

THE SEPARATION OF REHABILITATION FROM PRODUCTION COSTS
IN THE VOCATIONAL REHABILITATION WORKSHOP

DISSERTATION

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

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The problem with which this study is concerned is the separation of rehabilitation from production costs in vocational rehabilitation workshops. Within workshops there are those functions and tasks--testing, counseling, and the administration thereof--which clearly are rehabilitative. The costs of these activities, therefore, are solely rehabilitation costs. In the production area of workshop operations, however, where production and rehabilitation efforts are intertwined, two kinds of costs are incurred simultaneously: (1) rehabilitation or training costs and (2) production costs. As yet, no generally accepted procedures exist for separating these joint costs.

There are several sources of data available for use in the study. The joint cost problem is not unique to workshop accounting. Therefore, accounting and economic literature contain discussions of joint costs. In addition, several

specific attempts have been made to solve workshops' cost separation problem. These studies are also available. A third source of data is an analysis of actual joint costs of a vocational rehabilitation workshop. A final source is personal contact with workshop administrative personnel who are involved in workshop decision making and have intimate knowledge of workshop informational needs and resources.

The study begins by exploring the essence of joint costs and ideas relating to their separation. Subsequent chapters attempt to synthesize procedures that will effect a meaningful joint cost separation. Accordingly, Chapters II through IV of the study (1) introduce the reader to the field of vocational rehabilitation, (2) explore the joint cost problem as it appears in both accounting theory and accounting practice, and (3) examine workshops' joint cost problem in its own immediate environment--the production operations of vocational rehabilitation workshops.

Chapter III, which explores the joint cost problem in accounting theory and practice, concludes that the accounting profession has no theoretically perfect solution to the joint cost problem. The only solution that exists is the pragmatic one of cost allocation. But that solution

produces more problems than it attempts to solve. One is the selection of an allocation base. Another is the lack of any theoretical foundation which can justify one method of joint cost allocation as opposed to another. Costs produced in whole or in part by means of a cost allocation, therefore, are subject to controversy and criticism. The other problem is a lack of understanding on the part of users of financial information of the nature of allocated costs. Once joint costs are allocated, users of cost data want to apply those allocated costs to any and all situations.

Chapter III points out that several concepts regarding the satisfactory use of cost allocations have evolved out of these problems. Whenever allocations are a part of cost determination, users of accounting information must realize that they are working with a cost--an amount which is the result of decisions that selected a means of allocation from among alternatives. Because there are alternative allocation bases available for use in separating joint costs, it also is essential that an allocation technique selected conform to uses that are to be made of data which that allocation produces. In other words, a method of allocation must be logically consistent with objectives of that allocation. This conclusion leads to another: allocated

costs should be used only for that purpose for which they were prepared. An allocated cost is not generally applicable to all cost decisions. Finally, satisfactory use of allocated costs requires that parties to that use understand the assumptions inherent in the allocation bases selected.

Following the three chapters which are devoted to understanding the joint cost problem, three additional chapters are concerned with developing a solution to the problem. Each of these chapters focuses on one aspect of the solution.

As a first step Chapter V undertakes the identification and isolation of joint costs in actual cost data from a vocational rehabilitation workshop. That task is accomplished for the first six months of 1970 at Goodwill Industries of San Antonio. In this workshop cost data had been accumulated and summarized by a standard accounting system that has been developed for voluntary health and welfare organizations and is in use in many such organizations across the nation. Thus, the same cost data with which joint costs were compiled in this study are available and arranged in the same format in many other workshops. The analysis of the San Antonio workshop's costs was necessarily an after-the-fact study. However, once types of costs which are joint are identified, there is no reason why the coding of

cost inputs in to the standard accounting system cannot be modified to make a compilation of joint costs available quickly and easily through computer programming. The accomplishments of Chapter V are (1) an identification of kinds of workshop costs that are joint and (2) a demonstration that an isolation of those joint costs is not only possible but also practicable.

Chapter VI, the second step in the effort to solve a workshop's joint cost problem, is an examination of objectives of joint cost separation. Consistent with the concept of matching allocation bases with objectives of an allocation, this examination probes behind the natural segmentation of workshop activities into production and rehabilitation operating decisions to find out how and why workshop personnel plan to use separated costs if and when the data become available. That examination discloses four specific objectives which workshop administrators have in seeking separated costs--performance judgments, resource allocations, pricing contract services, and pricing rehabilitation services. Following the identification of these objectives, the study examines the question of whether or not separated costs are the relevant information to decisions which derive from these objectives. That question has to be answered

in the light of the constraints which Chapter III identified on the usefulness of allocated costs.

For the first three of the objectives of joint cost separation--performance judgments, resource allocations, and pricing of contract services--the study concludes that allocated costs do not provide information necessary for useful decision-making. For performance judgment decisions, "pure" and, therefore, allocated costs are useful only if (1) there are standards available against which the actual "pure" costs can be compared and (2) the "pure" costs are objectively determined so that they are not subject to being questioned. Neither of these requirements is met. Competitive industry costs, traditionally the standard for workshop production cost comparisons, are first of all inappropriate. Secondly, they are usually not available. Another of a workshop's social objectives--employing the handicapped--and the resulting increase in production costs preclude meaningful cost comparisons between a workshop and competitive industry. "Pure" rehabilitation cost standards are not available either. Because joint costs are inherent in workshop operations, such standards cannot be developed unless costs are allocated, and this allocation destroys the validity of the standards. As an alternative to the

use of allocated costs for performance judgments, the study proposes the development of workshop cost standards based on joint costs without separation.

In the case of resource allocation decisions, no measurement process is available as yet which can reduce social returns to dollar amounts that can be matched with dollar costs. Therefore, there is no "pure" statement of values or benefits against which to balance "pure" costs. Given this situation, the study has concluded that the best approach to effective resource allocation decisions is treatment of sales proceeds of workshop goods and services as recoveries of cost and a matching of net costs, without separation, against intuitive measurements of social returns. This approach avoids (1) arbitrary allocations and (2) isolations of cost which are illusory because the decisions to which they apply cannot in fact be isolated as either production decisions or rehabilitation decisions.

In the contract pricing decision, the concern of workshop administrators is to avoid prices that recover less than "pure" costs of production. Their view is that performance of a contract for less than a workshop's production cost is, in effect, a subsidy to private industry--a use of contributed funds that is not consistent with contributors' objectives. As noted above, this study concludes that a

workshop's "pure" production costs are not comparable to those of private industry. The social objective of employing handicapped persons creates additional costs of production. Use of contributors' funds to cover these additional production costs incurred because of social endeavors is not contrary to contributors' intentions. Therefore, costs that are relevant to the contract pricing decision are not a workshop's "pure" production costs but the costs that private industry would have to incur to acquire those same services elsewhere. As long as a workshop's contract price does not fall below private industry's costs, contributors' funds are not being diverted to subsidize private industry.

The fourth objective of separation of a workshop's joint costs is the determination of a "pure" rehabilitation cost as a basis for establishing rehabilitation fees. The study concludes that this is the only objective for which an allocation of joint costs can provide relevant data. Accordingly, the final step of this study in seeking a solution to a workshop's joint cost problem is Chapter VII's exploration of a means of effecting that cost separation.

For the purpose of setting rehabilitation fees, the principal ingredients to successful cost allocations are present. The objective of the allocation is explicit.

Parties to use of allocated costs are known, available, and have the requisite knowledge to agree upon bases of allocation that are satisfactory to both sides. The one remaining ingredient is an acceptance by the parties that where cost allocations are involved, there are no "true" costs that are universally applicable to all situations. Neither party can place on the other the responsibility of cost determination. Rather, parties to use of allocated costs must work together to agree on a cost that is meaningful. This means that (1) the parties must understand and accept the assumptions on which the allocation is based and (2) the allocation must be logically consistent with the use for which it is intended.

Chapter VII's suggestions for effecting a separation of joint costs for the purpose of setting rehabilitation fees take two forms. The first, intended as a general guideline for parties involved in cost allocation negotiations, is a discussion of concepts which are relevant to acceptable cost allocation. These concepts focus on the qualities of fairness and practicality and how to attain them. The second suggestion deals with the specifics of implementing a cost allocation of a workshop's joint costs. It considers the concept of reasonable costs and how to measure them and then describes methods for a cost allocation to set rehabilitation fees. These methods include assembling costs into

cost pools and selecting bases with which to attribute the pooled costs to either the production or rehabilitation segment of a workshop's operations. It is impossible for one study to represent all possible points of view and to consider all of the factors that may pertain to any one allocation at any particular workshop. For this reason, Chapter VII's recommendations for allocating joint costs are offered as guides that would be helpful to parties in cost allocation negotiations. At several points, the study offers alternative methods for additional consideration.

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CHAPTER I

INTRODUCTION

Public attention and private interests are turning more frequently to the task of providing assistance to the physically, mentally, and socially disadvantaged. As a result there is a compelling need for better measures of the efforts and accomplishments of welfare endeavors. Continued support from public and private sources is likely to depend on the quality of the reports welfare organizations present to their benefactors. Furthermore, administrators of welfare organizations need pertinent and accurate information which will facilitate an efficient and effective use of their resources.

One form of welfare program is that which attempts to train and to rehabilitate the disadvantaged. Significant among the different forms of rehabilitation programs are vocational rehabilitation workshops. These workshops provide clients (persons receiving rehabilitation services) with a sheltered work environment in which they learn work skills and receive rehabilitation services. In addition, these workshops produce goods and services which are sold

to provide the workshops with additional resources. In 1970 there were in the United States some 1,100 multiple disability workshops, such as Goodwill Industries, Inc., and approximately 1,500 single disability workshops, such as Lighthouse for the Blind.¹

The combination of business and social objectives within a vocational rehabilitation workshop creates a unique kind of enterprise. While one or the other of the goals is sometimes allowed to dominate, the other goal maintains a position of relative importance which, in turn, creates informational needs that cannot be ignored. In the production area of the vocational rehabilitation workshop, the business function of producing marketable goods and services occurs simultaneously with the social function of rendering rehabilitation services. Indeed, the business function is viewed as the central core of the rehabilitation process itself. Thus, while workshop objectives may be separately stated and ensuing informational needs divided, business and social matters seem to be tightly bound together in the area of workshop operations.

¹Statement by Robert N. Galloway, Director of Accounting and Business Administration, Goodwill Industries of America, Inc., Washington, D. C., February 5, 1970.

Statement of the Problem

A central issue in accounting for a vocational rehabilitation workshop is the separation of business from social aspects of its operations. The aspects of operations which are of most immediate concern are costs. Within a workshop there are those functions and tasks--testing, counseling, and the administration thereof--which are clearly rehabilitative. The costs of these operations, therefore, are solely rehabilitation costs. In the production area of workshop operations, however, where production and rehabilitation are intertwined, two kinds of costs are incurred simultaneously: (1) rehabilitation or training costs and (2) production costs. As yet, no generally accepted procedures exist for separating these joint costs. Until such procedures can be developed, it is impossible to know what the total rehabilitation or total production costs are.

An analysis of the objectives of joint cost separation is a fundamental step in the process of solving the workshop's joint cost problem. Such an analysis of objectives is necessary to see if separated cost data are compatible with and essential to the uses suggested for them. Where separated costs do not supply information relevant to those uses, efforts to separate joint costs may be abandoned. Where separated cost data are not essential to the objective of

the separation, a means of circumventing the cost separation problem may be developed.

One purpose of this study is to analyze the objectives of vocational rehabilitation workshops that seem to require a separation of the joint costs of production and rehabilitation. When analysis reveals a genuine need for separating joint costs, the study develops procedures for effecting a meaningful separation.

Sources of Data

There are several sources of data available for use in seeking a solution to the problem. The need to separate joint costs is not new. Accounting and economic literature, therefore, contain discussions and studies of joint costs. In addition to these sources, other specific attempts have been made to solve the joint cost problem for vocational rehabilitation workshops. These attempts, most of which are unpublished, constitute a second source of data. A third source is an analysis of actual workshop costs to discover the components of joint rehabilitation and production costs. A final source of data is personal contact with workshop administrative personnel who are involved in workshop decision-making and who intimately know workshop informational needs and resources.

Significance of the Investigation

In welfare programs, as in every phase of economic endeavor, available resources are limited. As the public becomes more socially conscious, however, the demand for these kinds of programs, increases. The clash of these two forces results in pressure on welfare programs, and those who control welfare funds are forced to increase the efficiency of every dollar of welfare expenditure. The problem which these administrators face is one of resource allocation, of allocating funds to those welfare programs which can meet the most needs at the least cost.

Workshop administrators present four reasons for separating joint costs of rehabilitation and production. The reasons, each of which is more completely explained below, are as follows:

(1) to permit a matching of kinds of welfare services with their costs

(2) to present results of operations in segments according to goals of the reporting unit

(3) to provide cost information relative to decisions about each goal

(4) to compile rehabilitation costs as bases for establishing rehabilitation fees.

In the attempt to solve the resource allocation problem, administrators of welfare funds are moving in the direction of a general systems approach to welfare programs. The general systems approach treats the welfare requirements of disadvantaged people in every community and matches their needs with the services available in each community. The purpose of this approach is to eliminate the duplication of services within a given community and to foster efficient welfare operations by taking funds away from inefficient programs and allocating them to the more efficient ones. An effective use of the systems approach requires a knowledge of (1) kinds of welfare services available in each community and (2) costs of each type of service. Workshop administrators believe that a vocational rehabilitation workshop's total rehabilitation cost cannot be determined without a separation of the joint costs of production and of rehabilitation.

Workshop administrators cite a second reason for separating rehabilitation costs from production costs. The second reason is that the preparation of logical and relevant financial information requires a presentation of results of operations in the light of the goals of the reporting unit. The philosophical structure of a vocational rehabilitation workshop is such that two goals exist--social

and economic. Fundamental to accounting theory is the concept of matching costs against benefits derived from those costs in an effort to measure the results of operations. Thus, workshop administrators believe that in order to assess the results of operations as they pertain to either of a workshop's goals, social benefits must be matched against costs of obtaining those benefits and economic benefits matched with their costs. Such a matching for the economic and social segments of workshop operations is impossible without a separation of costs that are joint to both segments.

A third reason that workshop administrators desire a separation of joint costs is to provide, relative to each of the workshop's goals, information which can serve as a basis for decisions about each goal. When two goals exist within an organization, conflicts will inevitably arise, conflicts which must be resolved by determining which goal is the more significant. Workshop management personnel agree that if separated costs were available the costs of social goals and social achievements could be compared to the costs of economic endeavors as a part of management's decision-making process.

Finally, separation of the joint costs of production and rehabilitation is desired so that a workshop's charges for its rehabilitation services can be determined. Federal and state commissions and agencies, and some private groups and individuals utilize vocational rehabilitation workshops' services by sponsoring persons in need of rehabilitative attention. The governmental agencies and other groups, in turn, pay workshops fees for rehabilitative services they render. Because the rehabilitative side of workshop operations is a non-profit endeavor, the basis for the rehabilitation fee is cost--a workshop's rehabilitation costs. Until the rehabilitation portion of joint costs can be satisfactorily identified and separated for inclusion in total rehabilitation costs, the only workshop costs which are being recovered in rehabilitation fees are direct rehabilitation costs. Direct rehabilitation costs are costs of workshop activities which are devoted solely to rehabilitation, e.g., testing, counseling, etc., and do not include any of the rehabilitation activities that are occurring concurrently with production of a workshop. Thus, without a separation of joint costs, a sizable portion of rehabilitation costs are being excluded in the determination of rehabilitation fees, and, as a result, workshops are failing to recover resources

which otherwise would be available. The rehabilitation fee determination problem is the most pressing one to workshop administrative personnel, and it is the source of most of the attention directed to the workshop's joint cost problem.

Approach

The study begins by exploring the essence of joint costs and ideas relating to their separation. Subsequent chapters attempt to synthesize procedures that will effect a meaningful joint cost separation. Accordingly, the first three major chapters of the study (1) introduce the reader to the field of vocational rehabilitation, (2) explore the joint cost problem as it appears in both accounting theory and accounting practice, and (3) examine the workshops' joint cost problem in its immediate environment--the production operations of vocational rehabilitation workshops. The purpose of these chapters is to understand the problem and its relationship to its environment, to its internal relation with the workshop itself and to its external relation with the socio-economic community.

Following the three initial chapters, which are devoted to understanding the joint cost problem, there are three chapters which attempt to develop a solution to the problem. Each of these chapters focuses on one aspect of the solution.

Chapter V identifies and isolates joint costs in actual cost data from a vocational rehabilitation workshop. The chapter is directly concerned with the pragmatics of workshop accounting and identifies the principal input, i.e., joint costs of any cost separation procedure. The chapter also provides a measurement, in dollar terms, of the significance of the joint cost problem. The following chapter, as a prerequisite to developing a means of effecting cost separations, analyzes the needs for cost separation that workshop administrators usually cite. In other words, the chapter investigates uses of separated joint costs that have been proposed by workshop personnel. This chapter identifies situations where the nature of the information is not compatible with its intended uses. Finally, in Chapter VII, the study explores the requisites of effective separation of costs and offers guidelines for bringing about a solution to the cost separation problem. Suggestions for solving the problem are presented in Chapter VII as illustrations of a kind of solution that can be effected rather than as normative means of solving the problem in every workshop.

CHAPTER II

AN INTRODUCTION TO THE FIELD OF VOCATIONAL REHABILITATION

Most persons are aware of the existence of vocational rehabilitation agencies, such as the Lighthouse for the Blind and Goodwill Industries, and may be slightly familiar with their operations. This chapter provides additional information about the field of vocational rehabilitation as a whole and the nature of the work which these agencies perform. This background information facilitates an understanding of the technical discussions of the field's accounting problems which are included in later chapters.

The Needs for Vocational Rehabilitation Services

Preliminary to consideration of the "what" and "how" of vocational rehabilitation, it is appropriate to direct attention to the needs for vocational rehabilitation services. These needs can be expressed in terms of human privation and in terms of the economic drain on society.

During the last session of Congress, Senator Robert Dole of the state of Kansas introduced legislation to establish a National Information and Resource Center for the Handicapped.

In his introductory statement, he estimated that there are 42,000,000 handicapped Americans.¹ In the 1969 Manpower Report of the President, the United States Department of Labor estimated that physical and mental impairments limit the work activity of 16,000,000 Americans who are seventeen years of age and over. At that same time, the Department of Health, Education, and Welfare estimated that over 4,000,000 persons could benefit from vocational rehabilitation services.² The seven most frequent causes of activity limitation are summarized in Table I. The psychological damage caused by these disabilities is often far-reaching in its effects. Feelings of inadequacy, dependency, insecurity, inferiority, and rejection may be experienced not only by the disabled person himself but also by those associated with him. By raising fears of suffering similar misfortunes, the disabled person's situation can cause discomfort in many others.³

¹Denton Record-Chronicle, May 2, 1971.

²United States Department of Labor, Manpower Report of the President (Washington, 1969), p. 115.

³Ronald W. Conley, The Economics of Vocational Rehabilitation (Baltimore, 1965), p. 15.

TABLE I

SEVEN MOST FREQUENT CAUSES OF ACTIVITY LIMITATION*

Condition	Per Cent of All Disabled
Heart.	16
Arthritis and rheumatism	15
Mental and nervous	8
Impairment of back or spine.	8
Hypertension (without heart involvement)	6
Impairments of lower extremities and hips.	6
Visual impairments	6

*Source: Chronic Conditions Causing Activity Limitation: Series 10, No. 51, National Center for Health Statistics, Public Health Service, United States Department of Health, Education, and Welfare (Washington, 1969).

The losses society incurs as a result of human disability come in two forms: (1) expenditure of resources for special care and (2) lost productivity. Human disability reduces the national income in several ways. Total employment declines because some of the disabled are unable to find jobs, suffer frequent periods of unemployment, or withdraw from the labor force. Productivity of the disabled who are employed often falls below its full potential because of the direct effects of impairments, increased absenteeism, or acceptance of employment beneath general levels of competence. Finally, some members of the national workforce must withdraw so they can provide nursing care to disabled persons. Amounts spent in providing the disabled with special nursing, medical,

or custodial care drain resources from other uses.⁴

Disability causes economic losses not only in terms of current costs but also in terms of losses which will not be realized until future years. The care and training of children may be neglected because of chronic conditions in parents. Chronic conditions in children may impair their learning. The idleness of disabled adults may erode their skills and initiative. Some chronic diseases may be infectious.⁵

All taxpayers are sharing in the burden of these high costs of disability. Each one must pay higher taxes in order to offset the taxes not paid by those who are disabled. The nondisabled public, through charitable contributions, insurance premium payments, and tax dollars, must supply the resources to finance maintenance and treatment for the indigent disabled.

Ways of Combating Disability

In his book, The Economics of Vocational Rehabilitation, Ronald W. Conley has pointed out that there are three basic ways of combating disability and that an efficient approach

⁴Ibid., pp. 14-15.

⁵Ibid.

to the problem must utilize all three of them. First, to insure that the economy can find or create jobs for all qualified workers, the federal government must use various mechanisms for stimulating aggregate demand when excessive unemployment develops. Without this effort, many handicapped persons would be unemployed, not because of their disabilities but because of the lack of jobs in general. The second approach to combating disability is raising the productivity of the disabled through rehabilitation, i.e., curing, reducing, or compensating for the disability and, if necessary, providing training in new occupations. The third effort, actually supplementary to rehabilitation, is the provision of sheltered employment to those disabled persons who because of low productivity or behavior problems cannot hold employment in the competitive labor market. Provision of sheltered employment may be effected (1) by reserving certain jobs for the severely disabled, e.g., the federal program of vending stands for the blind; (2) by employment in sheltered workshops where special supervision is provided, job requirements are modified, and lower performance standards are tolerated; and (3) in some cases, by periodically bringing work to the disabled person in his home and, later, collecting it.⁶ The field of vocational

⁶Ibid., pp. 28-30.

rehabilitation falls within the second and third of these ways of combating disability.

A Definition of Vocational Rehabilitation

Vocational rehabilitation is defined as "a process of restoring the handicapped individual to the fullest physical, mental, social, vocational, and economic usefulness of which he is capable."⁷ As used in modern practice, the term bears important connotations which extend this basic definition.

The first of these connotations relates to the fact that there are many kinds of physical, mental, or emotional disorders which leave behind them some kind of chronic or permanent residual impairment. Thus, the most frequently stated objective of vocational rehabilitation is not so much curative, i.e., complete elimination of the impairment, as it is ameliorative--maximizing a handicapped person's level of performance within the constraints of a continuing deficiency of some kind.⁸ For this reason vocational rehabilitation services are provided not only to those capable of attaining full-time competitive employment but

⁷ John F. McGowan and Thomas L. Porter, An Introduction to the Vocational Rehabilitation Process, Rehabilitation Service Series No. 68-32 (Washington, 1967), p. 4.

⁸ Walter S. Neff, Work and Human Behavior (New York, 1968), p. 226.

also to those persons who are capable of only part-time, sheltered, or homebound types of employment.

A second connotation of the definition of vocational rehabilitation arises from recognition that disabled persons in American society seem to encounter some of the same problems faced by disfavored minority groups. The vocational rehabilitation process has been expanded to include efforts to overcome powerful psycho-social barriers related to (1) the attitudes of others toward disabled persons and (2) the attitudes of disabled persons toward themselves. Solutions for problems of disabled persons, therefore, embody a strong social-psychological component.⁹ Thus, a disability may have a social cause as well as a physical, mental, or emotional one. Vocational rehabilitation organizations have expanded the scope of their services to include the socially disadvantaged as well as those whose handicaps come from physical, mental, and emotional impairments.

Vocational rehabilitation may take one or more of four general forms. First, physical restoration efforts try to eliminate or reduce the disability, e.g., a hernia may be repaired or mental illness may be cured. Second, disabilities may be compensated for by prostheses or other devices.

⁹Ibid., p. 227.

Amputees may use artificial limbs; the deaf may use hearing aids. A third form is that of providing the disabled with or training them for jobs in which their lack of function is either not critical or can be compensated for by their remaining abilities. For example, the loss of an arm usually does not impede a night watchman in the conduct of his job. The blind may use their sense of touch to make change. Finally, jobs sometimes can be modified to fit the capacities of the disabled. Foot levers may be substituted for hand levers; work tables may be lowered and chairs placed for those unable to stand.¹⁰

The Vocational Rehabilitation Process

The purpose of the vocational rehabilitation process is to help the disabled person become gainfully employed. The process terminates with the successful placement of the handicapped person on a job.

The first step in the process is referral. Anyone may refer a disabled person to a vocational rehabilitation agency. Educational institutions, mental hospitals, physicians, insurance companies, state and public welfare agencies, employment agencies, and others frequently put disabled

¹⁰Conley, op. cit., p. 37.

persons in contact with a vocational rehabilitation agency. Sometimes a disabled person requests assistance on his own initiative. Agencies also seek out disabled persons and urge them to consider their services.

After contact is established, a counselor arranges interviews with the client to collect medical, social, psychological, vocational, and economic data. Sometimes a medical examination is required, and, if necessary, specialists are engaged. Counselors use the information collected to determine a disabled person's eligibility for services, the extent of his disability, his interests and aptitudes, and the kinds of help that he needs. To be eligible for the agency's services, the disabled person must suffer a chronic condition which impairs his ability to work. However, the disability cannot be so severe or the person so young or so old that the vocational goal is unrealistic or the prospect of successful rehabilitation is unlikely.

If the disabled person is accepted at the agency, he and his counselor outline the steps to be undertaken in working toward rehabilitation. This rehabilitation plan identifies the vocational goal of the disabled person, the services necessary to attain that goal, and the services

which the agency will supply. The handicapped person may select any suitable vocational goal; the counselor points out those occupations in which that person is likely to be successful. This counseling is one of the most important services offered by rehabilitation agencies.

Another service an agency may provide is that of physical therapy. This may consist of surgery and other treatments to reduce or eliminate the disability, provision of prosthetic appliances, and any necessary hospitalization and convalescent care. Agencies seek services from other sources when they are unable to provide them directly.

Physical restoration may not be feasible for some clients, and it may provide less than a complete solution for others. In such cases, agencies provide such services as vocational training, pre-vocational training, personal adjustment training, and other programs of remedial education. Since all rehabilitation efforts are aimed at preparing a disabled person for employment, vocational training is the most important of these efforts. It may be obtained from a variety of sources--universities, business colleges, vocational schools, on-the-job training, or the agency's own production operations or sheltered workshop.

To enable a disabled person to obtain maximum benefit from restoration and training services, many agencies offer supplementary services. An agency may grant maintenance and transportation expenses. Another important source of maintenance during rehabilitation is public welfare. If a disabled person is eligible for public welfare, rehabilitation agencies usually encourage him to seek that means of support. Another supplementary service is the provision of needed equipment, such as electrician's or carpenter's tools, occupational licenses, and supplies.

Finally, rehabilitation agencies provide placement services. If a disabled person has a vocational goal in an unfamiliar field or cannot return to the job he held prior to his disability, a counselor or placement specialist will guide that person to promising localities and firms. Inexperienced or retarded persons are taught how to apply for jobs. Or placement services may locate employment directly for those who have completed their rehabilitation program. Usually an inquiry is made to determine whether the disabled person is performing his job satisfactorily and whether he is happy with his employment. If the results of the follow-up are positive, the case is closed.¹¹

¹¹Ibid., pp. 44-49.

Historical Perspective of the Vocational Rehabilitation Movement

Few public facilities for the disabled existed in the United States before 1920.¹² The rehabilitation services which were available in this period were provided by private agencies such as the Boston Industrial School for Crippled Children (1893), the Red Cross Institute for Crippled and Disabled (1917), and the Curative Workshop of Milwaukee (1919).¹³

The significant development prior to 1920 was the birth and growth in the slums of Boston of an idea which was to become one of the major private vocational rehabilitation efforts in this country. In 1895 Edgar James Helms, a Methodist minister and missionary, accepted an invitation to the pastorate at Morgan Chapel, a dilapidated church on Boston's skid row. He began there a ministry to the poor from thirty nations living within his parish. His ministry was one characterized by deeds of assistance to the poor rather than by words. From a day nursery to a kindergarten to a night school to a trade school, that ministry grew into one of full fledged social reform.¹⁴

¹²Ibid., p. 38.

¹³McGowan and Porter, op. cit., p. 23.

¹⁴Beatrice Plumb, "The Goodwill Man," Edgar James Helms (Minneapolis, 1965), pp. 92-112.

With his work in Boston underway, Helms traveled to Europe to study the living conditions of the poor and the new charitable and co-operative movements in Germany and England. Returning in the early 1900's, he found Boston and the rest of the United States in the grips of a depression. Destitute groups of foreigners came to Morgan Chapel begging for food and clothing. With the depression, however, the sources of money to help the needy were exhausted. Helms and his staff decided that if the people of the Boston area could no longer give money to help the unfortunate, perhaps they could give their used clothing. Making his way from one home to another in the wealthy Back Bay and Beacon Hill sections of Boston, Helms collected sacks of donated clothes. Then back at Morgan Chapel he scattered the clothing over pews in his church and invited the needy to come in and help themselves. They came, and the resulting confusion made the pastor realize that a better means of distribution was necessary to preserve for these people their self-respect. The next day he opened a small room as a store where for a small sum the unemployed people could purchase things within their means.¹⁵

¹⁵Ibid., pp. 113-123.

As another phase of his work in the Boston slums, Helms established a free employment bureau. During depression days that office was besieged by the unemployed begging for jobs. To provide jobs and wages, Helms announced the beginning of a business--a business of collecting, sterilizing and cleaning, repairing, and selling discarded clothes, household goods, furniture and anything that might supply someone's needs. Who would buy? The needy people themselves. They could use the wages they earned in this new business or have a chance to work out their purchases. The poor of the Boston slum responded with enthusiasm, and the workshop idea was born.¹⁶

Helms' plan to help the helpless help themselves did not remain a local enterprise. In 1915 two directors of a Brooklyn, New York, relief program called the House of Goodwill came to Boston to inspect Helms' workshops. They adopted the Morgan Chapel organization's constitution and by-laws but coined a new name--Goodwill Industries.¹⁷ From that time on every city starting the Morgan Chapel industrial program called it by this new name. Since those early years, the program has spread from one city to another, and a national organization, Goodwill Industries of America, Inc.,

¹⁶Ibid., pp. 124-133.

¹⁷Ibid., pp. 196-197.

has been formed to coordinate Goodwill Industry programs on an international basis.

By 1920 public attention was focused on the problems of disability. This interest in the disabled was the result of two influences: (1) industry was replacing agriculture in the American economy and an appalling yearly toll of industrial accidents was accumulating and (2) the return from World War I of hundreds of thousands of disabled veterans. By 1920 Congress had passed the Soldiers Rehabilitation Act, establishing the Federal Board of Vocational Education to oversee the re-training of disabled veterans, and the Civilian Vocational Rehabilitation Act, offering to match funds on a fifty-fifty basis with states that established rehabilitation programs. Within five years, thirty-eight states had set up these programs.¹⁸ In 1935 the Federal Social Security Act authorized certain appropriations to extend and strengthen the cooperative vocational rehabilitation programs and directed Congress to support these programs as a continuous policy.¹⁹ Then the depression of the early 1930's caused a lack of jobs for not only

¹⁸C. Esco Obermann, A History of Vocational Rehabilitation in America (Minneapolis, 1965), pp. 147-151, 232-235.

¹⁹McGowan and Porter, op. cit., p. 24.

the handicapped but also the able-bodied. As a result, interest in rehabilitation lagged.²⁰

The entry of the United States into World War II caused a manpower shortage. As a result rehabilitated persons found an opportunity to prove that a disabled individual can be a capable, productive worker. The public began to perceive disabled persons in a new light and to call for rehabilitation workers to enter into competitive employment. Congress passed Public Law 113 (1943) to supercede the 1920 vocational rehabilitation act.²¹ The new law greatly expanded the rehabilitation services which the federal government would help finance. The mentally ill and retarded were granted federal support for rehabilitation. Federal assistance was granted to state agencies serving the blind. The federal government agreed to bear all administrative costs and expenses incurred in providing vocational guidance and placement and to match all other costs dollar for dollar.²²

At about this time in Boston, Edgar James Helms, now in his late seventies, could see the spread of the European

²⁰Conley, op. cit., p. 40.

²¹McGowan and Porter, op. cit., p. 25.

²²Conley, op. cit., pp. 40-41.

war to America and the subsequent greater demand for sheltered workshop employment for the disabled men who would return, unable to compete with physically normal workers. He set in motion an accelerated program of rehabilitation for the physically, mentally, and socially handicapped, and Goodwill Industries moved away from relief into the field of vocational rehabilitation.²³

In the United States and most of the developed countries of the world, one of the aftermaths of World War II was a new concern for human welfare. In England and in some other European countries this concern took the form of what has been called the Welfare State, a complex of governmental efforts designed to guarantee the health and welfare of the entire citizenry. In the United States these trends did not develop completely, but the years after World War II saw an enormous increase in the public funds available for application to human problems. The official responsibility of the federal government in this area was made manifest by the establishment of the Department of Health, Education, and Welfare in 1953.²⁴

²³Plumb, op. cit., pp. 222-223.

²⁴Neff, op. cit., p. 222.

The great broadening of the scope of services to the disabled was largely attributable to the work of one section of the Department of Health, Education, and Welfare--the Office of Vocational Rehabilitation. The history of this office, created in 1917 to help the wounded veterans of World War I, is illustrative of the growing interest in the total welfare of disabled persons. Until World War II, the Office of Vocational Rehabilitation had been a relatively small agency with the mission of providing appropriate service to the physically disabled. Then the 1943 legislation widened the scope of the agency's services to include the mentally disabled. During the decade that followed, funds made available to the agency were greatly expanded and diversified. In 1955 the agency was authorized to launch an extensive program of grants-in-aid for research and demonstration projects and to fund training programs. In 1963 the Office of Vocational Rehabilitation was expanded further, raised to the level of a major department of the Department of Health, Education, and Welfare, and retitled the Vocational Rehabilitation Administration. Finally, as a part of a major reorganization of the Department of Health, Education, and Welfare in 1967, the agency was renamed the Rehabilitation Services Administration.²⁵ Along with the Children's Bureau,

²⁵Ibid., pp. 222-223.

Administration of Aging, Medical Services Administration, and others, it was placed under the Social and Rehabilitation Service division of the Department of Health, Education, and Welfare. The purpose of the reorganization was to make it easier to achieve a unified approach to the social needs of the individual and the family.²⁶ Throughout this period of rapid expansion and reorganization, this agency has maintained sight of its important goal: the restoration of disabled persons to the world of work.²⁷

Providers of Vocational Rehabilitation Services

Vocational rehabilitation services are available from several different sources. The state-federal program is the most important. Under the aegis of the Rehabilitation Services Administration of the Department of Health, Education, and Welfare, this program in the early 1960's was restoring over 100,000 persons a year to gainful activity.²⁸ By the year ending June, 1967, this number had increased to 175,000.²⁹

²⁶ McGowan and Porter, op. cit., p. iii.

²⁷ Ibid., p. 223.

²⁸ Conley, op. cit., p. 37.

²⁹ McGowan and Porter, op. cit., p. 3.

