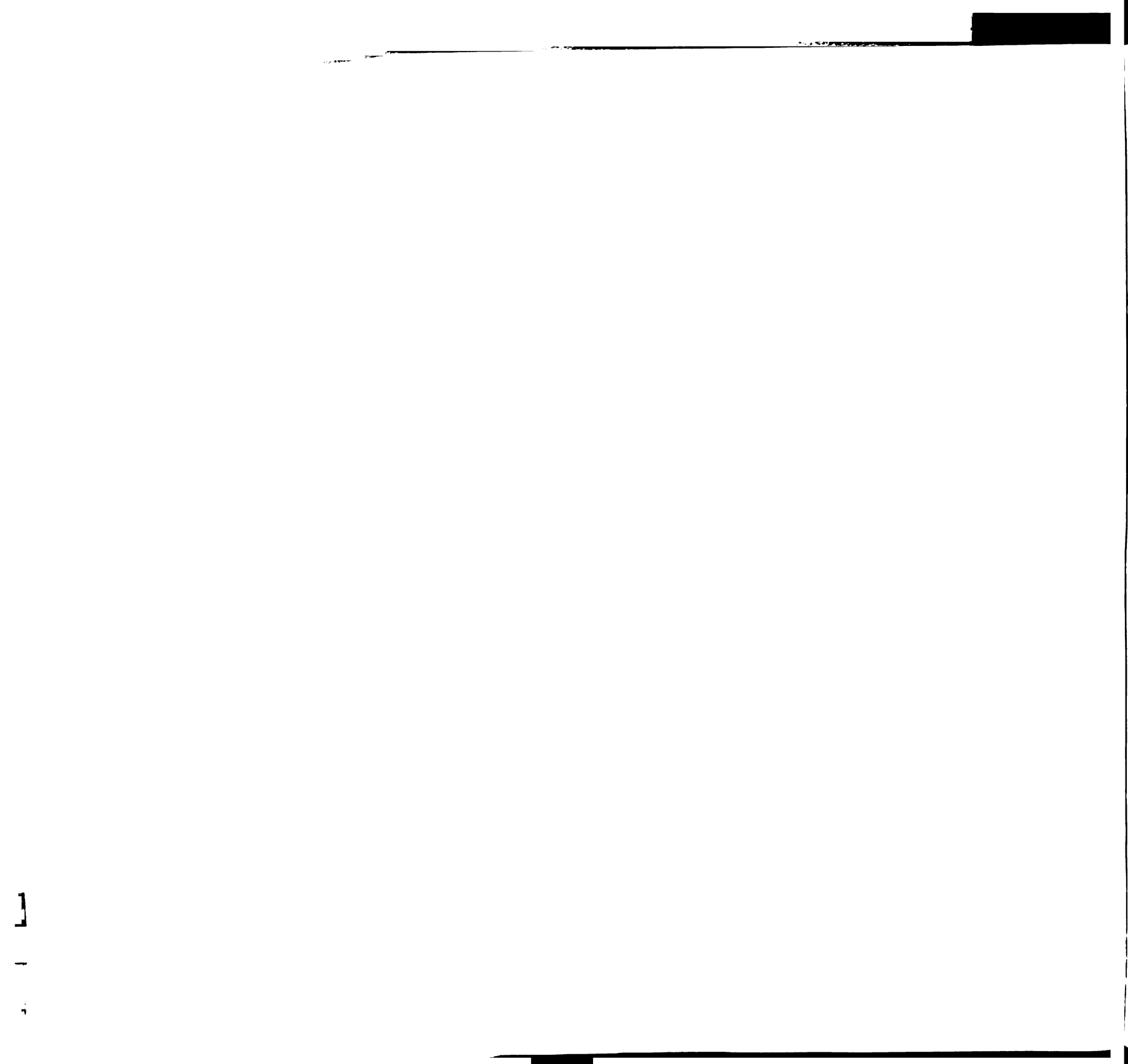
APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |    |        |    |         |    |           |   |               |    |          |   |
|---------------|---|--------------------------------|----|--------|----|---------|----|-----------|---|---------------|----|----------|---|
|               |   | Total                          |    | Weekly |    | Monthly |    | Quarterly |   | Semi-Annually |    | Annually |   |
|               |   | N                              | %  | N      | %  | N       | %  | N         | % | N             | %  | N        | % |
| 35            | Compute Vacation and Holiday Pay                                  | 40                             | 18 | 45.0   | 14 | 35.0    | -  | -         | 1 | 2.5           | 7  | 17.5     |   |
| 35            | Compute Data for Adjusting Entries                                | 40                             | 1  | 2.5    | 29 | 72.5    | 3  | 7.5       | - | -             | 7  | 17.5     |   |
| 38.5          | Compute Payroll Overtime  | 39                             | 38 | 97.5   | 1  | 2.5     | -  | -         | - | -             | -  | -        |   |
| 38.5          | Maintain General Ledger   | 39                             | 3  | 7.7    | 36 | 92.3    | -  | -         | - | -             | -  | -        |   |
| 38.5          | Compute State Unemployment Taxes                                  | 39                             | 1  | 2.5    | 14 | 35.9    | 24 | 61.6      | - | -             | -  | -        |   |
| 38.5          | Compute Federal Unemployment Taxes                                | 39                             | 1  | 2.5    | 12 | 30.9    | 1  | 2.5       | 4 | 10.3          | 21 | 53.8     |   |
| 42.5          | Handle Payroll Time Cards   | 38                             | 36 | 94.7   | 2  | 5.3     | -  | -         | - | -             | -  | -        |   |
| 42.5          | Compute Payroll by Hour or Day Rate                               | 38                             | 36 | 94.7   | 2  | 5.3     | -  | -         | - | -             | -  | -        |   |
| 42.5          | Making Cost of Goods Manufactured Schedules                       | 38                             | 1  | 2.6    | 31 | 81.6    | 6  | 15.8      | - | -             | -  | -        |   |
| 42.5          | Prepare Bank Reconciliations                                      | 38                             | -  | -      | 38 | 100.0   | -  | -         | - | -             | -  | -        |   |
| 47.5          | Maintain Check Register (Journal)                                 | 37                             | 25 | 67.6   | 12 | 32.4    | -  | -         | - | -             | -  | -        |   |
| 47.5          | Compute Percentages   | 37                             | 12 | 32.4   | 25 | 67.6    | -  | -         | - | -             | -  | -        |   |
| 47.5          | Making General and Administrative Expense Schedules               | 37                             | -  | -      | 33 | 89.2    | 4  | 10.8      | - | -             | -  | -        |   |
| 47.5          | Post Closing Entries to Ledgers                                   | 37                             | -  | -      | 14 | 37.8    | -  | -         | 1 | 2.7           | 22 | 59.5     |   |
| 47.5          | Post the Reversing Entries  | 37                             | -  | -      | 11 | 29.7    | -  | -         | 1 | 2.7           | 25 | 67.6     |   |
| 47.5          | Making State Unemployment Compensation Tax Reports                | 37                             | -  | -      | 6  | 16.2    | 29 | 78.4      | - | -             | 2  | 5.4      |   |
| 52.5          | Computations for Invoicing Customers                              | 36                             | 33 | 91.7   | 3  | 8.3     | -  | -         | - | -             | -  | -        |   |
| 52.5          | Maintain Plant (Fixed Asset) Ledger                               | 36                             | 4  | 11.1   | 30 | 83.3    | -  | -         | - | -             | 2  | 5.6      |   |
| 52.5          | Making Selling Expense Schedules                                  | 36                             | -  | -      | 31 | 86.1    | 5  | 13.9      | - | -             | -  | -        |   |
| 52.5          | Prepare Social Security Forms (W-4, W-2)                          | 36                             | 5  | 13.9   | 22 | 61.1    | 9  | 25.0      | - | -             | -  | -        |   |
| 56.5          | Record the Purchase of Materials                                  | 35                             | 14 | 40.0   | 21 | 60.0    | -  | -         | - | -             | -  | -        |   |
| 56.5          | Prepare Data for Electronic Equipment-To be used later on Reports | 35                             | 12 | 34.3   | 23 | 65.7    | -  | -         | - | -             | -  | -        |   |
| 56.5          | Maintain Withholding Tax Records                                  | 35                             | 9  | 25.7   | 20 | 57.1    | 2  | 5.7       | - | -             | 4  | 11.5     |   |
| 56.5          | Take Inventories by Physical Count                                | 35                             | -  | -      | 1  | 2.9     | -  | -         | 3 | 8.5           | 31 | 88.6     |   |
| 62            | Handle "Payroll" Job Tickets                                      | 34                             | 34 | 100.0  | -  | -       | -  | -         | - | -             | -  | -        |   |



APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |   |        |      |         |       |           |      |               |     |
|---------------|---|--------------------------------|---|--------|------|---------|-------|-----------|------|---------------|-----|
|               |   | Total                          |   | Weekly |      | Monthly |       | Quarterly |      | Semi-Annually |     |
|               |   | N                              | % | N      | %    | N       | %     | N         | %    | N             | %   |
| 62            | Compute Cash Discounts                              | 34                             |   | 30     | 88.2 | 4       | 11.8  | -         | -    | -             | -   |
| 62            | Check Creditor Invoices and Statements              | 34                             |   | 25     | 73.6 | 7       | 20.6  | -         | -    | 1             | 2.9 |
| 62            | Compute Workmen's Compensation                      | 34                             |   | 6      | 17.7 | 18      | 52.9  | 7         | 20.6 | -             | -   |
| 62            | Use Worksheets for Tax Reports                      | 34                             |   | -      | -    | 19      | 55.9  | 8         | 23.5 | 1             | 2.9 |
| 62            | Compute Bonuses                                     | 34                             |   | 10     | 29.4 | 7       | 20.6  | -         | -    | -             | -   |
| 62            | Prepare Reversing Entries                           | 34                             |   | -      | -    | 13      | 38.3  | -         | -    | 1             | 2.9 |
| 67            | Maintain Job Cost Sheets                            | 33                             |   | 25     | 75.8 | 7       | 21.2  | 1         | 3.0  | -             | -   |
| 67            | Use Worksheets for Allocating Costs                 | 33                             |   | 3      | 9.1  | 21      | 63.7  | 8         | 24.2 | -             | -   |
| 67            | Use Schedules for Depreciation on Assets            | 33                             |   | 1      | 3.0  | 14      | 42.4  | 5         | 15.2 | -             | -   |
| 71.5          | Compute Group Life Insurance Premiums               | 32                             |   | 12     | 37.5 | 20      | 62.5  | -         | -    | -             | -   |
| 71.5          | Compute Medical and Hospitalization Plan Premiums   | 32                             |   | 7      | 21.9 | 25      | 78.1  | -         | -    | -             | -   |
| 71.5          | Computations for Allocation of Costs to Job         | 32                             |   | 15     | 46.9 | 16      | 50.0  | 1         | 3.1  | -             | -   |
| 71.5          | Prepare Entries for Direct and Indirect Costs       | 32                             |   | 2      | 6.3  | 29      | 90.6  | 1         | 3.1  | -             | -   |
| 71.5          | Analyze Material Cost Variance                      | 32                             |   | 3      | 9.4  | 26      | 81.2  | 1         | 3.1  | -             | -   |
| 71.5          | Determine and Analyze Per Cent of Costs to Sales    | 32                             |   | -      | -    | 26      | 81.2  | 4         | 12.5 | -             | -   |
| 77            | Maintain Petty Cash Register                        | 31                             |   | 23     | 74.2 | 8       | 25.8  | -         | -    | -             | -   |
| 77            | Maintain Expense Ledger                             | 31                             |   | 12     | 38.7 | 19      | 61.3  | -         | -    | -             | -   |
| 77            | Prepare Entries for the Purchase of Materials       | 31                             |   | 8      | 25.8 | 23      | 74.2  | -         | -    | -             | -   |
| 77            | Computations Using Cost Standards                   | 31                             |   | 15     | 48.4 | 15      | 48.4  | -         | -    | 1             | 3.2 |
| 77            | Analyze Labor Cost Variance                         | 31                             |   | 5      | 16.1 | 23      | 74.2  | 1         | 3.2  | -             | -   |
| 80            | Determine and Analyze Per Cent of Expenses to Sales | 30                             |   | -      | -    | 24      | 80.0  | 4         | 13.3 | -             | -   |
| 81            | Analyze Indirect Costs                              | 29                             |   | 2      | 6.9  | 26      | 89.7  | -         | -    | -             | -   |
| 83.5          | Maintain Cost Ledger                                | 28                             |   | 12     | 42.9 | 16      | 57.1  | -         | -    | -             | -   |
| 83.5          | Making State Sales Tax Reports                      | 28                             |   | -      | -    | 28      | 100.0 | -         | -    | -             | -   |



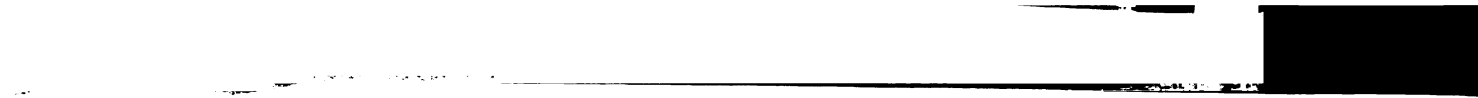
APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |    |        |    |         |   |           |    |               |    |
|---------------|---|--------------------------------|----|--------|----|---------|---|-----------|----|---------------|----|
|               |   | Total                          |    | Weekly |    | Monthly |   | Quarterly |    | Semi-Annually |    |
|               |   | N                              | %  | N      | %  | N       | % | N         | %  | N             | %  |
| 83.5          | Prepare Insurance Forms                               | 28                             | 8  | 28.6   | 18 | 64.3    | 2 | 7.1       | -  | -             | -  |
| 83.5          | Compare Costs with the Budget                         | 28                             | 5  | 17.8   | 19 | 67.9    | 2 | 7.1       | 1  | 3.6           | 1  |
| 88.5          | Maintain Purchases Journal                            | 27                             | 16 | 59.3   | 11 | 40.7    | - | -         | -  | -             | -  |
| 88.5          | Record the Return of Materials to Stores              | 27                             | 8  | 29.6   | 19 | 70.4    | - | -         | -  | -             | -  |
| 88.5          | Making Efficiency Reports                             | 27                             | 12 | 44.5   | 11 | 40.7    | 3 | 11.1      | -  | -             | 1  |
| 88.5          | Prepare Entries to Record Waste & Scrap Materials     | 27                             | 4  | 14.8   | 22 | 81.5    | - | -         | 1  | 3.7           | -  |
| 88.5          | Use Schedules for Insurance Expiration                | 27                             | -  | -      | 17 | 63.0    | 3 | 11.1      | -  | -             | 7  |
| 88.5          | Rule and Balance Accounts                             | 27                             | -  | -      | 13 | 48.1    | - | -         | -  | -             | 14 |
| 94.5          | Maintain Sales Returns and Allowances Journal         | 26                             | 15 | 57.7   | 11 | 42.3    | - | -         | -  | -             | -  |
| 94.5          | Analyze Sales   | 26                             | 4  | 15.4   | 22 | 84.6    | - | -         | -  | -             | -  |
| 94.5          | Maintain Insurance Records (expirations and premiums) | 26                             | 5  | 19.3   | 17 | 65.4    | 1 | 3.8       | -  | -             | 3  |
| 94.5          | Make Comparative Analysis of Income Statements        | 26                             | -  | -      | 18 | 69.3    | 4 | 15.4      | 1  | 3.8           | 3  |
| 94.5          | Use Post-Closing Trial Balance Working Papers         | 26                             | -  | -      | 9  | 34.6    | 4 | 15.4      | -  | -             | 13 |
| 94.5          | Open a Set of Books                                   | 26                             | -  | -      | 1  | 3.8     | - | -         | -  | -             | 25 |
| 100           | Maintain Voucher Register                             | 25                             | 17 | 68.0   | 7  | 28.0    | - | -         | 1  | 4.0           | -  |
| 100           | Prepare Supplies Inventories                          | 25                             | 3  | 12.0   | 11 | 44.0    | 2 | 8.0       | -  | -             | 9  |
| 100           | Handle Collection of Outstanding Debts                | 25                             | 13 | 52.0   | 10 | 40.0    | 2 | 8.0       | -  | -             | -  |
| 100           | Analyze Distribution Costs                            | 25                             | 1  | 4.0    | 21 | 84.0    | 3 | 12.0      | -  | -             | -  |
| 100           | Making Production Budgets (Manufacturing)             | 25                             | 3  | 12.0   | 11 | 44.0    | 5 | 20.0      | 1  | 4.0           | 5  |
| 104.5         | Analyze Administrative Costs                          | 24                             | -  | -      | 22 | 91.7    | 2 | 8.3       | -  | -             | -  |
| 104.5         | Prepare Entries to Adjust Inventory Cards             | 24                             | 4  | 16.7   | 17 | 70.8    | 1 | 4.2       | -  | -             | 2  |
| 104.5         | Making Operating Budgets                              | 24                             | 1  | 4.2    | 7  | 29.2    | 3 | 12.4      | 1  | 4.2           | 12 |
| 104.5         | Making Property Tax Reports                           | 24                             | -  | -      | -  | -       | - | -         | 14 | 58.3          | 10 |

APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |    |        |    |         |   |           |   |               |    |
|---------------|---|--------------------------------|----|--------|----|---------|---|-----------|---|---------------|----|
|               |   | Total                          |    | Weekly |    | Monthly |   | Quarterly |   | Semi-Annually |    |
|               |   | N                              | %  | N      | %  | N       | % | N         | % | N             | %  |
| 111           | Prepare Entries for the Return of Materials to Stores | 23                             | 5  | 21.7   | 18 | 78.3    | - | -         | - | -             | -  |
| 111           | Compute Insurance Data                                | 23                             | 3  | 13.1   | 17 | 73.9    | 2 | 8.7       | - | -             | 1  |
| 111           | Maintain State Sales Tax Records                      | 23                             | 2  | 8.7    | 20 | 87.0    | 1 | 4.3       | - | -             | -  |
| 111           | Analyze Overhead Cost Variance                        | 23                             | 1  | 4.3    | 20 | 87.0    | - | -         | - | -             | 2  |
| 111           | Compute Inventories on Hand by Perpetual Records      | 23                             | 9  | 39.2   | 11 | 47.8    | 1 | 4.3       | - | -             | 2  |
| 111           | Determine Estimated Costs                             | 23                             | 8  | 34.9   | 11 | 47.8    | 2 | 8.7       | 1 | 4.3           | 1  |
| 111           | Computations for Allocating Costs to Departments      | 23                             | 4  | 17.4   | 16 | 69.5    | 3 | 13.1      | - | -             | -  |
| 111           | Making Cost of Production Statements                  | 23                             | -  | -      | 17 | 73.9    | 5 | 21.8      | 1 | 4.3           | -  |
| 111           | Compute Depreciation by Straight Line Method          | 23                             | -  | -      | 9  | 39.1    | 2 | 8.7       | - | -             | 12 |
| 120           | Authorize Payment of Vouchers                         | 22                             | 16 | 72.7   | 6  | 27.3    | - | -         | - | -             | -  |
| 120           | Compare Manufacturing and Distributing Costs          | 22                             | -  | -      | 16 | 72.7    | 3 | 13.6      | 2 | 9.1           | 1  |
| 120           | Maintain Materials or Stores Ledger                   | 22                             | 7  | 31.8   | 15 | 68.2    | - | -         | - | -             | -  |
| 120           | Record the Issuance of Materials                      | 22                             | 10 | 45.4   | 11 | 50.0    | - | -         | - | -             | 1  |
| 120           | Making Credit Rating Reports                          | 22                             | 14 | 63.6   | 6  | 27.2    | 1 | 4.6       | 1 | 4.6           | -  |
| 120           | Post Waste & Scrap Material to Ledgers                | 22                             | 2  | 9.1    | 18 | 81.7    | - | -         | 1 | 4.6           | 1  |
| 120           | Compute Pension and Annuity Payments                  | 22                             | 4  | 18.2   | 12 | 54.5    | 3 | 13.6      | 1 | 4.6           | 2  |
| 120           | Make Balance Sheet (Comparative Analysis)             | 22                             | -  | -      | 12 | 54.5    | 4 | 18.2      | 2 | 9.1           | 4  |
| 120           | Making Capital Statements                             | 22                             | -  | -      | 11 | 50.0    | 2 | 9.1       | 1 | 4.6           | 8  |
| 126.5         | Compute Trade Discounts                               | 21                             | 18 | 85.7   | 3  | 14.3    | - | -         | - | -             | -  |
| 126.5         | Computations for Determining Overabsorbed Overhead    | 21                             | 1  | 4.8    | 16 | 76.1    | 1 | 4.8       | 2 | 9.5           | 1  |
| 126.5         | Compute Uncollectible Accounts                        | 21                             | -  | -      | 12 | 57.1    | 3 | 14.3      | - | -             | 6  |
| 126.5         | Determine and Analyze Accounts Receivable Turnover    | 21                             | -  | -      | 9  | 42.9    | - | -         | 2 | 9.5           | 10 |





APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |               |                |                  |                          |                 |        |        |        |        |
|---------------|---|--------------------------------|---------------|----------------|------------------|--------------------------|-----------------|--------|--------|--------|--------|
|               |   | Total<br>N                     | Weekly<br>N % | Monthly<br>N % | Quarterly<br>N % | Semi-<br>Annually<br>N % | Annually<br>N % |        |        |        |        |
| 131           | Compute Payroll Shift Premiums  | 20                             | 19 95.0       | 1 5.0          | -                | -                        | -               | -      | -      | -      | -      |
| 131           | Computations for Determining Underabsorbed Overhead   | 20                             | -             | 16 80.0        | 1 5.0            | 2 10.0                   | 1 5.0           | -      | -      | -      | -      |
| 131           | Determine the Base for Distribution of Service Department Costs to Production                 | 20                             | 4 20.0        | 9 45.0         | 3 15.0           | -                        | -               | 4 20.0 | -      | -      | -      |
| 131           | Compute Inventories by Fifo Method  | 20                             | 3 15.0        | 8 40.0         | -                | 2 10.0                   | 7 35.0          | -      | -      | -      | -      |
| 131           | Determine and Analyze Average Collection Period (on Receivables)                              | 20                             | -             | 9 45.0         | -                | 3 15.0                   | 8 40.0          | -      | -      | -      | -      |
| 136           | Prepare Entries to Record Defective Work  | 19                             | 3 15.8        | 16 84.2        | -                | -                        | -               | -      | -      | -      | -      |
| 136           | Making Alternative Cost Reports   | 19                             | 6 31.6        | 11 57.9        | 2 10.5           | -                        | -               | -      | -      | -      | -      |
| 136           | Determine and Analyze Per Cent Return on Investment   | 19                             | -             | 12 63.2        | 3 15.8           | -                        | 4 21.0          | -      | -      | -      | -      |
| 136           | Computations for Determining the Base for Distributing Service Department Costs to Production | 19                             | 2 10.5        | 9 47.4         | 3 15.8           | -                        | 5 26.3          | -      | -      | -      | -      |
| 143.5         | Compute Inventories by Cost or Market Costing   | 19                             | -             | 9 47.4         | -                | 2 10.5                   | 8 42.1          | -      | -      | -      | -      |
| 143.5         | Handle Promissory Notes   | 18                             | 12 66.7       | 6 33.3         | -                | -                        | -               | -      | -      | -      | -      |
| 143.5         | Prepare Entries for the Issuance of Materials   | 18                             | 5 27.7        | 12 66.7        | -                | -                        | -               | 1 5.6  | -      | -      | -      |
| 143.5         | Maintain Waste, Spoilage, & Shrinkage Records   | 18                             | 4 22.2        | 13 72.2        | -                | -                        | -               | 1 5.6  | -      | -      | -      |
| 143.5         | Maintain Departmental Records   | 18                             | 2 11.1        | 14 77.7        | 1 5.6            | -                        | -               | 1 5.6  | -      | -      | -      |
| 143.5         | Making Consolidated Income Statement  | 18                             | -             | 16 88.9        | 2 11.1           | -                        | -               | -      | -      | -      | -      |
| 143.5         | Determine and Analyze Average Cost per Unit Manufactured                                      | 18                             | 3 16.7        | 11 61.1        | 4 22.2           | -                        | -               | -      | -      | -      | -      |
| 143.5         | Determine and Analyze Average Cost per Unit Sold  | 18                             | 2 11.1        | 12 66.7        | 4 22.2           | -                        | -               | -      | -      | -      | -      |
| 143.5         | Determine and Analyze Working Capital   | 18                             | -             | 9 50.0         | 5 27.8           | 2 11.1                   | 2 11.1          | 2 11.1 | 2 11.1 | 2 11.1 | 2 11.1 |
| 143.5         | Making Retained Earnings Statements   | 18                             | -             | 5 27.8         | 2 11.1           | 1 5.6                    | 10 55.5         | -      | -      | -      | -      |