The overall objective of the work of the Rehabilitation and Services Administration is to provide the leadership and a part of the means. The federal side of this program is devoted to (1) building state vocational rehabilitation agencies; (2) increasing the supply of trained rehabilitation manpower; (3) increasing and improving the physical plants for serving the disabled, including rehabilitation facilities and workshops, training settings, and specialized clinics; and (4) educating the public about vocational rehabilitation.³⁰

Within the state-federal program, direct contact with a disabled person first comes through ninety-one state vocational rehabilitation agencies in the fifty states, District of Columbia, Puerto Rico, the Virgin Islands, and Guam. In the state agencies the key staff person who deals with the disabled person is the rehabilitation counselor. From the initial interview through all the steps of gathering information, counseling, training, placement, and the follow-up in the first few weeks of employment, a counselor guides the disabled person along the route to successful rehabilitation. A state agency counselor decides what services a handicapped individual needs and secures those services from any number

³⁰Ibid., p. 29.

of sources--private physicians, hospitals, psychologists, prosthetists, workshops, social workers, and others.³¹

Thus, the problem of state counselors is one of matching the best facilities to the needs of disabled persons. To accomplish this, a counselor must find out what programs or agencies, public and private, are active in his area, and he must develop a mutually satisfactory way of working with them.

A second source of vocational rehabilitation service is the Veterans Administration, which offers a complete range of medical, convalescent, and restoration services to soldiers and veterans with service-connected disabilities. Within the past few years, legislation has added vocational training to the list of services to which veterans with service-connected disabilities are entitled.³²

An important portion of the rehabilitation services available are those of private charitable organizations. Examples of these private agencies are the National Society for Crippled Children and Adults, American Heart Association, Goodwill Industries, National Association for Retarded Children, and many others. The private agencies differ widely in the kinds and scope of services which they offer.

³¹Ibid., pp. 29-30.

³²Conley, op. cit., p. 37.

Some, like the National Tuberculosis Association and the United Cerebral Palsy Association, specialize in specific disabilities. Others are open to clients with all kinds of disabilities but limit their efforts to particular services.³³ The local planning and control possibilities of private agencies is attractive to those who are concerned about the growing activities of the federal government in what traditionally has been regarded as local prerogatives and responsibilities.³⁴

Finally, there are other organizations and agencies which provide vocational rehabilitation services as a part of their overall operations. Many hospitals, both public and private, offer physical therapy to restore a lost function, medical correction of abnormalities, and training in the use of prostheses. State employment agencies are required by law to maintain on their staffs personnel who are specially trained and designated to serve the handicapped.³⁵ The Social Security Administration annually screens more than 600,000 people who are applying for

³³ Ibid.

³⁴ Oberman, op. cit., p. 112.

³⁵ Conley, op. cit., p. 37.

disability benefits. One of the purposes of this screening is to make rehabilitation services available to applicants seeking to overcome their disabilities and return to useful and gainful employment.³⁶

To cite these agencies and organizations as separate sources of vocational rehabilitation services does not imply that they operate independently of one another. Indeed, as noted above, much of the work of state agency counselors is that of matching the programs which a community offers with the disabilities of the persons with whom they are working. Few agencies can offer complete vocational rehabilitation services. Therefore, part of the task of any agency or program which undertakes the rehabilitation of a handicapped person is to secure for that person the most appropriate services available within the area,

The Nature of the Vocational Rehabilitation Workshop

The problem this research study attempts to solve is one encountered by vocational rehabilitation workshops. It is necessary, therefore, to identify the workshop and its role within the spectrum of vocational rehabilitation services and agencies providing those services.

³⁶McGowan and Porter, op. cit., p. 41.

Vocational rehabilitation workshops are places where the production of goods or services is carried on for the dual purpose of producing salable products and providing employment to the handicapped. Workshops provide employment that may serve any one or a combination of the following purposes: (1) a means of testing and evaluating a disabled person's potential for employment, (2) an environment for training a disabled person in specialized skills and general work habits, (3) an interim step in the rehabilitation process for those who are not yet ready to or not yet able to find employment in the competitive labor market, and (4) a permanent place of sheltered employment for those whose disabilities preclude their holding jobs in the competitive labor market.

In the rapid development of vocational rehabilitation services and facilities over the past fifteen years, a variety of terms has been used to describe the workshops. Some of the names by which workshops refer to themselves are "rehabilitation workshops," "special workshops," "industrial rehabilitation workshops," "vocational adjustment centers," "industries," "work classification units," and "training centers."³⁷ These designations represent a wide variation in types of programs and in philosophies, thus

³⁷McGowan and Porter, op. cit., p. 102.

justifying the difference in terms. On the other hand, use of the terms is inconsistent, and it is possible for two workshops of essentially the same type to carry entirely different names.

Workshops differ significantly in the kinds of services they provide. In some, the scope of operations is the whole rehabilitation process, from initial evaluation through on-the-job training to placement and follow-up. Other shops render only selected ones of the services and secure from outsiders those services they cannot provide directly, e.g., medical diagnosis and prostheses. Some workshops confine their services to the provision of employment in a productive setting for whatever purpose a disabled person's counselor may desire. Thus, the entire rehabilitation process may or may not take place within the workshop facility. Sometimes a workshop is contained within a rehabilitation center rather than operated as a separate facility.

With the variation in services provided, it is not surprising that workshops differ widely in their goals. The relative importance of the two goals of producing salable goods and services and of providing rehabilitation services ranges to the extremes. Some workshops devote themselves completely to production and sales goals with little or no attention to rehabilitation results achieved. Other workshops

place heavy emphasis on rehabilitation results and devote little attention to production. Of course, the sale of a workshop's goods is usually an important source of revenue. Thus, production and sale of output receives at least some attention in even the most rehabilitation oriented workshops.

The dual focus of activities in a vocational rehabilitation workshop is reflected in its financial structure. The major sources of revenue in workshops are (1) the sale of finished goods, (2) the completion of subcontract services, and (3) the rendering of rehabilitation services for a fee. In general, revenue from these sources can be considered earned revenue, i.e., revenue from the operating activities of the enterprise. Items one and two represent revenue from the production of a product or service. These goods and services are the production side of the workshop activities. Item three, revenue from the rehabilitation side of a workshop's activities, comes in the form of fees paid by referring agencies or by a disabled person himself. Often workshops perform evaluation and training services on a fee basis for other local or state agencies whose counselors refer disabled persons to the workshop. If a disabled person comes to the workshop on his own initiative, the workshop may charge him or his family a fee for its services.

Sometimes the workshop charges a standard fee, and other times the fee is based on the ability of the disabled person or his family to pay.³⁸

Contributors are an important source of resources for many vocational rehabilitation workshops. Contributions may come as part of annual community fund drives, such as the United Fund, from a workshop's own independent fund drives, or from unsolicited persons interested in the work which a workshop is doing. For those workshops which are involved in salvage operations, the periodic drives for donations of used clothing and household goods are an important source of resources.

Finally, vocational rehabilitation workshops may depend heavily on funds received through grants. Since the amendments in 1954 to vocational rehabilitation legislation, the federal government has become deeply involved in supporting the rehabilitation activities of workshops through a variety of programs. These programs may take the form of (1) salary support grants, which provide money for hiring professional personnel; (2) extension and improvement grants

³⁸ John R. Kimberly, The Financial Structure of Sheltered Workshops, Organization and Administration of Sheltered Workshops: Research Report Series, No. 3 (Ithaca, New York, 1968), p. 2.

for expanding and upgrading existing facilities and services; and (3) research and demonstration grants for research into the rehabilitation process.³⁹

Financial Information in the Workshop

The efficient and effective operation of a rehabilitation facility, like any other institution, requires adequate and reliable financial information on which management decisions can be based. Also, those outside the management of the facility--contributors, grantors, suppliers, customers, governmental bodies, and others--need information about the facility on which to base the decisions which their relationship with the facility requires.

In the years after 1920 when rehabilitation facilities and centers have grown so rapidly in number, size, and complexity, their direction and administration have become increasingly difficult and demanding. One problem was the lack of meaningful accounting information. Accounting and information system development did not keep pace with the development of the facilities themselves. Lack of resources precluded both the hiring of adequately trained accounting personnel and the purchase of equipment necessary for efficient accounting systems. Accounting systems in

³⁹Ibid., p. 4.

rehabilitation facilities often were crudely adapted from those of profit-making enterprises or government units. Beyond the needs of individual workshop units, perhaps the greatest need was for a degree of uniformity in the financial reporting of the various centers and facilities. Some reporting uniformity is indispensable to contributors, grantors, agencies sponsoring clients, and others who need to compare performances of different facilities.

As the demand for better financial information grew, various groups and individuals sought to provide the guidance and procedures for improving accounting. An example was the 1960 manual Basic Accounting Procedures for Rehabilitation Centers and Facilities: A Guide for Management and Staff published by the National Society for Crippled Children and Adults, Inc. This effort and others either failed to meet the needs or else attracted insufficient attention at the national level.

About 1963, the National Health Council and National Social Welfare Assembly, the national coordinating and leadership organizations in their respective fields of health and social welfare, undertook a project to develop uniform accounting procedures for voluntary health and welfare organizations. The project had the financial support of

the Avalon Foundation, the Rockefeller Foundation, and fifty-four national voluntary health and welfare agencies which were members or affiliates of the Council or the Assembly.⁴⁰

The outgrowth of this project was the publication in 1964 of Standards of Accounting and Financial Reporting for Voluntary Health and Welfare Organizations (hereafter referred to as Standards). The book is a combined product of the Council and Assembly, the public accounting firm of Peat, Marwick, Mitchell & Co., and a Project Advisory Committee. The latter drew persons from public benefactors, governmental and voluntary registration and endorsement bodies, national voluntary agencies, local health and welfare fundraising groups, and the accounting profession. Standards is designed "to enable voluntary health and welfare organizations to report their income and expenditures uniformly and in terms the contributing public can understand."⁴¹

The book is a summary of standards for accounting and financial reporting for use by voluntary health and welfare organizations. It establishes standards in the sense of

⁴⁰National Health Council and National Social Welfare Assembly, Standards of Accounting and Financial Reporting for Voluntary Health and Welfare Organizations (New York, 1964), p. 21.

⁴¹Ibid.

setting up and establishing rules by authority. The authority is that of the project's national sponsors--the Council and the Assembly and its Project Advisory Committee. The book examines certain financial transactions that need to be treated the same way by all voluntary health and welfare organizations if their statements are to be uniform and comparable. It develops rules or standards for handling these transactions and presents standard forms for financial statements. The publication has had enthusiastic support and has become a ready reference for accounting in the voluntary health and welfare organizations, including vocational rehabilitation workshops.

While the Standards lays a foundation for improvements in accounting and financial reporting in voluntary health and welfare organizations, it does not provide detailed specifications for a complete accounting system. It does not satisfy, for example, detailed reporting requirements of contributor information services and budget review bodies. It does not attempt to satisfy internal accounting and reporting needs of the voluntary organization. Individual organizations must still design and implement uniform accounting systems that can accumulate the information needed for financial and management reports.

Recognizing a need to develop techniques to implement the Standards recommendations, the Rehabilitation and Services Administration of the Department of Health, Education, and Welfare in 1968 made a grant to Goodwill Industries of America, Inc. for a three-year research project. The first phase of the project was the creation of a standard accounting system, with a manual adaptable to any rehabilitation center or sheltered workshop, and the implementation of that system in representative agencies across the country. That system, applicable to either hand-written or computerized record keeping, was created the first year, and by mid-1969 it was being utilized by 103 Goodwill Industries, 3 sheltered workshops other than Goodwill Industries, and 5 hearing and speech agencies.⁴²

Once the standard accounting system was established, the balance of the research effort concentrated on refining the system developed and on solving problems associated with rehabilitation workshop accounting. Specifically, researchers attempted to establish (1) techniques for developing the cost of services within the different functional activities

⁴²Letter from Robert N. Galloway, Director of Accounting and Business Administration, Goodwill Industries of America, Inc., June 5, 1969.

of an agency, (2) an acceptable technique for the setting of fees, and (3) information systems and cost accounting techniques for sheltered workshops and rehabilitation centers.⁴³

Administrators in vocational rehabilitation workshops believe that separation of the joint cost of rehabilitation and production is vital for achieving the first two of the three objectives listed above. They contend that without the separation, it is impossible to develop either the costs of the workshop's production function or its rehabilitation function. The 1964 Standards did not address itself to this problem because the scope of that project included all voluntary health and welfare organizations, not just vocational rehabilitation workshops. The joint cost problem is unique to the latter. The standard accounting system of Goodwill Industries of America, Inc. initially did not attempt to solve the problem because a solution seemed too elusive for its pursuit to be practical within the time and budget constraints of the first phase of the project. The cost separation problem was deferred until the special problem-solving phase of that project was undertaken.

⁴³ Ibid.

As a part of the special problem-solving effort, the Goodwill Industries of America, Inc. project retained the services of a public accounting firm, Peat, Marwick, Mitchell & Co. (hereafter referred to as PMM & Co.), as consultants "to augment internal expertise with a knowledge of advanced management techniques."⁴⁴ PMM & Co. undertook a solution to the joint cost problem and issued a report to the standard accounting project. (A discussion of the PMM & Co. solution to the problem is included in Chapter IV with a more detailed discussion of the problem and other solutions which have been proposed.) The solution proposed by PMM & Co. was not acceptable to the project committee or to representatives of the vocational rehabilitation field to whom it was presented.

Thus, the joint cost problem of the vocational rehabilitation workshop awaits a satisfactory solution. Standards and the standard accounting project discussed above have made a significant contribution to achieving efficient and effective accounting and financial reporting within these workshops. A solution to the joint cost problem is a missing link in completing the work which these projects have started.

⁴⁴Peat, Marwick, Mitchell & Co., The Application and Analysis of Financial and Statistical Data: Standard Accounting Project (New York, 1969), p. ii.

CHAPTER III

THE JOINT COST PROBLEM IN ACCOUNTING

THEORY AND PRACTICE

Accounting for joint costs has been a prevalent problem within the accounting profession for many years. Following is a discussion of the general nature of joint costs and the solutions which have been attempted to remedy the problems which these costs cause. After this discussion, the chapter which follows considers the problem as it applies to the field of vocational rehabilitation.

Definition of a Joint Cost

A joint cost is an element of cost which is incurred for more than one purpose, product, or other distinguishable segment of an entity's operations. The segment may be a time period, a department, an area of responsibility, a decision, or any other portion of an entity's operations about which cost information is needed.

This definition is broader than that found in many accounting textbooks where joint costs are defined in terms of product costs only and are differentiated from common costs (the costs of producing two or more separate products

with the same facilities at the same time).¹ Joint costs in this study include not only prime product costs of material and labor but also overhead and selling and administrative costs. In his cost accounting textbook, Charles T. Horngren has commented on the different kinds of joint costs:

Viewed broadly, joint costs plague the accountant throughout his work. The entire problem of allocating the costs of fixed assets to months, years, departments, and products is essentially that of joint costing. Sometimes the term common cost is used instead of joint cost to describe aspects of joint costing where facilities are shared, such as computing unit cost of services like bank accounts. . . . Another example of joint-cost problems is the difficulty of reapportioning service department costs to producing departments. Still another illustration is the application of overhead to job orders. Essentially factory overhead items are costs that are jointly shared by all products flowing through the factory.²

The joint cost definition of this study encompasses common costs, by-product costs, and any other costs incurred as a whole for a combination of results. Thus, the condition characteristic of a joint cost is its applicability to separable entity segments, whatever form these segments may take.

¹See, for example, Lawrence L. Vance, Theory and Technique of Cost Accounting (Brooklyn, 1952), p. 367.

²Charles T. Horngren, Cost Accounting: A Managerial Emphasis (Englewood Cliffs, New Jersey, 1967), p. 603.

The National Association of Accountants' Research Series No. 31, Costing Joint Products, discusses the joint applicability idea with reference to product costs:

A joint cost is incurred as a lump sum for a combination of products and the amount of cost applicable to any one product in a group cannot be traced to that product by direct observation.

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Costs are joint when two or more distinguishably different products are produced together from a single input cost factor. The characteristic condition of a joint cost is that the cost of several different products is incurred as a lump sum for the combination and not separately for the individual products. Consequently the amount of cost incurred for any one product in a jointly produced combination cannot be separately traced.³

In Concepts for Management Accounting, Walter B. McFarland recognizes that the idea of costs having joint applicability applies to other than product costs:

Product and market segments constitute the accounting entities for which costs and revenue margins are wanted. The benefits from many costs are shared jointly by multiple segments. Revenues may also be joint. This prevalence of jointness in costs and revenues make [sic] it impossible to ascertain net profit figures for individual products and markets which can be relied upon for decision making.

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Many costs are not recognized as joint because the product and market segments are not linked together

³National Association of Cost Accountants, Costing Joint Products, Research Series No. 31 (New York, 1957), pp. 2-3, 8.

by physical relationship like the products which emerge from splitting a common raw material.⁴

In accounting practice the joint cost problem manifests itself in a variety of ways. Some costs are joint with respect to periods of time. These costs provide benefits which extend beyond a single accounting period. Accounting's matching concept, which measures income by comparing revenue inflows with costs expended to obtain those inflows, requires the allocation of these multiperiod costs among those periods which benefit from the costs incurred. Depreciation is an example of this kind of joint cost. Other costs are joint with respect to specific products. Such is the case of a unit of raw material or labor or a manufacturing process which produces a joint product. In these situations joint costs must be allocated between products produced to determine the cost of each product. An oil refining operation, which transforms crude oil into a multiplicity of products, is rife with this kind of joint cost situation. Finally, costs may be joint with respect to all or part of the operations of an entire entity. These costs are joint costs of manufacturing overhead,

⁴Walter B. McFarland, Concepts for Management Accounting (New York, 1966), p. 36, 43.

selling, and general and administrative expense. They differ from the preceding category of joint costs in that they are not specifically identifiable with two or more products. Instead, they apply to some group or all of those goods or services which the entity produces. The American Accounting Association committee report on the matching concept refers to these costs as follows:

Another group of outlays may be labeled indirect costs. They are associated with a group of results rather than with a specific revenue recognition. These are in effect joint costs having little in the way of an identifiable causal relationship with any specific segments of revenue. Certain overhead items and many of the general operating costs of business fall into this category.⁵

Assignment of administrative costs or occupancy costs exemplify this type of joint cost problem. The assignment may be by product line, by organizational subdivision, by geographical area, or by any other segments of the entity for which cost data are relevant. In Concepts for Management Accounting McFarland recognizes three kinds of joint costs:

Accountants have commonly failed to recognize the widespread prevalence of joint costs and they have not appreciated the important implications of joint costs when preparing data to guide managerial decisions. Instead, they have regarded joint costs as a special

⁵ American Accounting Association Committee Report, "The Matching Concept," The Accounting Review, XL (April, 1965), 369-370.

situation arising only where a common raw material is split into two or more products. On the contrary, a large portion of manufacturing overhead cost is usually joint with respect to the several products manufactured. Marketing operations are commonly organized in such a manner that much of the cost is joint with respect to both product and market segments. Virtually all general company administrative costs are jointly incurred for all products and markets.⁶

The categories of joint costs are not mutually exclusive. Building depreciation costs, for example, which must be allocated to time periods may also be a part of overhead or administrative costs which must in turn be assigned to different reporting segments.

The problem of accounting for a joint cost is inherent in the definition of joint cost. If cost information is desirable for some segment of an entity's operations, then the portion of the joint costs applicable to that segment must be determined and separated from the costs applicable to other segments. By definition, however, a joint cost is incurred for more than one segment. Its commonality precludes the direct relationship usually relied upon for identification with a segment. Thus, an accountant's problem is that of determining how to distribute joint costs among the segments to which they apply.

⁶McFarland, op. cit., pp. 42-43.

The objective of joint-product costs accounting is to assign a portion of the total joint costs to each joint product, so that unit product costs may be calculated and income statement and balance sheet prepared. . . . The problem essentially is one of cost allocation.⁷

Indirect costs cannot be traced to individual segments like direct costs because to do so is impractical in some cases and impossible in other cases. . . . Hence, indirect costs are accumulated in the accounts by cost centers and the amount applicable to individual segments is determined by indirect measurement. The process of indirect measurement of segment cost proceeds by applying cost to segments in proportion to some factor such as direct labor which can be used to express output and which can also be measured directly.⁸

Joint Cost Allocation

The answer to the joint cost problem traditionally has been allocation. But that answer only raises an additional question: how does one allocate a joint cost? The National Association of Accountants' Research Series No. 31 states:

While accountants sometimes express the opinion that a sufficiently exhaustive search will disclose reliable and consistently satisfactory bases for allocating joint costs, the inherent nature of joint costs indicates that such a search is bound to be futile. Consequently, judgment must be used in selecting allocation bases.⁹

⁷ Morton Backer and Lyle E. Jacobsen, Cost Accounting: A Managerial Approach (New York, 1965), p. 254.

⁸ McFarland, op. cit., pp. 44-45.

⁹ National Association of Cost Accountants, op. cit., p. 30.

While joint costs can be allocated, all bases for allocation imply assumptions which cannot be verified objectively. Methods of allocating rest on opinion or judgment rather than objective measurements. It is possible to determine a cost, but not possible to determine the cost of a joint product or segment. Where an allocation base rests on subjective determination, equally competent accountants may compute quite different costs for the same product or segment. There is no way to prove that one cost is better than another.¹⁰

There are a multitude of different bases for allocating joint costs. Because one allocation base cannot be demonstrated as correct to the exclusion of all others, an allocation basis is selected for the reasonableness of its underlying assumptions. Sometimes the reasonableness of the segmented costs which result serves as an additional check upon a proposed basis for allocating joint costs.

With regard to product costs, there are two principal types of bases for allocating joint costs. One group of bases are those assumed to measure benefits which individual joint products receive from joint cost factors. The other

¹⁰Ibid., p. 28.

group is made up of bases assumed to measure ability of individual products to absorb joint costs.¹¹

Benefits received from joint costs usually are measured by physical factors. A common unit such as weight, volume, or chemical content is selected to measure output of joint goods or services. When output is expressed in terms of the chosen unit, the cost to be allocated is divided by the number of basis units to arrive at an average cost per unit. A share of the total joint cost is assigned to each product unit or divided between joint products by multiplying the number of basis units in the output by this average cost per unit. This basis of allocation is usually used when a dominant element in the joint cost; e.g., a raw material, can be traced into the joint products. The use of such an allocation base involves an assumption that a physical unit of a cost element has the same cost regardless of the end product in which it is used. Expressed another way, this kind of base assumes that cost is proportional to physical characteristics.¹²

There are several criticisms of the use of physical factors as an allocation base. If the segments are quite different, there may be no physical factor on which they

¹¹Ibid., p. 30.

¹²Ibid., pp. 25, 31.

may be compared. If the segments are of different quality, it would be unusual for their values to be in proportion to any physical factor. For example, if on a weight basis all grades of coal were assigned the same cost per ton, a matching of this uniform cost per ton against different sales prices of different grades of coal would show high-grade coal to be highly profitable and low-grade coal to be quite unprofitable.¹³ A basis of allocation which gives results such as these probably would be rejected. Instead, a search would be made for a basis which could be rationalized in terms of benefits received and which would give product costs acceptable for their intended purpose.

Another allocation method which is based on the idea of benefits received is proration of joint costs on the basis of costs to produce each of the joint products separately. Sometimes the nature of joint products is such that they could be produced independently of one another. If this is the situation, the costs as produced jointly may be distributed to each on the basis of the estimated costs to produce each separately. This method seems to be quite equitable, but

¹³Samuel Waldo Specthrie, Basic Cost Accounting, 2nd ed. (Englewood Cliffs, New Jersey, 1963), p. 368.

finding joint products to which this unique situation applies is not a simple matter.¹⁴

In some cases an allocation method based on benefits received, which also gives reasonable product costs, cannot be found. When this situation occurs, the accountant may utilize the other type of basis which assumes measurement of ability of products to absorb joint costs. The reasoning behind this second type of basis is that a group of jointly produced products should yield enough sales revenue to cover joint and separate costs of products plus enough profit to justify production. Thus, this second group of allocation bases assumes a prorata recovery of joint costs in each dollar of value of joint products--that costs are proportional to the joint products' values.¹⁵

This second type of allocation base may take one of several different forms. One of these bases is the use of separate product market values at the break-off point. The merits of this method are: (1) the method is applicable if joint products are different items or different grades of the same item (thus dollar values may be comparable where

¹⁴Ibid., p. 372.

¹⁵National Association of Cost Accountants, op. cit., p. 32.

physical factors may not) and (2) the allocated costs align with the separate market values of joint products. Another of these bases is allocation based on joint product sales prices after separate processing. This method assumes that final sales prices of joint products are proportionate to the value of their base materials at a split-off point. This assumption may not be true if separate processing and marketing costs of the products vary markedly. The method recognizes that separate processing and marketing as well as base material costs influence a product's selling price. A third one of this group of bases is allocation on the basis of final selling price less the estimated value added after break-off. This method is quite similar to allocation based on market values of products at break-off. The only difference is that relative values are obtained by computation rather than by actual market operations.¹⁶

Like the first group of allocation bases, this group which allocates on the basis of market values, or ability to absorb costs, is subject to criticism. When this type of allocation base is used, changes in relative market values of products cause changes in costs of individual products even though no change has taken place in methods of production

¹⁶ Specthrie, op. cit., pp. 368-370.

or total costs. Such fluctuations in product costing can be confusing to management and lead to undesirable shifts in sales emphasis or selling prices. Too, this method produces an equality of product profit margins which can mislead management by creating an impression that all products or segments are equally profitable. The comment has been made that this allocation base is not as much a method for allocating costs as it is a device for allocating profit or loss according to sales values. Another criticism is that determination of market values of joint products is very difficult. Even if products are traded in organized markets where price quotations are a satisfactory measure of product values, these quotations usually require adjustment for transportation costs, selling expenses, and other disposition costs. If joint products are not in salable form and no market price can be attached to them, it becomes necessary to work back from the selling prices of the finished product.¹⁷

Arguments in support of the market value type of allocation base say that since joint costs cannot be identified with joint products in any real sense, some kind of cost flow must be imputed. In the absence of other information,

¹⁷National Association of Cost Accountants, op. cit., pp. 34-35.

it is not unreasonable to assume that high-price products are also high-cost items.¹⁸

So far in the discussion of joint costs allocation, the focus has been principally on prime product costs such as raw material and labor. Another type of joint cost which must be allocated to joint products or other segments is that of overhead expenditures. Factory overhead is usually described as all production costs other than material and labor costs which can be identified directly with the product. It consists of indirect materials, indirect labor, and other factory expenses that cannot be identified with or charged directly to specific jobs or units of production.

Factory overhead costs usually are charged to products using a pre-determined overhead rate. The accountant finds a causal relationship between two factors, e.g., direct labor and factory overhead or machine hours and factory overhead, and uses this relationship as a basis for charging factory overhead to jobs or products.¹⁹ For example, factory overhead might be charged to products at 8 per cent of direct labor costs.

¹⁸Backer and Jacobsen, op. cit., p. 255.

¹⁹Adolph Matz, Othel J. Curry, and George W. Frank, Cost Accounting, 4th ed. (Cincinnati, 1967), p. 63.

The first objective in choosing an overhead rate base is to accomplish the most accurate application of overhead cost. The base chosen should be as closely related as possible to those functions which overhead costs actually represent. For example, if overhead costs are made up principally of supervision, the proper base is direct labor cost or direct labor hours. If, on the other hand, overhead costs relate principally to purchasing and handling materials, then materials cost might be the most appropriate base. The most common bases used for allocating factory overhead costs are as follows: (1) units of production, (2) materials cost, (3) direct labor cost, (4) direct labor hours, and (5) machine hours. Since actual factory overhead cost incurred usually is not available when a job or product is finished, factory overhead cost must be estimated. After the accountant makes an estimate and selects an allocation base, he determines a factory overhead rate by dividing estimated factory overhead by estimated base units. This calculation gives a rate of a given amount of dollars per overhead base unit. If necessary, that rate can be broken down into its fixed and variable components.²⁰

²⁰Ibid., p. 126.

There is similarity in the nature of factory overhead costs and joint material and labor costs, but one important difference should be noted. The basis selected for an allocation of overhead costs is presumed to reflect the manner in which overhead actually flows into processes or products. An assumption exists that overhead costs can be identified with specific products or processes. On the other hand, in the allocation of prime joint product costs this assumption generally is unwarranted. The basis for allocating these costs to products largely becomes arbitrary.²¹

Another type of joint cost which presents allocation problems is selling and general and administrative expenses. Such expenses as rent, taxes, insurance, telephone charges, and electricity have a general rather than a specific benefit to any given segment of an entity's operations. In practice, they are assigned to segments on somewhat arbitrary but, hopefully, reasonable bases. For example, rent and utilities expenses might be distributed to segments on the basis of relative square foot area of floor space occupied. If the nature of a facility or the operations makes location significant, this allocation base might be modified by using comparative value of floor space occupied. Insurance and property taxes might be distributed on the basis of value

²¹Backer and Jacobsen, op. cit., pp. 253-254.

of average inventory and furniture and fixtures attributable to each segment. This distribution seems appropriate since insurance premiums and tax assessments are based on these items of property. Other joint costs such as office salaries, office expenses, and telephone charges which cannot be so directly associated with segments might be allocated on the basis of segment sales. The bases selected for allocating these kinds of expenses have an important bearing on results obtained. For that reason, it is essential that an accountant use care in selecting an appropriate base. It is up to an accountant's ingenuity to discover the relationship which can most equitably serve as a basis for joint cost allocation.²² In this, as in any other allocation of joint costs, results obtained should be viewed as only an estimate at best.

Probably the most common kind of joint cost is a cost which is joint or common to more than one accounting period. These joint costs present a problem of allocation over time. Some costs can be associated easily with specific months or years because costs are incurred for services available only during those periods. Rent expense, for example, usually is attributable to time periods by direct charge. Other costs

²²W. T. Anderson, C. A. Moyer, and A. R. Wyatt, Accounting: Basic Financial, Cost, and Control Concepts (New York, 1965), pp. 561-564.

however, cannot be assigned to specific periods because they are incurred as a lump sum for services over a series of years. The service of a building or a machine is the best example of a cost which is joint relative to accounting periods.²³

Costs which benefit future accounting periods usually are charged initially to an asset account. As costs are used or as they expire with passage of time, an asset is converted into an expense by means of a periodic charge, usually referred to as depreciation or amortization. The joint cost allocation problem occurs in determination of the amount of this periodic conversion from asset to expense. As is true for other types of joint cost allocation, no basis for the allocation to time periods can be defended as correct to the exclusion of all alternative bases. Thus, several systematic methods have been devised for computing these periodic charges.²⁴

The accountant can support with rational arguments any of the acceptable methods for determining depreciation or amortization charges, yet each method can produce quite

²³National Association of Accountants, Accounting for Costs of Capacity, Research Report No. 39 (New York, 1963), pp. 35-36.

²⁴Ibid., pp. 36-37..

different cost patterns. A desire to equalize the periodic charges to facilitate comparisons between periods often leads to the selection of the straight-line method, which distributes cost equally over an asset's useful life. An accountant may select alternative allocation methods because they reflect more accurately an actual cost expiration pattern or because they reflect a preconceived desire to achieve a particular cost and, therefore, profit pattern. Thus he may use one of the accelerated methods of depreciation, *i.e.*, one which charges higher amounts of depreciation in the early years and lower amounts in the latter years. He would make this choice because costs actually seem to expire in this pattern or because the objective of saving income taxes by recording higher costs takes priority over other objectives in financial reporting.²⁵

In the light of these options of choice in allocation method, it is evident that the periodic depreciation and amortization charges are the result of subjective judgment rather than objective measurement. Consequently, financial statements which utilize these subjectively determined amounts should be used with an understanding that the statements are the results of judgments and estimates rather

²⁵Ibid., p. 37.

than an objective measurement of financial position and results of operations.

The Joint Cost Problem in Financial Literature

The spectre of the joint cost problem has haunted preparer and user of financial information and cost data for many years, probably since the accumulation of such data began. Comments on and discussions of the problem recur frequently in financial literature. Following is a summary of a few of the more significant ideas and opinions about the joint cost problem which have appeared since the 1920's.

In 1923 economist J. Maurice Clark published Studies in the Economics of Overhead Costs, a research study of the overhead type of joint cost. Defining overhead costs as "costs which are not traced to units of output, or do not vary with output,"²⁶ Clark's study focuses on unused productive capacity or idle overhead, which he refers to as "that great industrial sin." He saw plant capacity and overhead costs as governed by peak demand rather than by minimum or average demand and was concerned with maximizing use of these "unused powers of production."²⁷

²⁶J. Maurice Clark, Studies in the Economics of Overhead Costs (Chicago, 1923), p. ix.

²⁷Ibid., p. 1.

Clark sought to understand the meaning of cost in all its aspects and believed that economists and accountants have much to share. In the preface of his book he wrote that "the economist may well study the accountant's conceptions of cost, since they constitute economic forces which affect the conduct of business and the laws of value and production."²⁸ He believed just as strongly that "the accountant should know the meaning of cost from the standpoint of disinterested economic science, because it embodies, in a sense, that impossible goal to which his practical devices serve as approximation."²⁹ One task of the book was trying to throw the light of these two conceptions of cost upon each other.

Clark's looking to accounting for help in working with joint costs brought him face to face with cost accounting:

In the meantime business has developed the technique of cost accounting, including methods of allocating costs which cannot be directly traced to given units of product. This may be confined to seeing that all products are charged with a share of all operating expenses, or it may also include a share of interest on investment. This obviously offers great possibilities in the way of developing a standard of sound or conservative practice in fixing prices, which will act as a check on cut-throat competition. It also offers great opportunities for the development of arbitrary and fictitious notions of cost, through the necessity of apportioning items somehow, even if there is no

²⁸Ibid., p. x.

²⁹Ibid.

satisfactory scientific basis on which to do it. . . . Cost accounting is still in a formative stage, though it has already developed a voluminous literature, and its vocabulary gives it at least one of the characteristics of science--that of being inscrutable to the uninitiated.³⁰

Clark points out that the purpose of cost accounting was to provide detailed information of the cost of a product, job, process, or department and to analyze this cost into its component parts. He summarized uses of cost accounting as follows: (1) to set a price which covers cost and allows the desired profit, (2) to eliminate waste in production, and (3) to guide decisions as to what product should be made. Thus, Clark saw the scope of accounting as not limited to analyzing figures which financial accounting saw fit to record as costs for its own purposes. Rather, cost accounting, in his view, had sufficient independence to be in a position of including costs for its own purposes and then excluding them for purposes of measuring income.

As a result, if cost accounting sets out, determined to discover what the cost of everything is and convinced in advance that there is one figure which can be found and which will furnish exactly the information which is desired for every possible purpose, it will necessarily fail, because there is no such figure. If it finds a figure which is right for some purposes it must necessarily be wrong for others. The conclusion is that cost accounting needs to develop an

³⁰Ibid., p. 14.

elastic technique of a sort which probably could best be described, not as accounting at all, but as cost analysis or cost statistics.³¹

Clark's study of cost accounting led him to argue that its purposes require different conceptions and measurements of cost from those of financial accounting. He denied any intention of becoming involved in accounting controversies or criticizing accounting methods from the point of view of the main purpose of financial accounting, which he assumed to be income determination and measurement of financial position. Clark insisted that conceptions of cost, for purposes other than income determination, must find adequate recognition and scientific treatment.³²

Regarding the joint cost allocation problem, Clark described three methods of "dividing up the costs of a given concern so as to be able to specify the cost of particular items of output."³³ He did not consider the three methods as mutually exclusive, recognizing that any adequate method of tracing costs must use more than any one of the three methods to secure useful results. Clark associated and identified his three methods with the accountant, the statistician, and the engineer.