APPENDIX J (continued)

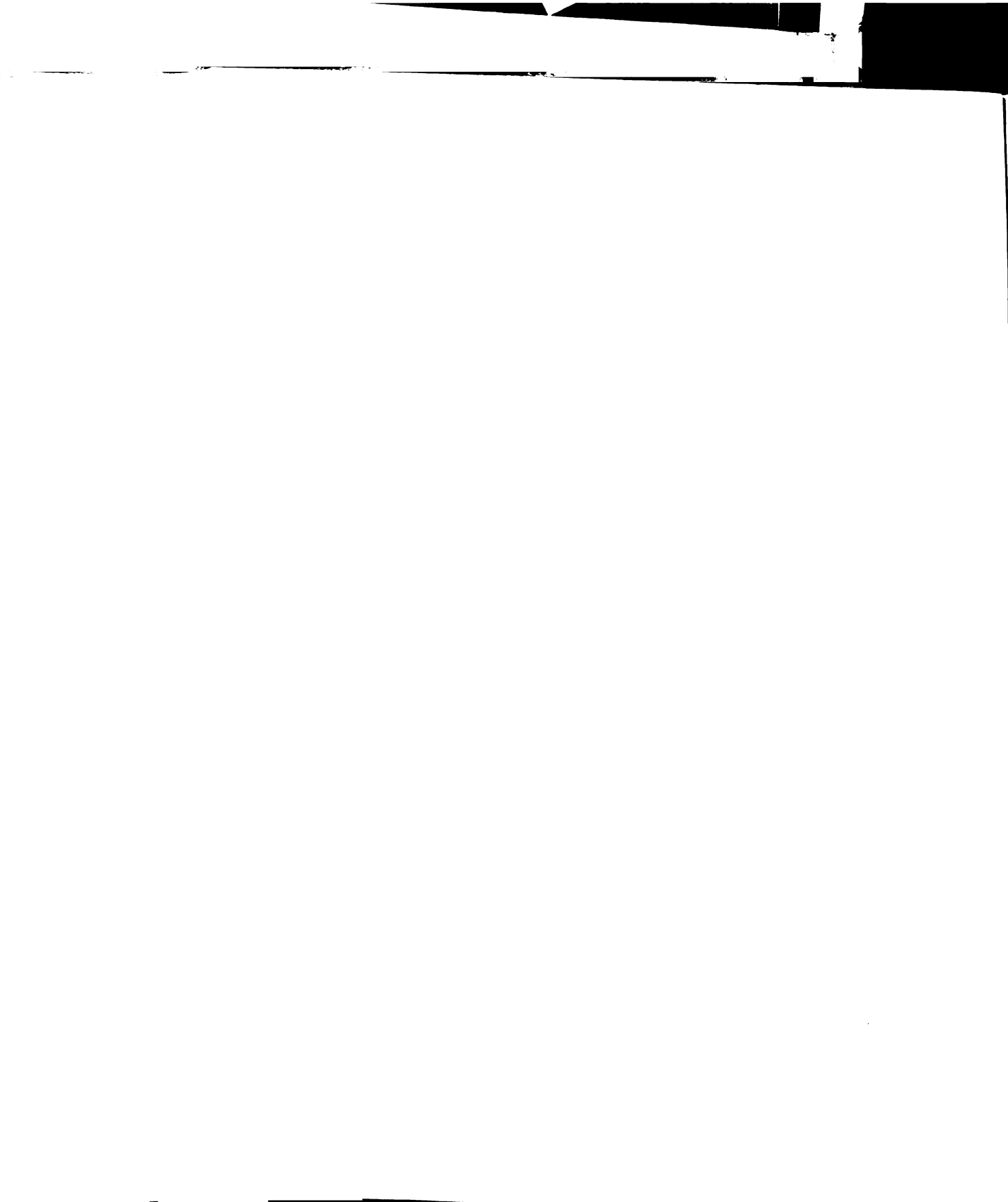
| Rank<br>Order | Activity  | Proportion Performing Activity |        |         |           |       |          |      |   |      |               |      |
|---------------|---|--------------------------------|--------|---------|-----------|-------|----------|------|---|------|---------------|------|
|               |   | Total                          | Weekly | Monthly | Quarterly | Semi- | Annually |      |   |      |               |      |
|               |   | N                              | N      | %       | N         | %     | N        | %    | N | %    | Annually<br>N | %    |
| 143.5         | Compute Depreciation by Declining Balance<br>Method | 18                             | -      | -       | 5         | 27.8  | 2        | 11.1 | - | -    | 11            | 61.1 |
| 150.5         | Act as a Paying Cashier                             | 17                             | 17     | 100.0   | -         | -     | -        | -    | - | -    | -             | -    |
| 150.5         | Compute Interest Receivable                         | 17                             | 1      | 5.9     | 15        | 88.2  | -        | -    | - | -    | 1             | 5.9  |
| 150.5         | Making Consolidated Balance Sheet Statements        | 17                             | -      | -       | 13        | 76.5  | 3        | 17.6 | 1 | 5.9  | -             | -    |
| 150.5         | Compute Obsolescence                                | 17                             | 1      | 5.9     | 6         | 35.3  | -        | -    | 2 | 11.8 | 8             | 47.0 |
| 156           | Computations for Cost Estimating                    | 16                             | 9      | 56.3    | 7         | 43.7  | -        | -    | - | -    | -             | -    |
| 156           | Maintain Notes Receivable Ledger                    | 16                             | 8      | 50.0    | 8         | 50.0  | -        | -    | - | -    | -             | -    |
| 156           | Computations for Allocating Costs to Divisions      | 16                             | 3      | 18.8    | 12        | 75.0  | 1        | 6.2  | - | -    | -             | -    |
| 156           | Maintain Perpetual Inventories                      | 16                             | 6      | 37.5    | 8         | 50.0  | -        | -    | 1 | 6.2  | 1             | 6.2  |
| 156           | Audit Internal Accounting Activities                | 16                             | 3      | 18.8    | 11        | 68.7  | -        | -    | 2 | 12.5 | -             | -    |
| 156           | Compute Interest Payable                            | 16                             | 2      | 12.5    | 11        | 68.7  | 1        | 6.3  | - | -    | 2             | 12.5 |
| 156           | Determine and Analyze Current Ratio                 | 16                             | -      | -       | 9         | 56.3  | 4        | 25.0 | 1 | 6.2  | 2             | 12.5 |
| 164           | Maintain Notes Payable Ledger                       | 15                             | 7      | 46.6    | 8         | 53.4  | -        | -    | - | -    | -             | -    |
| 164           | Maintain Finished Goods Ledger                      | 15                             | 5      | 33.3    | 10        | 66.7  | -        | -    | - | -    | -             | -    |
| 164           | Maintain Factory Ledger                             | 15                             | 5      | 33.3    | 9         | 60.0  | -        | -    | - | -    | 1             | 6.7  |
| 164           | Making Departmental Statements                      | 15                             | 2      | 13.3    | 12        | 80.0  | 1        | 6.7  | - | -    | -             | -    |
| 164           | Computations for Allocating Costs to Process        | 15                             | 3      | 20.0    | 8         | 53.3  | 4        | 26.7 | - | -    | -             | -    |
| 164           | Computations for Cost-Volume Relationships          | 15                             | 2      | 13.4    | 8         | 53.3  | 3        | 20.0 | 2 | 13.3 | -             | -    |
| 164           | Making Cash Budgets                                 | 15                             | 4      | 26.7    | 5         | 33.3  | 2        | 13.3 | 1 | 6.7  | 3             | 20.0 |
| 164           | Computations for Establishing Standards             | 15                             | 3      | 20.0    | 5         | 33.3  | -        | -    | 3 | 20.0 | 4             | 26.7 |
| 164           | Making Capital Budgets                              | 15                             | -      | -       | 7         | 46.6  | 1        | 6.7  | 1 | 6.7  | 6             | 40.0 |
| 171           | Compute Foreign Exchange Equivalents                | 14                             | 6      | 42.9    | 5         | 35.7  | 3        | 21.4 | - | -    | -             | -    |
| 171           | Compute Inventories by Average Cost Method          | 14                             | 2      | 14.3    | 9         | 64.3  | -        | -    | 1 | 7.1  | 2             | 14.3 |
| 171           | Making Federal Excise Tax Reports                   | 14                             | -      | -       | 4         | 28.6  | 6        | 42.9 | 1 | 7.1  | 3             | 21.4 |
| 171           | Prepare Tax Valuation Sheets                        | 14                             | 1      | 7.1     | 2         | 14.3  | -        | -    | 1 | 7.1  | 10            | 71.4 |

APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |               |                |                  |                          |                 |  |  |  |  |
|---------------|---|--------------------------------|---------------|----------------|------------------|--------------------------|-----------------|--|--|--|--|
|               |   | Total<br>N                     | Weekly<br>N % | Monthly<br>N % | Quarterly<br>N % | Semi-<br>Annually<br>N % | Annually<br>N % |  |  |  |  |
| 171           | Making Company Income Tax Reports                               | 14                             | -             | 2 14.3         | 1 7.1            | -                        | 11 78.6         |  |  |  |  |
| 176           | Maintain Cash Payment Journal                                   | 13                             | 9 69.2        | 4 30.8         | -                | -                        | -               |  |  |  |  |
| 176           | Determine and Analyze Receivables to<br>Sales Ratio             | 13                             | -             | 8 61.5         | 2 15.4           | -                        | 3 23.1          |  |  |  |  |
| 176           | Determine and Analyze Per Cent Increase<br>or Decrease Per Item | 13                             | -             | 7 53.8         | 4 30.8           | -                        | 2 15.4          |  |  |  |  |
| 176           | Computations for Break-Even Analysis                            | 13                             | -             | 3 23.1         | 3 23.1           | 4 30.8                   | 3 23.0          |  |  |  |  |
|               | Making Sales Budgets  | 13                             | 1 7.7         | 6 46.1         | 1 7.7            | 1 7.7                    | 4 30.8          |  |  |  |  |
| 180.5         | Compute Whether to Make or Buy an Item                          | 12                             | 8 66.7        | -              | 2 16.7           | 2 16.6                   | -               |  |  |  |  |
| 180.5         | Computations for Determining Replacement<br>Costs for Equipment | 12                             | 2 16.7        | 4 33.3         | 4 33.3           | 1 8.3                    | 1 8.4           |  |  |  |  |
| 180.5         | Making Source and Application of Funds<br>Statements            | 12                             | -             | 5 41.7         | 2 16.7           | -                        | 5 41.6          |  |  |  |  |
| 180.5         | Determine and Analyze Inventory Turnover                        | 12                             | -             | 5 41.7         | 1 8.3            | 1 8.3                    | 5 41.7          |  |  |  |  |
| 184           | Maintain Insurance Register                                     | 11                             | 4 36.4        | 6 54.5         | 1 9.1            | -                        | -               |  |  |  |  |
| 184           | Making Cash Flow Statements                                     | 11                             | 4 36.4        | 2 18.2         | 2 18.2           | -                        | 3 27.2          |  |  |  |  |
| 184           | Determine and Analyze Sales to Asset Ratio                      | 11                             | -             | 6 54.5         | 4 36.4           | -                        | 1 9.1           |  |  |  |  |
| 188           | Handle Sight Drafts with Bill of Ladings                        | 10                             | 5 50.0        | 4 40.0         | 1 10.0           | -                        | -               |  |  |  |  |
| 188           | Compute Mark-up   | 10                             | 7 70.0        | 1 10.0         | -                | 1 10.0                   | 1 10.0          |  |  |  |  |
| 188           | Determine and Analyze Acid Test Ratio<br>(Liquid Assets)        | 10                             | -             | 4 40.0         | 5 50.0           | -                        | 1 10.0          |  |  |  |  |
| 188           | Determine and Analyze Book Value per<br>Share of Stock          | 10                             | -             | 4 40.0         | 4 40.0           | -                        | 2 20.0          |  |  |  |  |
| 188           | Compute the Cost of Carrying Inventories                        | 10                             | 4 40.0        | -              | 2 20.0           | 2 20.0                   | 2 20.0          |  |  |  |  |
| 194.5         | Maintain Purchases Returns and Allowances<br>Journals           | 9                              | 6 66.7        | 3 33.3         | -                | -                        | -               |  |  |  |  |
| 194.5         | Compute Rent  | 9                              | -             | 9 100.0        | -                | -                        | -               |  |  |  |  |
| 194.5         | Making Branch and Division Statements                           | 9                              | -             | 8 88.9         | 1 11.1           | -                        | -               |  |  |  |  |
|               |   |                                |               |                |                  |                          | 204             |  |  |  |  |

APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |               |                |                  |                          |                 |  |  |  |  |
|---------------|---|--------------------------------|---------------|----------------|------------------|--------------------------|-----------------|--|--|--|--|
|               |   | Total<br>N                     | Weekly<br>N % | Monthly<br>N % | Quarterly<br>N % | Semi-<br>Annually<br>N % | Annually<br>N % |  |  |  |  |
| 194.5         | Maintain Stockholders Ledger                                      | 9                              | 2 22.2        | 3 33.3         | -                | 1 11.1                   | 3 33.4          |  |  |  |  |
| 194.5         | Computations to Determine Sale Price for Equipment                | 9                              | 1 11.1        | 4 44.5         | 3 33.3           | 1 11.1                   | -               |  |  |  |  |
| 194.5         | Determine and Analyze Per Cent Earnings to Total Assets           | 9                              | -             | 4 44.5         | 2 22.2           | -                        | 3 33.3          |  |  |  |  |
| 194.5         | Design a System of Internal Control                               | 9                              | 2 22.2        | -              | 1 11.2           | 3 33.4                   | 3 33.3          |  |  |  |  |
| 194.5         | Establish a System of Internal Check                              | 9                              | 1 11.1        | 1 11.1         | 1 11.1           | 2 22.2                   | 4 44.5          |  |  |  |  |
| 203           | Compute When to Purchase Inventories                              | 8                              | 6 75.0        | 2 25.0         | -                | -                        | -               |  |  |  |  |
| 203           | Eliminate Reciprocal Accounts                                     | 8                              | -             | 7 87.5         | -                | -                        | 1 12.5          |  |  |  |  |
| 203           | Handle Collateral Notes   | 8                              | 2 25.0        | 4 50.0         | -                | 2 25.0                   | -               |  |  |  |  |
| 203           | Use Red Ink to Draw Lines   | 8                              | 5 62.5        | 1 12.5         | -                | -                        | -               |  |  |  |  |
| 203           | Computations for Determining Budget Variances                     | 8                              | -             | 6 75.0         | -                | 1 12.5                   | 2 25.0          |  |  |  |  |
| 203           | Compute Mark-Down   | 8                              | 3 37.5        | 2 25.0         | 1 12.5           | 1 12.5                   | 1 12.5          |  |  |  |  |
| 203           | Computations for Determining Volume Variances                     | 8                              | -             | 5 62.5         | 1 12.5           | 1 12.5                   | 1 12.5          |  |  |  |  |
| 203           | Computations for Determining the Best Method of Financing         | 8                              | -             | 2 25.0         | 4 50.0           | 2 25.0                   | -               |  |  |  |  |
| 203           | Determine and Analyze Plant Assets to Long-term Liabilities Ratio | 8                              | -             | 2 25.0         | 4 50.0           | -                        | 2 25.0          |  |  |  |  |
| 209.5         | Handle Conditional Sales  | 7                              | 5 71.4        | 2 28.6         | -                | -                        | -               |  |  |  |  |
| 209.5         | Determining What Inventories to Purchase                          | 7                              | 6 85.7        | 1 14.3         | -                | -                        | -               |  |  |  |  |
| 209.5         | Determine and Analyze Equity to Assets Ratio                      | 7                              | -             | 1 14.3         | 4 57.1           | 1 14.3                   | 1 14.3          |  |  |  |  |
| 209.5         | Determine and Analyze Dollar Earnings Per Share of Stock          | 7                              | -             | 1 14.3         | 3 42.9           | -                        | 3 42.8          |  |  |  |  |
| 216           | Compute Payroll by Per Piece of Unit                              | 6                              | 6 100.0       | -              | -                | -                        | -               |  |  |  |  |
| 216           | Maintain Branch Ledger  | 6                              | -             | 6 100.0        | -                | -                        | -               |  |  |  |  |
| 216           | Discount Notes  | 6                              | 2 33.3        | 3 50.0         | 1 16.7           | -                        | -               |  |  |  |  |



APPENDIX J (continued)

| Rank<br>Order | Activity  | Proportion Performing Activity |             |              |                |                        |               |               |               |
|---------------|---|--------------------------------|-------------|--------------|----------------|------------------------|---------------|---------------|---------------|
|               |   | Total<br>N                     | Weekly<br>N | Monthly<br>N | Quarterly<br>N | Semi-<br>Annually<br>N | Annually<br>N | Annually<br>% | Annually<br>% |
| 216           | Compute the Number of Days Inventory Needed                   | 6                              | 3           | 2            | 33.3           | -                      | -             | -             | 1 16.7        |
| 216           | Compute How Much to Purchase (Economic Order Quantity)        | 6                              | 3           | 50.0         | -              | 1                      | 16.7          | 2 33.3        | -             |
| 216           | Compute Price-Level Adjustments                               | 6                              | 2           | 33.3         | -              | 3                      | 50.0          | -             | 1 16.7        |
| 216           | Determine and Analyze Dividends per Share of Stock            | 6                              | -           | -            | 2              | 33.3                   | 2             | 33.3          | -             |
| 216           | Making Research and Development Budgets                       | 6                              | -           | -            | 2              | 33.3                   | 2             | 33.3          | -             |
| 216           | Compute Depreciation by Sum-of-the-Digits Method              | 6                              | -           | -            | -              | 1                      | 16.7          | -             | 5 83.3        |
| 223.5         | Computations for Determining Cost of By-Products              | 5                              | 1           | 20.0         | 4              | 80.0                   | -             | -             | -             |
| 223.5         | Handle Chattel Mortgages                                      | 5                              | 1           | 20.0         | 3              | 60.0                   | -             | 1 20.0        | -             |
| 223.5         | Handle Time Drafts  | 5                              | 1           | 20.0         | 3              | 60.0                   | -             | -             | 1 20.0        |
| 223.5         | Use Worksheets for Consolidating Divisions or Branches        | 5                              | -           | -            | 4              | 80.0                   | 1             | 20.0          | -             |
| 223.5         | Determine and Analyze Per Cent Dividend Yield                 | 5                              | -           | -            | -              | -                      | 4             | 80.0          | -             |
| 223.5         | Determine and Analyze Liabilities to Capital Ratio            | 5                              | -           | -            | -              | -                      | 3             | 60.0          | 1 20.0        |
| 228           | Computations for Determining Variable Costs of Joint Products | 4                              | 1           | 25.0         | 3              | 75.0                   | -             | -             | -             |
| 228           | Computations for Determining Fixed Costs of Joint Products    | 4                              | 1           | 25.0         | 3              | 75.0                   | -             | -             | -             |
| 228           | Handle Trade Acceptances                                      | 4                              | 1           | 25.0         | 3              | 75.0                   | -             | -             | -             |
| 231.5         | Compute Payroll by Incentive Plans                            | 3                              | 3           | 100.0        | -              | -                      | -             | -             | -             |
| 231.5         | Computations for Patents                                      | 3                              | -           | -            | 1              | 33.3                   | 1             | 33.3          | -             |
| 231.5         | Compute Depreciation by Units of Production                   | 3                              | -           | -            | 1              | 33.3                   | -             | -             | 2 66.7        |

## APPENDIX J (continued)

| Rank<br>Order | Activity   | Proportion Performing Activity |               |                |                  |                          |                 |   |       |
|---------------|--|--------------------------------|---------------|----------------|------------------|--------------------------|-----------------|---|-------|
|               |  | Total<br>N                     | Weekly<br>N % | Monthly<br>N % | Quarterly<br>N % | Semi-<br>Annually<br>N % | Annually<br>N % |   |       |
| 231.5         | Compute Cash Dividends   | 3                              | -             | -              | 1                | 33.3                     | -               | 2 | 66.7  |
| 236.5         | Maintain Subscribers Ledger  | 2                              | 1 50.0        | 1 50.0         | -                | -                        | -               | - | -     |
| 236.5         | Compute Inventories by Weighted Average Method                     | 2                              | -             | 1 50.0         | -                | -                        | 1 50.0          | - | -     |
| 236.5         | Computations for Organisation Costs                                | 2                              | -             | -              | 1 50.0           | -                        | -               | 1 | 50.0  |
| 236.5         | Compute Depletion  | 2                              | -             | -              | -                | -                        | 1 50.0          | 1 | 50.0  |
| 236.5         | Compute Stock Dividends  | 2                              | -             | -              | -                | -                        | -               | 2 | 100.0 |
| 236.5         | Compute Division of Partnership Profits                            | 2                              | -             | -              | -                | -                        | -               | 2 | 100.0 |
| 243           | Maintain Combined Cash Journal                                     | 1                              | 1 100.0       | -              | -                | -                        | -               | - | -     |
| 243           | Compute Inventories by Lifo Method                                 | 1                              | -             | 1 100.0        | -                | -                        | -               | - | -     |
| 243           | Computations for Determining Semi-Variable Costs of Joint Products | 1                              | -             | 1 100.0        | -                | -                        | -               | - | -     |
| 243           | Computations for Franchises  | 1                              | -             | -              | 1 100.0          | -                        | -               | - | -     |
| 243           | Compute Annuities  | 1                              | -             | -              | -                | -                        | -               | 1 | 100.0 |
| 243           | Computations for Copyrights  | 1                              | -             | -              | -                | -                        | -               | 1 | 100.0 |
| 243           | Computations for Trademarks and Names                              | 1                              | -             | -              | -                | -                        | -               | 1 | 100.0 |
| 248.5         | Handle Judgment Notes  | 0                              | -             | -              | -                | -                        | -               | - | -     |
| 248.5         | Handle Bailment Leases   | 0                              | -             | -              | -                | -                        | -               | - | -     |
| 248.5         | Computations for Goodwill  | 0                              | -             | -              | -                | -                        | -               | - | -     |
| 248.5         | Compute Yield on Bonds   | 0                              | -             | -              | -                | -                        | -               | - | -     |