³¹Ibid., p. 234.

³²Ibid., p. 257.

³³Ibid., p. 216.

By the accounting method, Clark meant an allocation system which grew out of taking individual entries of cost--originally collected for the financial statements--and charging them to particular items of production. Some of these costs, physically identifiable with some segment in a visible and unmistakable fashion, can be charged directly. Others, not identifiable with a segment in this direct fashion, are treated in the most nearly similar manner; they are allocated to a department, process, or product on some predetermined basis. Both of these assignments retain a dominant characteristic of the general accounting system of which they are a product: costs are built up by a process of arithmetical addition, and the whole is equal to the sum of its parts. This allocating of indirect expenses is a different kind of process than that of charging direct expenses to the product. It involves something more than just adding up and recording items. It actually involves use of the other two methods--the engineer's estimate or expert judgment and the aid of the statistician. It involves a judgment about the causes which govern the amount of indirect expenses. These measures of responsibility may be rather imperfect and arbitrary. When accounting allocation selects an index of responsibility for indirect expenses, it virtually assumes

that these expenses vary in direct proportion to the variations of the index. This may or may not be the case. One of the strong points of the accounting method is that where the sum of the costs of the individual items of product equals the whole cost incurred by a firm, the individual costs can be used for purposes of fixing prices with a fair degree of confidence as to the ultimate effects on profits.³⁴

Clark's second method of allocating joint costs--the statistical method--is of a very different character. The statistical method is not only a different method, but also it yields a different kind of information. It involves observing differences in cost which correspond to differences in the volume or character of output. The observations may cover all costs of a business as a whole or costs of one segment such as a department, process, commodity, or class of output. To make the method at all scientific, a large number of observations must be made. A single observation means nothing. For example, a business firm might watch monthly fluctuations of its expenses and compare them with fluctuations of output, thereby identifying the differential cost of added output. Within the statistical method, two

³⁴Ibid., pp. 216-222.

principal kinds of comparisons are possible. One is successive observations of the same business unit; the other is simultaneous observations of different business units. Each kind of comparison has its own difficulties and is complicated by its own disturbing elements. If one studies a trend of costs from year to year, for example, it is necessary to allow for changes in prices and wages, improvements in production methods, and other variables. Thus, a disadvantage of the statistical method is that it shows too much. It records the effects of everything that has happened, not just the effects of the things which one wishes to study. The method's advantage is that it will do the one thing which accounting is least able to do, i.e., to discover whether the differential cost of additional activity is more or less than the average, and discover it by studying the actual effects of increased activity, not by conjecture or expert estimate.³⁵

The third method of allocating costs, which Clark identified with the engineer, is called the operator's estimate method. Just what process is involved in this method Clark could not say. He could only note that the procedure was somewhat different from the formal analysis

³⁵Ibid., pp. 217-225.

of the statistician or the arithmetical ritual of the accountant. It is a kind of intuitive short-cut which probably involves an implied or unconscious calculation of either the statistical or accounting method, or a combination of the two. An instance of the use of the operator's estimate method is found in discussions of railroad costs where it is asserted, for example, that two-thirds of the maintenance costs are independent of traffic. The selection of the number "two-thirds" is by operator's estimate. Clark has also observed the selection of a base for the allocation--direct costs, direct labor cost, direct labor time, machine time, or some other basis--is made by operator's estimate. The problem is usually one of finding some factor which controls the amount of indirect costs. The test is that costs vary more nearly with the factor selected than any other. Any factor selected is a compromise since some expenses vary more directly with labor time, others with machine hours, and others with other factors.³⁶

Regarding his three methods of allocating costs, Clark concluded that because statistical analyses are so arduous and costly that method usually was applicable only where some research body or association of producers could canvass

³⁶Ibid., pp. 217-218, 231.

a large group of productive units and make the results available to a trade or industry as a whole. The accounting method, he believed, needed no defense. Cost accounting, however, did need to develop greater freedom from the habits of financial accounting. Clark pled for development of varied techniques to satisfy cost accounting's independent requirements. The needs of the operator's estimate method were (1) to make its assumptions more explicit and (2) not to put forth as universal truth propositions which are true only of certain limited situations. All three methods of allocation, Clark emphasized, should be combined in any adequate system of studying and interpreting costs.³⁷

Clark concludes his study of overhead costs--their relationship to unused capacity, their methods of allocation, their constant and variable elements, their behavior in business cycles, and their many other characteristics--with wonder at their intricacies. No man, he notes, has ever comprehended them fully. Yet he is optimistic that enough is known of them to offer some prospect of controlling them. This, he reflects, must be done. If it is not, then they may well devour the industrial economy of which they are a part.³⁸

³⁷Ibid., pp. 231-232.

³⁸Ibid., pp. 487-487.

Subsequent to the work of Clark, accounting literature is replete with allusions to the problem of joint costs. In their 1940 monograph, An Introduction to Corporate Accounting Standards, W. A. Paton and A. C. Littleton saw joint costs as a more pervasive problem than was generally believed. They maintained:

There has been some tendency in the past to assume that common costs were an important matter only in certain industries. It is now coming to be recognized, however, that this phenomenon permeates the entire field of business and seriously limits the possibilities of cost allocation by methods of physical tracing. There is some excuse, indeed, for the opinion that the condition of joint costs is more typical of modern business activity than the condition in which cost factors flow in parallel, tight compartments in the direction of specific revenues.³⁹

In their monograph Paton and Littleton did not delve deeply into cost accounting allocation methodology. Rather, they suggested an alternative later known as the contribution margin concept. This idea restricts segmentation of costs to those which clearly would be eliminated if a particular segment were removed. Each segment is charged only with the inescapable costs applicable to its revenues. The difference between segment revenues and the assigned costs becomes a segment's contribution to common costs of the enterprise.

³⁹W. A. Paton and A. C. Littleton, An Introduction to Corporate Accounting Standards, American Accounting Association Monograph No. 3 (Iowa City, 1940), p. 75.

If an explicit division of joint costs is necessary, Paton and Littleton recommend apportionment based on relative market values of segment production. They emphasized this basis because it does not play favorites. It assumes that in incurring costs with certain ends in view, management implicitly dedicates costs to operations in a manner which harmonizes with the economic results to be attained.⁴⁰

In 1947 William J. Vatter argued for his fund theory of accounting. In his argument he defined assets as service potentials and expenses as releases of service. One expense problem, he said, is the fact that releases of service may be nonvolitional and uncontrollable. Another facet of the problem is that services are joint in their ultimate significance. Services do not occur in what Vatter called "discrete bundles that can be kept entirely separate and traced with precision, except in a very small number of transactions."⁴¹ Like Paton and Littleton, Vatter recognized that the joint service problem was a common one to many kinds of entities. He wrote:

Specific channels through which services are released are never so well defined as they are assumed to be.

⁴⁰Ibid., pp. 75-76.

⁴¹William J. Vatter, The Fund Theory of Accounting and Its Implications for Financial Reports (Chicago, 1947), p. 23.

The phenomenon of joint products is not confined to extractive or analytical industry in the physical sense; practically every "product" of every fund is made up of a number of components, that is, a product is often a conglomeration of joint effects.⁴²

One of Vatter's arguments for his fund theory was that expense is not a transaction concept and that the only feasible working concept of expense is a flow of services released from a fund of assets to specific purposes. The joint service phenomenon prevents measurement of expenses by transactions. While it is true that services are converted and released by means of transactions, many transactions are of such continuous and nonvisible nature that the transaction concept of expense must fail. Vatter asserted:

It is not by mere chance that expense is presented in financial statements as applying to a time period; any attempt to trace all joint services through to the end of a single transaction or the attainment of specific aims is but a futile gesture. . . . Despite the effort of the cost accountant to trace the effects of joint services to specific sales and deliveries, the result can never be attained in any theoretically acceptable sense, however useful these operations may be in practice.⁴³

In 1957, ten years after Vatter argued that joint services attributes of most expenses preclude tracing them to specific segments, the National Association of Accountants

⁴²Ibid.

⁴³Ibid., p. 24.

published Costing Joint Products, number thirty-one of its research series. References to the content of this study were made at the beginning of the discussion of the joint cost problem. It is sufficient at this point to note that the National Association of Accountants' study did not solve the problem. At two places in the study, the N A.A. concludes as follows:

Joint costs can be allocated, but all bases for allocation imply assumptions which cannot be objectively verified. For this reason, allocations of joint cost are best avoided where not essential to the purpose for which product costs are wanted. When allocations are made, the underlying assumptions should always be kept in mind in using the resulting product costs.

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It seems important that persons who use co-product cost and profit figures should understand the limitations inherent in the figures and not attribute to them more precision than they possess. In particular, management should not use costs prepared for financial reporting and tax returns for other purposes where these costs are inappropriate. Such costs may actually be misleading rather than helpful. . . .⁴⁴

By the 1960's and the advent of the corporate conglomerate, the joint cost problem again was attracting attention. The diversification of business operations was creating even more kinds of joint costs--common facilities, personnel, financial resources, advertising and other items. At the

⁴⁴National Association of Cost Accountants, op. cit., pp. 2-3, 29.

same time security analysts and other users of corporate financial reports were demanding performance measurements and other financial information for segments of operations within an entity. To provide such information called for new efforts of cost allocation. Writing in a 1966 issue of The Journal of Accountancy, Albert J. Bows noted that managements had developed accounting techniques for allocating costs to segments for tax, contract negotiation, legal, and other specialized reasons. The allocations, Bows pointed out, were usually made for particular purposes. For example, in controlling a widespread operation, management will sometimes insist that each division bear a share of overall administrative and financing costs. This may be done to encourage divisional management to recognize these costs in their pricing procedures, or it may be undertaken to impress divisional management with overall costs of operating the business.⁴⁵

In the past, Bows notes, joint cost allocations have been made for internal management control purposes, government contract negotiations, settlement of tax allocation problems,

⁴⁵Albert J. Bows, "Problems in Disclosure of Segments of Conglomerate Companies," The Journal of Accountancy, CXXII (December, 1966), 35.

and other reasons. If more segmental information is needed from diversified companies, however, joint costs may have to be allocated for financial statement purposes. This will be a new dimension in financial reporting. Bows commented:

The companies and the accounting profession have not as yet been faced with the necessity of reviewing the methods of allocation for the purpose of using them in published financial statements. Obviously, if divisional accounting is feasible, some guidelines should be set by the profession. There should be standards developed for consistency in reporting on segments of the business, and, thus, some discipline over management's judgment. This will help avoid adding to the present uncertainties in accounting and making it more difficult to compare different companies operating in the same lines of business.⁴⁶

One of the most comprehensive studies of the joint cost problem and the most recent extended work on the topic is Arthur L. Thomas' The Allocation Problem in Financial Accounting Theory, published in 1969 by the American Accounting Association as number three in its series, Studies in Accounting Research. Thomas' study is concerned with the financial accounting treatment of nonmonetary inputs: depreciable assets, inventories, prepayment, labor services, research and development, advertising, and so on. It is not directly concerned with such problems as cost accountants' allocations in determining product costs though the author anticipated that many of the same considerations would apply

⁴⁶Ibid., p. 36.

to those problems as the ones he discussed.⁴⁷ Thomas' concern was the allocation problem as it manifested itself in the timing of write-off of nonmonetary inputs on the income statements and the amounts attached to these inputs as assets on the balance sheet. He attributed the problems of writing off these inputs to the fact that inputs interact. Their interaction, he said, prevents theoretical justification from being given to input allocations employed in financial accounting.⁴⁸

In his discussion of the allocation problem in financial accounting, Thomas focused on one of the clearest instances of it: ways in which accountants depreciate depreciable assets. He outlined five approaches to depreciation which present accounting literature includes: (1) arbitrary approaches, (2) net-income-contributions approaches, (3) other-service approaches, (4) discounted-contributions valuations approach, and (5) current-price valuation approaches.⁴⁹ One by one he demonstrated how use of any of

⁴⁷ Arthur L. Thomas, The Allocation Problem in Financial Accounting Theory, Studies in Accounting Research No. 3 (Evanston, 1969), p. 24.

⁴⁸ Ibid., p. xiii.

⁴⁹ Ibid., Chapter I.

these methods, other than the net-income-contributions approach, is based on arbitrary decisions or leads to arbitrary results if inputs interact.⁵⁰ Then he analyzed the net-income-contributions approach and concludes that, when input interactions are present, this method, too, gives arbitrary results.⁵¹

In the final part of his work, Thomas examined various theorists' unconventional approaches to financial accounting. These proposals, he concluded, either fall into the same allocation problems as do conventional methods or lead to other difficulties of their own. For example, the current price approaches advocated by Chambers and Sterling effectively lead to abandoning the effort to measure income. Thus, Thomas was led to two conclusions. Accountants can decide to remain within the present framework of conventional rules. If this is the case, they should explicitly recognize that their allocations are generally arbitrary and respond to that awareness in an appropriate way. That response might consist of efforts for more uniformity in financial statements by attempting to develop allocation rules upon which intelligent laymen would agree. Without such a

⁵⁰Ibid., Chapter II.

⁵¹Ibid., Chapters III, IV, and V.

response, this decision would allow a large part of financial statements to be nearly void of meaningful content. An alternative course of action would be for accountants to avoid making allocations by (1) adopting one of the unconventional approaches to reporting economic activity or (2) substituting funds statements for income statements, both of which effectively lead to stopping the effort to measure income.⁵² Thus Thomas' study, while shedding more light on the joint cost problem than has been done before, did not solve that problem.

With this history of the prevalence of the joint cost problem in accounting theory and practice, it is not surprising that vocational rehabilitation workshops, so limited in financial and personnel resources, have been unable to cope with joint costs which pervade their operations and financial reports. While accounting experience and literature do not offer much hope that workshops' joint costs can be separated into their production and rehabilitation elements on a perfectly logical, objective, and defensible basis, workshops' pricing and other informational needs still demand some kind of positive and purposive response.

⁵²Ibid., Chapter VI.

CHAPTER IV

THE JOINT COST PROBLEM WITHIN THE VOCATIONAL REHABILITATION WORKSHOP

The vocational rehabilitation workshop is a unique entity to the American economic scene. It is a nonprofit organization built around a social goal--the vocational rehabilitation of human beings. At the same time, a part of its objectives and operations is devoted to the production and sale of goods and services, activities most commonly associated with a profit-making business. Thus a workshop exists under an explicit duality of purpose which creates a singular type of entity with its own set of accounting problems. Following is a discussion of a workshop's joint costs of production and rehabilitation and some of the solutions which have been proposed to its joint cost problem.

Economic Characteristics of the Vocational Rehabilitaion Workshop

As a group, nonprofit organizations share at least two characteristics: (1) they earn no monetary return on their investment and (2) they seek to fulfill some social purpose. These two features are not independent. Any organization

which seeks no social objective and earns no pecuniary return on its investment presumably will cease to exist.¹ In these two characteristics, nonprofit organizations actually are not abandoning return on investment, except in a business sense. Rather, they are (1) substituting a nonmonetary return--a social return--for the financial return of profit-making organizations and (2) embodying that nonmonetary return in the statement of their social purposes. Nonprofit organizations have a return which is their achievements toward their social goals. If this social return could be measured in the same monetary terms as costs incurred to obtain these returns, characteristics of nonprofit organizations would not be unlike those of their sister profit-making organizations. And the accountant would have the data which fits the mold of his traditional statement of income or results of operations.

Measurement of social returns is an area which offers enormous potential for research and study. Social benefits derived from social costs incurred have eluded not only financial but also statistical measurement. Even beyond the

¹W. J. Baumol and W. G. Bowen, "On the Performing Arts: The Anatomy of Their Economic Problems," American Economic Review, LV (May, 1965), 497.

needs of private nonprofit organizations and public welfare groups for this kind of results measurement, there are needs of profit-oriented businesses which are beginning to include social objectives in their operations along with their profit-making goals. Financial reporting for these kinds of operations would benefit greatly if it could include social returns as well as business ones.

Another characteristic of a typical nonprofit organization is that its objectives, by their nature, keep it on the verge of financial disaster. While the businessman usually is concerned with quality of his product only to the extent that it assures or improves his profits, a nonprofit organization regards improvements in quality as ends in themselves. Better facilities, more research, and more generous time become fundamental goals which constitute bottomless receptacles into which limitless funds can be poured. As soon as more money becomes available to a nonprofit organization, corresponding new uses can be found. It is hardly surprising, therefore, that this kind of organization feels itself constantly constrained by lack of resources.² This need for more and more resources only intensifies needs for better measurements of accomplishments,

²Ibid., pp. 497-498.

for those who control resources available to nonprofit organizations want to allocate these resources to the organizations which produce superior results.

Quality aspirations are not the only goals which contribute to financial difficulties of a nonprofit enterprise. Another concern of this kind of organization is the size and composition of its clientele. Since a nonprofit organization considers itself a supplier of "virtue," it is natural that the organization seeks to distribute its bounty as widely and equitably as possible. It wishes to offer its products to the needy, to the deserving, and even to people who may not recognize their own needs for the products, and therefore, have to be "sold" on accepting them. The consequence is that the products bear a low price in spite of high quality and/or cost.³

The social goal, the desire to provide a product of high quality, and the effort to distribute that product in a manner other than one which maximizes monetary return are as much the characteristics of a typical vocational rehabilitation workshop as they are of any other nonprofit organization. Internally, a workshop may have some differences in its financial structure. On the whole, however, it

³Ibid., p. 498.

experiences all of the same seemingly limitless opportunities for absorbing funds and the resulting constraints from lack of funds as do other nonprofit organizations.

In its economic characteristics, the unique feature of a vocational rehabilitation workshop as a nonprofit organization is that its operations include production and sale of goods and services. An integral part of a vocational rehabilitation process is a provision and use of a work environment. In that environment a workshop client can learn skills and make psychological and physiological adjustments which will enable him to find and hold employment in the competitive labor market. To make that environment as realistic as possible, a workshop undertakes the actual production and sale of goods and services either through salvage operations, subcontract work for industry, or, more likely, through a combination of the two.

Three objectives emerge to account for a workshop's production operations: (1) provision of a work environment for rehabilitation activities, (2) provision of additional financial resources through sales of workshop products, and (3) provision of goods, principally used clothing and household goods, to the needy at a price they can afford to pay. These diverse objectives create a dual focus of

activities--rehabilitation and production--which gives a workshop its unusual quality. The work environment objective and other rehabilitation activities clearly are social in nature. Production activities, however, and the combination of business and social objectives which lie behind them, create unique entities. They embody elements of profit-making organizations, yet their social aspects preclude an application of usual accounting measurements to their results of operations. The pricing of workshop salvage goods, for example, most often is made on the basis of distribution to the needy rather than on any analysis of costs of production.

Priorities that different workshops assign to their objectives and, therefore, to production and rehabilitation activities, vary from one extreme to another. Some shops have an orientation which seems almost wholly fiscal. These places even may create the impression that they exploit handicapped workers, using their low labor cost to produce large returns. In these workshops rehabilitation activities may be obscure, and the rehabilitation programs appear to consist of nothing more than the work of one or two counselors circulating among clients. At the other extreme, some workshops operate complete rehabilitation

facilities, which include psychological testing, training, and counseling. In these shops the production and sale of goods is incidental to rehabilitation accomplishments. For most workshops, however, priorities are assigned somewhere between these two extremes.

In reviewing the economic characteristics of a vocational rehabilitation workshop, one also notes costs that are unique to production operations of sheltered workshops. The production operations of a workshop are not comparable to those of normal competitive industry because of such costs. Production costs that are peculiar to sheltered workshops include factors of production, which are not present in normal industry, but which are present in a workshop because of its specialized structure, its operations, and its philosophy. Some of these costs are the result of (1) high labor turnover, (2) inefficiency of labor due to mental or physical handicaps, (3) use of labor resources for evaluation, counseling, and training, (4) poor equipment, and (5) use of rehabilitative or therapeutic methods and techniques as a part of the production process. These extra costs are the result of a workshop's social goals. The recognition that these costs exist is not criticism of their existence. In fact, the presence of these costs is

indicative of a workshop's adherence to its social goals. However, the extra costs do create problems that hamper efforts to compare a workshop's operations with those of competitive industry.⁴

The Joint Costs of Production and Rehabilitation

The vocational rehabilitation workshop's productive and rehabilitative activities and the existence of its extraordinary costs of production operations combine to produce its principal accounting problem: the joint costs of production and rehabilitation. Rehabilitation activities and production activities produce two kinds of products: people and goods. These activities and their products form two segments about which financial information seems to be desirable. Complete financial information includes a determination of the costs of each segment's activities. Among these expenses are the extra costs of a workshop's production operations.

Some of each segment's costs are directly and easily identifiable. Certain rehabilitation costs are incurred in isolation from the rest of the workshop activities.

⁴Michael M. Dolnick, Contract Procurement Practices of Sheltered Workshops (Chicago, 1963), pp. 33-34.

For example, costs of rehabilitation counselors, some of their counseling, testing, and evaluating tasks, and facilities used for these activities belong solely to the rehabilitation function and can be assigned there directly. On the production side, there may be costs which are independent of rehabilitation efforts and, therefore, are solely costs of production. Costs incurred in any subcontract work which does not involve the use of clients is an example of this kind of cost. Because the productive activities that provide work for clients are an integral part of the rehabilitation process itself, there are other costs which contain elements of both production and rehabilitation. These are the joint costs which are the subject of this study.

A workshop client, working in the production area of the workshop, does not produce at the same rate as a non-handicapped worker in competitive industry. Periodically a client will attend formal training, counseling, and testing sessions. At other times he will receive on-the-spot, informal counseling, instruction, or, perhaps, disciplinary action. Even when he is engaged in a productive activity, a client will produce more slowly than normal. His physical or mental handicap, his needs to adjust his

work habits, his attitude toward work or persons with whom he must work--all of those factors which prevent his securing and keeping regular employment--will partially impair his effectiveness as a worker. For this reason, a portion of the costs associated with the client's productive efforts, however difficult identification and separation of that portion may be, is actually a part of rehabilitation cost. Without this cost separation, the cost of neither of the workshop's segments is correctly stated.

It has been argued that since production is considered a necessary and integral part of the rehabilitation process that all costs ultimately should be deemed rehabilitation costs. This argument is not without truth, but to use it as a rationale for avoiding any attempt to separate joint costs of production and rehabilitation is to fail to meet the informational needs of management and contributors. Too, that rationale can become an excuse for failure to analyze costs of different workshop functions. Without such analyses and the cost controls which the analyses produce, it is easy to develop another bottomless receptacle--inefficient production operations--into which a workshop can be pouring funds needlessly. Such a situation does not augment an efficient use of funds.

The present treatment of joint costs of production and rehabilitation is to include them all under the costs of production activities and to make no separation or allocation of any kind. Thus, rehabilitation costs reported include only direct rehabilitation costs, and production costs include both direct production costs and the joint costs of production and rehabilitation. Treatment of joint costs as production costs is not without some support. For example, one widely-used accounting principles textbook states:

For the most part expense allocations rest on two criteria: benefit and responsibility. Under the benefit test expenses are assigned on the basis of the relative benefits that accrue to the various departments as the result of an expenditure for services. Under the responsibility test expenses are assigned to the department primarily responsible for incurring the expense. In some cases responsibility and benefit coincide; in others they are at variance.

It is seldom possible to follow one or the other tests consistently in allocating costs among departments. In general, however, the responsibility test can be more objectively applied and thus is likely to give more meaningful results; benefits are difficult to trace.⁵

The present treatment of joint costs of production and rehabilitation, which assigns them to production costs, can be rationalized on the basis of either test. Because joint

⁵Walter B. Meigs and Charles E. Johnson, Accounting: The Basis for Business Decisions, 2nd ed. (New York, 1967), pp. 683-684.

costs are incurred within production activities, they may appear to be primarily of a production cost nature. They are, however, in large measure extra costs caused by rehabilitation objectives. In usual workshop structure, production management personnel have the responsibility for incurring production costs. Therefore, under the responsibility test, joint costs can be assigned to production. (Charging joint costs to production on the basis of responsibility, however, ignores the rehabilitation objective of workshop activities.)

On the other hand, if one were to believe that there is no way to separate joint costs, then the benefit test could be the rationale for current treatment of these costs. In most instances, the greater part of the benefits derived from joint costs seems to accrue to the production activity rather than the rehabilitation process. If this speculation is true, it is probably because the effort to simulate a normal, competitive work environment causes production management to minimize the diversions of client productive effort which lie behind rehabilitation costs. Whether the reason for charging joint costs to production is based on either of these tests or whether it is done simply because that way is the easiest is not clear. Whatever the reason, at the present time no attempt is made to separate joint

costs into their components and to identify any portion with rehabilitation.

How does one identify the element of rehabilitation which joint costs contain? Before dealing with the constraints of the practical situation, one needs to consider the question on a theoretical level to establish a goal for the kind of answer he eventually will posit for application. Rehabilitation costs incurred in the production area of a workshop are associated with client time or time-equivalent (e.g., inefficiency due to handicaps) diverted away, intentionally or unintentionally, from the production activity. For this reason, some observers argue that the identification of the rehabilitation element of costs becomes a question of how much cost relates to client time or time-equivalent diverted from production.

Proponents of this view argue that all workshop production costs associated with diverted client production time, i.e., all costs in excess of the costs which would have been incurred if the work had been performed by competitive industry, should be charged to rehabilitation. This argument is based on the notion that workshop production costs should be equivalent to those of normal industry and that all inefficiencies in excess of those found in competitive industry should be charged to rehabilitation. As explained

below, the result of such an assignment of costs is a contrived result which is contrary to the nature of a workshop.

If a vocational rehabilitation workshop uses handicapped workers in its production operations, there is no reason to expect its production costs to be comparable to those of competitive industry. If a disabled worker's inefficiency, whatever its source, could be measured on a continuum, the costs, both effective and ineffective, of bringing the handicapped worker from his initial level of productivity to his maximum potential should be a part of the rehabilitation cost. Additional costs that relate to the difference between a disabled worker's maximum potential and that of a normal worker are production costs attributable to the nature of a workshop's operations. Ideally, therefore, only the extra costs associated with efforts to bring handicapped workers to their maximum level of efficiency should be considered rehabilitation costs.

Specific costs which are a part of joint costs of production and rehabilitation will be identified and discussed in detail in Chapter V where actual cost data of a workshop are analyzed. At this point the costs which need separation are identified only in a general way.

One of the largest items of joint costs is client wages. If the workshop pays wages to clients and those wages are based on time spent in productive efforts, then a portion of wages represents rehabilitation costs. Some workshops do not pay wages. Others make living allowances or support payments based on needs of clients and their families. Such payments have no association with productive activity and, therefore, are not a part of production or of joint costs. Only those wages paid which are based on productive efforts represent partial rehabilitation and partial production costs. Another kind of cost which is joint to production and rehabilitation is the cost of supervision of production operations. The production supervisor's job in a workshop is not the same as that in normal industry. A workshop supervisor counsels, trains, and disciplines more frequently than supervisors in normal industry. Thus, a portion of his salary should be assigned to rehabilitation. Raw materials, too, can embody joint costs. The cost of raw materials consumed as a result of rehabilitative efforts should be assigned to rehabilitation costs. Some overhead expenditures also become joint costs. If handicapped persons are engaged in productive operations, then all costs of those operations include elements of rehabilitation

as well as elements of production. Thus, utilities, rent, taxes, depreciation, repairs and maintenance, and other such categories include joint costs.

Summarization and Critique of Proposals for Separating the Workshop's Joint Costs

In the past few years, several researchers have proposed solutions to the workshop's cost separation problem. Some have been quite technical and have included detailed analyses of the problem's complexities. Others have been at a very superficial level. None of the proposed solutions has been widely accepted. In fact, most workshop administrators view cost separation as an unsolved problem. Following is a summary and criticism of three of the more creditable solutions which have been proposed to the workshop's joint cost problem.

Peat, Marwick, Mitchell & Co. Solution

As a part of the Goodwill Industries Standard Accounting Project, the public accounting firm of Peat, Marwick, Mitchell & Co. (PMM & Co.) made a study and presented recommendations concerning the joint cost problem. The accounting firm summarized the problem as follows:

A realistic vocational rehabilitation environment must involve more than simulated work experience. A center or workshop that is oriented toward vocational rehabilitation is both producing and training, and

clients are contributing to the production while they are gaining skills. Due to a lack of guidelines, the training element in this environment has normally been acknowledged but not accounted for. A procedure for this identification is essential if the financial records are to reflect reality.⁶

The procedure recommended by the accounting firm identifies four types of activities which relate to training (rehabilitation) and, therefore, generate joint costs. They are: (1) training supervision, (2) departmental training, (3) training materials, and (4) indirect or supporting costs. The report considers each of these four kinds of cost in turn and suggests techniques for dividing them between production and rehabilitation. According to the PMM & Co. report, the first kind of joint cost activity, training supervision, should be classified under the rehabilitation and training service activity. The costs are mostly payroll costs and should be split between production and rehabilitation as a part of the salary distribution procedure.⁷ The report recommends distribution of salary costs on the basis of employee time allotted to training as determined by time reporting on a sample basis by employees who train clients

⁶Peat, Marwick, Mitchell & Co., The Application and Analysis of Financial and Statistical Data: Standard Accounting Project (New York, 1969), pp. III-4 and III-5.

⁷Ibid., p. III-5.

and also perform other functions. Or, if an employee splits his effort in fixed proportions, a predetermined distribution of his salary may be satisfactory.⁸

The PMM & Co. study defines departmental training costs as all of a production department's direct costs except (1) client salaries and wages, which PMM & Co. considers as being paid solely for production, (2) training supervision, and (3) training materials. The accounting firm proposes to separate these joint costs by using a productivity measure called the "departmental increase factor." This factor is an average level of increase in the productivity of a specified group of clients from the beginning to the end of the time period. This difference is considered a measure of the training which clients have received during that time.

The departmental increase factor is computed and applied in the following sequence:

1. An initial percentage evaluation of production capability is made for each client working in the production area of a workshop.

2. At the end of the accounting period another productivity evaluation is made for each client.

⁸Ibid., p. III-2.

3. The increase in each employee's productivity from the beginning of the period to the end is determined by subtracting the initial evaluation percentage from the evaluation at the period's end.

4. The departmental increase factor of productivity is determined by dividing the total of all clients' initial evaluation percentages, as determined in (1) above, into the total of the increases in productivity for all clients as calculated in (3) above.

5. The final step is the application of this factor to the departmental training costs to determine the amount of costs to be transferred to the rehabilitation segment.⁹

The third category of joint costs, training materials, are costs of materials consumed in training activities and the costs of solicitation and collection of donated materials. To separate training materials costs between production and rehabilitation, the PMM & Co. report utilizes the same departmental productivity increase factor which was computed for departmental training costs. That factor, computed by department, is applied to training materials

⁹Peat, Marwick, Mitchell & Co., Training Cost Accounting Procedures: Standard Accounting Project (New York, 1969), pp. 3-4.

costs in those departments which use materials in their production operations.¹⁰

The last of PMM & Co.'s four kinds of joint costs, indirect or supporting costs, do not receive special treatment to divide them between production and rehabilitation. This group of costs includes personnel, accounting, central services, and other general and administrative expenses. These costs are allocated to all of a workshop's areas of operation, including production and rehabilitation, in a separate allocation to develop full costing of all workshop activities. The basis used for this allocation is total direct costs.¹¹

The PMM & Co. recommendations for separating the workshop's joint costs can be reduced to two methods (1) separating training supervision costs between production and rehabilitation on the basis of actual time spent in each activity, as recorded in time reports or as estimated from samples and (2) separating departmental training costs and training materials costs on the basis of a factor for increase

¹⁰Ibid., p. 5.

¹¹Peat, Marwick, Mitchell & Co., The Application and Analysis of Financial and Statistical Data: Standard Accounting Project, pp. III-7 and IV-5.

in client productivity for clients working in production. These recommendations have not been accepted by administrators in the field of vocational rehabilitation. Following is a discussion of some reasons for rejection of the PMM & Co. recommendations.

To implement the separation of training supervision cost, the PMM & Co. approach requires a training supervisor to keep a record, at least on a test basis, of how he divides his time between production and rehabilitation. In most workshop situations, such an idea is not practical. A supervisor's job is one of instructing a client on the achievement of production, either directly, e.g., how to perform a production task, or indirectly, e.g., how to modify a client's behavior to make him a better worker. When that instruction takes the form of classroom type of activity, a supervisor's time can be separately identified. But a large measure of a supervisor's work is on-the-job training in which he moves from one client to another discussing the work, demonstrating how it should be performed, and helping the client perform the task. Under these circumstances, production and rehabilitation are simultaneous or joint products of a supervisor's activity. His time cannot be identified with either. Even if his time could be

so identified, the impracticality of keeping such a detailed record as a supervisor moves from one client to another is sufficient to preclude the use of the method of PMM & Co. This same problem applies to the effort to record a supervisor's time distribution on a test basis. An additional problem is that the clients and their needs and, therefore, the supervisor's distribution of time vary so that a test is unlikely to be representative.

PMM & Co.'s other technique for separating departmental and materials training costs faces limitations just as serious. The technique is based on increase in client productivity, a quality which as yet no one has been able to measure satisfactorily. While some sort of industry norm or standard may be determined and used as a basis for productivity measurements of a normal worker assigned to a routine task in competitive industry, the situation of a handicapped client in most workshops is not the same. In most workshops tasks performed by clients are not fixed. Part of the rehabilitation process is giving clients a breadth of experience to improve their opportunities for employment. Thus, a client is encouraged to move from task to task within production operations. Frequently, too, workshop production activities, because of quantity limitations,

are not often subject to division into separately performed tasks. This is particularly true of workshop salvage operations where donated goods are reconditioned for sale in workshop stores. Thus, again, a client must move from task to task. While it may be possible to measure productivity of samples of work or of single, specific tasks within a productive activity, overall measurements of productivity which correspond to all the tasks in which clients are usually engaged have not been developed. Another hurdle in the path of measuring client productivity is the varying effects of different handicaps. For some tasks, a client's handicap may be no handicap at all; for others, it may limit his productive capacity seriously. These factors combine to make any overall measurement of client productivity beyond the grasp of most workshops.

Another point of criticism of the productivity increase factor technique is that its use involves an assumption that all rehabilitation costs incurred result in an increase in productivity on the part of a workshop's clients. This is not the case. There are rehabilitation costs which are "lost;" i.e., they do the clients no good in any way. These lost rehabilitation costs are rehabilitation efforts which because of poor timing, poor testing, client attitude,

or numerous other factors simply do not produce the desired results. There are other rehabilitation costs which are effective, but they do not produce an increase in productivity, or, at least, not a measurable one. Rehabilitation is a broader goal than just increasing a client's productivity. It includes changes in attitudes, appearance, work habits, and other factors which over a period of time would help an individual maintain employment. Rehabilitation efforts could be effective in modifying a client's attitude, for example, yet still not show up in a measure of productivity. Thus, there are rehabilitation costs which PMM & Co.'s productivity factor separation technique would not encompass and which, under their recommendations, would remain a part of production costs.