## APPENDIX K

ACTIVITIES INVOLVED IN PREPARING FINANCIAL STATEMENTS AND REPORTS RANKED  
IN TOTAL AND BY SIZE OF FIRM ACCORDING TO THE PROPORTION PERFORMED  
BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

| Type Statement or Schedule                         | Rank Order            |                 |       |             |             |                |
|--|-----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=36) | By Size of Firm |       |             |             |                |
|  |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Accounts Receivable Schedule                       | 1                     | 6.5             | 1.5   | 1.5         | 9.5         | 1              |
| Accounts Payable Schedule                          | 2                     | 6.5             | 1.5   | 4           | 13          | 6              |
| Income Statement                                   | 3                     | 8               | 9     | 7.5         | 2           | 2              |
| Balance Sheet                                      | 4.5                   | 4               | 6     | 11          | 6.5         | 9              |
| F.I.C.A. Tax Reports                               | 4.5                   | 1.5             | 3.5   | 11          | 17.5        | 6              |
| Manufacturing Expense Schedule                     | 7                     | 13.5            | 13    | 1.5         | 6.5         | 3.5            |
| Cost of Goods Sold Schedule                        | 7                     | 9.5             | 6     | 6           | 2           | 16             |
| Employee Withholding Tax<br>Reports                | 7                     | 1.5             | 3.5   | 11          | 22.5        | 6              |
| Materials Consumed Schedule                        | 9                     | 19              | 9     | 4           | 6.5         | 9              |
| Federal Unemployment Compensa-<br>tion Tax Reports | 10                    | 4               | 9     | 7.5         | 17.5        | 12             |
| Cost of Goods Manufactured<br>Schedule             | 11                    | 13.5            | 13    | 4           | 13          | 12             |
| General and Administrative<br>Expense Schedule     | 12.5                  | 13.5            | 13    | 11          | 4           | 16             |
| State Unemployment Compensa-<br>tion Tax Reports   | 12.5                  | 4               | 6     | 16          | 22.5        | 20             |
| Selling Expense Schedule                           | 14                    | 9.5             | 11    | 16          | 13          | 12             |
| State Sales Tax Reports                            | 15                    | 13.5            | 15.5  | 16          | 28          | 20             |
| Efficiency Reports                                 | 16                    | 30              | 28.5  | 16          | 22.5        | 3.5            |
| Production Budget                                  | 17                    | 25              | 28.5  | 27.5        | 2           | 16             |
| Operating Budget                                   | 18.5                  | 25              | 28.5  | 31.5        | 6.5         | 9              |
| Property Tax Reports                               | 18.5                  | 13.5            | 15.5  | 19.5        | 17.5        | 30.5           |
| Cost of Production Statement                       | 20                    | 25              | 20.5  | 25          | 13          | 20             |
| Credit Rating Reports                              | 21.5                  | 25              | 20.5  | 22.5        | 9.5         | 26             |
| Capital Statement                                  | 21.5                  | 19              | 20.5  | 16          | 35          | 22             |
| Alternative Cost Reports                           | 23                    | 30              | 32.5  | 11          | 17.5        | 30.5           |
| Consolidated Income Statement                      | 24.5                  | 19              | 20.5  | 27.5        | 28          | 23.5           |
| Retained Earnings Statement                        | 24.5                  | 25              | 17    | 19.5        | 35          | 26             |
| Consolidated Balance Sheet                         | 26                    | 19              | 20.5  | 31.5        | 28          | 23.5           |
| Departmental Statements                            | 28                    | 35.5            | 32.5  | 35          | 13          | 16             |
| Cash Budget  | 28                    | 13.5            | 28.5  | 35          | 22.5        | 26             |
| Capital Budget                                     | 28                    | 33              | 32.5  | 27.5        | 28          | 16             |
| Federal Excise Tax Reports                         | 30.5                  | 30              | 25    | 22.5        | 32          | 30.5           |
| Company Income Tax Reports                         | 30.5                  | 19              | 20.5  | 27.5        | 32          | 34.5           |
| Making Sales Budgets                               | 32                    | 25              | 25    | 35          | 22.5        | 30.5           |

## APPENDIX K (continued)

| Type Statement or Schedule                   | Rank Order            |                 |       |             |             |                |
|--|-----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=36) | By Size of Firm |       |             |             |                |
|  |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Source and Application of<br>Funds Statement | 33                    | 33              | 25    | 22.5        | 35          | 30.5           |
| Cash Flow Statement                          | 34                    | 25              | 35.5  | 22.5        | 32          | 34.5           |
| Branch and Division Statements               | 35                    | 33              | 32.5  | 31.5        | 28          | 30.5           |
| Research and Development<br>Budget           | 36                    | 35.5            | 35.5  | 31.5        | 22.5        | 36             |

## APPENDIX L

ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS RANKED IN TOTAL  
AND BY SIZE OF FIRM ACCORDING TO THE PROPORTION PERFORMED BY  
TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

| Type Analysis or Interpretation                           | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=25) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Analyze Accounts Receivable                               | 1                     | 1               | 1     | 1           | 3.5         | 2.5            |
| Analyze Per Cent Costs to Sales                           | 2                     | 5               | 4     | 2           | 2           | 5              |
| Analyze Per Cent Expenses to<br>Sales                     | 3                     | 5               | 4     | 3           | 1           | 9.5            |
| Comparative Analysis of Income<br>Statements              | 4                     | 5               | 4     | 4           | 3.5         | 9.5            |
| Comparative Analysis of Balance<br>Sheets                 | 5                     | 5               | 4     | 5.5         | 8.5         | 13             |
| Analyze Accounts Receivable<br>Turnover                   | 6                     | 15.5            | 8.5   | 10.5        | 6           | 5              |
| Analyze Average Collection<br>Period on Receivables       | 7                     | 5               | 13    | 20.5        | 8.5         | 2.5            |
| Determine Per Cent Return on<br>Investment                | 8                     | 15.5            | 8.5   | 5.5         | 10.5        | 9.5            |
| Determine Average Cost Per<br>Unit Manufactured           | 10                    | 15.5            | 18.5  | 10.5        | 6           | 7              |
| Determine Average Cost Per<br>Unit Sold                   | 10                    | 15.5            | 23    | 7.5         | 13.5        | 1              |
| Analyze Working Capital                                   | 10                    | 5               | 8.5   | 20.5        | 6           | 13             |
| Determine and Analyze Current<br>Ratio                    | 12                    | 9.5             | 4     | 10.5        | 13.5        | 16             |
| Determine Per Cent Increase or<br>Decrease Per Item       | 13.5                  | 15.5            | 23    | 20.5        | 13.5        | 5              |
| Determine and Analyze Receiv-<br>ables to Sales Ratio     | 13.5                  | 15.5            | 18.5  | 10.5        | 16.5        | 9.5            |
| Determine Inventory Turnover                              | 15                    | 5               | 25    | 15          | 13.5        | 13             |
| Determine Sales to Asset Ratio                            | 16                    | 15.5            | 18.5  | 7.5         | 20.5        | 16             |
| Determine Acid Test Ratio                                 | 17.5                  | 15.5            | 13    | 15          | 16.5        | 18.5           |
| Determine Book Value Per Share<br>of Stock                | 17.5                  | 9.5             | 8.5   | 15          | 20.5        | 21.5           |
| Determine Per Cent Earnings to<br>Total Assets            | 19                    | 22.5            | 13    | 20.5        | 10.5        | 21.5           |
| Determine Plant Assets to Long-<br>Term Liabilities Ratio | 20                    | 15.5            | 18.5  | 20.5        | 20.5        | 16             |
| Determine Equity to Asset Ratio                           | 21.5                  | 15.5            | 13    | 20.5        | 20.5        | 21.5           |
| Determine Dollar Earnings Per<br>Share of Stock           | 21.5                  | 22.5            | 13    | 15          | 20.5        | 21.5           |

## APPENDIX L (continued)

| Type Analysis or Interpretation           | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=25) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Determine Dividends Per Share<br>of Stock | 23                    | 22.5            | 18.5  | 15          | 20.5        | 21.5           |
| Determine Per Cent Dividend<br>Yield      | 24.5                  | 22.5            | 23    | 20.5        | 20.5        | 18.5           |
| Determine Liabilities to<br>Capital Ratio | 24.5                  | 22.5            | 18.5  | 20.5        | 20.5        | 21.5           |

## APPENDIX M

LEDGERS MAINTAINED RANKED IN TOTAL AND BY SIZE OF FIRM ACCORDING  
TO THE PROPORTION PERFORMED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS

| Ledger Maintained                       | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=16) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Accounts Receivable                     | 1                     | 1.5             | 2     | 1           | 2.5         | 3.5            |
| Payroll                                 | 2                     | 1.5             | 1     | 2.5         | 6           | 3.5            |
| Accounts Payable or<br>Vouchers Payable | 3                     | 3.5             | 3     | 2.5         | 6           | 1              |
| General Ledger                          | 4                     | 3.5             | 4.5   | 4.5         | 6           | 3.5            |
| Plant (Fixed Asset)                     | 5                     | 6               | 4.5   | 6.5         | 1           | 3.5            |
| Expense                                 | 6                     | 5               | 6.5   | 6.5         | 6           | 6              |
| Cost                                    | 7                     | 7               | 11.5  | 4.5         | 2.5         | 8              |
| Materials or Stores                     | 8                     | 9.5             | 14    | 9.5         | 6           | 7              |
| Notes Receivable                        | 9                     | 9.5             | 9     | 9.5         | 12          | 10.5           |
| Notes Payable                           | 11                    | 9.5             | 6.5   | 13          | 12          | 10.5           |
| Finished Goods                          | 11                    | 13              | 14    | 9.5         | 9           | 10.5           |
| Factory                                 | 11                    | 13              | 11.5  | 9.5         | 10          | 10.5           |
| Insurance Register                      | 13                    | 9.5             | 9     | 14          | 15          | 13.5           |
| Stockholders                            | 14                    | 13              | 9     | 12          | 15          | 15.5           |
| Branch                                  | 15                    | 14.5            | 14    | 15.5        | 12          | 13.5           |
| Subscribers                             | 16                    | 14.5            | 16    | 15.5        | 15          | 15.5           |



## APPENDIX N

JOURNALS MAINTAINED RANKED IN TOTAL AND BY SIZE OF FIRM ACCORDING  
TO THE PROPORTION PERFORMED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS

| Journal Maintained                  | Rank Order            |                 |       |             |             |                |
|-------------------------------------|-----------------------|-----------------|-------|-------------|-------------|----------------|
|                                     | In<br>Total<br>(N=11) | By Size of Firm |       |             |             |                |
|                                     |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Sales                               | 1                     | 1               | 2     | 3           | 2.5         | 1              |
| General                             | 2                     | 3               | 5.5   | 1           | 1           | 2              |
| Cash Receipts                       | 3                     | 3               | 1     | 3           | 7           | 4              |
| Check Register                      | 4                     | 3               | 5.5   | 3           | 2.5         | 7.5            |
| Petty Cash Register                 | 5                     | 6               | 3     | 8.5         | 7           | 7.5            |
| Purchases                           | 6                     | 5               | 4     | 6.5         | 7           | 4              |
| Sales Returns and Allowances        | 7                     | 7               | 8     | 5           | 4.5         | 9              |
| Voucher Register                    | 8                     | 8               | 9     | 6.5         | 4.5         | 4              |
| Cash Payment                        | 9                     | 10.5            | 7     | 10.5        | 9.5         | 6              |
| Purchases Returns and<br>Allowances | 10                    | 9               | 10    | 8.5         | 9.5         | 10.5           |
| Combined Cash                       | 11                    | 10.5            | 11    | 10.5        | 11          | 10.5           |





## APPENDIX O

PREPARING OR INITIATING DATA ACTIVITIES RANKED IN TOTAL AND BY SIZE  
OF FIRM ACCORDING TO THE PROPORTION PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

| To Prepare or Initiate  | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=21) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Regular Journal Entries or<br>Journal Vouchers                | 1                     | 8               | 5     | 1           | 2           | 2              |
| Entries for Corrections                                       | 2                     | 5               | 9     | 6           | 1           | 2              |
| Adjusting Entries   | 3                     | 12              | 5     | 10.5        | 4           | 2              |
| Explanations for Each Journal<br>Entry                        | 4                     | 2.5             | 13.5  | 10.5        | 4           | 4              |
| Expense Accounts  | 5                     | 12              | 5     | 6           | 15          | 6              |
| Closing Entries   | 6                     | 12              | 7.5   | 6           | 7           | 8              |
| Bank Deposits   | 7                     | 1               | 1     | 2.5         | 19          | 18             |
| Bank Reconciliations  | 8                     | 5               | 2.5   | 2.5         | 19          | 14.5           |
| Social Security Forms<br>(W-4, W-2)                           | 9                     | 2.5             | 2.5   | 13          | 21          | 11             |
| Data for Electronic Equipment-<br>To be used later on Reports | 10                    | 21              | 17.5  | 6           | 9.5         | 5              |
| Reversing Entries   | 11                    | 17.5            | 7.5   | 10.5        | 7           | 14.5           |
| Entries for Direct and<br>Indirect Costs                      | 12                    | 12              | 13.5  | 10.5        | 7           | 14.5           |
| Entries for the Purchase of<br>Materials                      | 13                    | 8               | 13.5  | 6           | 12.5        | 18             |
| Insurance Forms   | 14                    | 5               | 10.5  | 14          | 16          | 18             |
| Entries to Record Waste &<br>Scrap Materials                  | 15                    | 17.5            | 20    | 19          | 4           | 7              |
| Supplies Inventories  | 16                    | 8               | 10.5  | 19          | 17          | 11             |
| Entries to Adjust Inventory<br>Cards                          | 17                    | 12              | 13.5  | 15.5        | 12.5        | 20             |
| Entries for the Return of<br>Materials to Stores              | 18                    | 17.5            | 17.5  | 17          | 12.5        | 9              |
| Entries to Record Defective<br>Work                           | 19                    | 17.5            | 20    | 21          | 12.5        | 11             |
| Entries for the Issuance of<br>Materials                      | 20                    | 20              | 20    | 19          | 9.5         | 14.5           |
| Tax Valuation Sheets  | 21                    | 15              | 16    | 15.5        | 19          | 21             |

## APPENDIX P

RECORDING OR POSTING ACTIVITIES RANKED IN TOTAL AND BY SIZE OF FIRM  
ACCORDING TO THE PROPORTION PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

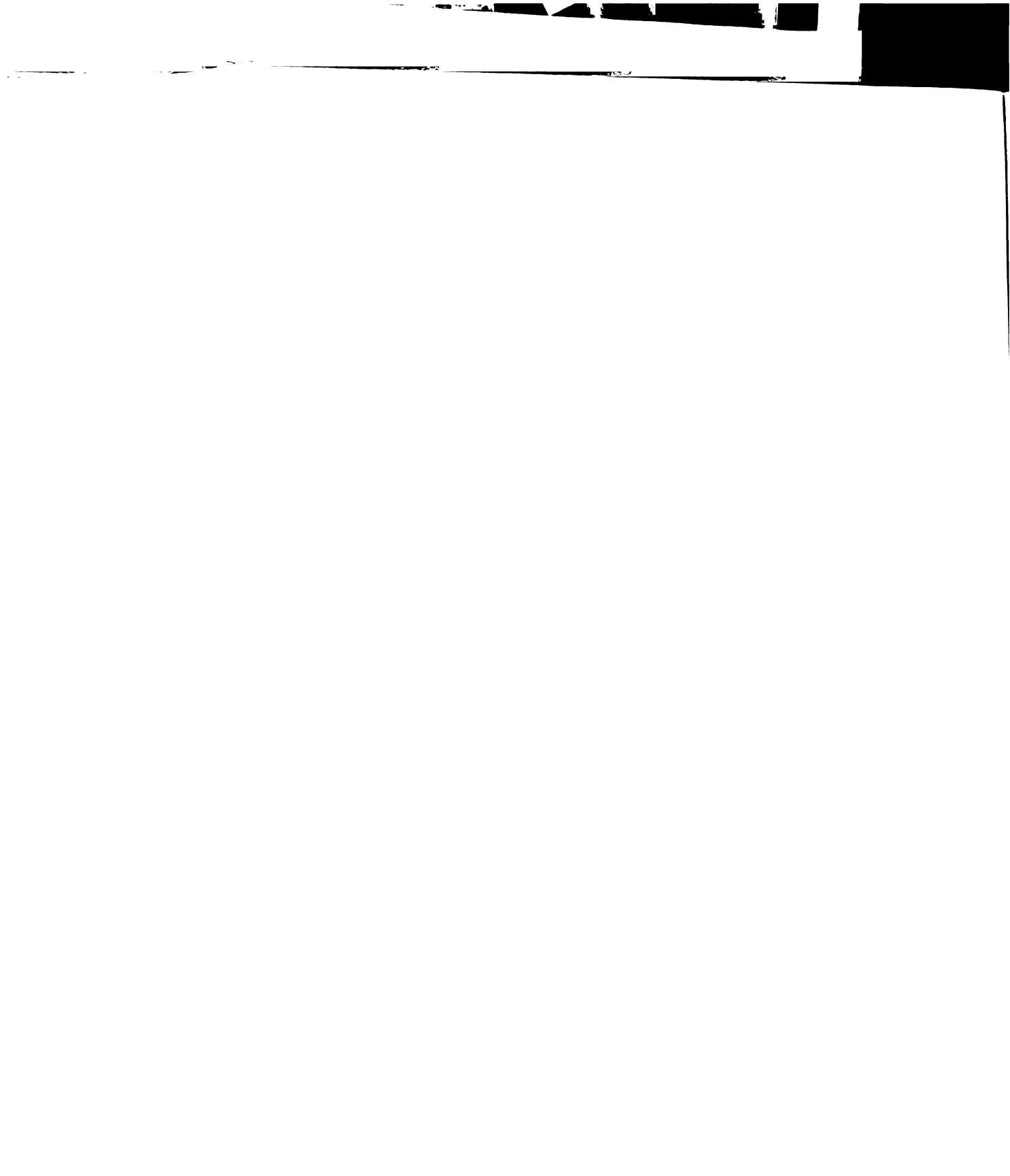
| To Record or Post  | Rank Order           |                 |       |             |             |                |
|--|----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=9) | By Size of Firm |       |             |             |                |
|  |                      | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Adjusting Entries to Ledgers   | 1                    | 1.5             | 2.5   | 2.5         | 1.5         | 1              |
| Data to Ledgers from Original<br>Set of Books or Electronic<br>Data Run-off Sheets | 2                    | 5               | 5     | 1           | 3.5         | 2              |
| Closing Entries to Ledgers   | 3.5                  | 1.5             | 2.5   | 4.5         | 5.5         | 7              |
| Reversing Entries  | 3.5                  | 3.5             | 2.5   | 2.5         | 1.5         | 9              |
| Purchase of Materials  | 5                    | 3.5             | 2.5   | 4.5         | 7           | 7              |
| Return of Materials to<br>Stores   | 6                    | 7.5             | 9     | 6.5         | 8.5         | 3              |
| Open a Set of Books  | 7                    | 6               | 6     | 6.5         | 8.5         | 4.5            |
| Issuance of Materials  | 8.5                  | 9               | 7.5   | 8           | 3.5         | 7              |
| Waste & Scrap Material to<br>Ledgers   | 8.5                  | 7.5             | 7.5   | 9           | 5.5         | 4.5            |



## APPENDIX Q

WORKING PAPERS EMPLOYED AS RANKED IN TOTAL AND BY SIZE OF FIRM  
ACCORDING TO THE PROPORTION PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

| Working Papers For                     | Rank Order           |                 |       |             |             |                |
|--|----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=9) | By Size of Firm |       |             |             |                |
|  |                      | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Trial Balance                          | 1.5                  | 3               | 1.5   | 1.5         | 3.5         | 4              |
| Financial Statements                   | 1.5                  | 1               | 3     | 3.5         | 3.5         | 1              |
| Work in Process (Cost Sheets)          | 3                    | 4.5             | 4.5   | 1.5         | 2           | 2              |
| Tax Reports                            | 4                    | 2               | 1.5   | 7.5         | 6           | 6.5            |
| Depreciation on Assets                 | 5.5                  | 6               | 7     | 5.5         | 5           | 4              |
| Allocating Costs                       | 5.5                  | 8               | 7     | 5.5         | 1           | 4              |
| Insurance Expirations                  | 7                    | 7               | 4.5   | 7.5         | 7.5         | 6.5            |
| Post-Closing Trial Balance             | 8                    | 4.5             | 7     | 3.5         | 7.5         | 9              |
| Consolidating Divisions or<br>Branches | 9                    | 9               | 9     | 9           | 9           | 8              |



## APPENDIX R

NON-CLASSIFIED MAINTAINING, ANALYZING, OR PERFORMING ACTIVITIES RANKED  
IN TOTAL AND BY SIZE OF FIRM ACCORDING TO THE PROPORTION PERFORMED  
BY TECHNICAL ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS

| Type Activity   | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=42) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Verify Balances of Control<br>Accounts with Subsidiary<br>Ledger                        | 1                     | 8.5             | 1     | 1           | 1           | 1              |
| Check Postings and Totals   | 2                     | 5.5             | 2     | 5           | 2           | 2              |
| Foot and Balance Ledger<br>Accounts   | 3                     | 3               | 3.5   | 7.5         | 5.5         | 3              |
| Foot, Balance, and Total<br>Columns in Special Journals                                 | 4                     | 3               | 3.5   | 2.5         | 23.5        | 5              |
| Maintain Withholding Tax<br>Records   | 5                     | 1               | 5     | 13          | 23.5        | 7.5            |
| Check Creditor Invoices and<br>Statements   | 6                     | 3               | 9.5   | 5           | 23.5        | 11.5           |
| Maintain Job Cost Sheets  | 7                     | 5.5             | 16    | 9.5         | 12.5        | 7.5            |
| Analyze Material Cost<br>Variance   | 8                     | 17              | 16    | 7.5         | 5.5         | 7.5            |
| Analyze Labor Cost Variance   | 9                     | 17              | 16    | 2.5         | 12.5        | 15.5           |
| Analyze Indirect Costs  | 10                    | 23.5            | 16    | 9.5         | 5.5         | 11.5           |
| Compare Costs with the Budget   | 11                    | 23.5            | 25.5  | 23.5        | 12.5        | 4              |
| Rule and Balance Accounts   | 12                    | 12              | 9.5   | 5           | 23.5        | 28.5           |
| Analyze Sales   | 13.5                  | 8.5             | 20.5  | 13          | 12.5        | 23.5           |
| Maintain Insurance Records<br>(expirations and premiums)                                | 13.5                  | 8.5             | 9.5   | 20.5        | 28          | 11.5           |
| Handle Collection of Out-<br>standing Debts   | 15.5                  | 8.5             | 9.5   | 20.5        | 19          | 23.5           |
| Analyze Distribution Costs  | 15.5                  | 17              | 25.5  | 13          | 12.5        | 15.5           |
| Analyze Administrative Costs  | 17                    | 23.5            | 20.5  | 13          | 12.5        | 19             |
| Maintain State Sales Tax<br>Records   | 19                    | 17              | 9.5   | 20.5        | 23.5        | 19             |
| Analyze Overhead Cost<br>Variance   | 19                    | 23.5            | 20.5  | 13          | 5.5         | 28.5           |
| Determine Estimated Costs   | 19                    | 12              | 30.5  | 20.5        | 12.5        | 15.5           |
| Authorize Payment of Vouchers   | 21.5                  | 17              | 9.5   | 17          | 23.5        | 28.5           |
| Compare Manufacturing and<br>Distributing Costs   | 21.5                  | 23.5            | 30.5  | 17          | 12.5        | 15.5           |
| Determine the Base for Dis-<br>tribution of Service Depart-<br>ment Costs to Production | 23                    | 30              | 37.5  | 17          | 3           | 23.5           |