The PMM & Co. technique of allocating joint costs on the basis of increase in productivity also can be criticized because it does not distinguish rehabilitation from the normal pattern of increased productivity due to learning. Learning curve theory says that the more frequently a worker repeats an operation, the more efficient he becomes. The more efficient he becomes, the less time he uses to complete each unit produced. Increases in productivity are high as a worker begins a new task. After he has performed this

task many times, productivity increases disappear. Learning curve theory says that not only does this efficiency exist but also it is regular enough to be predictable. The theory goes on to state that as the total quantity of units produced doubles the cost per unit declines by some constant percentage.¹² Thus, in normal competitive industry increases in productivity occur along with concomitant savings in production costs. The PMM & Co. cost separation technique, however, groups the effects of a learning curve with the effects of rehabilitation and makes the total increase in productivity the basis for determining the rehabilitation portion of joint costs. At least some portion of the effects of the learning curve pattern should remain a part of production costs, for they are an ordinary part of cost behavior in any form of repetitive activity.

Another criticism of the PMM & Co. productivity factor is that at very low levels of productivity any increase in productivity causes disproportionate amounts of costs to be transferred to rehabilitation. In the extreme case, a

¹²CDR William J. Robinson, "Management Technique Forecasts Future Manpower Requirements," Navy Management Review, III (May, 1963), 4.

production department with one client who is initially only 10 per cent productive and improves during a single period to the point where he is 20 per cent productive, would generate a departmental productivity factor of 100 per cent. Thus, in accord with the PMM & Co. recommendations, all of the costs of operating that particular department would be assigned to rehabilitation even though it has had a man producing at an effective rate of from 10 to 20 per cent. Obviously some of the costs should be attributable to units produced.

Allocation Procedure of the College of
Business Administration, University
of San Francisco

Individuals associated with the College of Business Administration of the University of San Francisco, in connection with a grant from the Department of Health, Education, and Welfare, have done considerable work with rehabilitation workshop administration problems. One of the problems to which this group has addressed itself is that of isolating the business enterprise and social agency costs of a workshop. In a case book on workshop problems and in other work, this group has presented a proposal for solving the workshop's joint cost problem. Like the PMM & Co. proposal, this group's solution has been rejected by

sheltered workshops. Following is a summary presentation and criticism of this proposed solution.

The University of San Francisco (hereafter referred to as USF) model for allocating the joint costs of production and rehabilitation works with three groups of costs: (1) client wages, (2) administration costs, and (3) production expenses that are related to number of clients. The allocation of the first and third of these kinds of costs is based on a measure of client productivity. The USF model, unlike that of PMM & Co., develops a detailed measure of client productivity. The second of these kinds of costs, the administration expenses, are allocated on another basis. Each of these groups of expenses and their proposed bases for allocation are discussed in turn.

The model first turns its attention to allocation of the wages and wage-related expenses of handicapped production workers. Allocation of these costs is based on a detailed computation of a worker's earned income versus the income he receives as a subsidy. The basis for that computation is a measure of productivity based on a comparison of (1) actual hours worked to (2) standard hours, or amount of time which would have been worked if the workers were fully productive.

The USF model describes a standard hour of work as equivalent to the amount of work performed by an average trained, nonhandicapped worker in sixty minutes. The standard hour can be determined in several ways: (1) by time study of the work of a nonhandicapped worker, (2) by recording daily output of a nonhandicapped person, (3) by using the estimated length of time for a normal worker to perform the job, which was used when the job was bid, and (4) the method discussed below. This last method, the originators admit, is less accurate than others but is desirable since standard hours frequently are not directly determinable under any of the first three methods. The last method is based on assumptions that (1) bidding practices of the workshop on subcontract work are uniform and (2) bids are made on the basis of recovering the cost of materials plus direct labor plus a per cent of direct labor for overhead. Using these assumptions, the model computes standard labor hours by subtracting from business income (sales revenue) the cost of materials to find "labor and overhead income." Then the labor and overhead income figure is divided by the per hour shop rate used for bidding on all jobs. This shop rate consists of the competitive rate earned for similar work by normal workers plus the per cent of labor cost added for overhead.

The result of this calculation, according to the model, is the standard direct labor hours worked to produce the revenue. Finally, the standard direct labor hours are divided by the actual direct labor hours to find the per cent of productivity of the shop's production workers.¹³

This computation of per cent of productivity of clients is illustrated below, using hypothetical numbers:

Gross sales	\$43,580
Less materials costs	<u>15,053</u>
Labor and overhead income	<u>\$28,527</u>
Divide labor and overhead income by \$2.50 per hour shop rate (\$1.25 plus 100% overhead)	$\frac{\$28,527}{\$2.50} =$
Standard direct labor hours	<u>11,400</u>
$\frac{\text{Standard hours}}{\text{Actual hours}} = \frac{11,400}{37,785} = 30\% \text{ Productivity}$	

The USF model's next step is to convert the productivity per cent above into an adjusted productivity which takes into account expected productivity in competitive industry.

The model's formula for this computation is as follows:

¹³College of Business Administration, University of San Francisco, "Procedures Used to Separate and Analyze Business and Services-to-People Expenses and Revenues in Rehabilitation Workshops," unpublished paper, San Francisco, pp. 1-6.

$$100 \times \frac{\text{Productivity (as calculated above)}}{\text{Expected productivity in competitive industry}} = \text{Adjusted Productivity}$$

Adding hypothetical numbers for "expected productivity in competitive industry" gives the following result:

$$100 \times \frac{30}{85} = 35\%$$

This restatement of calculated productivity in terms of an adjusted productivity recognizes the fact that even in competitive industry workers are less than 100 per cent effective.

The next step in the procedure for allocating client wages is to convert the adjusted productivity factor into the per cent of earned income. This step consists of applying the per cent of adjusted productivity, e.g., 35 per cent, to the standard wage, e.g., \$1.25, to arrive at an approximation of the competitively earned wage. Then the model computes an average actual hourly wage by dividing production workers' wages by the actual direct labor hours. The ratio of earned wages to average hourly wage is the per cent of earned income. This computation, continuing the previous illustration, is as follows:

Standard wage	<u>\$ 1.25</u>
Competitively earned wage (standard wage x adjusted productivity or \$1.25 x 35%)	<u>\$.44</u>

$$\frac{\text{Production workers' wages}}{\text{Direct labor hours}} = \frac{\$27,797}{33,385} = \underline{\underline{\$.83}}$$

or average actual hourly wage

$$\frac{\text{Earned wage}}{\text{Actual wage}} = \frac{.44}{.83} = 53\% \text{ earned income}$$

Thus, the production wages are allocated 53 per cent to production costs and 47 per cent to rehabilitation.

The next group of expenses which the USF model seeks to allocate is administrative costs. In the example which is included with the model, administrative costs consist of such items as office supplies and expenses, publicity, executive and accounting salaries, payroll taxes applicable to those salaries, occupancy costs, taxes, interest, and insurance. These administrative costs are allocated between rehabilitation and production by what is cited as "guess of consultant." In the example worked out in the case book, the consultant's guess amounts to allocating 15 per cent of administrative costs to rehabilitation and 85 per cent to production.¹⁴ Comment on this basis of allocation hardly seems necessary, other than, perhaps, a commendation for unusual forthrightness in admitting that cost allocations are arbitrary.

¹⁴Isadore Salkind, editor, A Case Book in Rehabilitation Workshop Problems (San Francisco, 1968), pp. 49-56.

In all fairness, it should be noted that elsewhere in its presentation, the USF model elaborates slightly on its "consultant's guess" allocation basis. It suggests analyzing administrative units to determine the jobs they perform. With that analysis, then, a "reasonable estimate" of the amount of service rendered each operating department can be made.¹⁵

The third group of expenses which the USF model undertakes to allocate is a group called "expenses related to number of clients." These costs originally are charged to production. They include such items as supervisory salaries, depreciation, maintenance and repairs, and the 85 per cent of administrative costs previously allocated to production on the basis of "consultant's guess." The allocation basis for this group of costs is a rehabilitation factor and is defined as 100 per cent less the adjusted productivity per cent determined above in the allocation of client wages. Thus, continuing the illustration, the rehabilitation factor is calculated as follows:

$$100\% - 35\% = 65\%$$

Therefore, 65 per cent of the "expenses related to clients"

¹⁵College of Business Administration, University of San Francisco, op. cit., p. 20.

is allocated to rehabilitation, completing the USF model's allocation of workshop costs.¹⁶

With the exception of administrative costs, which are allocated between rehabilitation and production on the basis of a consultant's guess, the USF model allocates joint costs on the basis of the measure of client productivity described above. That measure was carefully developed; however, its computation is based on assumptions which preclude its use in most vocational rehabilitation workshops.

The USF model assumes uniform bidding practices in a workshop where 100 per cent of the revenue is from subcontract work. Few workshops derive all of their revenues from subcontract work. For many shops salvage operations account for a larger part or at least a significant part of revenues received. Output from salvage operations is intentionally underpriced for sale to needy people. Thus, the relationship between price and worth that is essential to the model's calculation of standard labor hours does not exist for salvage operations. Therefore, in a workshop which has salvage operations, the model's determination of standard labor hours could not be applied.

¹⁶Salkind, op. cit.

Of course, there are other means of determining standard labor hours as the USF model points out. But time studies, measurements of output, and other such means are not feasible for those shops which have their clients undertake myriads of different small tasks characteristic of either salvage operations or many types of subcontract jobs. Again, movement of clients from one job to another is a part of the rehabilitation process. This movement complicates efforts to measure standard hours. In vocational rehabilitation, where historically there has been a shortage of trained administrative personnel and the resources to acquire them, the notion of developing labor hour standards for all, or even a substantial portion of, productive tasks is unrealistic.

Another problem in determining client productivity is that of finding expected productivity in competitive industry which the model uses to compute adjusted productivity in a workshop. Again, existence of so many different productive tasks, particularly where there are salvage operations, makes it almost impossible to find comparable jobs in competitive industry. Where salvage operations are involved, often there are no comparable jobs in competitive industry.

Another criticism of the USF model is that it ignores joint costs of materials. It assumes that a workshop is furnished with raw materials or reimbursed dollar for dollar for all materials costs. If so, business customers are paying for rehabilitation costs. If this is so, and it does not seem likely, it should be disclosed in the financial reports.

Franklin P. Hall Cost Accounting Recommendations
for Sheltered Work Programs

Franklin P. Hall, who was for some time associated with the work in vocational rehabilitation administration at the University of Wisconsin, made an attempt to solve the joint cost problem for workshops. His contribution, written sometime after 1965, is in the form of an unpublished paper entitled "Cost Accounting Production and Rehabilitative Aspects of Sheltered Work Programs."

The first of the joint costs to which Hall turned his attention was wage payments made to clients. Wage payment policies vary from one workshop to another. The reason is that the Fair Labor Standards Act provisions are subject to different interpretations when applied to vocational rehabilitation workshops. The Act and its regulations require that workshop employees' rates of pay be equivalent

to the pay which nonhandicapped workers in competitive industry would receive for the same tasks. However, the law does permit handicapped workers' actual wages to be adjusted downward for their reduced productivity as compared to that of a normal worker.¹⁷ The regulations go on to require that the wage payments in certain cases may not be lower than a fixed minimum, regardless of the workers' level of productivity.¹⁸ Thus, the workshop may be supplementing wage payments made according to productivity with "compliance wage payments" to meet required minimums. The difference arises because there is disagreement as to whether or not the Act applies to clients. Some workshops believe that the Act applies to all workers--clients and other employees alike. Other workshops believe that the provisions of the Act do not apply to clients.¹⁹ Thus, some workshops do not pay wages to their clients in any form. Others use token wage payments as incentives to encourage productivity on the part of clients. Still others make regular wage payments to clients.

¹⁷Franklin P. Hall, "Cost Accounting Production and Rehabilitative Aspects of Sheltered Work Programs," unpublished paper, p. 11.

¹⁸Ibid., p. 17.

¹⁹Statement by A. J. Bob Blase, Executive Director, Goodwill Industries of San Antonio, San Antonio, Texas, January 14, 1970.

Hall accepted the interpretation that the Fair Labor Standards Act applies to clients as well as other workshop employees, and, in his recommendations, assumed that all workshops make their wage payments under these provisions. In fact, he made the payroll procedures required under this interpretation of the Act the answer to the question of how to allocate joint costs of clients' wages. According to Hall, wages paid to clients based on their productivity should be charged to production. He contended that payments for time devoted to nonproductive activities, such as training and counseling, should be assigned to rehabilitation. Provision for nonproductive time which is normal for any worker, handicapped or nonhandicapped, such as break time, delays due to waiting for work or inspection, personal time for trips to restrooms or first aid, is made within the estimate of productivity under the Fair Labor Standards Act. Thus, this type of nonproductive time is taken care of automatically. Beyond these normal interruptions, according to Hall, the separation of work time from nonwork time is a mechanical one of record keeping and is the product of many daily decisions of having clients punch their time cards off work time and on to some other account number. Hall believes that compliance payments, which bring wage rates up to

minimums set by law, should be a part of production costs, since these are representative of the normal situation associated with competitive industry. Because they are also associated with productivity, Hall also said that bonus payments based on productivity belong in the production cost category.²⁰

While in actual practice wages paid under the Fair Labor Standards Act on the basis of productivity are readily available from payroll records, Hall illustrated his idea for separating wages in the following example:

Total annual hours available per client	2,080
Percentage of hours spent in productive work	<u>x .70</u>
Average number of hours worked	1,456
Number of clients in production	<u>x 30</u>
Total number of hours worked	43,680
Appropriate rate for similar work by nonhandicapped persons	<u>x\$1.40</u>
Total earnings of normal worker	\$50,152
Average rate of productivity	<u>x .20</u>
Total earnings based on productivity	<u>\$10,030</u>

The payroll records will also disclose the amounts paid to clients in excess of their productivity. Thus, compliance

²⁰Hall, op. cit., pp. 14-17.

payments and bonus payments based on productivity can be added to the above number to determine total wages to be charged to production. The final number might be compiled as follows:

Total earnings based on productivity	\$10,030
Compliance payments	2,500
Bonuses for production	<u>500</u>
Total wages charged to production	<u>\$13,030</u> ²¹

In his analysis of materials cost, Hall made no attempt at separation because in many cases the materials were supplied free of charge from the subcontractor-customer. Even if this situation is not the case, Hall believed that materials costs are not difficult to allocate, and, therefore, he ignored them.²²

Hall analyzed salaries paid to supervisors in workshops and concluded that the duties of a workshop supervisor of production differ from those of supervisors in competitive industry. In a workshop there are instructional, reporting, disciplinary, and counseling duties which the foreman in industry does not have. Hall pointed out that these functions, together with the normal supervisory ones, blend into one another and often become so integrated as to

²¹Ibid., pp. 17-18.

²²Ibid., p. 18.

become inseparable. He believed that the only way in which these additional (rehabilitative) duties measurably reflect themselves is in the fact that workshop supervisors are able to supervise fewer persons than normal for industrial settings. Thus, his basis for separating this kind of joint cost is a foreman-worker ratio. This ratio is the relationship of the average number of workers per supervisor in normal industry compared to clients per supervisor in a workshop. In formula form this ratio appears as follows:

$$\frac{1 / \text{workers per foreman (normal industry)}}{1 / \text{clients per foreman (workshop)}} = \begin{array}{l} \text{percentage of} \\ \text{supervisory} \\ \text{costs charged} \\ \text{to production.} \end{array}$$

Assume, for example, that the ratio of one supervisor to twenty workers has been established in comparable productive situations in normal industry. Assume also that the workshop has a foreman worker ratio of one to fifteen. Hall's technique for separating production from rehabilitation elements of supervisory salary costs is as follows:

$$\frac{1 / 20}{1 / 15} = \frac{1}{20} \times \frac{15}{1} = \frac{15}{20} \text{ or } 75\%.^{23}$$

Thus, 75 per cent of the supervisory salary cost is charged to production, and the remaining 25 per cent becomes a part of rehabilitation costs.

²³Ibid., pp. 18-19.

"Work station costs" is the name which Hall attached to his final group of joint rehabilitation and productions costs. This group consists of overhead type of costs--space and equipment, utilities, maintenance, and so forth. Hall called his technique for allocating work station costs an "effective manning factor," which he developed in the following illustration.

If a workshop has 30 clients who on the average spend 70 per cent of their time in productive activities, the work station demand for that workshop is 21. The workshop, however, for the sake of flexibility, must have more than 21 stations. For his example, Hall assumed that the workshop has 50. Thus, the workshop has an average effective loading of 42 per cent. Then he pointed out that the same situation is true in industry; i.e., it is normal industrial practice for a company to maintain more work stations than are effectively manned at all times. To illustrate, Hall assumed that in industry average effective loading is 42 stations for each 50, or 84 per cent. By these comparisons Hall concluded that 50 per cent of a workshop's capacity is being diverted to rehabilitation use, and, therefore, 50 per cent of work station cost can be allocated to rehabilitation. Hall cautioned that the development of an average manning

factor for industry needs careful consideration to be sure that only industries with comparable types of operations to those of workshops are included.²⁴

Throughout his paper, Hall made refinements in his recommendations for separating the workshop's joint costs, but the techniques discussed above constitute his basic plan for solving the joint cost problem. His work in separating joint costs of production and rehabilitation is more carefully developed than any other previous treatment of the problem. He demonstrated a depth of understanding of workshop cost problems which is not evident in other attempts to solve the problem.

Hall developed some useful ideas. In his zeal to provide as theoretically perfect a solution as possible, however, he has either assumed away or overlooked practical considerations which make it unrealistic to try to apply his solution in workshops across the nation. The criticisms of Hall's proposals presented below illustrate this point.

The measure of productivity of a client is the basis for Hall's separation of client wages joint cost. Hall seemed to be aware of the problems associated with attempts to measure client productivity. He mentioned that rehabilitation

²⁴Ibid., pp. 19-20.

objectives are deeply involved in organizing workshops and assigning the work therein. These rehabilitation objectives reduce client productivity below what it would be in a truly industrial setting. Any industrial norm for productivity assumes that the method of work performance is standardized and designed with a primary goal of maximizing output. Workshops, on the other hand, do not fit this scheme. Their rehabilitation objectives may require more frequent shifts of tasks or assignment to tasks specifically for the purpose of maximizing rehabilitation. Thus, even a normal worker performing in a workshop setting might demonstrate a productivity substantially below what he would achieve in competitive industry. In the light of these problems, can a measure of client productivity based on competitive industry norms possibly have meaning?

Another problem along these same lines is the one mentioned before--the enormous difficulty of assembling industry norms for the myriads of different tasks that make up the productive operations of a typical workshop. In many cases, it would be not only impractical but also impossible to find jobs in industry that compare to those in a workshop.

After noting these objections, Hall, however, went on to rely on wage payments made under the Fair Labor Standards

Act as his means of separating the production and rehabilitation elements of client wage payments. But the Fair Labor Standards Act relies on estimates of client productivity. The fact that this Act has dignified productivity measurements by making them a basis for legal wage payments does not mean that the problems in making those measurements have been solved. Workshop personnel admit that the productivity measurements used to comply with the Act are the crudest possible ones and actually amount to nothing more than guesses based on the most casual observations. Compounding the problem is the fact that within workshops both estimators and users of the productivity measurements are aware of their lack of meaning. Therefore, carelessness and indifference are rampant in the whole productivity measurement process. Too, Hall assumed that all workshops are making wage payments under the Fair Labor Standards Act. That does not seem to be the case. He left unanswered the question of how to separate wage payments which are not computed according to the Act's requirements.

Hall's other cost separation techniques are subject to the same criticisms which have been made before. His separation of supervisory costs depends on norms of foreman-worker ratios from competitive industry. His method for separating

work station cost is dependent on an average manning factor from competitive industry. Obtaining these numbers for the workshop, which does only subcontract work involving repetitive operations might be feasible, but to try to do so for a typical workshop which includes salvage operations in its productive efforts is quite another task. In a typical workshop, clients are constantly entering and leaving, and the extent of their disabilities and, therefore, their needs vary widely. In accordance with rehabilitation objectives, clients are constantly shifted from one job to another. While there may be parts of the salvage operations, e.g., laundry and dry cleaning, which are comparable to competitive industry, there are many other tasks, e.g., repairing discarded shoes, and reworking old furniture which have no counterpart in private industry. These problems have precluded use of industrial norms for comparisons to workshop data. Without them, Hall's techniques cannot be implemented.

It is usually easier to offer criticism of others' work, particularly in the area of cost allocations, than it is to develop solutions. The next step in this study's effort along these lines is to analyze the costs of a particular workshop with the goal of eventually presenting an acceptable and practical solution to workshops' joint cost problem. The chapter which follows undertakes this part of the study.

CHAPTER V

THE IDENTIFICATION AND ISOLATION OF JOINT COSTS OF PRODUCTION AND REHABILITATION AT A VOCATIONAL REHABILITATION WORKSHOP

One portion of the research on joint costs of production and rehabilitation was the selection of an actual vocational rehabilitation workshop where costs of operations could be studied and analyzed. The objective of this study was to see if costs which are joint to a workshop's production and rehabilitation efforts can be identified and isolated. The workshop selected for this study was Goodwill Industries of San Antonio.

An Introduction to Goodwill Industries of San Antonio

Begun in 1945,¹ Goodwill Industries of San Antonio (hereafter referred to as GISA) over twenty-five years has developed into one of the outstanding vocational rehabilitation workshops in the Southwest and, indeed, in

¹"Goodwill Industries Sponsored-Client Handbook," unpublished handbook, Goodwill Industries of San Antonio, San Antonio, Texas, p. 2.

the nation.² Throughout most of its development, the workshop's production of goods has been primarily a salvage operation of reconditioning and selling discarded materials. In recent years, however, the workshop has moved into industrial contract jobs as well.

During the years of its development, the workshop has emphasized rehabilitation facilities and services. By 1970 GISA offered a full schedule of rehabilitation services including Comprehensive Vocational Evaluation, a multifaceted approach to the assessment of an individual's work potential. This program includes social evaluation; psychometrics, where twenty-five recognized psychological tests are administered; twenty work samples chosen or developed specifically for the San Antonio labor market; and reality testing, placement in an actual work environment. Other rehabilitation programs which the workshop offers are (1) extended evaluation, a one-month evaluation period in an area of potential training or employment; (2) work evaluation, a three-month program designed to assess work potential in an actual work situation; (3) work adjustment

²Statement by Robert N. Galloway, Director of Accounting and Business Administration, Goodwill Industries of America, Inc., Washington, D. C., September 18, 1969.

training, a process where a disabled or disadvantaged person is encouraged to revise his attitudes toward himself and his relationships with others so that he may move successfully into the world of work; and (4) skill training, an on-the-job training program.³

The San Antonio workshop maintains places for clients to work throughout its organization. Not only in the industrial workshop where the salvage and contract operations are in process but also in retail stores, the cafeteria (food services), the loading dock, janitorial services within the workshop, and even in some clerical positions associated with administrative work, there are work stations assigned to and held available for those in need of the rehabilitative effects of a work environment. Supervisors and non-client employees occupy other work stations in these same areas, thereby maintaining reasonably constant levels of production and the realistic work environment needed by the workshop's clients.

GISA states its primary goal as that "of providing the community a multi-disability-vocational rehabilitation workshop."⁴

³"Schedule of Services," unpublished open letter, Goodwill Industries of San Antonio, San Antonio, Texas, December, 1969, pp. 2-13.

⁴"Goodwill Industries Sponsored-Client Handbook," San Antonio, Texas, p. 2.

A secondary goal is "providing persons of limited income with everyday necessities of clothing and household goods at a reasonable cost through Goodwill stores."⁵ The order in which these goals are stated is no accident. Throughout its operations the San Antonio workshop is dedicated to the task of assisting handicapped persons in finding their own capacities and developing their abilities to the maximum potential of which they are capable. The total number of persons served by GISA increased from 629 in 1967 to 1,033 in 1968⁶ to 1,185 in 1969.⁷ During the first six months of 1970, 643 persons received the workshop's rehabilitation services.⁸ The number of jobs found for handicapped people in outside industry was 120 in 1967, 158 in 1968,⁹ and 136 in 1969.¹⁰

⁵Ibid.

⁶Goodwill Annual Report - 1968 (San Antonio, Texas, 1969), p. 3.

⁷Unpublished pamphlet, Goodwill Industries of San Antonio, San Antonio, Texas, p. 4.

⁸"Monthly Report of Service Statistics," unpublished report, Goodwill Industries of San Antonio, San Antonio, Texas, June, 1970, p. 1.

⁹Goodwill Annual Report - 1968 (San Antonio, Texas, 1969), p. 8.

¹⁰Goodwill Report of Services - 1969 (San Antonio, Texas, 1970).

Reasons for Selecting Goodwill Industries
of San Antonio

GISA was selected for the empirical part of this study for three reasons: (1) the interest in the joint cost problem on the part of administrative personnel at the workshop, (2) the nature of the workshop's operations, and (3) the accounting system which had been installed and was operational at the workshop.

Each year GISA negotiates with the Division of Vocational Rehabilitation and the Texas Rehabilitation Commission the fee which the Commission will pay to the workshop for rehabilitation services in the following year. This fee represents a reimbursement to the workshop of the costs of service it renders to clients which the Division of Vocational Rehabilitation counselors refer to the workshop. The Texas Rehabilitation Commission has expressed its willingness to reimburse the workshop for full costs of this rehabilitation service.¹¹ Until the joint costs of production and rehabilitation are identified and the rehabilitation portion of those costs isolated and added to separate rehabilitation costs incurred, it is impossible to determine full

¹¹Statement by Willis L. Williams, Public Relations Director, Goodwill Industries of San Antonio, San Antonio, Texas, January 12, 1970.

rehabilitation costs and, therefore, the fee structure that will cover those costs. The Executive Director of the San Antonio workshop and others of the administrative staff are acutely aware of the joint cost problem; their interest assured the cooperation of the workshop's staff in the research on this problem.

A second reason for selecting GISA was the rehabilitation orientation of the workshop's operations. While rehabilitation is ostensibly a part of the purpose of any workshop, there are those shops which are almost totally production oriented and for which the joint cost problem has far less meaning. The rehabilitative emphasis at GISA assured that the joint costs under study did exist in significant amounts and that the problems of identifying and separating those costs had meaning to the group administering the workshop's activities.

GISA was one of the first Goodwill units to implement the standard accounting system created by the national office of Goodwill Industries. The use of that accounting system was the third reason for selecting the San Antonio workshop. That system meant that accounting information and financial statements of GISA had as a foundation an accounting system designed specifically for vocational

rehabilitation workshops. Even more importantly, the system meant that direct costs of the different areas of operation within the workshop already had been accumulated by function under a system which was being uniformly applied in many other workshops. If the joint costs could be identified and isolated within the framework established by the standard accounting system, then perhaps by modifying that system the problem could be solved in a manner applicable to all workshops which have adopted and would in the future adopt that system.

Presentation of Summary of All Functional Activities

As a starting point in the identification and isolation of the joint costs of production and rehabilitation at GISA, Table II presents Goodwill's functional financial statement, Summary of All Functional Activities, for the six months ended June 30, 1970. The six-month period was chosen because (1) it was the one-half year most current to the date of the field study, (2) it represented a long enough period to include representative operating costs, and (3) the period was short enough to make complete analysis of expenditures feasible. Joint costs are included but not identified on this financial statement.

Explanation of Summary of All Functional Activities

The Summary of All Functional Activities is one of the operating statements recommended for voluntary health and welfare organizations by the 1964 Standards of Accounting and Financial Reporting for Voluntary Health and Welfare Organizations.¹² In recent years governmental, community, private, and federated fund raising agencies have become more interested in a functional approach to health and welfare needs of the local communities and less interested in a "disease" oriented approach to health and welfare services. Users of health and welfare organizations' financial statements want to know (1) what function or functions an agency performs and (2) what each function costs.¹³ Thus, the Standards project evolved and recommended an operating statement in the format of Table II.

In the health and welfare field, a function is defined as "the general purpose, service or need to be accomplished

¹²National Health Council and National Social Welfare Assembly, Standards of Accounting and Financial Reporting for Voluntary Health and Welfare Organizations (New York, 1964).

¹³Goodwill Industries of America, Inc., "Goodwill Industries Manual for Financial Records," Washington, D. C., 1968, p. 9.

by an organization."¹⁴ Often the function is a collection of activities which have a related purpose.¹⁵ Functional accounting is "the collection of object expenses or revenue by Function or Activity of a Function."¹⁶ The Summary of All Functional Activities is designed to give a reader a general understanding of the kinds of expenses included in each functional expenditure category. It shows in separate columns how the total expenditures of each function are built up from expenditures for specific objects, e.g., wages to disabled, wages to non-disabled, payroll taxes.¹⁷

The direct operating expenditures section of the Summary of All Functional Activities of GISA presents the direct costs of operating each of seven designated functions. The seven functions are made up of five program services or primary agency functions and two supporting services. The five primary agency functions are (1) the industrial workshop, where both new and used goods are produced from salvage and contract operations, (2) the solicitation and collection function, which handles efforts to collect salvagable goods

¹⁴Ibid.

¹⁵Ibid.

¹⁶Ibid.

¹⁷National Health Council, op. cit., p. 45.

and the mechanics of transporting those goods to and from the workshop, (3) retail stores, which provide retail outlets for goods produced in the industrial workshop, (4) the food services function, where cafeteria service is provided to all Goodwill personnel during their working hours, and (5) rehabilitation, the testing, evaluation, counseling, and other direct rehabilitation activities of the workshop. The two supporting service functions are (1) management and general, which includes a variety of activities that are identifiable with no one of the primary functions but are indispensable to the conduct of all of them, and (2) housing and occupancy, the function of providing and maintaining space and facilities for all other functions.

In the second section of the Summary of All Functional Activities, those expenses which can be considered indirect, including those of supporting service functions, are allocated to the functions which they serve. A portion of printshop expenses, representing the cost of goods and services which the printshop provides to other functions, is allocated out of the industrial workshop function to those other functions. Housing and occupancy costs are distributed to the other six functions on the basis of square foot area occupied. Management and general function costs are allocated to the

industrial workshop function and the rehabilitation function on the basis of the period's average client population (rehabilitation) and average employee population (industrial workshop). The next indirect expense distribution, which recognizes a part of the joint cost problem, is an allocation of some supervisory costs from industrial workshop and food services to the rehabilitation function. This allocation is based on the distribution of work station assignments between the persons who are receiving rehabilitation services and those who are not. Finally, full costs of the solicitation and collection and retail stores functions, although treated initially as separate primary functions, are assigned to the industrial workshop function, which they in fact support. This last assignment leaves substantially all the operating expenditures assigned to one of the three functions which produce the workshop's products--new and used goods (industrial workshop), food (food services), and rehabilitated individuals (rehabilitation).

The next section of the Summary of All Functional Activities establishes a relationship between revenues generated by functions and costs accumulated for functions. Accordingly, "related revenues" are deducted from functional costs--revenues from sales of goods and from contracts are

deducted from the industrial workshop costs, cafeteria sales from food service costs, and rehabilitation fees received from rehabilitation costs. (A modicum of revenues representing honorariums to managerial personnel are attributed to the management and general function,) The revenue-expense relationship also is reported using direct operating expenses before any indirect expense allocations.

The final portion of the Summary of All Functional Activities reports expenditures financed by special funds or grants. This part of the statement, optional for individual agencies, is intended to show the extent to which particular programs of an agency are dependent on special financing.¹⁸

The Cost Separation Problem in the Summary
of All Functional Activities

The Summary of All Functional Activities, the operating statement recommended for health and welfare organizations by the Standards project, recognizes the need for accumulating costs of rehabilitation separate from production costs. The designation of rehabilitation as one of the five primary agency functions is evidence of this recognition. The other four primary functions--industrial workshop, solicitation and collection, retail stores, and food services--are associated

¹⁸Ibid., p. 46.

in the production and sale of goods and services and, on the surface, form the industrial segment of the workshop's operations. Therefore, the Summary of All Functional Activities in its direct operating expenditure section ostensibly differentiates between production and rehabilitation costs. The problem is that the cost separation on this financial statement does not extend beyond a superficial analysis of the nominal purpose of a given cost. Costs are classified according to the titular reason for which they are incurred; the accounting system gives no consideration to the possibility of a duality of purpose which justifies a different classification scheme.

The direct operating expenditures section of the Summary of All Functional Activities includes under each of Goodwill's seven functions the direct operating expenditures directly associated with each function. Thus, the rehabilitation function costs include all those direct costs of carrying out the rehabilitation activities at Goodwill: the salaries of counselors, evaluators, and others who work in the rehabilitation section of the workshop; psychological and other professional fees paid; and supplies and other costs directly associated with rehabilitative activities. The costs appearing under the rehabilitation function can

be considered as "pure" costs of rehabilitation. They are rehabilitation costs, but they are incomplete.

Likewise, costs classified under the other four primary functions and under the two supporting service functions are so classified because of their nominal nature. Supervisors' salaries are assigned wholly to the function where the supervisor works. Supplies and other cost items appear as expenses of the function where each item is consumed. Each of these functions is charged with costs whose expressed benefits are associated with those functions. These costs are considered to be wholly production (and administration) costs, but they are production (and administration) costs only in part.

The significant point is this: wherever in workshop operations clients--by definition persons receiving rehabilitation services--are utilized or are allowed to participate in workshop activities, costs associated with those clients are partially production (or administration) costs and partially rehabilitation costs. Stated another way, all costs associated with clients are joint to the production and rehabilitation functions. At GISA clients are utilized in each of the four "industrial" functions and in the management and general function and the housing and occupancy function. Therefore, the Summary of All Functional Activities is

burying rehabilitation costs in costs of the industrial workshop, solicitation and collection, retail stores, food services, management and general, and housing and occupancy functions. At the same time, and to the same extent, the costs of the rehabilitation function are understated. It is the objective of this study to identify joint costs and, if possible, to separate rehabilitation costs which currently are being included with production (and other functions') costs.

Reliability of Classification of
Direct Operating Expenditures

The beginning point of any effort to identify joint costs of production and rehabilitation and to separate the rehabilitation costs from the production costs is the direct operating expenditures section of the Summary of All Functional Activities. As noted above, this section of Goodwill's operating statement is an analysis by function of the workshop's direct object expenditures for the six months ended June 30, 1970. This portion of the Summary of All Functional Activities will be the foundation on which the cost separation effort will rest. For this reason and because this section of the statement already has been criticized for burying rehabilitation costs among other

functions' costs, it is appropriate to consider the composition of the direct operating expenditures section of the statement and the reliability of the information which it contains.

Before discussing the reliability of the direct operating expenditures section, it is necessary to extend the analysis of one of the seven functions. The industrial workshop function and the food services (cafeteria) function are basic activities which produce products that the workshop sells. These two functions, together with the rehabilitation function, form a kind of core around which the workshop's activities and the cost separation problem revolve. The solicitation and collection function and the retail stores function exist to serve the industrial workshop. The two designated service functions, management and general and housing and occupancy, serve all other functions. This study extends the analysis of the industrial workshop function for two reasons: (1) the function's relative importance in terms of dollar volume of expenditures and nature of productive activities and (2) the fact that the function actually is a composite of several kinds of productive activity. Table III, Analysis of Industrial Workshop by Type of Production, presents the costs of the industrial workshop function by type of productive activity.

TABLE III

GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
ANALYSIS OF INDUSTRIAL WORKSHOP
BY TYPE OF PRODUCTION
FOR THE SIX MONTHS
ENDED JUNE 30, 1970

Direct Operating Expenditures	Totals			
	Jan.-June 1970	Rack Goods	Bin Goods	Furni- ture
Wages to Disabled	\$ 61,925	\$ 7,884	\$4,826	\$9,732
Wages to Non-Disabled	21,387	2,176	1,176	5,179
Life, Health, & Retirement Benefits	800	151	35	197
Payroll Taxes	4,000	483	288	716
Professional Services	...	...	...	...
Supplies	14,374	1,477	262	4,700
Telephone & Postage	90	...	11	64
Occupancy	329	235	...	34
Outside Printing & Art Work	25	...	...	...
Local Transportation	229	...	...	...
Conferences, Meetings & Trips	43	...	...	...
Subscriptions & Publications	10	...	...	...
Specific Assistance to Individuals	...	...	...	...
Membership Dues	50	...	...	...
Non-Capital Equipment	331	...	...	...
	<u>\$103,593</u>	<u>\$12,406</u>	<u>\$6,598</u>	<u>\$20,622</u>

TABLE III--Continued

<u>Electrical- Mechanical</u>	<u>Shoes</u>	<u>Wares</u>	<u>New Goods</u>	<u>Salvage- Textile</u>	<u>Contract</u>	<u>Custom Work</u>	<u>Print- shop</u>
\$ 9,036	\$4,266	\$7,260	\$2,080	\$10,080	\$ 1,757	\$307	\$4,697
4,420	...	66	64	3,311	4,995	...	...
145	2	74	74	28	3	...	91
646	205	352	103	643	324	15	225
...
1,405	634	284	436	268	2,686	109	2,113
...	...	...	...	...	15	...	...
...	...	...	9	3	...	...	48
...	...	...	...	...	15	...	10
...	...	...	...	...	210	...	19
...	...	...	...	...	43	...	...
10	...	...	...	...	...	...	...
...
...	...	...	...	...	50	...	...
...	...	...	...	...	...	...	331
<u>\$15,662</u>	<u>\$5,107</u>	<u>\$8,036</u>	<u>\$2,766</u>	<u>\$14,333</u>	<u>\$10,098</u>	<u>\$431</u>	<u>\$7,534</u>

On Table III the industrial workshop object expenditures are analyzed by eleven categories as follows: (1) rack goods--donated textile materials worth sixty-nine cents or more which normally are hung or placed on racks for display, (2) bin goods--donated textile materials worth less than sixty-nine cents and normally displayed in bins or on tables, (3) furniture--both refinished and re-upholstered, (4) electrical-mechanical--appliances, fixtures, equipment and large wheel toys sold "as is" or after repairs, (5) shoes--all types of footwear for men, women, and children, (6) wares--all housewares, toys, jewelry, books, sporting goods, hand tools, parts, and miscellaneous bric-a-brac, (7) new goods--new products or materials manufactured wholly or in part by the agency and new goods purchased directly for resale, (8) salvage-textile--all textile materials not salable in stores and sold in bales as scrap, (9) contract--goods and services produced under formal contracts with other organizations, (10) custom work--usually one-of-a-kind services done by specific order, and (11) printshop--operations of the printshop.¹⁹ Table III expands the

¹⁹ Goodwill Industries of America, Inc., op. cit., pp. 43-47A.

information in the direct operating expenditures section of Table II to include the detailed activities in each of the industrial workshop's production processes. Table II was prepared by GISA personnel from information generated by the Goodwill standard accounting system. Table III has been assembled from the same information.

Consideration of the reliability of the information shown in the direct operating expenditures section of Table II and Table III involves the following question: can the expenditures actually be identified with the seven functions on Table II and eleven productive activities on Table III, or does the preparation of these statements involve arbitrary allocations? If there are allocations involved, to what extent are they present?

In answering these questions, the first four object expenditures--wages to disabled; wages to non-disabled; life, health, and retirement benefits; and payroll taxes--constitute a group. Life, health, and retirement benefits and payroll taxes are based on wages; their classification on the statements, therefore, is directly related to wages paid. At GISA wages, both disabled and non-disabled, represent the earnings of staff, production supervisors, and regular employees. Clients are not paid a wage of any kind.

Each person drawing a salary or wage is assigned to a single one of the seven functions that appear on Table II and, if that function is the industrial workshop, to a single one of the subfunctions (production activities) on Table III. Therefore, wages and payroll taxes and benefits associated with those wages are directly identifiable with a function or productive activity. The ordinary payroll preparation procedures charge these expenditures to that function and, if applicable, to its subfunction.

One exception exists to this procedure. Within the industrial workshop function for the six months of the statement period, the supervisor of the rack goods activity also was working as supervisor of the bin goods and salvage-textile activities. Accordingly, this man's salary and the related payroll taxes and employee benefits have been allocated between these three subfunctions. Of the totals of these object expenditures shown on Table III, this supervisor's salary of \$3,706, \$60 of related life, health, and retirement benefits, and \$178 of related payroll taxes represent an allocation rather than directly identified expenditures.

Following the four direct operating expenditures referred to above, Tables II and III list eleven additional

types of expenditures. The paragraphs which follow consider the nature and reliability of the assignment of these expenditures.

Professional services expenditures are charged to the rehabilitation and management and general functions. Of the \$7,977 charged to rehabilitation, \$7,900 represents psychological fees paid. The balance is miscellaneous rehabilitation and training fees. The amount charged to management and general represents the annual legal and audit fees. Professional services charges, therefore, are directly identified expenditures.

At GISA the object expense "supplies" includes raw materials used in production activities as well as those miscellaneous items ordinarily considered as supplies. A central supply service stores supplies and charges them to functions and production activities on the basis of requisitions submitted to the supply service. Therefore, supplies are accounted for on the basis of direct identification, and no allocation is involved.

The next operating expenditure category is telephone and postage. Table II charges \$90 of telephone and postage expense to the industrial workshop function. This amount represents freight charges, and on Table III these freight

charges are charged to different production activities on a direct identification basis. The industrial workshop function does not bear any telephone charges on the basis that there is no telephone use in connection with its operations. The same rationale is applied to the food services, rehabilitation, and housing and occupancy functions. (Telephone charges identified with the management of these functions are included, of course, in the management and general function.) On Table II the solicitation and collection function, which involves extensive use of telephones in the handling of requests to pick up donated goods and the routing of Goodwill's fleet of trucks, has its own telephone line and billing. Therefore, the charges for the solicitation and collection function's telephone use are made on a direct basis. A direct charge also exists for retail stores, each of which has its own telephone line and billing. All other telephone charges are attributed to the management and general function on the basis that it is the management of the individual functions which incurs the telephone expense. While this assumption for the most part may be true, there probably should be some telephone charges directly to the industrial workshop, food services, and rehabilitation functions to cover miscellaneous use of the telephone in the operations of each of the functions.

The category of operating expenditure designated "occupancy" represents kinds of occupancy costs--predominately repairs to specific areas of the Goodwill facilities or equipment--which can be identified with specific functions (on Table II) and productive activities (on Table III). Therefore, these charges are made on a direct identification basis. All occupancy costs which cannot be so identified and which include the majority of such costs are charged to the separate housing and occupancy function.

The last seven operating expense categories--outside printing and art work; local transportation; conferences, meetings and trips; subscriptions and publications; specific assistance to individuals; membership dues; non-capital equipment--all are charged to functions on Table II and productive activities on Table III. The charges are on a direct identification basis and, therefore, do not involve allocations. One of these expenditure categories, that of specific assistance to individuals, deserves special mention. While GISA does not pay wages to clients, it does at times make subsistence allowances to or pay for materials or appliances such as prosthetic devices for clients who have special needs. This situation is particularly true of clients sponsored by government grants where the grants

provide for such payments. These payments are the source of the category "special assistance to individuals," most of which appears under the rehabilitation function and represents a direct charge to that function. The amounts of these payments are based on needs and have no relationship to work performed or production achieved. For this reason, the wages categories exclude these payments.

The analysis of direct operating expenditures on Tables II and III has disclosed only two expenditures which are questionable regarding their assignment to function and subfunction (productive activity). All other expenditures are assigned on a specific identification basis. The two items in question are of a different nature. On Table II the telephone and postage expenditure assigned to the management and general function probably includes some costs which should be reported under the industrial workshop, food services, and rehabilitation functions. The telephone and postage charge under the management and general function is \$3,144 or .64 per cent of the total direct operating expenditures on Table II. Since the portion of the telephone and postage which might be incorrectly classified is something less than the full \$3,144 and, most likely, is only a small part of this total, the conclusion seems justified that

Table II is not materially affected by whatever error may exist.

The questionable item on Table III is the supervisor's salary and the related payroll taxes and life, health, and retirement benefits which have been allocated among the three productive activities which that supervisor serves. The amount of the salary and related payments which were allocated is as follows:

Salary	\$ 3,706
Life, health, and retirement benefits	60
Payroll taxes	<u>178</u>
	<u>\$ 3,944</u>

This total represents 3.81 per cent of the total direct operating expenditures of the industrial workshop on Table III. Since the supervisor does in fact serve all three productive activities, the only question is exactly how much to charge each activity. Whatever error exists is less in amount than the total of the allocated charges. Thus, a conclusion similar to that reached on Table II, i.e., that the allocation does not materially affect the direct operating expenditures, seems warranted.

Special Considerations of the San Antonio Workshop
and the Joint Cost Problem

Before attempting to identify and isolate the joint costs of production and rehabilitation included in the direct operating expenditures on Tables II and III, there are several features of the operations of GISA and the joint cost problem which deserve special attention.

GISA is the recipient of one of thirty-nine federal training services grants in the United States. Under this grant the San Antonio workshop is assigned persons in need of training (rehabilitation). These persons are placed in one of five productive situations in the workshop: rack goods, which includes training in sorting, cleaning and pressing operations; commercial sewing training; printshop training; cafeteria or food services training; and janitorial services training. The workshop does not differentiate grant clients from other clients, has grant clients work side-by-side with other clients, and renders grant clients the same rehabilitation services as other clients.

Under the Training Services Grant, GISA receives federal funds based on budgeted requests for (1) 90 per cent of the direct costs of rendering the grant services and (2) indirect costs in an amount equal to 8 per cent of the direct costs. On the workshop's operating statement, the federal funds

received are not offset against the costs of rendering the grant services but appear at the bottom of the statement in the "expenditures financed by special funds" section. GISA includes the costs for the work of the Training Services Grant with all other costs incurred. Therefore, Training Services Grant costs are a part of the direct operating expenditures previously discussed.

Because of the similarity of the services rendered to the Training Services Grant clients and GISA's other clients, because grant clients and other clients are co-mingled on the job and because GISA itself does not distinguish between these two types of clients, this study will not differentiate between the costs of the services rendered to these two groups.

Another feature of the operations of GISA which is somewhat unusual is that the workshop does not pay wages to its clients. Any payments made to clients under the Training Services Grant or the workshop's own policy of making allowances to clients are classified as "specific assistance to individuals" on Table II and are not included with wages paid. This classification scheme is consistent with the policy of determining allowances on the basis of individual needs and not on any factor associated

with production. Thus, one part of the cost separation problem, i.e., the separation of clients' wages between production costs and rehabilitation costs, does not exist for GISA. The "specific assistance to individuals" expenditures are classified as rehabilitation costs because the rehabilitation function determines the need and recommends and supervises the expenditure.

The cost separation problem at the San Antonio workshop also is eliminated in the contract and custom work areas. These two subfunctions of the industrial workshop function are unique in that they do not use services of clients. In the past GISA has been built up primarily as a salvage operation; it only recently has gone into contract and custom work. Through the period encompassed by this study, the workshop was using only employees (non-client workers) in custom work and contract operations. Thus, the workshop is not faced with the cost separation problem in these two areas.

Thus far in the study, the problem of cost separation has been characterized as one of separating production costs from rehabilitation costs. Considered within the framework of the Summary of All Functional Activities (Table II), the terminology "production costs" has a broader meaning

than just those costs of producing the workshop's products. The objective of the cost separation problem is the separation of the rehabilitation costs from the costs of all the other functions--the production costs in the industrial workshop and food services functions, the collection costs in the solicitation and collection function, the selling costs in the retail stores function, the administrative costs of the management and general function, and the occupancy costs in the housing and occupancy function. In the statement of the cost separation problem, therefore, the word "production" has a connotation which includes all the functional costs other than those of rehabilitation. This connotation of the word "production" is consistent with the dichotomy between rehabilitation efforts and productive efforts which is generally applied to workshop operations.

Another consideration of the joint cost problem is the distinction between costs which will be referred to as direct joint costs and those considered to be indirect joint costs. Direct joint costs are those direct operating expenditures which are incurred for the dual purposes of production and rehabilitation. Because the workshop uses clients within the operations of each of the functions (other than the rehabilitation function), there are direct

joint costs in each of these functions. The indirect joint costs are within the costs of any function which exists to serve another function. On the Summary of All Functional Activities the management and general function and the housing and occupancy function are functions which serve all of the other functions. Retail stores and the solicitations and collection functions serve the industrial workshop function. Therefore, in addition to their direct joint costs, these service functions include indirect joint costs. Where the functions served embody the dual purpose of production and rehabilitation, the service function costs assigned to the functions they serve are also joint to production and rehabilitation. Thus, the name indirect joint costs is applied. In determining the total cost of production or of rehabilitation, the costs of the service functions first must be assigned to the functions they serve. Second, the service costs assigned must be divided between the production and rehabilitation efforts that take place in the function to which they are assigned. This first assignment of service functions is the idea behind the "distribution of indirect expenses" section of the Summary of All Functional Activities. At the present time, no attempt is made to effect the additional division of

service function indirect joint costs between production and rehabilitation.

The Isolation of Goodwill's Direct Joint Costs of Production and Rehabilitation

Wherever in the workshop clients are placed in a productive setting, the costs of providing the client with the supervision he receives, any materials he consumes, and his work space and equipment are costs which are joint to both production and rehabilitation. The purpose of this portion of the research study is to specifically identify these joint costs at GISA for the first six months of 1970.

In the preceding pages the point has been made that joint costs are included within the direct operating expenditures, which were analyzed by function on Table II and by productive activity (subfunction) of the industrial workshop on Table III. The procedure followed in identifying and isolating the joint costs is an analysis of each direct operating expenditure, seeking those costs which can be associated with clients' work in a productive situation. Table IV, Joint Costs of Production and Rehabilitation by Function, presents the direct joint costs identified by function. Table V, Joint Costs of Production and Rehabilitation in the Industrial Workshop Function, presents the industrial workshop's joint cost by subfunction.

TABLE IV

GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
JOINT COSTS OF PRODUCTION AND
REHABILITATION BY FUNCTION
FOR THE SIX MONTHS ENDED
JUNE 30, 1970

<u>Direct Operating Expenditures</u>	Totals		
	<u>Jan.-June 1970</u>	<u>Industrial Workshop</u>	<u>Solicitation & Collection</u>
Wages to Disabled	\$ 26,592	\$14,039	\$...
Wages to Non-Disabled	31,492	9,682	2,419
Life, Health and Retirement Benefits	786	382	39
Payroll Taxes	2,786	1,138	116
Professional Services	...	...	...
Supplies	24,701	11,578	...
Telephone and Postage	...	...	...
Occupancy	13,432	329	...
Outside Printing and Art Work	...	...	...
Local Transportation	...	...	...
Conferences, Meetings and Trips	...	...	...
Subscriptions and Publications	...	...	...
Specific Assistance to Individuals	...	...	...
Membership Dues	...	...	...
Non-Capital Equipment	999	331	...
	<u>\$100,788</u>	<u>\$37,479</u>	<u>\$2,574</u>

TABLE IV--Continued

<u>Retail Stores</u>	<u>Food Services</u>	<u>Rehabilitation Services</u>	<u>Management & General</u>	<u>Housing & Occupancy</u>
\$ 1,472	\$ 1,800	\$...	\$ 4,177	\$5,104
11,592	2,626	...	5,173	...
210	6	...	67	82
627	212	...	448	245
...
1,190	9,953	...	1,126	854
...
12,697	204	...	202	...
...
...
...
...
...
...
...
...
500	18	...	150	...
<u>\$28,288</u>	<u>\$14,819</u>	<u>\$...</u>	<u>\$11,343</u>	<u>\$6,285</u>

TABLE V

GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
JOINT COSTS OF PRODUCTION AND REHABILITATION
IN THE INDUSTRIAL WORKSHOP FUNCTION
FOR THE SIX MONTHS ENDED
JUNE 30, 1970

Direct Operating Expenditures	Totals			
	Jan.-June 1970	Rack Goods	Bin Goods	Furni- ture
Wages to Disabled	\$14,039	\$...	\$...	\$ 3,145
Wages to Non-disabled	9,682	1,316	1,176	2,855
Life, Health, & Retirement Benefits	382	21	19	97
Payroll Taxes	1,138	63	56	288
Professional Services	...	...	...	...
Supplies	11,578	1,477	262	4,700
Telephone and Postage	...	...	...	...
Occupancy	329	235	...	34
Outside Printing and Art Work	...	...	...	...
Local Transportation	...	...	...	...
Conferences, Meetings & Trips	...	...	...	...
Subscriptions and Publications	...	...	...	...
Specific Assistance to Individuals	...	...	...	...
Membership Dues	...	...	...	...
Non-Capital Equipment	331	...	...	...
	<u>\$37,479</u>	<u>\$3,112</u>	<u>\$1,513</u>	<u>\$11,119</u>

TABLE V--Continued

<u>Electrical- Mechanical</u>	<u>Shoes</u>	<u>Wares</u>	<u>New Goods</u>	<u>Salvage- Textile</u>	<u>Contract</u>	<u>Custom Work</u>	<u>Print shop</u>
\$2,391	\$1,544	\$1,651	\$2,080	\$...	\$...	\$...	\$3,228
3,120	...	...	...	1,215	...	...	...
89	25	27	33	20	...	...	51
265	74	79	100	58	...	...	155
...
1,405	634	284	436	268	...	...	2,112
...
...	...	...	9	3	...	...	48
...
...
...
...
...
...	...	...	...	...	...	...	331
<u>\$7,270</u>	<u>\$2,277</u>	<u>\$2,041</u>	<u>\$2,658</u>	<u>\$1,564</u>	<u>\$...</u>	<u>\$...</u>	<u>\$5,925</u>

This study of the direct operating expenditures was made possible by a detailed printout furnished by the national office of Goodwill Industries in Washington, D. C., of the expenditures of the San Antonio workshop. Goodwill Industries of America, Inc., as a part of its services to local Goodwill units, provides computerized monthly comparative financial information to those units which wish to participate. Because the San Antonio workshop was one of the units which did participate, the national office had available monthly analyses of the operating expenditures of the workshop and, for the purpose of this study, compiled an analysis encompassing the first six months of 1960. The analysis is a presentation by function and by subfunction of the direct operating expenditures categories broken down into their component costs. For example, the direct operating expenditures category "supplies" is analyzed on the printout as Goodwill bags, medicine and drugs, food and beverages, housekeeping supplies, office supplies, printing and duplicating materials, maintenance supplies, store supplies. Use of this detailed printout in conjunction with personal interviews of the persons incurring and classifying expenditures in San Antonio permitted a determination of those

costs which could be associated with use of clients in the workshop and those costs which could not.

Wages to Disabled and Wages to Non-Disabled

The first two of the direct operating expenditures are wages to disabled and wages to non-disabled. Because historically the principal objective of Goodwill's program has been to assist the individual in overcoming or ameliorating the handicapping effects of a disabling condition, the Goodwill standard accounting project recommends that wages to the disabled be reported separately from wages to the non-disabled.²⁰ A disability is defined as "a professionally measurable condition, whether the condition is physical, mental, emotional, social, or economic."²¹ Apart from its program of rehabilitating disabled persons, GISA employs many disabled persons on its staff even at the executive level. This designation "disabled," however, bears no relationship to the job being performed; it may or may not mean that a disability exists for the disabled person in the job to which he is assigned. Because, as pointed out previously, GISA does not pay wages to clients,

²⁰ Goodwill Industries of America, Inc., op. cit., p. 58.

²¹ Ibid., p. 59.

joint costs in wages paid to persons who simultaneously are producing goods and services and receiving rehabilitation does not exist for the San Antonio workshop. Thus, the breakdown of wages between those paid to disabled and non-disabled personnel has no significance to the determination of the workshop's joint costs. Rather, the important question is whether or not the wages paid represent the time of persons, either disabled or non-disabled, who work with clients.

Within the industrial workshop function, the direct operating expenditures "wages to disabled" and "wages to non-disabled" include wages paid to three groups of workshop employees: (1) client-workers--former clients whom the workshop has employed either to provide those persons with sheltered employment or to help the workshop maintain given levels of production, (2) production workers--disabled and non-disabled employees who help maintain production levels, and (3) supervisors--those who direct the work of the client-workers, production workers, and clients in the production activities. As neither the client-workers nor the production workers are receiving rehabilitation services, their wages do not represent joint costs. The supervisors, however, are working with clients who are receiving rehabilitation

services and are producing goods and services. The supervisors' wages, therefore, are partially rehabilitation costs and partially production costs. Accordingly, the wages of each of the supervisors, some of whom are disabled and some of whom are not, are included in the direct joint costs on Table V. The rack goods, bin goods, and salvage-textile subfunctions each report a share of the wages of one supervisor whose responsibilities include all three of these subfunctions. The furniture and electrical-mechanical subfunctions each have two supervisors. With these exceptions, there is one supervisor in each of the industrial workshop subfunctions.

Like those of the industrial workshop function, the disabled and non-disabled wages expenditures categories of other functions of the workshop include wages paid to supervisors as well as wages paid to client-workers and production workers. In every function this study reviewed the duties of the supervisors and included the wages of those who work with clients as direct joint costs on Table IV. In the solicitation and collection function the wages of the dock man, who supervises clients who load and unload the trucks, are a direct joint cost. In the retail stores, the supervisors are the store managers who, in addition to their

other duties, direct the work of clients assigned to them. The manager of the cafeteria and his assistant are the supervisors of clients within the food service function. The housing and occupancy function utilizes clients on the janitorial crew and the repair and maintenance crew; each of these crews works under a supervisor, whose wages represent a direct joint cost. Finally, the same direct joint costs in supervisory salaries exist within the management and general function. At GISA clients are used as clerks, typists, etc. in the personnel office, public relations office, executive office, comptroller's office or other places within the management and general function. Thus, the wages or salaries of the management and general personnel who supervise these clients also represent direct joint costs.

During the six-month period covered by this study, clients were used in the personnel, public relations, comptroller's, and executive offices. Unfortunately, during the period GISA maintained no records of the number of clients, their hours, assignments, or supervisors within two of these offices--executive and personnel. Therefore, no cost separation attempt is feasible for the costs of these two areas. Personnel within these two areas stated that use

of clients during the first six months of 1970 had been so minimal that record keeping had not been worth the effort it involved. The wages which do appear as joint costs in Table IV, under the management and general function, belong to the other two offices and are compiled as follows:

	<u>Disabled Wages</u>	<u>Non-Disabled Wages</u>
Comptroller's office	\$...	\$5,173
Public relations office	<u>4,177</u>	<u>...</u>
	<u>\$4,177</u>	<u>\$5,173</u>

These amounts are the wages paid to persons who were responsible for supervising the clients assigned to the indicated offices.

On Table IV the rehabilitation function shows no direct joint costs even though the situation outlined above for the management and general function, i.e., use of clients in clerical and other positions, is true also for the rehabilitation function. The reason is that the purpose of this study is the separation of rehabilitation from production costs, and, since all the costs shown under the rehabilitation function on Table II are rehabilitation costs anyway, there is no reason to make any kind of cost separation within the rehabilitation function.

Life, Health, and Retirement Benefits

The life, health, and retirement benefits category of direct operating expenditures represents the cost of employee benefits available to GISA's employees. Because the benefits are based on wages paid, determination of joint costs also is based on wages paid. Accordingly, the portion of the total life, health, and retirement benefits which applies to the wages determined to be direct joint costs also represents costs which are joint to production and rehabilitation. At GISA the cost of life, health, and retirement benefits paid for each employee is 1.61 per cent of the employee's gross wages. This percentage is based on actual costs and is determined annually. On Table V, therefore, 1.61 per cent of the industrial workshop wages joint costs in the first two operating expenditures categories has been computed as the joint costs of life, health, and retirement benefits.

The same procedure applies to life, health, and retirement benefits on Table IV, except that in two of the functions there are certain supervisors who are retired military personnel and do not elect to receive employee benefits. Thus, the application of the 1.61 per cent to the wages joint costs has been adjusted for the wages applicable to these specific individuals. In the food service function, where

one of these individuals is manager of the cafeteria, the amount shown as a joint cost of life, health, and retirement benefits was determined by specific identification. It represents life insurance premiums paid for the manager's assistant, who also supervises clients working in the cafeteria. Similarly, the computation of joint costs of life, health, and retirement benefits of the management and general function excludes the wages of the comptroller, who is a supervisor of clients but does not participate in the benefits available to the workshop's employees.

Payroll Taxes

On both Tables IV and V, the payroll taxes which are presented as direct joint costs are the payroll taxes associated with wages determined to be direct joint costs in the first two categories of direct operating expenditures. The amounts of payroll tax joint costs were determined by multiplying 4.8 per cent by the wages joint costs in each function (Table IV) and industrial workshop subfunction (Table V). This procedure is appropriate for two reasons: (1) sheltered workshops are not subject to any payroll taxes other than the Federal Insurance Contributions Act taxes (4.8 per cent) and (2) by specific identification no one employee whose wages represent a direct joint cost had

exceeded the \$7,800 maximum for wages subject to the Federal Insurance Contributions Act tax.

Professional Services

The direct operating expenditures category "professional services" does not include any indirect joint costs. On Table II the professional services costs are charged (1) to the rehabilitation function where they represent psychological and other types of rehabilitation fees paid, and (2) to the management and general function where they represent the workshop's legal and audit fees paid during the period. Neither of these costs plays a direct role in the workshop's joint effort of production and rehabilitation.

Supplies

At GISA the supplies category of direct operating expenditures includes not only supplies in the usual sense of the word, e.g., office and production supplies, but also raw materials consumed in the production processes. Both of these uses of supplies represent direct joint costs. Supplies may be wasted because of the client's unfamiliarity with the job to which he is assigned; or his handicap, which prevents his working as efficiently as a normal worker, may cause an inefficient use of supplies. Wherever clients are brought

into contact with and allowed to use supplies, use of those supplies may represent a cost of rehabilitation as well as a cost of production. Therefore, all supplies charged to production subfunctions of the industrial workshop (Table V) and to functions which utilize clients in their operations (Table IV) are included as direct joint costs. The solicitation and collection function, however, does not include any supplies as joint costs. In solicitation and collection clients are used only on the dock in loading and unloading trucks; they do not come into contact with supplies of any kind. The supplies joint costs of the management and general function consist of the supplies charged to those offices which utilize clients. These offices and the supplies costs applicable to each of them are as follows:

Comptroller's office	\$ 556
Public Relations office	<u>570</u>
	<u>\$1,126</u>

Telephone and Postage

None of the telephone and postage direct operating expenditures have been designated as direct joint costs. This decision is based on two factors: (1) specific identification of telephone and postage expenditures and (2) assumptions about the use of the telephone and postage.

These two factors will be explained and discussed in detail with the presentation of Table VII, Analysis of Bases for Treating Costs as Non-Joint, at the conclusion of this chapter.

Occupancy Costs

As pointed out previously, occupancy costs represent repairs and maintenance costs which can be specifically identified with a function or subfunction within the workshop. Because occupancy costs are incurred on behalf of the combined effort of production and rehabilitation in those functions and subfunctions which utilize clients, the costs are direct joint costs and are included on Tables IV and V. The single dollar of occupancy cost under the solicitation and collection function on Table II has not been included in the joint costs on the basis of (1) immateriality and (2) the assumption that the dollar of occupancy costs incurred did not involve the small part of the solicitation and collection function--the dock operations--where clients are utilized. Occupancy costs included under the retail stores function on Table IV are significantly larger than occupancy costs for the other functions. The reason is that retail stores occupancy costs included rental charges paid for buildings the retail stores occupy. The management and

general function's joint occupancy costs are those occupancy costs charged to the comptroller's and public relations offices, which have clients working within them.

On the Summary of All Functional Activities (Table II), the occupancy costs under the housing and occupancy function are those costs which cannot be identified with any specific function or subfunction. The janitorial and repair operations within housing and occupancy, the parts of the function which utilize clients and, therefore, have some direct joint costs, are unlike most functions and subfunctions in that they do have separately designated work areas to which direct occupancy costs can be attached. For this reason no direct joint occupancy costs are included on Table IV for the housing and occupancy function. All of the occupancy costs under the housing and occupancy function are indirect joint costs, which must be allocated to functions served on some equitable basis.

Outside Printing and Art Work

This study considers none of the costs of the outside printing and art work category of direct operating expenditures to be direct joint costs. The \$25 charged to the industrial workshop function represents \$15 of printing in the contract subfunction, which does not use clients in its

operations, and \$10 of printing by the printshop. The \$10 was spent for printing which was beyond the capability of Goodwill of San Antonio's printshop and was in connection with a product sold; it had no association with rehabilitation. The amount shown on Table II as outside printing and art work costs identifiable with the retail stores function represents advertising costs and, therefore, has no connection with the work of clients in the retail stores. The outside printing and art work costs charged to the management and general function's areas which utilize clients, i.e., the public relations and comptroller's office, was zero for the comptroller's office and \$1,804 for public relations. The costs charged to public relations also represent general advertising costs for the workshop as a whole and have no association with the clerical duties which clients may have performed for the public relations office. Thus, by specific identification outside printing and art work, costs have been determined not to contain any direct joint costs.

Local Transportation

Local transportation costs also have been excluded from the schedules of direct joint costs. Of the \$229 of local transportation costs charged to the industrial workshop, \$210 belongs to the contract function, which does not use

clients in its operations. The balance of \$19, chargeable to the printshop operation, is excluded from the joint cost schedules on the bases of immateriality and the assumption that the expenditure, which was an auto allowance, was in connection with production efforts rather than rehabilitation. Most of the local transportation costs of the solicitation and collection function can be specifically identified as representing the operating costs of Goodwill's fleet of trucks, which pick up and deliver goods. These costs are excluded from joint costs because clients are not used as truck drivers or as part of the staff which direct the operations of the trucks. As noted before, the solicitation and collection function uses clients only as dock workers to load and unload trucks. Retail stores' local transportation costs of \$23 have been omitted from direct joint costs because (1) these costs represent auto allowances, which are not made to clients working in the stores, and (2) the assumption that the auto allowances are incurred in connection with the stores' marketing efforts rather than the rehabilitation efforts. Within the management and general function the local transportation costs charged to the comptroller's office and to public relations also represent auto allowances. These allowances are attributed to personnel

engaged in activities other than those associated with rehabilitation of clients. Most of the housing and occupancy function's local transportation charges can be specifically identified as being of a general nature not associated with operations which utilize clients. This function's transportation charges are in the nature of indirect joint costs.

Conferences, Meetings, and Trips

The costs included in the direct operating expenditures category for conferences, meetings, and trips are not included in the direct joint costs. The \$43 charged to the industrial workshop function on Table II is an expense of the contract subfunction, which does not utilize clients. Within the management and general function, \$557 of the \$2,071 costs in this category are applicable to the comptroller's and public relations offices. However, by specific identification it was determined that the \$557 was spent on travel costs of top personnel within these offices in the performance of their administrative duties and not in their association with or supervision of clients.

Subscriptions and Publications

The subscription and publication expenditures also are excluded from the schedules of direct joint cost. The \$10 charged to the industrial workshop function on Table II

belongs to the electrical-mechanical subfunction. It represents cost of a subscription to a magazine dealing with the production side of that subfunction's activities. On the bases of immateriality and apparent applicability, the \$10 subscription is assumed not to represent a joint cost. Some of the subscription and publication expenditures chargeable to the management and general function are applicable to those offices which use clients within their operations. By specific identification, however, the subscriptions relate to the general nature of the workshop's activities, both production and rehabilitation, and do not relate to the work which clients perform in these offices. Thus, these costs are more appropriately a part of indirect joint costs than direct joint costs.

Specific Assistance to Individuals

The direct operating expenditures category "specific assistance to individuals" is almost completely a specifically identified rehabilitation cost. The \$17 charged to the management and general function is a wage supplement specifically identified as not applicable to anyone who was directly associated with the work of clients and, therefore, is not a direct joint cost.

Membership Dues

The "membership dues" category of expenditures also is treated as having no element of direct joint costs. The membership dues applicable to the industrial workshop belong to the contract subfunction, which does not use clients. The dues chargeable to the management and general function have no direct relationship to use of clients in the comptroller's office and public relations office; they more appropriately are classified as indirect joint costs.

Non-Capital Equipment

The last category of direct operating expenditures on Table II is non-capital equipment, the cost of hand tools and items of small equipment whose unit cost is not large enough to capitalize and depreciate. In most cases these items do represent direct joint costs. They are part of the equipment which clients utilize in the performance of those productive activities which contribute to their rehabilitation. Thus the \$331 of non-capital equipment charged to the industrial workshop function, all of which represents expenditures in the printshop where clients are working, is included as a direct joint cost. The \$42 of non-capital equipment charged to the solicitation and collection function is not treated as a joint cost. It represents expenditures

on the GISA collection boxes, which are located at points around the city for the public to use to leave donated materials. These collection boxes are not directly involved with clients working in the solicitation and collection function and, therefore, are not direct joint costs. The \$500 of non-capital equipment charged to retail stores is for leasehold improvements made to retail store buildings. These charges are included in direct joint costs because clients working in the store areas come into contact with and utilize the leasehold improvements. The same reasoning applies to the \$18 of cost, representing miscellaneous equipment, under the food services function. Of the total non-capital equipment charged to management and general, the only portion which might involve the work of clients is \$150 of miscellaneous office equipment in the comptroller's office. Accordingly, this amount has been included in Table IV as a direct joint cost.

The identification of joint costs in non-capital equipment charges concludes the analysis of the direct operating expenditures section of the Summary of All Functional Activities, Table II. In this analysis the direct joint costs of production and rehabilitation have been identified and presented for all of the workshop's function on Table IV and the industrial workshop's subfunctions on Table V.

Review of Assumptions and Their Effects

The analysis of GISA's direct operating expenditures has included several assumptions concerning whether or not certain costs are associated with the work which clients are performing in the workshop and, therefore, whether or not these costs are direct joint costs. While in each instance these costs have been classified as joint or non-joint according to what seems to be their most logical role in the workshop's operations, it is necessary to recognize that whenever circumstances necessitate an assumption a possibility of error always exists. Accordingly, it seems appropriate to review assumptions which have been made in this analysis and, where possible, to summarize the effects of those assumptions on data which the analysis has produced. The following discussion considers each of the assumptions in turn.