## APPENDIX R (continued)

| Type Activity                                    | Rank Order            |                 |       |             |             |                |
|--|-----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=42) | By Size of Firm |       |             |             |                |
|  |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Handle Promissory Notes                          | 25                    | 12              | 16    | 30.5        | 31.5        | 19             |
| Maintain Waste, Spoilage, &<br>Shrinkage Records | 25                    | 23.5            | 37.5  | 30.5        | 12.5        | 11.5           |
| Maintain Departmental Records                    | 26                    | 36.5            | 30.5  | 30.5        | 12.5        | 7.5            |
| Act as a Paying Cashier                          | 27                    | 17              | 9.5   | 25.5        | 36.5        | 23.5           |
| Maintain Perpetual Inven-<br>tories              | 28.5                  | 17              | 25.5  | 23.5        | 19          | 28.5           |
| Audit Internal Accounting<br>Activities          | 28.5                  | 36.5            | 25.5  | 30.5        | 19          | 23.5           |
| Handle Sight Drafts with Bill<br>of Ladings      | 30                    | 30              | 37.5  | 25.5        | 28          | 31.5           |
| Design a System of Internal<br>Control           | 31.5                  | 30              | 30.5  | 30.5        | 28          | 37.5           |
| Establish a System of Inter-<br>nal Check        | 31.5                  | 30              | 25.5  | 30.5        | 31.5        | 37.5           |
| Eliminate Reciprocal Accounts                    | 34                    | 36.5            | 30.5  | 39.5        | 31.5        | 23.5           |
| Handle Collateral Notes                          | 34                    | 30              | 20.5  | 36.5        | 36.5        | 37.5           |
| Use Red Ink to Draw Lines                        | 34                    | 41              | 9.5   | 36.5        | 36.5        | 37.5           |
| Handle Conditional Sales                         | 36                    | 36.5            | 30.5  | 36.5        | 31.5        | 31.5           |
| Discount Notes                                   | 37                    | 30              | 37.5  | 30.5        | 36.5        | 37.5           |
| Handle Chattel Mortgages                         | 38.5                  | 30              | 25.5  | 39.5        | 41          | 37.5           |
| Handle Time Drafts                               | 38.5                  | 36.5            | 37.5  | 30.5        | 36.5        | 37.5           |
| Handle Trade Acceptances                         | 40                    | 36.5            | 37.5  | 36.5        | 36.5        | 37.5           |
| Handle Judgment Notes                            | 41.5                  | 41              | 37.5  | 41.5        | 41          | 37.5           |
| Handle Bailment Leases                           | 41.5                  | 41              | 37.5  | 41.5        | 41          | 37.5           |

## APPENDIX S

**MATHEMATICAL COMPUTATION ACTIVITIES RANKED IN TOTAL AND BY SIZE  
OF FIRM ACCORDING TO THE PROPORTION PERFORMED BY TECHNICAL  
ACCOUNTANTS IN FIRMS MANUFACTURING DURABLE GOODS**

| Mathematical Computations For  | Rank Order            |                 |       |             |             |                |
|--|-----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=62) | By Size of Firm |       |             |             |                |
|  |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| F.I.C.A. Taxes   | 1                     | 2               | 1     | 2.5         | 41.5        | 6.5            |
| Vacation and Holiday Pay   | 2.5                   | 2               | 8     | 14          | 41.5        | 6.5            |
| Data for Adjusting Entries   | 2.5                   | 27              | 15    | 14          | 11.5        | 1              |
| Overtime Payroll   | 5                     | 2               | 3.5   | 14          | 55          | 10.5           |
| State Unemployment Taxes   | 5                     | 6.5             | 3.5   | 7.5         | 41.5        | 13.5           |
| Federal Unemployment Taxes   | 5                     | 6.5             | 8     | 7.5         | 41.5        | 10.5           |
| Payroll by Hour or Day Rate  | 7.5                   | 6.5             | 3.5   | 2.5         | 55          | 16.5           |
| Payroll Time Cards   | 7.5                   | 6.5             | 8     | 7.5         | 55          | 10.5           |
| Percentages  | 9                     | 17              | 20    | 26.5        | 16          | 2              |
| Invoicing Customers  | 10                    | 11              | 15    | 2.5         | 24.5        | 10.5           |
| Inventories by Physical<br>Count   | 11                    | 27              | 20    | 14          | 2.5         | 6.5            |
| Payroll Job Tickets  | 13.5                  | 14              | 15    | 14          | 34.5        | 3.5            |
| Cash Discounts   | 13.5                  | 14              | 12    | 7.5         | 24.5        | 16.5           |
| Workmen's Compensation   | 13.5                  | 6.5             | 8     | 2.5         | 55          | 30.5           |
| Bonuses  | 13.5                  | 14              | 8     | 14          | 41.5        | 13.5           |
| Group Life Insurance Premiums  | 17                    | 11              | 3.5   | 21          | 55          | 21             |
| Medical and Hospitalization<br>Plan Premiums   | 17                    | 6.5             | 11    | 21          | 55          | 21             |
| Allocation of Costs to Job   | 17                    | 11              | 24.5  | 14          | 8           | 21             |
| Using Cost Standards   | 19                    | 44.5            | 68    | 7.5         | 2.5         | 3.5            |
| Allocating Costs to<br>Departments   | 21.5                  | 44.5            | 46.5  | 36          | 2.5         | 16.5           |
| Insurance Data   | 21.5                  | 17              | 15    | 7.5         | 73          | 38.5           |
| Perpetual Inventory Records  | 21.5                  | 21              | 34    | 44          | 11.5        | 16.5           |
| Straight Line Depreciation   | 21.5                  | 27              | 20    | 30.5        | 8           | 38.5           |
| Pension and Annuity Payments   | 24                    | 27              | 15    | 30.5        | 34.5        | 25             |
| Trade Discounts  | 26                    | 17              | 34    | 21          | 41.5        | 30.5           |
| Determining Overabsorbed<br>Overhead   | 26                    | 44.5            | 68    | 21          | 11.5        | 21             |
| Uncollectible Accounts   | 26                    | 21              | 46.5  | 26.5        | 24.5        | 25             |
| Payroll Shift Premiums   | 29                    | 21              | 20    | 26.5        | 55          | 30.5           |
| Determining Unabsorbed<br>Overhead   | 29                    | 44.5            | 68    | 21          | 16          | 21             |
| Inventories by Fifo Method   | 29                    | 27              | 20    | 52          | 16          | 25             |
| Determining the Base for Dis-<br>tributing Service Department<br>Costs to Production | 31.5                  | 44.5            | 68    | 26.5        | 5.5         | 38.5           |