The first assumption, that the only use of clients in the management and general function was in the comptroller's and public relations offices, was required because no records were maintained of the few occasions when clients were used in other offices in the management and general function. There are work station assignments for clients in the executive and personnel offices of the management and

general function; when those stations are filled, there are direct joint costs being incurred. During the first six months of 1970, however, there were very few times when those work stations were used. The personnel responsible for maintaining records of the use of clients in those stations failed to do so. Therefore, it is impossible to include in the cost separation effort the direct joint costs which were incurred in the personnel and executive offices. The effect of this assumption is impossible to quantify; however, as noted in the discussion of wages paid, personnel working in these offices were certain that the occasions of use of clients in these areas were so few during this six-month period that the omission could not have a material effect on the results of this study. Another reason that the assumption seems warranted is that one of the purposes of this study is to offer evidence that cost separation can be achieved. The inclusion of direct joint costs of the comptroller's and public relations offices within the management and general function should offer evidence that cost separation can be effected in the management and general function if the information surrounding the use of clients is maintained.

A second assumption made in the analysis of direct operating expenditures has to do with the relationship of costs to work performed by clients in the solicitation and collection function. Table VI, Analysis of Joint Cost Treatment of Solicitation and Collection Function, presents the effects of this assumption. Because clients are used in the solicitation and collection function only as dock workers and never in any other capacity, the study made the assumption that the only direct joint costs incurred were the costs of the dock supervisor's wages, life, health, and retirements benefits, and payroll taxes. The operating expenditures for wages, employee benefits, payroll taxes, a portion of supplies (representing the cost of Goodwill bags and certain housekeeping supplies), local transportation (representing operating costs for Goodwill's fleet of trucks), and non-capital expenditures (on Goodwill's collection boxes) can be specifically identified as having no element of direct joint cost in them. Therefore, the only costs to which the assumption applies are \$1,620 of miscellaneous supplies, telephone and postage charges, occupancy costs, and auto allowance included in local transportation.

The third assumption of this analysis is actually a group of assumptions relating to the nature of certain of

TABLE VI

GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
ANALYSIS OF JOINT COST TREATMENT OF
SOLICITATION AND COLLECTION FUNCTION
FOR THE SIX MONTHS ENDED
JUNE 30, 1970

<u>Direct Operating Expenditures</u>	<u>Total Costs (Table II)</u>	<u>Joint Costs (Table IV)</u>	<u>Specifically Identified Non-Joint Costs</u>	<u>Assumed Non-Joint Costs</u>
Wages to Disabled	\$26,564	\$...	\$26,564	\$...
Wages to Non-Disabled	19,765	2,419	17,346	...
Life, Health, & Retirement Benefits	109	39	70	...
Payroll Taxes	2,225	116	2,109	...
Supplies	2,660	...	2,170	490
Telephone & Postage	1,019	...	...	1,019
Occupancy	1	...	...	1
Local Transportation	11,260	...	11,150	110
Non-Capital Equipment	42	...	42	...
	<u>\$63,645</u>	<u>\$ 2,574</u>	<u>\$59,451</u>	<u>\$1,620</u>

the operating expenditures. This group of assumptions is summarized on Table VII, Analysis of Bases for Treating Costs as Non-Joint. Table VII includes only those operating expenditures from Table II where the treatment of a cost as non-joint has involved an assumption.

The telephone and postage category of direct operating expenditures is the first group of costs on Table VII. None of these costs is treated as directly joint. Some can be identified specifically as not being joint; others are assumed non-joint. The assumption is that the telephone and the postage charges incurred in each function or subfunction are incurred for those activities' nominal purpose rather than any rehabilitation that might be accomplished within that area. The observation that clients rarely if ever are called upon to use the telephone or incur postage charges in the course of performing the duties to which they are assigned supports that assumption. Also, any use of the telephone in connection with the client's performance of his assigned duties probably would take place through the counselor assigned to the client and, therefore, would be a charge made directly to the rehabilitation function. Table VII summarizes the distribution of the telephone and postage charges between those identified as non-joint and those assumed non-joint.

TABLE VII

GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
ANALYSIS OF BASES FOR TREATING COSTS AS NON-JOINT
FOR THE SIX MONTHS ENDED
JUNE 30, 1970

Direct Operating Expenditures Function-Subfunction	Total Costs (Note 1)	Specifically Identified Non-Joint Costs	Assumed Non-Joint Costs
Telephone and Postage-			
Industrial Workshop-			
Bin Goods--Freight	\$ 11	\$...	\$ 11
Furniture--Freight	64	...	64
Contract--Telephone	2	2	...
Contract--Freight	13	13	...
	<u>90</u>		
	\$ 263	...	263
	\$
Solicitation and Collection (Note 2)			
Retail Stores			
Food Services			
Management and General-			
Comptroller	\$ 532	...	532
Public Relations	673	...	673
Other Subfunctions	1,939	1,939	...
	<u>\$3,144</u>		

TABLE VII--Continued

	Total Costs (Note 1)	Specifically Identified Non-Joint Costs	Assumed Non-Joint Costs
Direct Operating Expenditures Function-Subfunction			
Local Transportation- Industrial Workshop- Contract Printshop	\$ 210 19 <u>\$ 229</u>	\$ 210	\$... 19
Solicitation and Collection (Note 2) Retail Stores	\$ 23	...	23
Management and General- Comptroller Public Relations Other Subfunctions	\$ 34 125 583 <u>\$ 742</u>	... ... 583	34 125 ...
Housing and Occupancy	\$ 625	615	10
Subscriptions and Publications- Industrial Workshop- Electrical-Mechanical Management and General	\$ 10 <u>\$ 181</u>	... 181	10 ... <u>\$1,764</u> <u>1,620</u> <u>\$3,384</u>
Solicitation and Collection (Note 2)			

Notes: (1) Totals for each function agree with Table II.

(2) The assumption used for the determination of the joint costs in the solicitation and collection function is treated separately on Table VI.

The next category of direct operating expenditures about which the study makes an assumption is the local transportation group of expenses. The assumption by which these expenses are excluded from direct joint costs is as follows: local transportation costs are incurred on behalf of each function's and subfunction's principal purpose and have no association with work performed by clients assigned to these different areas. The observation was made at the workshop that no client was allowed local transportation expenses and that anyone who was allowed to incur such costs was not doing so in a capacity of supervisor of clients. Some local transportation costs, of course, can be specifically identified as not being direct joint costs. Table VII shows how local transportation costs are divided between those to which the assumption was applied and those identified as non-joint.

The subscriptions and publications category of expenditures also was assumed not to be direct joint costs. The only cost which the assumption applied to was a \$10 charge to the electrical-mechanical subfunction as explained above. The subscription and publications chargeable to management and general were specifically identified as non-joint.

Combining Table VI's \$1,620 of costs, assumed to be non-joint costs under the assumption about the solicitation and collection function, and Table VII's \$1,764 of costs, assumed not to represent joint costs under the assumptions outlined there, gives a total of \$3,384 of costs to which assumptions have been applied. Of the \$492,124 total direct operating expenditures on Table II, the \$3,384 assumed to be non-joint is .69 per cent or less than 1 per cent. In any effort to separate the rehabilitation costs from other kinds of costs, the rehabilitation costs possibly overlooked would be only a portion of those costs to which assumptions have been applied. Therefore, the error introduced by the two assumptions discussed above would be only a portion of the \$3,384 or .69 per cent. Thus it seems safe to conclude that any error introduced by the assumptions would not have a material effect on the results obtained.

The analysis of the direct operating expenditures section of the Summary of All Functional Activities has disclosed that the direct joint costs of production and rehabilitation for the first six months of 1970 amount to \$100,788. Table IV identifies these costs by type of expenditure and by function; Table V details the direct joint costs of the industrial workshop by productive activity, or subfunction.

Of the total direct joint costs of \$100,788, some portion represents rehabilitation costs. A determination of the workshop's total rehabilitation costs must separate the rehabilitation portion of joint costs and add those costs to direct costs of the rehabilitation services function as presented in the first section of the Summary of All Function Activities (Table II).

CHAPTER VI

ANALYSIS OF THE OBJECTIVES AND NECESSITY OF THE VOCATIONAL REHABILITATION WORKSHOP'S JOINT COST SEPARATION

The goal of this research study and the end toward which the preceding material has been directed is the development of a means of separating a vocational rehabilitation workshop's joint costs of production and rehabilitation. If such a cost separation technique is developed, it can be applied to joint costs included in a workshop's periodic statement of financial operations. Then, the resulting separated costs can be grouped with non-joint costs of production and rehabilitation to provide total pure costs for the production and for the rehabilitation functions of a workshop.

Neither accounting theory nor accounting practice provide a solution to a workshop's joint cost problem. The review of literature in Chapter III reveals agreement only that the problem exists. The most frequent answer to the problem of separating joint costs is allocation. Even if one accepts allocation as a solution, however, the necessity of choosing a basis for allocation and the variety of bases

available for that choice leave one in almost as much of a dilemma as when he began. If allocation is an answer to the problem, then selection of a basis for allocation requires careful thought and consideration. The basis selected must be defended as the most logical one in the light of (1) information available for the allocation decision and (2) other possible bases for allocation that exist.

The Association of Cost Allocations and Their Objectives

A point about joint cost allocations which does come out of the review of literature on the subject is that the use of any base for allocating joint costs involves assumptions which cannot be verified objectively. For this reason, an allocation basis is selected for reasonableness of its underlying assumptions. The most important test of reasonableness of underlying assumptions is whether or not those assumptions are in accordance with the purpose for which the allocation is used. Thus, an allocation base must be selected in the light of that allocation's objectives. With an array of allocation bases available for use and the necessity of making assumptions whenever any basis is selected, the only way in which a particular basis for allocation can be defended is by comparing that basis and its assumptions to results which the allocation produces.

The allocation basis and its assumptions must be consistent with uses that are made of the information, i.e., separated costs, which they provide.

This point is one which the Meigs and Johnson accounting principles textbook fails to make explicit in its discussion of the responsibility and benefits criteria for expense allocations. As noted in Chapter IV in the discussion of present accounting treatment of workshop joint costs, the authors of this textbook cite (1) responsibility for and (2) benefits received from costs as the two principal criteria for cost allocations. Because they believe that responsibility for a cost usually is less difficult to trace than benefits received from that cost, these authors attribute a slight advantage in objectivity to the responsibility criterion. The point which Meigs and Johnson are making is that even though cost allocation bases are arbitrarily chosen alternative bases of allocation can be and are used satisfactorily. They fail, however, to point out that there are implicit objectives involved in any assignment according to the benefits received criterion or the responsibility criterion. The reason that alternative bases can be satisfactorily used is that bases are selected according to objectives or uses to be made of the allocation.

To illustrate the association of an allocation with its objectives, consider the following examples. A responsibility allocation base is satisfactory for determination of cost that will be used as a measure of performance of that segment of an entity which bears responsibility for incurring those costs. The allocated costs, as compared with some predetermined standard such as an engineering estimate or a prior period's performance, become a measure of performance of that segment in the discharge of its responsibility. For this objective, the responsibility criterion is quite satisfactory. For any other objective, e.g., pricing of a product, such an allocation could be misleading. Similarly, an allocation made on the basis of benefits which accrue from a cost can be satisfactory if the objective of that cost determination involves the disclosure of the benefits which a given segment has derived from expenditures. Thus, an allocation on the basis of benefits received can be quite satisfactory for the purpose of determining the full cost of a product and the adequacy of product price in recovering costs or in producing profits. That same allocation, however, used as a means of judging performance of a segment which has no control over or responsibility for those costs, could produce very inappropriate results.

The Objectives of Joint Cost Separation

In the light of the association of cost allocations with their objectives, it is appropriate, as a preliminary step in the effort to separate a vocational rehabilitation workshop's joint costs of production and rehabilitation, to delineate objectives which workshops have in separating joint costs. Beyond the objectives, of course, lie specific questions or decisions the solutions to which draw upon the financial data which separated costs provide. Workshop accounting and management techniques are not refined to the point of having a formal statement of objectives of joint cost separation. Therefore, the means of assembling a statement of objectives has been analysis of decisions which appear to require separated costs. The objectives outlined below have been inferred from discussions with workshop management personnel about their uses of separated costs.

Objectives of joint cost separation actually are a hierarchy of objectives which range from general reasons for workshop existence to specific means of implementing workshop goals. The highest level objectives are general ones, such as rehabilitation and employment of the handicapped. These objectives are common denominators for different efforts

which make up workshop operations. They are sources of more specific objectives of joint cost allocation.

Two additional objectives make up a second level of objective beneath the ones noted above. The first of these two objectives is making efficient and effective use of workshop resources. Resources available for social endeavors are limited. A vocational rehabilitation workshop must compete for public and private funds with other nonprofit enterprises in the community--the church, the symphony orchestra, public health groups. Even when funds are made available to a workshop, its objectives, like those of other nonprofit organizations, are of a nature which keeps resources scarce in relation to their possible uses. The sheer magnitude in numbers of persons in need of rehabilitation services, the concern to improve the quality of those services, and the efforts to achieve a better distribution of those services immediately sap available resources. Thus, workshop administration is vitally concerned with making efficient and effective use of resources it obtains. Efficiency and effectiveness in consuming resources makes resources go farther. Demonstration of efficiency and effectiveness in consuming resources creates a strong advantage in competition for additional resources.

The other objective which makes up the second level in the hierarchy of cost allocation objectives is that of effecting a fair distribution of cost burden between consumers of workshop services and contributors to workshop resources. Workshop administrators hope that those consumers who are able will pay for services they receive and that donated funds will be used as the contributors intended them to be used. The workshop should not allow financially responsible consumers of its services to partially shift to contributors the burden of the cost of those services unless the absorption of a portion of costs is within the intent of contributors. This burden distribution objective on the part of workshop administrators may have as its source a resource maximization objective. Workshop administrators may realize that over a protracted period of time the best way to hold contributors and acquire new ones is to insure that contributors' funds are used effectively and efficiently and for the purposes for which they were intended.

Although the second level of objective forms a link between more general workshop goals and the specifics of joint cost allocation, the two objectives discussed above are not yet close enough to joint cost allocation to

be operative. Therefore, a third level of objective, one derived from the first two, focuses directly on the purposes of joint cost allocation. The objective of making efficient and effective use of resources has two subobjectives: (1) judging performance of a workshop as a whole and segments of workshop operations and (2) allocating resources among workshops and, within a workshop, among segments of operations which compete for workshop funds. The fair distribution of cost burden objective likewise has two subobjectives: (1) pricing contract work which a workshop performs for private industry and (2) setting rehabilitation fees. These subobjectives are the operational level of objective for dealing with the joint cost separation problem.

Analysis of Necessity for Joint Cost Separation

If a workshop's joint costs of production and rehabilitation are separated into their components, the separated costs can be combined with other non-joint costs of the production and rehabilitation functions to produce a "pure" cost of production and a "pure" cost of rehabilitation. Why are the "pure" costs of either production or rehabilitation necessary? Before attempting to tailor cost allocations appropriate to their objectives, it is worthwhile

to analyze these objectives and question whether cost separations are as necessary as is commonly believed. The discussion which follows analyzes each of the specific objectives of cost allocation in turn and then considers the relevance of "pure" and, therefore, separated costs to each of the objectives.

Performance Judgments

One means of implementing the objective of efficient and effective use of workshop resources is in making performance judgments. Performance judgments are evaluations based on measurement of results of operations over a period of time. A specific decision to which the performance judgment objective applies is that of judging the performance of a workshop as a whole in carrying out its functions, including those of production and rehabilitation. Performance judgments evaluate efficiency of workshop operations. If one knows what costs, either production or rehabilitation, should be or even what they have been in the past, he can make some kind of evaluation of the efficiency of current operations. Because performance judgments usually are thought of in terms of either production performance or rehabilitation performance, most workshop personnel believe that separated costs are necessary to those judgments.

Performance judgments also assist in the controlling of costs. Performance judgments are the means of identifying when and where better cost controls are needed. They appraise the effectiveness and the adequacy of cost control efforts. Before management can control costs, however, it must know what those costs are. Thus, again, the need of identifying separate production and rehabilitation costs rises.

Under the performance judgment objective, a second type of decision, related to the first one, requires performance measurements of (1) individuals within a workshop in the discharge of their managerial or supervisory duties and (2) other segments of activity in carrying out their functions. The separated costs of production and rehabilitation which result from cost allocation can become internal measurements of performance of these individuals or other segments. For example, the measurement of workshop performance referred to above also can become a measure of performance of the director of the workshop. If costs of production and rehabilitation compared with the results obtained under his direction indicate efficient operations, that director is judged to have performed well. This same type of judgment may be made at all levels within workshop

operations--rehabilitation operations, the director of rehabilitation, production operations, the director of production, the supervisor of the shoe repair operation, laundry operations, and so on. Throughout a workshop, the quality of performance is at least partially judged on the basis of costs incurred. Thus, these performance judgments form the bases for reward systems for top management and other employees. But because workshop administrators usually seek to evaluate performance in terms of production or rehabilitation achievements, they believe that separate production and rehabilitation costs and, therefore, separation of joint costs are necessary.

In the paragraphs above, judging performance, either of a workshop as a whole or of segments of a workshop's operations, has been cited as an objective of separation of joint costs. Inherent in any judgment of performance is a comparison between performance being judged and some kind of standard. That standard may be a performance in some prior period, an average of prior period performances, a performance by a comparable unit, or an analytically developed standard, based on time studies, engineering estimates, or other such means. An answer to the question about a workshop's need for separated costs is that "pure" costs of

rehabilitation and of production are necessary because standards to which workshop costs are compared are stated in terms of "pure" costs.

The use of "pure" cost standards in performance judgments is more subtle on the rehabilitation side than on the production side. In the field of vocational rehabilitation, the development of sophisticated financial management techniques, if it exists at all, is still in its infancy. On the rehabilitation side of workshop operations, there are no explicit "pure" cost standards available for judging performance. In fact, at the present time little is known, and there has been little study of the nature and amount of rehabilitation costs, particularly differential costs of servicing different kinds of handicaps. The need for rehabilitation cost standards is acute. Even working intuitively, however, without explicit rehabilitation cost standards, workshop decision makers are so desirous of obtaining "pure" costs and are so disconcerted by the presence of joint costs that they grope for separated costs without considering whether or not they could use them effectively.

On the production side of workshop operations, there are obvious opportunities to use "pure" standards against

which to measure workshop production costs. Traditionally, competitive industry and its production costs, free of inefficiencies of rehabilitation efforts, have been considered the standard to which workshop operations should be compared. The use of competitive industry as a standard is probably the product of a workshop's desire to provide its clients with as realistic a work environment, i.e., a work setting as closely resembling that of competitive industry, as possible. Thus, "pure" costs of workshop production are desired so that they can be compared to production costs of competitive industry.

The author does not believe that it is appropriate to use production costs of competitive industry as a standard for comparisons. A workshop always will operate with workers who, because of their handicaps, are less productive than a nonhandicapped workforce. Even when the rehabilitation portion of joint costs has been isolated, the so-called "pure" costs of production contain an increment caused by the relative inefficiency of handicapped workers. As discussed in an earlier chapter, the rehabilitation portion of joint costs are costs of moving a worker from his initial to his maximum level of productivity. The costs to a workshop represented by the difference between a

handicapped person's maximum productive capacity and the productive capacity of a non-handicapped worker are unavoidable inefficiencies which, because of the nature of a workshop, production operations should absorb. These inefficiencies, i.e., additional costs, occur in worker wage costs, supervisory costs, and other operating and occupancy costs. They are the result of each worker's own handicap, of the necessity of handicapped workers working in conjunction with each other, and of methods of production that are less efficient than those of competitive industry. Methods of production that are inefficient by competitive standards are necessary to adapt the production process to the needs of handicapped workers. These additional costs within the workshop's production operations preclude use of competitive industry costs as standards for measuring workshop performance.

A second argument against the use of "pure" costs in making workshop performance judgments lies in the inability to separate joint costs except through allocation. To demand separation of a workshop's joint costs will force an arbitrary allocation of those costs. Performance judgments based on arbitrary allocations always would be subject to dispute.

A solution to the problem of workshop performance judgments would be development of specific standards of performance for workshops themselves. Such standards, jointly applicable to both the production and rehabilitation functions, would offer a better means of making comparisons and judging performance than the intuitive rehabilitation standards and competitive industry production standards presently used. Workshop standards would have built into them costs of inefficiencies arising from use of less than fully productive workers and would include joint costs of production and rehabilitation. Such standards would eliminate the need for cost separation as far as performance judgments are concerned.

All of this is not to say that development of workshop standards is an easy matter. Even on the surface of the problem, there are two variables of workshop operations which would have to be considered in any development of standards--the extent of a workshop's production operations and the kinds or extent of handicaps which a workshop attempts to rehabilitate. But particularly in the light of the Goodwill Industries' standard accounting system and the cost information it obtains, it should be possible to develop standards which would be adaptable to almost

any workshop. One approach to building workshop standards is to study cost behavior patterns of workshops which appear to have efficient operations. Fixed and variable costs could be separated and their movements studied in relation to the volume of clients in a workshop, types of handicaps involved, kinds of production operations, and so forth. Development of standards for use in making performance judgments internal and external to a vocational rehabilitation workshop is an area much in need of additional research. Performance standards would be most helpful in improving managerial techniques in this unique type of social and business operation.

Resource Allocation Decisions

In addition to performance judgments, another means of implementing efficient and effective use of resources is careful allocation of resources. Therefore, resource allocation among and within workshops is the second objective of joint cost separation. An efficient allocation of resources requires a matching of costs against benefits derived from those costs. The benefits of workshop activities usually are stated in terms of rehabilitation accomplishments for the rehabilitation function and sales of a workshop's products for the production operations.

Because these benefits are measured and stated separately, it appears a priori that their costs must be broken apart before a matching of costs and benefits is possible.

One kind of decision which derives from the resource allocation objective is the selection of a workshop to which to allocate resources. The allocation of joint costs permits a determination of the pure costs of rehabilitation services rendered. If one workshop can produce more rehabilitation measured on some acceptable basis such as number of clients served, number of job placements, etc., per rehabilitation dollar spent than can some other workshop, that first workshop is operating more efficiently and obtaining a higher (social) return from its resources. That kind of workshop earns the support controlled by administrators of public resources and contributors of private funds. Thus, because resources used for social endeavors are limited, allocation of joint costs fills a need of providing information which will assist in obtaining maximum benefits from those resources.

A second type of decision associated with the resource allocation objective is matching costs and benefits to assist with future allocations of resources within a workshop. One such decision might be whether or not to

undertake or to continue a given program or type of operation. If a workshop's board of directors is presented a proposal to undertake a certain rehabilitation program, for example, a complete budget of costs and benefits for that proposed program should be included. The budget may be based on similar programs previously undertaken in that workshop or in other workshops, or it simply may be a synthesis of independently estimated costs and benefits. Whatever the source of the budget information, a workshop's board of directors cannot make an enlightened decision about the proposal without a balancing of results obtained against the costs of those results. Without a separation of joint costs, the appropriate costs cannot be applied to results that are measured in terms of either rehabilitation or production. The same kind of matching of benefits and costs is appropriate after the fact for programs previously approved. These matchings may be for the purposes of justifying previously approved programs or checking reliability of budgeting procedures. Matching decisions are applicable at the broadest level of workshop operation, e.g., showing the board of directors and other interested parties the cost of rehabilitation and of production operations. Matchings of costs and benefits also are applicable to individual segments at all levels within a workshop.

The resource allocation objective of joint cost separation, which utilizes a matching of costs of production and rehabilitation against results obtained, also takes another form--the decision of which workshop goal, social or economic, must prevail. In an organization such as a vocational rehabilitation workshop, which includes both social and economic purposes, there are instances when goals conflict. For example, a new program to rehabilitate individuals with a given type of disability may seriously impede the production operations into which these individuals are placed. An informed decision of whether to introduce this new program must be made in the light of costs to the rehabilitation program and costs to production operations. Thus, one factor in the decision of which goal must prevail is the relationship between benefits and costs of each.

If a workshop's joint costs could be separated and, therefore, "pure" production and "pure" rehabilitation costs determined, does a matching of these costs against their benefits produce a meaningful tool for use in resource allocation decisions? To answer that question, consider first the ideal situation.

Matchings of workshop costs and benefits would be most meaningful if a method could be developed for measuring

social benefits of workshop efforts in the same financial terms as the economic benefits from sales of workshop products and services. A matching of costs against all benefits, both social and economic, would supply the only definitive, objective answer to questions of whether or not benefits exceed costs and by how much, which is the essence of resource allocation decisions. These questions could be answered for workshop operations as a whole or for individual segments of those operations.

The real question at hand, however, is whether or not meaningful and useful matching would result from using separate "pure" costs of rehabilitation and "pure" costs of production in a comparison to separate benefits, if all of those benefits could be measured. The use of separate benefits causes a dichotomy of workshop results between production benefits and rehabilitation and other social benefits. The degree of utility of separate matchings of production and rehabilitation benefits with their costs would derive from a workshop's philosophy of operations. A workshop's philosophy may set forth separate production and rehabilitation goals and then attempt to achieve those goals. If so, separate decisions for production and rehabilitation operations are appropriate, and the separate

matching of costs and benefits undoubtedly would produce highly useful decision data. If a workshop's philosophy of operations is such that rehabilitation dominates and production plays a role of providing monetary and environmental resources for achievement of rehabilitation goals, then rehabilitation decisions cannot be isolated from production decisions. Therefore, there are fewer opportunities for separate matchings of costs and benefits to be useful. Even in this latter situation, however, matchings for production separate from those for rehabilitation could be useful in decisions which involve a choice between alternative ways of providing those monetary and environmental outputs. Thus, in both instances where workshop philosophy differentiates between production and rehabilitation and where it does not, usefulness for separate matchings of costs and benefits exists. If and when measurements are developed to the point of stating social benefits quantified in terms that can be compared meaningfully to costs, a separation of the workshop's production and rehabilitation costs would be appropriate. Measurement of social benefits will need to identify and assign dollar values not only to socio-economic factors such as change in income due to rehabilitation but also to assign dollar

values to such factors as the satisfaction and self-esteem which result from the ability to hold a job and provide all or a part of one's own support. This kind of measurement does not yet seem to be within the grasp of social scientists.

The preceding discussion of uses of separated costs in resource allocation decisions has been concerned with matchings of benefits and costs at a theoretical level where an accurate measurement of all benefits is possible. At a more pragmatic level, what about matchings where the only measure of benefits in financial terms are the economic ones of (1) sales of workshop products and services and (2) collection of rehabilitation fees?

On both the production and rehabilitation sides of workshop operations, any matching in financial terms of costs and benefits will have to be supplemented with intuitive measurement of the social benefits of rehabilitation, employing the handicapped, and selling goods to underprivileged people at favorable prices. The best use of matchings requires "pure" benefits as well as "pure" costs.

Of course, one can make the argument that even if benefits and costs cannot be matched on equivalent terms, it still is useful, for both internal and external decision making, to know the "pure" costs of a workshop's endeavors.

On the rehabilitation side of workshop operations, the pure costs of the rehabilitation effort could be identified, matched against the results obtained, however those results are measured, and used as a basis for decisions about a workshop's rehabilitation efforts. On the production side, pure costs could be matched against sales of a workshop's salvaged goods and subcontract services to measure the net cost or, possibly, profits obtained from a workshop's production endeavors. Also, even without a measurement in financial terms of all benefits received, trends in costs per client, or some other nonquantitative factor, and other cost behavior patterns could be observed and compared to other time periods or other workshops. Thus, "pure" rehabilitation and "pure" production costs would provide useful information even though they cannot be matched against a financial measurement of all their benefits.

The argument is not without merit. It is useful to know costs even if they cannot be matched perfectly against benefits they produce. But two problems lurk in use of so-called "pure" cost data of a vocational rehabilitation workshop. If the only way to obtain "pure" costs is through an allocation, then costs which that allocation produces will be subject to contest whenever their use

involves opposing positions. The effective use of cost allocations which involve arbitrary decisions in choosing bases for allocation requires that all parties to use of the costs be informed of and agree on assumptions inherent in those allocations. In a workshop's use of "pure" costs, e.g., when it informs its board of directors or the contributing public of costs of rehabilitation services or certain rehabilitation programs, it is rarely possible for all parties who use the data to study and agree on the methods used to develop cost figures. Without that agreement, a matching process or any other use involving "pure" costs breaks down.

A second problem in use of a workshop's "pure" costs of production and rehabilitation exists outside the joint cost problem. Assuming that joint costs could be separated satisfactorily, a problem with matching workshop "pure" costs against benefits received is that there are buried within "pure" costs of both production and rehabilitation the costs of avoidable inefficiencies.¹ In workshop

¹The term "avoidable inefficiency" is used here to distinguish between (1) the kind of inefficiency, in both the production and rehabilitation operations, which could be eliminated and (2) the "unavoidable inefficiency," noted earlier, which arises from the use of handicapped workers.

operations, social objectives preclude the strict matching of dollar benefits against dollar costs, which is possible for a profit-seeking enterprise. Without that matching, inefficiencies creep into operations. This is not to say that the costs of a profit-seeking enterprise do not contain inefficiencies also. The problem of inefficiencies is particularly acute, however, in social endeavors where the inability to make a precise accounting of efforts and accomplishments becomes a valve through which increased costs of avoidable inefficient operations are allowed to pass. The problem of inefficiencies buried in costs does not destroy usefulness of workshop cost data. Measurements may be useful even if they are not perfect. But the presence of inefficiencies does compromise the effectiveness of the data as a measure of efforts expended. Users of workshop cost data need to be aware of the problem.

The solution to the problem of inefficiencies buried in production and rehabilitation costs is the development and use of vocational rehabilitation workshop cost standards for purposes of evaluating performance. As discussed above, standards can serve as a guide to what costs should be and, therefore, can identify and help eliminate inefficient operations. But, for the reasons noted in the discussion

of performance judgments, workable workshop standards must encompass the joint costs of production and rehabilitation as a whole, without attempting separation.

Identified previously, the other problem in using pure cost data for matching efforts and accomplishments is that cost allocations necessary to obtain pure costs do not stand in the face of opposition. That is, cost allocations always can be questioned if the parties involved do not agree to the assumptions on which allocations are based. Given that situation, perhaps a fresh approach to the problem is one of changing the philosophy and format of workshop accounting and reporting from that of the profit-seeking enterprise, where sales revenues are the focus point of all enterprise efforts, to a philosophy where sales revenues are considered as one means of acquiring resources--a recovery of cost.

The need for separate production and rehabilitation costs has been attributed to the fact that the benefits against which costs are matched are separately stated--sales of a workshop's products and subcontract services for the production side and rehabilitation accomplishments for the rehabilitation side. The sales volume of goods and services, however, does not tell the whole story of benefits for a workshop's production operations. Sales figures must be

supplemented with the social returns of (1) distributing goods to underprivileged people at favorable prices and (2) employing the handicapped. Workshop sales prices are not based on dollar production costs, and sales do not include a measurement of other social "revenues." Therefore, workshop sales are not a measure of workshop accomplishments and are irrelevant for any purpose other than disclosing a recovery of resources. Thus, the matching of production costs with production sales is not a reliable measure of efforts and accomplishments; rather, it simply shows the net costs or profits of social objectives.

On the rehabilitation side of workshop operations does a comparison of rehabilitation attainments with so-called "pure" costs of rehabilitation result in a reliable matching of efforts and accomplishments? Recall that the production function of supplying clients with work and having them process it is viewed as an integral part of the rehabilitation process itself. It can be argued, therefore, that all costs ultimately are rehabilitation costs. This position has not been followed throughout this paper for the reason noted before; the view that all costs are ultimately rehabilitation costs too often becomes an excuse for failure to control costs carefully. However, the

development and use of workshop cost standards discussed above is the way to approach the cost control problem. With the cost control problem eliminated, the argument that all costs are rehabilitation costs is not unrealistic. An even better argument, however, is that all net costs, wherein dollar revenues from product sales and subcontract services are treated as recoveries of costs, are costs of social objectives--rendering rehabilitation services, employing the handicapped, and selling goods to under-privileged people at favorable prices.

In the preceding paragraphs the use of separated joint costs in the resource allocation decision has been discussed in general terms. At this point, to apply these generalizations to a specific case, the following discussion considers the uses of separated costs in a specific kind of resource allocation decision.

As noted above, workshop management is vitally concerned with maximizing benefits it receives from resources under its command. Therefore, where alternative ways are available for achieving the same social objectives, those alternatives must be compared in search of the most efficient one. One set of alternatives is the choice of kind of work environment. Another is the choice of location for the workshop.

In the work environment choice, for example, a workshop can provide the work environment necessary for employing and rehabilitating the handicapped through salvaged goods operations or through subcontract work from private industry. Within each of these alternatives there are additional alternatives to be considered. In salvaged goods operations does the laundry and cleaning operation achieve the same goal more efficiently than, for instance, the shoe repair operation? Which of the several subcontracts available will offer the most returns for the least cost? Each of these alternatives requires a decision. The question at hand is whether or not a separation of a workshop's joint costs will help make that decision, i.e., help determine the most efficient way of accomplishing a workshop's social objectives.

The ideal information for the decision on the most efficient means to provide a work environment is "pure" costs of production matched against all returns (benefits) from those costs--both social and economic--stated in financial terms that can be directly compared to costs. Assuming that financial measurements of social benefits are developed, such an alignment of dollar measurements of costs and benefits would produce the only objective answer to the question of the most efficient alternative for achieving

a workshop's goals. As discussed above, however, financial measurements of social returns are not yet within the grasp of social scientists. Without this link, complete alignment of costs and their benefits is impossible.

Another factor which a decision maker would have to consider in his choice-of-environment decision is the effect on rehabilitation costs of the choice of one production alternative versus another. The proposed matching of "pure" production costs against benefits considers the production side of the alternative. But the decision maker must realize that different production alternatives may affect rehabilitation costs that will be incurred for rehabilitation work undertaken in the different environments. For example, rehabilitation costs incurred to perform the same amount of rehabilitation may be quite different if the work environment is provided by subcontract work rather than salvaged goods operations. Or, within the salvage goods operations, the laundry environment may lead to different rehabilitation costs than the shoe repair environment. Thus, although this analysis began as a rationale for the use of separated costs of production and rehabilitation, it is now back to a consideration of both kinds of cost concurrently and their joint effect on the efficiency of alternatives. If this is the case, why separate the costs in the first place?

Other problems in the suggestion of matching "pure" production costs against their benefits in a work environment decision are the general ones discussed above. Because the only apparent means of separating the joint costs is arbitrary allocation, resulting "pure" costs of either production or rehabilitation are only one of an assortment of costs that could be compiled for the same purpose. Under these conditions, any decision made on the basis of these costs always would be subject to question and controversy.

In the light of these problems, it seems that separate production costs make no real contribution to choices from among alternative ways of accomplishing social objectives. Without an effective use for separate production costs in the work environment decision, there is no reason to attempt a separation of a workshop's joint costs. The best approach to choosing between environment alternatives in a matching of net production and rehabilitation costs (gross costs less financial returns from sales of a workshop's products and contract services) against an intuitive, subjective measurement of the social benefits derived from those costs. Such an alignment of net costs against social returns, however they may be measured, could supply data for effective decision making if the decision maker has sufficient confidence in

his intuitive measurements of social returns. He needs to take care that his comparisons are of comparable data, i.e., that total benefits under one alternative are comparable to total benefits of another.

This section's discussion of the relevance of "pure" costs of production and rehabilitation to resource allocation decisions and the related matching of costs with benefits has led to two principal conclusions. First, (1) if measures of social benefits are developed which reduce to financial terms benefits derived from a workshop's costs and (2) if the philosophy of a workshop is such as to make separate production and rehabilitation decisions desirable, then a separate matching of benefits and costs for production and for rehabilitation would provide useful information. Second, at the same time it is impossible to measure all benefits from workshop efforts in financial terms for a strict matching of costs and benefits. As long as this situation exists, the best approach to matchings of costs and benefits is balancing net costs against intuitive measurements of social returns. This approach avoids the necessity of an arbitrary allocation of joint costs and takes into account the effect that any production or rehabilitation decision may have on the costs of the other

side--production or rehabilitation--of a workshop's operations. For resource allocation, this study argues that all costs are ultimately rehabilitation costs, and, therefore, that sales proceeds derived from operations are more realistically treated as a recovery of those costs.

Pricing of Contract Services

The third of the specific objectives cited for joint cost allocation within a workshop is setting the prices of subcontract work which a workshop performs for private industry. Workshop personnel want to recover at least the full production cost on contract work undertaken for private industry. Because a workshop is a non-profit organization, partially supported by donations of both public and private funds, workshop administrative personnel contend that the effect of a workshop's performing work for private industry at less than the full cost of production is actually a subsidy to private industry. Such use of workshop funds certainly would not conform to the intent of contributors in making their donations. While this decision is usually viewed in terms of analysis of previously set subcontract prices, the problem ultimately is a pricing problem, i.e., bids on contracts are at a price which covers all production costs.

Is it appropriate for industry to pay a workshop's full costs of production? The answer to that question is affirmative only if (1) a workshop's costs of production are the same as those which industry normally would have to pay for the contract services or (2) private industry is willing to pay a workshop its full production cost for the social purposes of providing employment to handicapped persons and of providing an environment for rehabilitation.

While there has been some evidence of a developing social conscience on the part of private enterprise, the usual assumption of workshop contract pricing is that workshop prices must be competitive with those of private industry since industry is not willing to pay a workshop any more for a contract than it otherwise would have to pay. The problem with this situation is that, as noted before, a workshop's production costs are not comparable to those of private industry. Because a workshop is using workers who are less productive than nonhandicapped workers, its production costs include costs of unavoidable inefficiencies which are the result of workers' handicaps. Therefore, workshop production costs are in excess of costs of the same production by private industry. For this reason, unless a workshop can be sure that its use of handicapped workers on

contract jobs is confined to those whose handicap does not affect their productivity and, therefore, increase production costs, there is no reason to believe that a workshop is subsidizing private industry. Rather, the workshop is using contributors' funds to subsidize the additional costs of production which are the result of employing handicapped persons. This use of contributors' funds is not contrary to their intentions.

What a workshop should be concerned about is that contract work is not performed for less than a customer would pay alternate sources of supply. That situation would amount to use of contributors' funds to subsidize private industry. The way to analyze this situation, however, is not through an allocation of joint costs, which include elements of unavoidable inefficiency and which can be influenced by the basis of allocation chosen. Instead, a workshop's contract price should be compared to the production costs which private industry would have incurred on the job. These industry costs are usually compiled for the bidding of the contract anyway. They should be available from industry standards, engineering estimates, and prior experience. Private industry production costs are a better index of what contract prices should be than are workshop production costs.

Pricing of Rehabilitation Services

The fourth objective of a separation of joint costs of production and rehabilitation is setting the rehabilitation fee which a workshop charges sponsors of clients for rehabilitation services which it renders to those clients. In any pricing decision, the cost of a product is an extremely important factor. For the workshop, the cost of its rehabilitation services is particularly significant. Workshop clients, or parties who sponsor them, usually are charged a fee for rehabilitation services. That fee is either set by a workshop or, if a sponsor has many clients in a workshop, negotiated between workshop and sponsor. The most relevant factor to those negotiations is the costs of rehabilitation services. In most cases, a client's sponsor is a state office of vocational rehabilitation. In negotiations with workshops, these state offices have indicated their willingness to reimburse workshops for the full cost of their rehabilitation services. But a determination of the full costs of rehabilitation necessitates a separation of the joint costs of production and rehabilitation. As yet, states are rejecting all attempts to allocate joint costs. Workshop administrators believe that setting rehabilitation fees is their most significant cost

separation problem. Many workshops state that they are losing significant amounts of resources because they are not able to include in their rehabilitation fees the costs of rehabilitation that are buried in workshop joint costs.

For setting rehabilitation fees, it seems that an actual separation of rehabilitation elements from production elements of joint cost is necessary. However, in this instance, the use of a cost allocation to effect that separation should be feasible. For one reason, the objective of that allocation is clearly stated: determination of "pure" rehabilitation costs as a basis for setting rehabilitation fees. For another, the parties to use of the allocation, i.e., the workshop and the representative of the state offices of vocational rehabilitation, are available to agree on any allocation assumptions or definitions of cost they wish. A cost separation for the purpose of setting rehabilitation fees does not call for an omniscient "true" separation which is accepted by all persons for all purposes. Instead, all that is necessary is a meeting of minds of the two parties involved about what costs the rehabilitation fee shall reimburse. The state offices of vocational rehabilitation must recognize that because of the joint cost problem there is no "true"

rehabilitation cost available as a basis for rehabilitation fees. Then the two parties can arbitrate a point by point separation that is acceptable to both. It is important to remember, though, that the result of such an allocation may not be appropriate for other objectives of joint cost allocation.

An Additional Possible Use of Separated Costs

In addition to the objectives of the workshop's joint cost separation that were discussed above, there is an additional place where "pure" costs might be useful. This other opportunity for use of separated cost is considered separately because it involves more than one of the objectives discussed above.

The other possibility for use of the separated costs of production and rehabilitation arises in determining the costs necessary to achieve rehabilitation with different kinds of handicaps. The idea of developing standard costs for rehabilitating different handicaps is not a new one. Knowledge of the costs necessary to achieve rehabilitation would be useful in workshop budgeting, in other kinds of workshop planning, and in controlling costs. Therefore, in exploring the possible uses for "pure" costs, it is necessary

to consider whether they would be helpful in establishing rehabilitation cost standards by type of handicap.

An answer to this question must consider the purpose for which standard cost information will be used. One principal use of the standard costs of rehabilitating different kinds of handicaps will be in planning expenditures, e.g., a workshop's annual budget and special project or program planning. According to the workshop approach to rehabilitation, a work environment provided by production operations, either those of salvaging goods or performing subcontract services, is a necessary ingredient to rehabilitation. The costs of obtaining that work environment, which are joint in accounting records, also are joint as they are incurred. That is, even if joint costs could be separated and assigned to either production or rehabilitation, they cannot be incurred separately. When the use of cost data is one of planning expenditures, therefore, a planner cannot make expenditure decisions for one kind of cost (rehabilitation) separate from expenditure decisions for the other kind of cost (production). For this reason, there does not seem to be any point in separating joint costs. The development of standard rehabilitation costs would have to include cost for production operations as well because the production environment is a necessary part of rehabilitation.

The other principal use of standard costs of rehabilitation is in controlling costs. The standards would be criteria against which actual costs would be compared. Separated "pure" costs of rehabilitation would be useful in developing rehabilitation cost standards (1) if there are "true" rehabilitation costs separate and apart from production costs and (2) if those "true" costs of rehabilitation could be identified consistently and dependably both in developing the standard and in comparing actual costs to that standard. It would be necessary to eliminate in both the standard and in the actual costs the variation in costs due to the kind of production (work environment) in which the rehabilitation efforts take place. A "true" cost, however, is quite different from cost based on joint cost allocations. As noted above, allocations can produce a cost but not necessarily the cost. Given the joint cost situation that exists within a workshop, "true" costs are not attainable. For the purpose of establishing standards to be used as criteria for judging actual costs, arbitrary allocations are not an effective substitute for "true" costs.

In developing standard costs of rehabilitation, the best approach is that of treating all costs as rehabilitation costs and the financial returns from sales of workshop goods

and services as a recovery of those costs. This approach will introduce, of course, another variable into the standard: the type of work environment used. But work environment costs would have to be considered anyway in any effort to plan expenditures. This approach of not separating joint costs in establishing rehabilitation cost standards will avoid a need to introduce another variable: the effect on rehabilitation costs of the kind of work environment selected. If production costs are not included in the standard rehabilitation costs, these standards would have to be supplemented not only by the cost of the work environment but also by the effect of the work environment on rehabilitation costs. For standard cost purposes, therefore, a treatment of product and services revenues as recoveries of costs is a superior means of providing useful information.

The discussion above of objectives of joint cost separation and of decisions which utilize separated costs has not argued with the objectives which workshop administrators have in trying to separate joint costs. It has argued, however, that some of those objectives can be realized without a separation of joint costs. The discussion has pointed out that in most cases (1) "pure" costs of production and "pure" costs of rehabilitation either are not necessary or

could not be used effectively for the purposes for which they are intended, and (2) there are alternative ways of achieving the objectives without a cost separation. Only in the case of determining rehabilitation fees is a "pure" rehabilitation cost deemed necessary. And in this case, where parties involved are known and can be made aware of (1) problems, (2) judgments, and (3) alternatives in an allocation, allocation can be tailor-made for a specific need.

The remaining task of this study, then, is to offer guidelines for allocating joint costs of production and rehabilitation for the purpose of establishing rehabilitation fees. That task is undertaken in the chapter which follows. The separation technique proposed is illustrated and implemented with data on joint costs from GISA, which were presented in Chapter V.

CHAPTER VII

AN ALLOCATION OF THE JOINT COSTS OF PRODUCTION AND REHABILITATION WITH THE OBJECTIVE OF SETTING REHABILITATION FEES

In preceding chapters this study as reviewed the joint cost problem within the accounting discipline and within a vocational rehabilitation workshop and has analyzed a workshop's objectives in separating its joint costs. The study has argued that the only valid reason for separating the joint costs of production and rehabilitation is to determine the total costs of rehabilitation for use as a basis for setting rehabilitation fees. The next and final step is to effect that cost separation.

The means of effecting a separation of joint costs is allocation. In the case at hand, the necessary ingredients to a successful cost allocation are present. First, there is an explicit objective to the allocation--the determination of rehabilitation fees. Second, those parties who will use the information which the allocation process will yield, i.e., workshops and state offices of vocational rehabilitation, are available to agree on allocation assumptions and methods

and are knowledgeable of workshop operations and costs. On an annual basis, or as often as they choose, these parties can negotiate rehabilitation fees. In so doing, they can agree on definitions of cost and on methods of determining that cost. Then, following the agreements conscientiously is the only other necessity to obtaining satisfactory reimbursement of rehabilitation costs.

A prerequisite to effective use of cost allocation is the acceptance by parties involved that where there are joint costs and, therefore, a cost allocation, that "true" pure costs either do not exist or that there is no known way to determine them. In the past, relations between workshops and state offices of vocational rehabilitation seem to have been marred by this false impression. State personnel say that they are willing to reimburse workshops for their "full" costs of rehabilitation. Then state personnel wait for workshops to produce their "true" rehabilitation costs and to convince them (the states) that the methodology for determining those costs was handed down by some omnipotent being whose allegiance to "truth" is unquestionable. The workshops, on the other hand, have accepted that charge and have launched forth on a quest which can and has uncovered only frustrations. In joint

cost allocations, there is no such thing as an absolute norm. Parties to use of the allocation must work together to produce cost data which are acceptable to both because the data perform the tasks for which they are intended.

In making an allocation of joint costs, the work of this chapter cannot be substituted for the arbitration of workshops and state offices of vocational rehabilitation. Neither can this study possibly consider all the factors, e.g., availability of grants, unusual items of cost, and so forth, which may be relevant to the arbitration of specific workshops or particular states at certain times. The purpose of the chapter, rather, is to suggest a way in which cost allocation can be effected. In addition, the chapter suggests some alternative approaches to allocation which are available to workshops and states alike in their pursuit of reaching an agreement on the costs that are to be reimbursed.

The determination of the rehabilitation fee and, therefore, the decision on how joint costs are to be allocated is an individual problem which each workshop must solve for itself. Of course, the goal should be to develop a method that is acceptable not only from one year to another but also acceptable, if not on a national level, at least uniformly within each state. The advantages of achieving

some degree of uniformity in the allocation would be (1) a savings in time for both workshop and state personnel by eliminating the annual, individual workshop arbitration and (2) the ability on the part of workshops as they assemble budgets and make other financial plans to anticipate what kinds and portion of costs will be recoverable through rehabilitation fees. Either of these advantages is worth the effort to achieve a generally acceptable method of joint cost allocation.

Concepts Necessary to an Acceptable Cost Allocation

Before proposing an allocation of joint costs of production and rehabilitation, it is useful to set forth certain concepts which provide a frame of reference for workshop and state alike in their negotiations. The purpose of this discussion of concepts is to provide guidelines for the parties in their determination of the factors which will be relevant to each as negotiations proceed. As mentioned above, it is impossible for this study to adequately represent all parties or to consider all factors relevant to both workshops and state offices of vocational rehabilitation. Therefore, the following guidelines are only those of a general nature which seem pertinent to allocation arbitration. They may be

modified or supplemented as the exigencies of any particular situation require.

One concept which should be of great importance to state offices of vocational rehabilitation is that of reasonable cost. Rather than committing themselves to reimbursing the "full" costs of rehabilitation, state personnel should agree to reimburse a workshop for reasonable costs. Workshop operations, like those of any kind of enterprise, may be fraught with inefficiencies which could be avoided if better cost controls or modes of operations were introduced. Workshop operations, like those of any kind of non-profit organization, are particularly vulnerable to excessive costs. The non-profit organization has not in the past and does not now feel the constraints of the profit-making organization's annual determination of net income, which matches efforts (costs) against accomplishments (revenues). Therefore, when separating the rehabilitation element of the joint costs or when using other workshop costs, the concept of reasonable costs should be important to state representatives. If not, state personnel may find themselves in the paradoxical position of paying the highest fees to the most inefficient workshops.

This is not to say that the idea of reasonable costs is foreign to workshops. The reasonableness of costs must be

of concern if a workshop is to maximize use of its resources. Chapter VI, in part, discussed the need for the development and use of standards of performance tailored specifically for workshops. These standards can be the means by which workshop and state alike can determine the reasonableness of costs.

A second concept of importance in joint cost allocation is verifiability. Because the use of a workshop's allocated costs involves parties who have at least partially conflicting interests, the separated costs which are the output of an allocation must be verifiable either by the parties themselves or by their representatives. For separated costs to be verifiable, both the joint costs which are the input to the allocation and the allocation process itself must be subject to verification. The American Accounting Association has defined verifiability as "that attribute of information which allows qualified individuals working independently of one another to develop essentially similar measures or conclusions from an examination of the same evidence, data or records."¹ The verifiability concept does not preclude the use of judgment in the allocation process.

¹American Accounting Association, A Statement of Basic Accounting Theory (Evanston, Illinois, 1966), p. 7.

Rather, it means that an independent professional observer should be able to trace every element of cost back to the basic facts and assumptions which led to its assignment.²

Another concept which is indigenous to cost allocation is ascribability. The process of separating a workshop's joint costs is one of assigning to the production segment and to the rehabilitation segment costs that are ascribable to those segments. Joint costs by their nature are not traceable to one segment to the exclusion of other segments. Therefore, breaking joint costs apart and identifying those parts with one segment as opposed to another is based on the concept of ascribability. Determining how joint costs are ascribable to individual segments is the essence of cost allocation. Ascribability is easiest to identify and implement when definite cost-benefit or cost-responsibility relationships exist. When these relationships do exist, the ascribability and, therefore, the allocation can be based on measures of benefits received or responsibility for incurrance. As cost-benefit and responsibility relationships become less and less definite and more difficult to establish, ascribability and the resulting allocation

²"Tentative Concepts for Cost-Type Contracts," Management Accounting, LII (May, 1971), pp. 45-48.

become more and more arbitrary. Regardless of the degree of cost-benefit or cost-responsibility that exists, ascribability rests on assumptions of cost behavior. Ascribability is a kind of synthetic traceability made necessary because direct tracing is not possible. Assumptions are bridges over the traceability gap.

Homogeneity is the fourth concept necessary to acceptable cost allocation. The concept of ascribability identifies relationships between costs and segments and utilizes those relationships to break apart joint costs and assign them to segments. This use of relationships requires the use of costing rates. Practicality in the use of costing rates requires that costs be grouped together in cost pools. These cost pools must be relatively homogeneous; i.e., all costs in any one pool should be governed principally by the same set of determinants. The relative importance of each determinant should be about the same for each cost element in any particular pool.³

Another concept which is of concern to both parties in reaching a joint cost separation is fairness. Rehabilitation costs which are to serve as a basis for rehabilitation fees should be determined by an impartial consideration of the

³Ibid., p. 48.

interests of the two parties to the fee arrangement. But when the results of the fee arrangement so directly affect the interests of each party, impartiality is a quality that is difficult to obtain. Each party has his own subjective idea of what is fair, and inevitably self-interest will lead the parties to disagree. The opportunity for disagreement is particularly present in the case of joint cost allocation. The reason is that assumptions as to cost behavior and arbitrary selections of allocation bases are a necessary part of the allocation process. In the case of the major consumers of rehabilitation services, the state offices of vocational rehabilitation, there are annual meetings between the state offices and workshops for the purpose of setting rehabilitation fees. These meetings are the key to an effective solution to the joint cost allocation problem and to attaining fairness. The workshops and the states must extend the work of these meetings to negotiations on separation of workshops' joint costs. In this way parties to the use of the allocation, through discussion and compromise, can agree upon cost allocation procedures. Then, only in those cases where the two parties cannot agree, will the impartial consideration have to be attained by resort to the courts or some quasi-judicial procedure.

Finally, there are two other concepts necessary to acceptable cost allocation, which have significant effects upon the mechanics of that allocation. The first is materiality; the second, simplicity. Both workshop and state personnel alike must remember that the process of cost allocation requires time and, therefore, is itself a consumer of resources. The benefits derived from the time spent on cost allocation must exceed the costs of resources consumed. For that reason, joint costs which would not have a material effect on costs assigned to production or to rehabilitation should be ignored. Likewise, costing procedures which are inconsistent with the concepts discussed above may be used if their use has no material effect on amounts of separated costs. The last concept is simplicity. Like materiality, simplicity is concerned with the relationship of costs and their benefits. Simplicity also is concerned with practicality. The more involved the cost allocation procedures, the more costly they become and the fewer workshops there are which will be able to implement them. Since all allocations involve assumptions and arbitrarily selected bases, sometimes it is doubtful that the marginal benefits of a very complex allocation would exceed its marginal costs. Simplicity, therefore, should be a keynote of cost allocation negotiations.

The concepts which have been discussed above are those which are particularly relevant to cost allocation. The list does not attempt to include other concepts which are a part of generally accepted accounting principles and are implied when using accounting data. Such concepts as objectivity, periodicity, and the going concern, therefore, are not treated here because their relevance is of a general nature and pertain to the general use of accounting information rather than to the specifics of cost allocation.⁴

Rehabilitation Costs Which Should Be Reimbursed

To say that state offices of vocational rehabilitation will reimburse workshops for the costs of rehabilitation services which workshops render to state-sponsored clients sounds like a simple, matter-of-fact statement. Beneath the surface, however, lurk problems which complicate efforts to implement this plan. The first problem is the one on which this research endeavor rests; that is, in addition to the direct costs of rehabilitation which can be quickly and easily identified, there are additional rehabilitation costs, included in production costs, which are not included in costs which are covered by rehabilitation fees.

⁴For a National Association of Accountants committee report on cost concepts applicable to cost-type contracts, see "Tentative Concepts for Cost-Type Contracts," in the May, 1971 issue of Management Accounting, LII, pp. 45-48.

These additional rehabilitation costs are buried in joint costs of production and rehabilitation. The joint costs presently are classified as production costs because there is no acceptable technique of separating them into their production and rehabilitation components. Identifying the rehabilitation element of joint costs so that it can be combined with the direct rehabilitation costs for the purpose of setting rehabilitation fees is the problem which this study has undertaken to solve.

A related problem in rehabilitation cost reimbursement involves the concept of reasonable cost. To propose that client sponsors reimburse the workshop for the total costs of rehabilitation services overlooks the effect on the costs of inefficiency. This proposal, in effect, would mean that the most inefficient workshops would receive the highest fees for their rehabilitation services. Such a situation not only would waste state funds but also would encourage inefficiency on the part of workshops. Some means, therefore, must be developed to ensure that the costs reimbursed are reasonable and effective rehabilitation costs rather than simply all costs of rehabilitation. Thus, the idea of using workshop norms or standards appears again in attempting to improve workshop management techniques.

The utilization of standards in vocational rehabilitation workshops has been discussed at two points in the preceding pages. The first was the proposal of standards specifically designed for workshops, which could be used as bench marks in the making of performance judgments. These proposed standards were joint in that they encompassed both production and rehabilitation costs and, therefore, would be used prior to any effort to separate joint costs. The second appearance of the idea of workshop standards was the discussion of possible development of standard costs for rehabilitating different kinds of handicaps. Such standards, it was noted, would be useful in budgeting and in special projects planning. If these two kinds of standard costs could be developed, they would be of additional use in a determination of reasonable costs which should be reimbursed in the rehabilitation fee. The former standard for joint costs could measure the overall efficiency of workshop operations, and the latter standard costs of rehabilitation could serve as one alternative for costs to be reimbursed. While the development of either of these sets of workshop standards is beyond the scope of this study, a consideration of use of cost standards is not. The use of these two standards in the rehabilitation fee decision is discussed below.

Assuming that a satisfactory technique for joint cost separation can be developed and, therefore, that total actual rehabilitation costs are available, a question arises regarding which rehabilitation costs should be the basis for rehabilitation fees. Should rehabilitation fees be based on (1) standard costs, (2) on the higher of standard or actual costs, assuming that performance is reasonably efficient, or (3) on the lower of standard or actual costs? Each of these possibilities for a rehabilitation fee basis is discussed in turn.

Reimbursement based on standard rehabilitation costs has the advantage of encouraging efficiency in rehabilitation operations. Workshops would be placed under pressure to hold rehabilitation costs at the level of the standards because they would receive no more reimbursement than a fee based on standard costs. In some cases, that pressure might be unfair and cause a deterioration in the quality of rehabilitation services, or it might impede the development of rehabilitation services.

Rehabilitation standards, like standards used in manufacturing operations, must be based on some normal level of operating capacity. If a workshop has a temporary shortage of clients or, even more likely, if it is still in a

development stage and has not yet reached a normal operating capacity, its costs on a per unit basis will exceed standard costs. The reason is not inefficiency on the part of the workshop, but it is the fact that the fixed element of actual costs will have fewer units over which it can be spread. This circumstance could cause a substantial excess of actual costs over standard costs, particularly since many of the joint costs of production and rehabilitation are of a fixed nature. The workshop in this situation would be denied funds in the form of rehabilitation fees at a time when those funds might be critical to expanding and improving the quality of rehabilitation services.

Another reason why pressure to meet exact cost standards might be unfair is that cost standards which would be developed, particularly at the beginning, for this or any other purpose cannot be such perfect measurements of normal costs that all workshops should be expected to meet them at all times. To limit fees to reimbursement of standard costs is essentially a punitive move against those workshops whose costs exceed the standards. Such a move is not fair when the means of identifying and assessing that punishment is as imperfect as standard rehabilitation costs would be when they are first developed. Thus, the strict use of standard costs

as a basis for rehabilitation fees does not seem to be equitable in all circumstances.

A second possibility for a rehabilitation fee basis is one which is higher than actual or standard costs. This alternative would eliminate the inequity discussed above relating to workshops that are temporarily operating at less than normal capacity and, therefore, are experiencing higher unit costs than normal. Use of the higher of actual or normal costs as a basis for rehabilitation fees would lead to an even more serious inequity, however. As noted above, fees based on actual costs would result in the most inefficient workshops receiving the highest fees, a situation that is intolerable in the administration of state funds and effective workshop management. Thus, the use of the higher of actual or normal rehabilitation costs as a basis for fees would be acceptable only if some kind of constraint could be introduced which would ensure that poorly operated, inefficient workshops are not paid for wasted resources.

One possibility for such a constraint would be the development of a degree of tolerance above standard costs within which actual costs would be considered reasonable and, therefore, reimbursable. The acceptable tolerance

could be arbitrated by the workshops and state personnel. It could be based on empirical studies of deviations of actual workshop operating costs from the joint cost standards previously suggested for use in making performance judgments. Thus, the fee basis would be higher than standard or actual costs up to, for example, 110 per cent of standard costs. An alternative way of stating this same approach is to express standard costs as ranges of cost. Then rehabilitation fees could be based on actual costs as long as those actual costs fall within the ranges. Either approach would place a constraint or upper limit on reimbursable costs. At the same time a workshop would be allowed a degree of tolerance in its rehabilitation costs. Use of that tolerance recognizes that costs are not perfectly controllable and that standards cannot be so finely tuned as to encompass all of the possibilities for cost variation that exist.

The use of the higher of actual or standard criterion for setting rehabilitation fees should present no particular problem when actual costs fall below standard costs. The circumstance of actual costs falling below standard costs would be a relatively rare one, and, even when the situation does exist, the amounts by which the actual costs fall below the standards probably would be insignificant. If this is

not the case, then the cost standards need to be revised. The use of standard costs as a basis for rehabilitation fees when actual costs are less is an extension of incentive to a workshop to control costs and to make efficient use of resources. This approach to a fee basis provides a workshop a "bonus" when its costs fall below standards; i.e., it allows the basis for fees to exceed actual costs. Even more importantly, however, it should be recognized that fees based on the higher of actual or standard costs create an environment in which workshop management can develop better attitudes toward cost control. Workshop management can promote a general philosophy of cost control and an efficient use of resources rather than an attitude of controlling cost only until they are lowered to the level of what has been determined as a reasonable tolerance above standard costs. In other words, a workshop will have an additional incentive to lower costs even after it has reached its first goal of reasonable (standard plus the tolerance) costs.

In using the higher of actual or standard costs alternative when actual costs are falling below standard costs, there does not appear to be a need for a lower constraint on actual costs like that on the upper side. As noted before, the amount by which actual costs could fall below

standard costs probably is very small. And, as pointed out above, if much difference between actual and standard costs does develop with actual costs on the lower side, the standards need revision.

The third possibility for establishing a basis for rehabilitation fees is the lower of actual or standard costs. When a workshop's actual costs exceed standard costs, this alternative would create greater pressure on a workshop to reduce costs than would the higher of actual or standard cost alternative discussed above. With an introduction to the earlier alternative of an upper constraint on actual costs, this advantage exists only for the difference between standard costs and the upper limit on actual costs. When actual costs exceed standard costs, the results of using this third alternative are identical with those of the first alternative discussed--using standard costs alone as the basis for rehabilitation fees. Therefore, the criticisms of that alternative, *i.e.*, unfairness of this strict use of standard costs, apply to this alternative as well. When actual costs are below standards, this lower of actual or standard costs alternative leaves a workshop with no incentive to continue to lower costs or, for that matter, even to hold costs down to their current level. In fact, in this circumstance the lower of actual or standard costs alternative

acts as a penalty on the most efficient workshops. Thus, this third alternative offers no advantages when actual costs are below standards and, when actual costs exceed the standards, only the pressure to bring reasonable costs down to the level of the standard costs.

The use of costs as a basis for a workshop's rehabilitation fees necessitates decisions regarding the kinds of costs to use and what constitutes a reasonable cost. The discussion above of three alternatives available for the finding of a fee basis has led to the conclusion that the use of the higher of actual or standard costs with an upper constraint on actual costs will produce a reasonable amount of pressure on workshops to control costs. At the same time this basis would encourage workshops to try to meet standard costs by (1) recognizing that cost standards at best are imperfect and (2) allowing for a reasonable variation from those standards.

The decision about which kind of cost should be the basis for rehabilitation fees is a separate one from the actual separation of joint costs. The decision is, however, a significant part of the utilization of separated costs in establishing workshop rehabilitation fees. That decision has been discussed here because of its close association to

the concept of reasonableness in cost allocation. An arrival at a decision on the kind of costs to use as a basis for rehabilitation fees leaves only one major step in the fee setting process--the separation of joint costs of production and rehabilitation.

Guidelines for Separating Workshop Joint Costs

The joint cost separation process must begin with the identification and isolation of workshop joint costs in those functions where production and rehabilitation efforts are carried on simultaneously. This step was the work done in Chapter V where each such function and each category of operating expenditure was analyzed for possible joint costs. It is the nature of the costs being analyzed, i.e., whether or not the costs have been incurred to produce both production and rehabilitation benefits, rather than the amount of such costs that is of significance to the joint cost identification process.

This work could be accomplished throughout the accounting period rather than performed analytically at the end of the period. A workshop's accounting system would have to be modified only slightly by the addition of a code which would identify each expenditure as either joint or non-joint. This additional code would be needed only in those functions

where joint costs are possible. It could be a part of the usual coding procedure by which every workshop expenditure is recorded. Thus, the modification could be accomplished without any additional cost in personnel time. What would be required is a complete description by function and by operating expenditure of every type of expenditure which should be designated as joint in the expenditure coding process. With each joint cost identified as it is entered into an accounting system, total joint costs by function and by operating expenditure could be isolated simply by computer program. Thus, the period-end work in Chapter V of identifying and isolating joint costs could be eliminated and replaced by a modification in an existing accounting system. When this step is accomplished, the joint costs that are to be separated would be readily available.

The second step of the actual cost separation procedure is a grouping of the costs to be allocated into cost pools. A cost pool is a group of costs that are related through a prime causal factor. The purpose of the use of cost pools is one of practicality, one of eliminating the necessity of separate cost allocations by pooling those costs which can be allocated on the same basis. As noted at the beginning of this chapter, the concept of homogeneity is basic to an

effective use of cost pools. In pooling costs, homogeneity is a matter of degree. One extreme is the pooling of all costs and an allocation using a single allocation base. The other extreme is no pooling whatsoever; each item of cost is allocated separately using its own allocation base. The fewer cost pools there are, the easier the allocation, the lower the cost of accumulating data, and the less reliable the results. Thus, the number of cost pools used and the extent of homogeneity achieved, is the result of weighing (1) reliability of results against (2) the time and costs of making additional cost allocations. A cost pool is sufficiently homogeneous if each individual item of cost it includes can be associated reliably with the cost object using the same causal factor.⁵

Homogeneity is a necessary characteristic not only of cost pools but also of all components of the cost allocation process. Thus, a denominator of the cost allocation rate--an allocation base--as well as a numerator--a cost pool--must be homogeneous. The homogeneity of the allocation base is a relationship between that factor of operations selected

⁵Charles T. Horngren, "How Should Costs Be Allocated?" unpublished paper presented before a symposium at the Graduate School of Business, The University of Texas at Austin, Austin, Texas, February, 1970.

as the allocation base and costs that make up a cost pool.⁶ For example, an allocation rate consisting of clerical labor costs divided by machine hours would be non-homogeneous because of a lack of any relationship between clerical costs and machine hours.

Thus, the grouping of joint costs of production and rehabilitation into cost pools is the task of (1) searching for the prime factor by which costs can be ascribed to the production or rehabilitation elements of workshop operations and (2) assigning joint costs to pools organized on the basis of that factor. Homogeneity must be the keynote in the selection of a factor and in the assignment of costs into pools.

In a vocational rehabilitation workshop, it is important to note one additional point with regard to the selection of a factor by which the costs are to be ascribed to either production or rehabilitation. While in the preceding discussion reference has been made to the prime causal factor as the means of ascribing joint costs to production and rehabilitation segments, the identification and use of that factor is the essence of problems that have haunted previous efforts to allocate workshop joint costs. The review in Chapter IV of

⁶Ibid., pp. 3-4.

proposals for separating joint costs makes this point quite clear. At times the so-called prime causal factor may be obscure or difficult to isolate from other causal factors. In other cases, the prime causal factor may be obvious but difficult or impossible to measure. Thus, selection of a factor with which to ascribe costs to production or rehabilitation can be an arduous task. When a prime causal factor is not available for one reason or another, the problem is to find an acceptable substitute. It is at this point that cooperation and arbitration by a workshop and a state agency that will be paying the rehabilitation fee is so critical to an acceptable separation of joint costs. In fact, it is agreement on this point--the factor with which to ascribe joint costs to production and rehabilitation--on which a satisfactory solution to a workshop's joint cost problem rests. It is in the process of selecting that factor that concepts of fairness, materiality, and simplicity become relevant to the allocation of costs.

When separation of joint costs is a part of cost determination, all parties to separation of joint costs and their subsequent use need to remember two points. One, there are no "true" costs which can be identified if the analysis will just work long and hard enough. Two, costs that do

emanate wholly or partially from a cost allocation are the product of arbitrary decisions and assumptions. Under these conditions, the only way to obtain a satisfactory cost is to (1) stop the frustrating experience of looking for the "true" costs or an allocation process that is going to produce "true" costs and (2) participate in a process of selecting allocation bases, i.e., factors with which to ascribe joint costs to production and rehabilitation, that will be fair to all parties concerned. In this process, the concepts of materiality and simplicity are necessary parts of maintaining a proper perspective between benefits to be derived from cost allocations and the costs of obtaining those benefits. The use of these concepts is also essential to developing a cost allocation procedure that is practical enough for application in smaller workshops where accounting equipment and personnel are limited.

With these conditions in mind, the discussion which follows considers specific kinds of joint cost and offers guidelines for carrying out a cost allocation process. Because the objective of cost allocation is the determination of a pure cost of rehabilitation to serve as a basis for rehabilitation fees, the procedure focuses on the separation of the rehabilitation element of joint costs. Where applicable,

the ideas discussed will be applied to actual joint cost data of GISA, which was developed in Chapter V.

The first of the joint costs which must be separated into its components is the cost of wages paid to clients who are working in the production area of a workshop and simultaneously receiving rehabilitation services. The reader should recall that this kind of joint cost did not appear with joint costs at GISA because that workshop does not pay wages to its clients. But because many workshops do pay wages to clients, a consideration of separating this kind of joint cost is necessary.

Clients who are working in the production area of a workshop incur rehabilitation costs in several ways. While they are assigned to production operations, they participate in formal training sessions, such as film or lectures, which are a part of the rehabilitation program. Wages applicable to time spent in such sessions are clearly rehabilitation costs. A more subtle type of rehabilitation cost is the time which clients spend in informal training and counseling sessions. The costs are less obvious because they do not require a formal break from production operations. Rather, they are incurred simply by a client's stopping work briefly or even just slowing down while continuing production efforts.