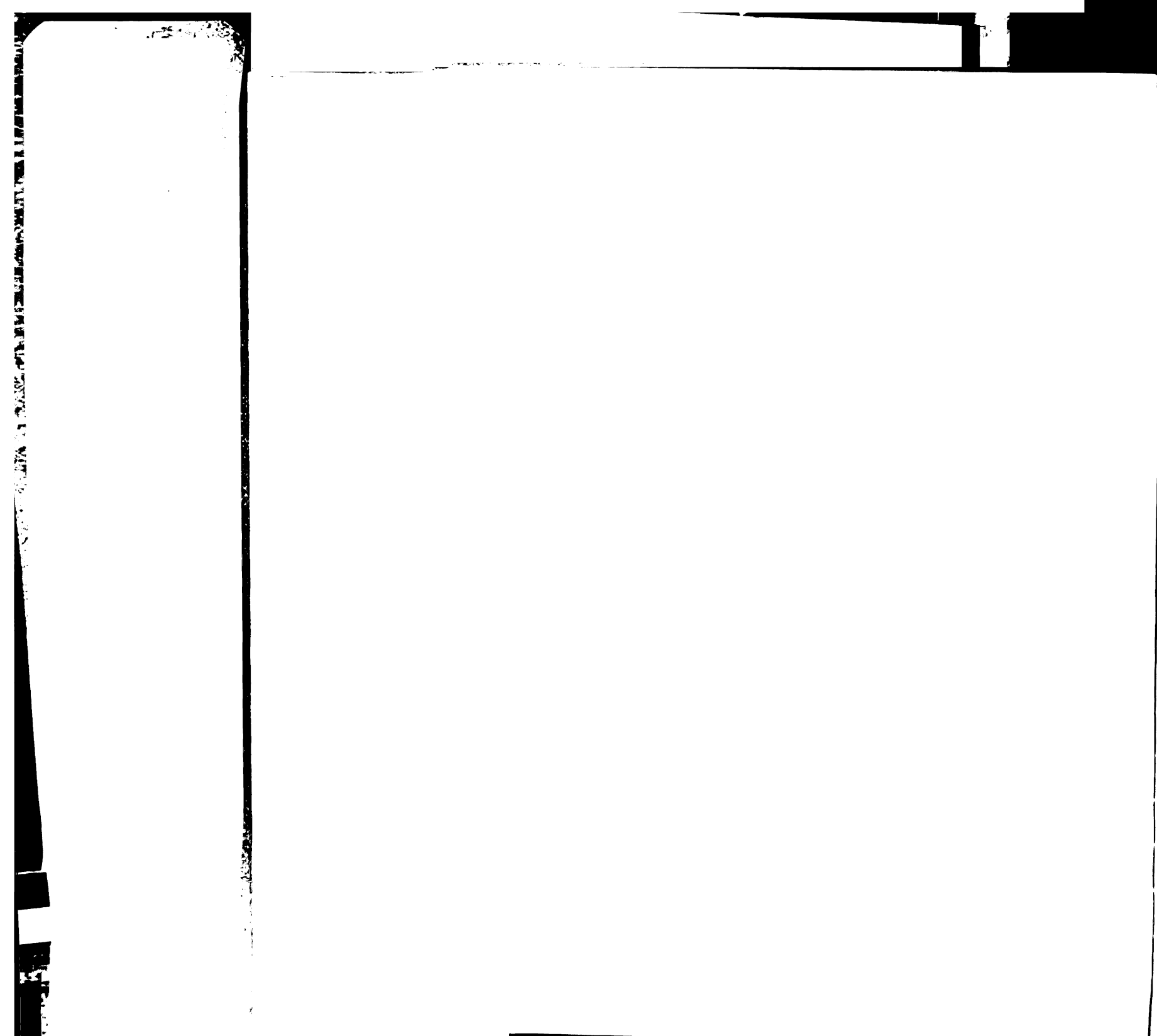


## APPENDIX S (continued)

| Mathematical Computations For                                      | Rank Order            |                 |       |             |             |                |
|--|-----------------------|-----------------|-------|-------------|-------------|----------------|
|  | In<br>Total<br>(N=82) | By Size of Firm |       |             |             |                |
|  |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Inventories by Cost or<br>Market Costing                           | 31.5                  | 58.5            | 34    | 30.5        | 2.5         | 46             |
| Depreciation by Declining<br>Balance Method                        | 33                    | 33.5            | 24.5  | 36          | 24.5        | 30.5           |
| Interest Receivable  | 34.5                  | 21              | 24.5  | 44          | 24.5        | 46             |
| Obsolescence   | 34.5                  | 44.5            | 68    | 21          | 24.5        | 30.5           |
| Cost Estimating  | 37                    | 58.5            | 68    | 36          | 8           | 30.5           |
| Allocating Costs to Divisions                                      | 37                    | 44.5            | 68    | 21          | 34.5        | 30.5           |
| Interest Payable   | 37                    | 21              | 34    | 36          | 34.5        | 46             |
| Allocating Costs to Process  | 40                    | 44.5            | 34    | 36          | 24.5        | 38.5           |
| Cost-Volume Relationships  | 40                    | 58.5            | 68    | 44          | 5.5         | 38.5           |
| Establishing Standards   | 40                    | 44.5            | 68    | 30.5        | 24.5        | 30.5           |
| Foreign Exchange Equivalents                                       | 42.5                  | 75.5            | 68    | 63.5        | 34.5        | 6.5            |
| Inventories by Average Cost<br>Method                              | 42.5                  | 58.5            | 68    | 36          | 11.5        | 38.5           |
| Break-Even Analysis  | 44                    | 33.5            | 34    | 44          | 16          | 71             |
| Determining Whether to Make<br>or Buy an Item                      | 45.5                  | 33.5            | 46.5  | 52          | 34.5        | 46             |
| Determining Replacement Costs<br>for Equipment                     | 45.5                  | 27              | 68    | 44          | 34.5        | 46             |
| Mark-Up of Prices  | 47.5                  | 33.5            | 46.5  | 52          | 41.5        | 46             |
| Determining the Cost of<br>Carrying Inventories                    | 47.5                  | 75.5            | 46.5  | 44          | 24.5        | 46             |
| Rent   | 49.5                  | 27              | 34    | 44          | 73          | 71             |
| Determining Sale Price for<br>Equipment                            | 49.5                  | 33.5            | 68    | 44          | 34.5        | 71             |
| Determining When to Purchase<br>Inventories                        | 53                    | 44.5            | 34    | 52          | 55          | 54.5           |
| Determining Budget Variances                                       | 53                    | 58.5            | 68    | 63.5        | 16          | 54.5           |
| Mark-Down of Prices  | 53                    | 58.5            | 68    | 44          | 34.5        | 54.5           |
| Determining Volume Variances                                       | 53                    | 58.5            | 46.5  | 63.5        | 24.5        | 54.5           |
| Determining Best Method of<br>Financing                            | 53                    | 44.5            | 34    | 36          | 73          | 71             |
| What Inventories to Purchase                                       | 56                    | 33.5            | 34    | 63.5        | 55          | 71             |
| Payroll by Per Unit or Piece                                       | 59                    | 58.5            | 34    | 77          | 73          | 38.5           |
| Determining Number Days<br>Inventory Needed                        | 59                    | 75.5            | 24.5  | 63.5        | 55          | 54.5           |
| Determining How Much to Pur-<br>chase (Economic Order<br>Quantity) | 59                    | 58.5            | 34    | 52          | 55          | 71             |
| Price-Level Adjustments  | 59                    | 58.5            | 46.5  | 63.5        | 41.5        | 54.5           |

## APPENDIX S (continued)

| Mathematical Computations For                     | Rank Order            |                 |       |             |             |                |
|---|-----------------------|-----------------|-------|-------------|-------------|----------------|
|   | In<br>Total<br>(N=82) | By Size of Firm |       |             |             |                |
|   |                       | 1-49            | 50-99 | 100-<br>249 | 250-<br>749 | 750 or<br>More |
| Depreciation by Sum-Of-Digits Method              | 59                    | 58.5            | 46.5  | 77          | 24.5        | 71             |
| Determining Cost of By-Products                   | 62.5                  | 58.5            | 68    | 63.5        | 73          | 38.5           |
| Intangibles                                       | 62.5                  | 58.5            | 46.5  | 52          | 55          | 71             |
| Determining Fixed Costs of Joint Products         | 64.5                  | 75.5            | 68    | 63.5        | 41.5        | 54.5           |
| Determining Variable Costs of Joint Products      | 64.5                  | 75.5            | 68    | 63.5        | 41.5        | 54.5           |
| Payroll by Incentive Plans                        | 67.5                  | 58.5            | 34    | 77          | 73          | 71             |
| Patents   | 67.5                  | 75.5            | 46.5  | 63.5        | 55          | 71             |
| Depreciation by Units of Production               | 67.5                  | 58.5            | 68    | 77          | 55          | 54.5           |
| Cash Dividends                                    | 67.5                  | 75.5            | 46.5  | 52          | 73          | 71             |
| Inventories by Weighted Average Method            | 72                    | 58.5            | 46.5  | 77          | 73          | 71             |
| Organization Costs                                | 72                    | 58.5            | 68    | 63.5        | 73          | 71             |
| Depletion   | 72                    | 44.5            | 68    | 77          | 73          | 71             |
| Stock Dividends                                   | 72                    | 58.5            | 68    | 63.5        | 73          | 71             |
| Division of Partnership Profits                   | 72                    | 58.5            | 68    | 77          | 73          | 54.5           |
| Inventories by Lifo Method                        | 77.5                  | 75.5            | 68    | 63.5        | 73          | 71             |
| Determining Semi-Variable Costs of Joint Products | 77.5                  | 75.5            | 68    | 77          | 55          | 71             |
| Franchises  | 77.5                  | 75.5            | 68    | 63.5        | 73          | 71             |
| Annuities   | 77.5                  | 58.5            | 68    | 77          | 73          | 71             |
| Copyrights  | 77.5                  | 75.5            | 68    | 63.5        | 73          | 71             |
| Trademarks and Names                              | 77.5                  | 75.5            | 68    | 63.5        | 73          | 71             |
| Goodwill  | 81.5                  | 75.5            | 68    | 77          | 73          | 71             |
| Yield on Bonds                                    | 81.5                  | 75.5            | 68    | 77          | 73          | 71             |



## APPENDIX T

SUMMARY OF KENDALL'S COEFFICIENT OF CONCORDANCE AND CHI-SQUARE ANALYSIS  
DATA<sup>1</sup> BY ACCOUNTING FUNCTION AS PERFORMED BY TECHNICAL ACCOUNTANTS  
IN FIRMS MANUFACTURING DURABLE GOODS

| Accounting Function   | Statistical<br>Measurement<br>W | X <sup>2</sup> | Degrees<br>of<br>Freedom | Level<br>of<br>Significance |
|---|---------------------------------|----------------|--------------------------|-----------------------------|
| Making Financial Reports<br>and Schedules                             | .663                            | 116.03         | 35                       | .001                        |
| Analyzing Financial Statements<br>and Schedules                       | .613                            | 73.56          | 24                       | .001                        |
| Maintaining Ledgers   | .804                            | 60.30          | 15                       | .001                        |
| Maintaining Journals  | .749                            | 37.45          | 10                       | .001                        |
| Preparing and Initiating Data   | .398                            | 39.80          | 20                       | .01                         |
| Recording or Posting Data   | .479                            | 19.18          | 8                        | .02                         |
| Making and Using Working<br>Papers                                    | .564                            | 22.56          | 8                        | .01                         |
| Non-Classified Maintaining,<br>Analyzing, or Performing<br>Activities | .710                            | 164.00         | 41                       | .001                        |
| Doing Specific Mathematical<br>Computations                           | .628                            | 254.34         | 81                       | .001                        |

W=Kendall's Coefficient of Concordance with correction factor for ties<sup>2</sup>

$$W = \frac{S}{\frac{1}{12} k^2 (N^3 - N) - k \sum_t T}$$

$$X^2 = k(N-1)W$$

S = Sum of Squares of observed deviations from the mean

k = Number of sets of rankings (5 sizes of firms)

N = Number of activities ranked

T = Number of observations in a group tied for a given rank

$\sum$  = Directs one to sum over all groups of ties within any one of the k rankings

<sup>1</sup>Used to test the null hypothesis, "No significant difference exists between the rank order of the accounting activities in each selected function as performed by technical accountants in the various size of firm categories.

<sup>2</sup>Sidney Siegel. Nonparametric Statistics for the Behavioral Sciences. (New York: McGraw-Hill Book Company, Inc., 1956), p. 234.

## APPENDIX U

A LIST BY FUNCTION OF SURVEYED ACCOUNTING ACTIVITIES NOT INCLUDED  
AS PART OF THE CRITERIA LIST FOR EVALUATING POST-HIGH SCHOOL  
TECHNICAL ACCOUNTING PROGRAMS FOR FIRMS MANUFACTURING  
DURABLE GOODS IN THE TRI-COUNTY AREA

## FINANCIAL STATEMENTS, REPORTS, AND SCHEDULES

Branch and Division Statements  
Research and Development Budgets

## ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS

Sales to Asset Ratio  
Acid Test Ratio  
Book Value Per Share of Stock  
Per Cent Earnings to Total Assets  
Plant Assets to Long-term Liabilities Ratio  
Equity to Asset Ratio  
Dollar Earnings Per Share of Stock  
Dividends Per Share of Stock  
Per Cent Dividend Yield  
Liabilities to Capital Ratio

## MAINTAINING LEDGERS

Insurance Register  
Stockholders Ledger  
Subscribers Ledger  
Branch Ledger

## MAINTAINING JOURNALS

Cash Payment  
Purchases Returns and Allowances  
Combined Cash

## MAKING AND USING WORKING PAPERS FOR

Post-Closing Trial Balance  
Consolidating Divisions or Branches

## NON-CLASSIFIED MAINTAINING, ANALYZING, OR PERFORMING ACTIVITIES

Handle Sight Drafts with Bill of Ladings  
Design a System of Internal Control  
Establish a System of Internal Check  
Eliminate Reciprocal Accounts  
Handle Collateral Notes  
Use Red Ink to Draw Lines  
Handle Conditional Sales  
Discount Notes

## APPENDIX U (continued)

Handle Chattel Mortgages  
Handle Time Drafts  
Handle Trade Acceptances  
Handle Judgment Notes  
Handle Bailment Leases

## MATHEMATICAL COMPUTATION ACTIVITIES FOR

Foreign Exchange Equivalents  
Inventories by Average Cost Method  
Break-Even Analysis  
Determining Replacement Costs for Equipment  
Mark-Up of Prices  
Determining the Cost of Carrying Inventories  
Rent  
Determining Sale Price for Equipment  
Determining When to Purchase Inventories  
Determining Budget Variances  
Mark-Down of Prices  
Determining Volume Variances  
Determining Best Method of Financing  
What Inventories to Purchase  
Payroll by Per Unit or Piece  
Determining Number Days Inventory Needed  
Determining How Much to Purchase-Economic Order Quantity  
Price-Level Adjustments  
Depreciation by Sum-Of-Digits Method  
Determining Cost of By-Products  
Determining Fixed Costs of Joint Products  
Determining Variable Costs of Joint Products  
Payroll by Incentive Plans  
Patents  
Depreciation by Units of Production  
Cash Dividends  
Inventories by Weighted Average Method  
Organization Costs  
Depletion  
Stock Dividends  
Division of Partnership Profits  
Inventories by Lifo Method  
Determining Semi-Variable Costs of Joint Products  
Franchises  
Annuities  
Copyrights  
Trademarks and Names  
Goodwill  
Yield on Bonds







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