These informal rehabilitation sessions represent time spent receiving job instructions, counseling help, disciplinary actions and so forth. Finally, the most subtle rehabilitation wages costs are those applicable to low productivity of the handicapped worker on the job--excessive idle time, time spent on productive efforts which subsequently are wasted because of spoilage, time spent in bringing job requirements and handicap into harmony. As pointed out earlier, additional time consumed by a client on a job beyond time which would have been spent by a normal worker(while a client is progressing from his initial level of productivity to the maximum of which he is capable) represents rehabilitation costs which should be separated from the production element of joint costs. Of course the low productivity of the handicapped worker who is receiving rehabilitation services affects other costs besides client wages costs. But the rehabilitation element in these other costs is considered below as each kind of cost is discussed in turn.

According to the format discussed above, client wages should be grouped with other costs that are to be ascribed to the rehabilitation segment by the same factor. Thus, the identification of a factor, preferably a prime causal factor, with which to ascribe client wages to rehabilitation is the task which presents itself now.

The prime causal factor of rehabilitation costs within client wage costs is the loss of time from the productive process, a factor which also can be expressed in terms of reduced productivity. That time loss is due to (1) authorized diversions of client time away from productive efforts to rehabilitation efforts and (2) unauthorized losses of time due to a client's handicap or his lack of sufficient self-discipline to concentrate on a task assigned to him. The unauthorized losses in time referred to are those in excess of the expected time losses of a normal worker.

One approach to separating joint costs is careful analysis of those costs to see whether or not some costs so classified may not actually be separate or have directly separable elements in them. This is the case with many of the authorized diversions of client time away from the productive effort. If wages are paid for time spent in formal rehabilitation sessions and other authorized diversions of client time, then a cost separation for those wages is simply a matter of record-keeping. Wherever it is feasible, a record should be maintained of every diversion of time. That record could be made by means of time clocks easily accessible to clients. Clients punch time cards in and out for lunch breaks and at the beginning and ending of the day.

They could do the same for every diversion away from production for which it is practical to walk over to a time clock. An alternative to the use of a time clock is to have each client carry on his person a time card on which he or his supervisor could note times on and off a job. Whatever form the record might take, much of the authorized time diverted from productive efforts could be accumulated. Then, as the payroll is prepared, costs that such time represent could be isolated from joint costs and charged as one of the direct rehabilitation costs, eliminating this element of rehabilitation costs from joint costs. This procedure for identifying some of the rehabilitation element of joint client wages cost is being carried out in some workshops and should be instituted in others. It does not solve the problem of joint client wage costs but does directly remove from the problem a portion of the costs which otherwise might have to be included in an allocation. Because the longer periods of time diverted away from production can be identified and accumulated in this manner, these rehabilitation costs which can be directly identified and separated can be significant in amount.

With the removal from joint wages costs of costs which represent time spent in formal training sessions and other

authorized diversions of time, remaining client wage costs still contain elements of rehabilitation. These remaining elements of rehabilitation cost are the result of unauthorized diversions of time away from the productive effort and those authorized diversions which were too brief to be feasibly recorded on clients' time records.

The prime causal factor of these remaining rehabilitation costs is loss of time from the production activity. But because the time losses are numerous, frequently difficult to observe, and in very short intervals, a direct measurement of them is not practical. Thus, the prime causal factor is not available for use in ascribing costs to rehabilitation. An alternative factor will have to be found.

The effect of loss of time from productive activity shows up in the productivity of a client. That is, the more time that is lost, the fewer goods there are produced. Other proposals for separating client wages costs have suggested making estimates of client productivity and using them in various ways as a basis for separating the rehabilitation element of client wage costs. Chapter IV evaluated some of these suggestions, and the principal criticism was that client productivity, like diversions of time away from production, cannot be measured with any degree of reliability.

Estimates of client productivity are of a subjective nature that lacks verifiability, one of the concepts which is essential to a cost separation which is satisfactory for establishing rehabilitation fees.

One means of arriving at a measurement of client productivity which would be verifiable and which would be objective is a measurement of the quantity of goods produced and a comparison of that quantity to the goods that should have been produced. This means of arriving at a measurement of client productivity could be made on a total basis for a segment of production activity, i.e., food services, rack goods, shoes, etc., rather than on the basis of individual client productivity. Since most workshops maintain records of production achievements, this part of the measurement would call for no additional effort. The problem which does present itself is a determination of the quantity of goods that should have been produced.

The necessity of knowing the quantity of goods that should have been produced suggests the need for norms or standards for workshop production quantities. While the development of such norms is beyond the scope of this study, consideration of their use in solving the joint cost problem is not. Production norms as compared to actual production

could be a measure of client productivity which, in turn, could serve as a basis for separating the rehabilitation element of wage costs. That is, productivity could be a factor by which the joint wages costs are ascribed to either production costs or rehabilitation costs. The comparison of actual production to a production norm serves as a measure of productivity that is far superior to the subjective measurements of productivity used in other studies. The actual production figures are verifiable by independent audit, and workshop norms can be developed by independent research and made public for use by workshop and state alike. Thus, this procedure has the qualities of verifiability and simplicity.

Production norms could be developed in conjunction with the operating standards discussed earlier. To be effective for use in separating workshop joint costs, the production norms, like the operating standards, would have to be designed solely for the workshop. As explained earlier, the norms should represent production of handicapped workers whose productivity has reached the maximum of which they are capable. Because they do not consider the productivity of the handicapped worker at his maximum capacity, competitive industry norms are not adequate for use as workshop norms.

Workshop production norms would improve as workshop personnel gain experience.

Once the measure of productivity is developed, it can be applied directly to a workshop's out-of-pocket client wage costs only if a workshop is paying the standard wage or a wage not adjusted for a client's low productivity. If out-of-pocket wage costs have been derived under the Fair Labor Standards Act subminimum wage formula (which allows workshops to pay less than the standard wage based on estimates of client productivity) or a workshop's own method of adjusting wages, then client wage costs already have been reduced to allow for the rehabilitation factor, however that factor may have been estimated. In this case, the measure of client productivity discussed above must be applied not to out-of-pocket wage costs but to the standard wage used by a workshop in deriving its out-of-pocket costs. The procedure below, proposed by the University of San Francisco study of workshop cost allocation,⁷ is quite satisfactory. In this procedure the productivity factor is applied to a standard wage rate to produce the competitively earned wage on a per hour basis. Then a workshop's out-of-pocket wage costs are divided by client labor hours to find the average

⁷Salkind, op. cit., p. 53.

actual hourly income. Finally, the earned wage rate is compared to the actual wage rate to develop a factor of earned income or production cost. This earned income factor subtracted from 100 per cent reveals a rehabilitation cost factor. This procedure is illustrated as follows:

Standard wage	\$1.25	
Productivity factor	35%	
Competitively earned wage	\$.44	
<u>Client wage costs</u>	<u>\$27,797</u>	= \$.83, average actual hourly wage
Client labor hours	33,385	
<u>Competitively earned wage</u>	<u>\$.44</u>	= 53% earned income
Average actual hourly wage	\$.83	

$$100\% - 53\% = 47\% \text{ rehabilitation cost}$$

This procedure separates joint client wages costs on the basis of client productivity. Other costs which can be grouped with client wages are payroll tax costs and the costs of any life, health, and retirement insurance benefits derived from client wages costs. Thus, client wages and their related payroll taxes and employee benefits costs make up the first group of joint costs which will be allocated between production and rehabilitation using the same separation technique.

The purpose of this part of the research effort is not to prescribe a way of separating a workshop's joint costs but to offer guidelines for separating the joint costs.

State vocational rehabilitation personnel and workshop representatives alike can choose a method of separation which is acceptable to both. The method suggested above for separating client wage and associated costs is not offered as the only way such a separation can be effected. It is suggested as the most practical way within the measurement limitations which exist. Some workshops may prefer to use wages paid under the Fair Labor Standards Act subminimum wage formula, which Hall used in his proposal.⁸ This separation method was discussed and criticized in Chapter IV, but if those criticisms do not seem to invalidate Hall's procedures, his method also offers a solution to separating the client wages group of costs.

A second kind of joint cost, about which a group of costs may be formed for purposes of allocation, is the cost of supervision of the production operations. In typical workshop production operations, a portion of wages paid for production supervision represents rehabilitation costs. Production supervisors are involved not only with production but also with rehabilitation efforts taking place within the productive setting. Although a client's counselor will have charge of that client's rehabilitation program and will work

⁸Hall, op. cit., pp. 17-18.

with the client while he is assigned to production, it is a production supervisor on whom the responsibility falls to train and discipline a client. Therefore, a portion of supervisory costs are also rehabilitation costs.

The prime causal factor behind the rehabilitation portion of the joint supervisory costs is time--a supervisor's time diverted away from actual production activities to rehabilitation efforts. An ideal solution to the supervisory costs separation problem would be the keeping of a record of how much time a supervisor spends in each activity. Such record-keeping, however, even on a test basis, is not practical since most diversions of time are too subtle to be subject to any overt measurement such as clock punching or time card entry.

If the prime causal factor of the rehabilitation portion of supervisory costs--the diversion of supervisors' time to rehabilitation activities--cannot be measured directly, then some factor which reflects that diverted time and which can be measured must be a basis for joint cost separation.

Hall recommended the use of a foreman-worker ratio because he believed that the way in which supervisors' additional (rehabilitation) duties reflect themselves is

that workshop supervisors are able to supervise fewer persons.⁹ Hall's ratio was a comparison of the number of workers per foreman of competitive industry to the number of workers (clients) per foreman within a workshop. But Hall's technique lacks homogeneity on two counts. First, as this study has pointed out previously, a workshop is not comparable to competitive industry. Its social objectives in employing handicapped persons and rendering rehabilitation services preclude such comparisons. Second, the number of workers per foreman in the denominator of Hall's fraction is, in a typical workshop, a heterogeneous mixture of clients, former clients who are no longer receiving rehabilitation services, and nonhandicapped production workers. Hall's ratio makes no provision for handling the mix of workers per foreman, and that mix is vital to an accurate measurement of rehabilitation costs. Hall's technique assumes that every worker under each supervisor receives the same amount of rehabilitation services. That assumption does not hold in most workshops. Many workers receive no rehabilitation services at all.

⁹Ibid., pp. 18-19.

Another factor which reflects the diversion of supervisors' time away from production efforts to rehabilitation objectives is the one used earlier to allocate client wages--a workshop's reduction in productivity. To allocate joint supervisory costs on the basis of a ratio of actual production to production standards assumes (1) that diversions of supervisors' time away from production results in reduced productivity and, correspondingly, (2) that reductions in productivity are, in large part, due to diversions of supervisory time away from production. The use of such assumptions can be criticized on the basis that decreases in productivity can be the result of production inefficiencies rather than of rehabilitation efforts. Thus, a reduction in productivity does not necessarily indicate the existence or the extent of rehabilitation costs. This criticism would be valid but for previous use of operating standards for the purpose of making performance judgments about the efficiency of workshop operations. Thus, use of productivity as a means of separating supervisory costs, like client wage costs, is valid if that cost separation technique is part of an overall system of accounting which controls operations through use of workshop standards.

The use of a productivity measurement to separate supervisory costs is not as direct a measurement of diversion of supervisors' time as is Hall's foreman-worker ratio, but it avoids the troublesome assumption that all workers receive equal shares of a supervisors' rehabilitation services. The productivity measurement technique, as noted previously, has the qualities of verifiability and simplicity. Costs which are associated with supervisory costs, i.e., supervisors' payroll taxes and employee benefits, can be grouped with supervisors' wages and these two groups combined with client wages to form a single group of costs to be allocated on the basis of client productivity, as measured by comparing actual production with production norms.

The raw materials used in the workshop's production process are another kind of cost which is usually considered joint to both production and rehabilitation. On the surface it seems logical that the client who is assigned to production operations will waste raw materials in the process of receiving rehabilitation services. Such waste in excess of the normal spoilage involved in learning a new task is a rehabilitation cost which should be separated from the production portion of materials cost.

Raw materials costs often are omitted from efforts to separate joint costs. Since some workshop raw materials are donated, there may be no cost to a workshop for raw materials consumed. In the case of subcontract work, raw materials may be furnished to a workshop as a part of the contract and, therefore, not represent a cost to the workshop. Of course the joint cost problem still exists, but it belongs to the contractor rather than the workshop.

The observation by a production supervisor at GISA that the waste of materials in her area of production activity was not excessive but actually less than normal is reason to question the usual assumption that materials cost is a joint cost. That supervisor, who had experience in private industry as well as workshops, noted (1) that workshop workers are not under the time pressure that exists in competitive industry and, therefore, are more careful with raw materials and (2) that clients who fail to complete a production task as it should be are not only allowed but required to go back and perform that task over and over again until it is satisfactory. Thus, the materials which would have been spoiled are reworked until they are a part of production. The rehabilitation costs in this case are a part of labor costs rather than materials.

The experience of the production supervisor in San Antonio suggests that the use of materials in each area of productive activity should be examined to see if such costs actually do represent joint costs. If raw materials used are of a nature that can be reworked to avoid spoilage, then, as the San Antonio supervisor has pointed out, the rehabilitation element of cost in that area may occur in other categories of costs, such as wages, rather than in materials costs. Particularly in the light of the materiality concept, it may be possible to ignore the costs of materials in joint cost separation.

The discussion above suggests a means of identifying the rehabilitation element of materials costs when spoiled materials are not wholly subject to being reworked. Spoiled materials which cannot be reworked simply could be stockpiled and inventoried periodically. The cost of those spoiled materials in excess of what is considered to be normal spoilage could be charged as a rehabilitation cost. This method of directly identifying spoiled materials would be simple and verifiable. The determination of what constitutes normal spoilage could be mutually agreed upon by state and workshop representatives in the course of fee negotiations.

Of course, there are certain kinds of raw materials that could be neither reworked nor stockpiled when they are spoiled. Spilt paint, for instance, is neither reusable nor recoverable for stockpiling. If materials are of such a nature and their cost is considered material, then a factor must be identified by which materials costs can be ascribed to production and rehabilitation.

The direct causal factor of the rehabilitation element of cost within materials cost is the spoilage of materials due to rehabilitation efforts that are occurring simultaneously with production. To describe such use of materials in the rehabilitation effort as "spoilage" reflects the prejudice of production operations. From the standpoint of rehabilitation, the materials are not spoiled but rather consumed in the rehabilitation process. Perhaps, like client and supervisory time, the use of materials in rehabilitation is better described as a diversion of materials away from the production process.

When the diversion of those raw materials from production to rehabilitation can be measured directly, as discussed above, cost allocations are avoided. When they cannot be so measured, allocation and, therefore, assumptions are necessary. An assumption that would lead to a technique for

separating joint materials costs is that diversion of materials is directly related to productivity; i.e., if a client is 60 per cent productive, 60 per cent of the materials he uses are effectively used in production and the other 40 per cent are diverted to rehabilitation. As the discussion above has pointed out, however, this assumption does not hold true. A client may show a very low productivity but have little or no materials diversion because he reworks his materials until they are satisfactorily a part of production. In other instances, there may be consumption of materials in rehabilitation, but that consumption may bear little relationship to the client's productivity. A client could be 60 per cent productive but waste or spoil only 20 per cent of the materials supplied to him.

Another approach to measuring materials diverted to rehabilitation is through the use of standards. If standards were available for quantities of materials required for different workshop products, then those material standards could be applied to workshop production to determine a quantity of materials that should have been consumed in a workshop's production. The difference in this standard quantity of materials and the actual materials consumed

would be the materials cost to be assigned to rehabilitation. The fault with this proposal is one that has been heard before; rehabilitation would be charged with all materials costs in excess of the standard. Therefore, rehabilitation would be absorbing not only actual rehabilitation costs but also any inefficiencies which might exist in the use of materials in the production side of operations. Unless the inefficiencies can be dealt with effectively, this criticism has merit. This study proposes the following procedure as a means of guarding against charging rehabilitation operations with production inefficiencies. First, include in the standard quantities of materials an estimate of normal spoilage that would be inherent in production operations of a workshop. As before, competitive industry cannot supply this norm. From a theoretical standpoint, the spoilage that should be considered normal is that which would be experienced by a workshop using clients who have reached the highest productive capacity of which they are capable. Then, as long as excessive productive spoilage does not exist, the additional spoilage which occurs above the standard (inclusive of normal spoilage) is a legitimate rehabilitation cost. The second step is that of being certain that excessive productive spoilage does not occur.

That determination can come as a part of the use of the operating standards which were proposed earlier. These operating standards, which are compiled and used without regard to the joint cost separation problem, permit one to make performance judgments about the efficiency of workshop operations. As a part of this process of efficient management of a workshop, one can determine whether or not excessive usage of materials is occurring. Thus, the technique for separating materials joint costs to be effective and valid must be a part of an overall system of utilizing cost standards in effective workshop management.

The above paragraph has discussed several decisions regarding materials joint cost and which materials actually represent joint costs within a workshop. Another decision is whether materials spoiled in rehabilitation should be measured by stockpiling and subsequent periodic counting or by the use of materials standards applied to a workshop's production. These are decisions for workshop and state personnel to work out in meetings in which rehabilitation fees are negotiated. As in other cases, these decisions may have to be arbitrated to reach a solution that is acceptable to the parties involved.

The last major kind of joint cost which needs separation is that of occupancy costs. The reader will recall

from Chapter V that occupancy costs appear in two places in a workshop's financial statement, Summary of All Functional Activities. First, there are those occupancy costs, such as rent and repairs and maintenance, that can be directly identified with one or another of a workshop's functions. These occupancy costs are identified and reported along with other object expenditures under the appropriate function. The other group of occupancy costs appear as a separate service function designated "housing and occupancy." The housing and occupancy function contains all of those occupancy costs which cannot be identified with any particular function but which are necessary to each of them. The first group of occupancy costs were designated in Chapter IV as direct joint costs. The latter were referred to as indirect joint costs. The direct joint occupancy costs are the costs which presently are under consideration.

The direct joint occupancy costs arise from a workshop's occupancy and use of land, buildings, and equipment. They include but are not limited to rent, insurance, utilities, property taxes, and repairs and maintenance. As noted above, this group of occupancy costs are costs that can be directly identified with and, therefore, charged to one of the workshop's designated functions. These costs already constitute a group of costs which is homogeneous in their

relationship to the use of land, buildings, and equipment. If they are homogeneous in the factor by which they are ascribed to production and to rehabilitation, then the group can be distributed between the production and rehabilitation segments as a single cost.

The prime causal factor of the rehabilitation element of cost within occupancy costs is use of the production facilities for rehabilitation purposes. Because that use is simultaneous and in conjunction with the productive use of the same facilities, the rehabilitative use cannot be directly measured apart from productive use. Again, the separation of these costs necessitates an allocation.

Because occupancy costs are costs associated with use of physical facilities, an allocation based on physical facilities is the most direct kind of allocation. The factor which relates physical facilities to clients is the work station, the physical site where a work operation is performed. And a factor which relates clients to rehabilitation costs is the measurement of productivity, a factor which was used to allocate client wages and supervisory costs earlier in this discussion. With some modification, Franklin Hall's "effective manning factor" method of allocation,¹⁰ which utilizes work stations and a measure of client

¹⁰Ibid., pp. 19-20.

productivity, offers the most practical means of dividing direct occupancy costs between rehabilitation and production.

Hall's effective manning factor was illustrated briefly in Chapter IV. Because it is proposed as the method of allocating direct occupancy costs, it is explained again here along with proposed modifications. Hall began with the total number of clients, which is actually the average annual case load of a workshop, and developed an "effective work station" factor by multiplying the number of clients by a measure of their productivity. For example, if the average annual case load of clients is 30 and their productivity 70 per cent, then the effective work station demand is 21.

Hall's measure of productivity merits explanation at this point. As noted above, diversions of client time away from the productive task are the result of many factors. Hall divided these into two groups and made two measurements of productivity: (1) a per cent of time spent in actual production, which takes into account time the client spends in formal counseling, group sessions, etc. and (2) a per cent measurement of units of output compared to a normal worker. In his "effective work station demand" factor, Hall used only the first of these measurements and ignores the second. But his effective work stations, 21 in the example

above, is a theoretical number. It does not mean that actual physical demand on production facilities is only 21 work stations. If there is an average of 30 clients, then actual work station demand for clients will be somewhere close to 30. It is doubtful that production supervision can undertake the job of shuffling clients around on work stations so that each station is kept operating whenever a client is pulled off for a formal rehabilitation session. Hall was saying theoretically that while physical demand for stations will remain at about 30, work station use for effective production endeavors is only 21. It seems, however, that Hall was making only a part of the necessary adjustment. If a client working on production is less productive than when he is at his maximum productive capacity (because of other more discrete diversions of time such as inability to concentrate on the task, difficulties due to a physical handicap, etc.), that fact is just as relevant to effective work station demand as are the overt diversions of time such as group therapy sessions. Therefore, the procedure recommended by this study is to develop an effective work station factor by multiplying the average annual case load by the measure of productivity which was developed and used earlier. This productivity measurement encompasses all

diversions of client time because it is based on the final results of productive efforts--the number of units of product produced.

The second step is to convert the number of effective work stations into a per cent of effective loading by ratio of effective demand to the total number of work stations available in a workshop. To continue the illustration above, if the total number of work stations in a workshop's production area is 50, then effective loading is $21/50$ or 42 per cent.

The final step in Hall's technique is to compare a workshop's effective loading to that of normal industry, recognizing that the average effective loading of competitive industry is something less than 100 per cent. In his illustration, Hall assumed industry's average effective loading to be 84 per cent. By comparing the workshop's effective loading of 42 per cent to industry's of 84 per cent, Hall concluded that 50 per cent of the workshop's "industrial capacity" is being used for productive purposes and, therefore, the other 50 per cent is diverted to rehabilitation use.

This last step in Hall's technique suggests a second modification. As noted before, a workshop, even considering the production side of its operations alone and excluding

rehabilitation efforts, is not comparable to competitive industry. Therefore, the comparison in the last step in which a workshop's effective loading is "normalized" should be modified to compare (1) a workshop's loading using clients to (2) a workshop's loading where rehabilitation effects are excluded but the effects of the other social objective of employing the handicapped are allowed to remain a part of production costs. Thus, the normal effective loading factor should be estimated utilizing the full capacity of a workshop's usual mix of nonhandicapped production workers and handicapped workers who are not currently recipients of rehabilitation services.

The use of Hall's technique for separating occupancy costs involves assumptions which should be set forth and understood by all parties to its use. The technique assumes that all work stations incur equal amounts of occupancy costs. As far as building and associated costs are concerned, the assumption is not unrealistic. It is doubtful that in a workshop, as in a mercantile establishment, certain areas are more valuable than are others. However, if there is a material difference in the square foot area occupied by one or a group of work stations as compared to others, then there is a rationale for making some adjustment to the separation

technique to allocate more occupancy costs to those stations which occupy more space.

The assumption that all work stations incur equal amounts of cost also may be difficult to accept if some work stations involve the use of expensive equipment where others do not. Laundry and dry cleaning operations, for example, may be more dependent on equipment than shoe repair operations. If this is the case, then the same separation technique could be applied at the level of kind of production process, i.e., laundry, shoe repair, furniture repair, etc., rather than to the workshop as a whole. Costs are available for allocation at this level, and there is no reason why other data necessary to apply the separation technique could not be accumulated at this level also. Then the only assumption is that each work station within each area of production incurs the same amount of occupancy costs. That assumption should be acceptable if work stations within a productive area occupy different amounts of space or utilize different kinds of equipment and if their interdependency makes an equality in sharing occupancy costs seem palatable.

The last kind of joint cost disclosed by Chapter V's analysis of the workshop operations of GISA is non-capital equipment. These costs represent hand tools and other

items of small equipment the unit cost of which is not large enough to capitalize and depreciate. They are of the same nature as equipment costs that are, in the form of depreciation, a part of occupancy costs. Because of this fact and because the amounts involved are small in relation to other kinds of joint cost, this study proposes that these non-capital equipment costs be grouped with occupancy costs and allocated on the basis of effective manning. Non-capital equipment costs amount to \$1,000 for the six-month period of the study in relation to total direct joint costs in excess of \$100,000. It is doubtful, therefore, that any difference in the rehabilitation element of these costs which would be produced by an alternative allocation method would be of a material amount. Grouping non-capital equipment costs with occupancy costs assumes that the items of non-capital equipment are used equally by all work stations. While such an assumption might be somewhat difficult to rationalize for workshop production operations as a whole because of the many different types of productive tasks, it is not unrealistic when the allocation is performed separately for each of the different productive areas of a workshop. Given the amounts involved, it is true here also that any difference in allocation method probably would be immaterial.

Separation Procedure Applied to Actual Workshop Data

The final phase of the current chapter is an application of the cost separation techniques discussed above to the actual joint costs of GISA identified in Chapter V. Because some of the data necessary to implement the techniques are workshop cost and production standards that are yet to be developed, it is necessary to assume certain items of information about the GISA workshop operations. Where possible, however, actual workshop data will be used to implement the cost separation procedures.

The first group of joint costs encountered at GISA is supervisory wage costs and their related employee benefits and payroll taxes. These joint costs appear on Tables IV and V as direct operating expenditures labeled "wages to disabled," "wages to non-disabled," "life, health and retirement benefits," and "payroll taxes." Table IV shows the totals of these costs for the workshop and for each of the workshop's separate programs. Table V shows these items of cost for the industrial workshop program (production operations) analyzed by type of productive activity, e.g., rack goods, bin goods, furniture, etc.

According to the cost separation technique outlined above, supervisory costs are to be separated according to

client productivity as determined by a comparison of actual output to standard output for the workshop. Because workshop production standards are not available, measurements of client productivity at the San Antonio workshop do not exist. Therefore, that measurement is assumed.¹¹ As noted above, it is possible to determine an overall average productivity and apply it to total joint costs in the supervisory cost group. As an alternative, the productivity measurement for each separate program and, within the industrial workshop program, for each type of productive activity, can be applied to the joint supervisory costs of each of these separate segments. The latter procedure would differentiate levels of productivity and, therefore, production and rehabilitation costs at the separate activity level. This procedure provides a better measure of rehabilitation costs than would an overall average for the entire workshop. It also separates the costs for each segment of activity in the event that fees need to be established with reference to the

¹¹Actually the productivity measurement is that of all workers, both clients and non-clients, because joint costs are total costs applicable to work of both clients and non-clients. Therefore, for those workshops which mix client and non-client workers in production, the measurement should be termed "worker productivity." For clarity in this illustration, however, the term "client productivity" will be used throughout.

kind of productive activity to which the client is assigned.

In the computations which follow on Table VIII, Separation of Direct Joint Costs of Production and Rehabilitation - Rehabilitation Segment, a 50 per cent rate of productivity will be assumed for the industrial workshop operations and a 90 per cent rate for other areas. These rates will be applied uniformly to all segments of activity because nothing would be added to the present illustration by use of more varied rates. It is important for the reader to be aware, however, that when productivity standards are available and actual levels of productivity measured, there likely will be different rates of productivity used in different areas of workshop activity.

The second group of joint costs is supplies--raw materials used in the production process. Separation of joint supplies cost involves an agreement between workshop and state representatives as to (1) whether or not the use of raw materials is of a nature that incurs rehabilitation costs and (2), if so, what technique to use in making a fair separation of those costs. This study suggested two possible approaches to the latter. The first was stockpiling wasted materials and charging to rehabilitation spoiled materials

TABLE VIII
GOODWILL INDUSTRIES OF SAN ANTONIO, TEXAS
SEPARATION OF DIRECT JOINT COSTS OF PRODUCTION AND REHABILITATION - REHABILITATION SEGMENT
FOR THE SIX MONTHS ENDED JUNE 30, 1970

Productive Activity	Group I - Supervisory Costs				Group II - Supplies		
	Joint Costs (Tables IV and V)	Client Produc- tivity Per Cent	Rehabilitation Factor (1 - Client Productivity Per Cent)	Rehabilitation Element of Joint Costs	Joint Costs (Tables IV and V)	Rehabilitation Factor Per Cent	Rehabilitation Element of Joint Costs
	(Note 1)	(Note 2)			(Note 1)	(Note 2)	
Industrial Workshop:							
Rack Goods	\$ 1,400	50	50	\$ 700	\$ 1,477	30	\$ 443
Bin Goods	1,251	50	50	625	262	30	79
Furniture	6,385	50	50	3,193	4,700	30	1,410
Electrical - Mechanical	5,865	50	50	2,932	1,405	30	421
Shoes	1,643	50	50	822	634	30	190
Wares	1,757	50	50	879	284	30	86
New Goods	2,213	50	50	1,106	436	30	131
Salvage - Textile	1,293	50	50	647	268	30	80
Contract	...	..	..	...	...	..	...
Custom Work	...	..	..	...	...	..	...
Printshop	3,434	50	50	1,717	2,112	30	633
Subtotal	<u>\$25,241</u>			<u>\$12,621</u>	<u>\$11,578</u>		<u>\$3,473</u>
Solicitation and Collection	2,574	90	10	257	...	..	...
Retail Stores	13,901	90	10	1,390	1,190	10	119
Food Services	4,644	90	10	464	9,953	10	995
Management and General	9,865	90	10	987	1,126	10	113
Housing and Occupancy	5,431	90	10	543	854	10	85
Total	<u>\$61,656</u>			<u>\$16,262</u>	<u>\$24,701</u>		<u>\$4,785</u>

Notes:

- (1) Actual data
- (2) Assumed data
- (3) Computed by multiplying (a), average annual case load, by (b), client productivity per cent
- (4) Computed by dividing (c), effective work station demand, by (d), work stations available
- (5) Computed by multiplying (e), effective loading per cent, by (f), normal effective loading per cent

TABLE VIII--Continued

Group III - Occupancy and Non-Capital Equipment Costs										Total Rehabilitation Element of Direct Joint Costs
Joint Costs (Tables IV and V)	(a) Average Annual Case Load	(b) Client Productivity Per Cent	(c) Effective Work Station Demand	(d) Work Stations Available	(e) Effective Loading Per Cent	(f) Normal Effective Loading Per Cent	Effective Manning Factor	Rehabilitation Factor (1 - Effective Manning Factor)	Rehabilitation Element of Joint Costs	
(Note 1)	(Note 1)	(Note 2)	(Note 3)	(Note 1)	(Note 4)	(Note 2)	(Note 5)			
\$ 235	26	50	13	26	50	90	56	44	\$103	\$ 1,246
...	..	..	..	..	..	..	..	..	..	704
34	17	50	8	26	31	90	34	66	22	4,625
...	..	..	..	..	..	..	..	..	..	3,353
...	..	..	..	..	..	..	..	..	..	1,012
...	..	..	..	..	..	..	..	..	..	965
9	11	50	6	21	29	90	32	68	6	1,243
3	10	50	5	17	29	90	32	68	2	729
...
...
379	6	50	3	6	50	90	56	44	167	2,517
\$ 660									\$300	\$16,394
...	..	..	..	..	..	..	..	..	..	257
13,197	35	90	31	35	89	90	99	1	132	1,641
222	28	90	25	28	89	90	99	1	2	1,461
352	25	90	22	25	88	90	98	2	7	1,107
...	..	..	..	..	..	..	..	..	...	628
<u>\$14,431</u>									<u>\$441</u>	<u>\$21,488</u>

in excess of what is considered normal, an amount which also must be determined by agreement between the parties involved. The second suggestion was using materials usage standards to determine the amounts, including normal spoilage, which should be charged to production, and charging the remaining materials costs to rehabilitation. This second method is acceptable only if actual materials costs are compared to materials cost standards to be certain that the additional costs of production inefficiencies were not being charged to rehabilitation. Because neither the stockpiling data nor the usage standards are available for application to the San Antonio workshop's joint costs on Table VIII, a rehabilitation factor of 30 per cent of the total joint materials cost is assumed for the industrial workshop function and a 10 per cent factor for other areas. As in the case of supervisory costs, it is important for the reader to be aware that when actual data are available not only can the rehabilitation factor be different for each area of activity but also that the method of determining the rehabilitation factor can differ from one kind of productive activity to another.

The last group of joint costs to be separated is occupancy costs and non-capital equipment costs. The discussion above suggested separation on the basis of an effective manning factor which utilizes the average annual

case load, client productivity, and the number of work stations available for each segment of productive activity. Table VIII assembles these components and computes the effective manning factor. In the computation, the average annual case load and number of work stations available are actual data from the GISA workshop. The client productivity figures are the same ones assumed in the separation of Group I costs. The 90 per cent normal loading for the workshop is also assumed. Normal workshop loading data will have to be developed from empirical studies.

The separation of joint costs on Table VIII produces the following rehabilitation element of joint costs from the direct joint costs:

Group I	\$16,262
Group II	4,785
Group III	441
	<u>\$21,488</u>

The results of the separation of the rehabilitation element of costs from joint costs within the direct operating expenditures section of the Summary of All Functional Activities (Table II) could be revealed on that statement. Presentation of this data could be effected by a new section on the statement between the direct operating expenditures and the distribution of indirect expenses. Called "distribution of direct joint costs," this new section would transfer

from each segment of productive activity the rehabilitation element of the joint costs as developed in Table VIII. These separated rehabilitation costs would be transferred to the "rehabilitation services" function costs to arrive at total rehabilitation cost, before allocation of indirect costs.

It is important to note, however, that the presentation of separated cost data on a workshop's financial statements is to invite the data's inclusion in any of the several uses which financial statement readers make of information contained on those statements. Such a general use of allocated costs is not consistent with the conditions requisite to satisfactory cost allocations: knowledge on the part of users of the cost data of assumptions and methods of allocation that are a part of the creation of the data. Therefore, this study does not recommend that allocated joint costs be made a part of a workshop's recurring financial statements. The only time when separated cost data should be included on financial statements is when those financial statements are a part of special materials being prepared for rehabilitation fee negotiations.

The determination of the full costs of rehabilitation services includes not only an allocation of the direct joint costs discussed and illustrated above but also of indirect costs.

As in the case of direct joint costs, it is up to state and workshop representatives to agree on the extent of inclusion or exclusion of these indirect costs in the rehabilitation fee base. Of course, total rehabilitation costs must include an appropriate share of indirect costs. Therefore, if the states intend to cover either full or reasonable costs in the rehabilitation fee structure, some means of allocating indirect costs must be agreed upon by state and workshop personnel.

Table II, Summary of All Functional Activities, includes an allocation of indirect costs. In that allocation five kinds of indirect cost are distributed among workshop functions. Of these five distributions, the first, fourth, and fifth are adjustments made necessary by special consideration of the GISA workshop's accounting system. These mechanical adjustments are not relevant to the problem of separating joint costs of production and rehabilitation and, therefore, are ignored for the purposes of this study. The second and third distributions are allocations of the indirect joint costs of two service functions--housing and occupancy and management and general. Although the problem of allocating indirect joint costs is no different for the vocational rehabilitation workshop than for any other accounting entity and, therefore, is not actually a part of the joint cost

problem which this study has undertaken, the following paragraphs discuss these two allocations briefly to complete the synthesis of total rehabilitation costs.

The second group of indirect costs distributed in The Summary of All Functional Activities is housing and occupancy costs. The items charged to this separate function represent housing and occupancy charges which cannot be directly attributed to any of the other workshop functions and are, therefore, of a general nature applicable to all functions. The basis used for distribution of these general housing and occupancy costs is square foot area occupied by each of the separate functions, a basis which is common for costs of this type so closely associated with physical facilities. The choice of allocation basis is another point which will have to be agreed upon by the parties to the use of allocated figures.

One modification is necessary, however, to the use of square foot area as a basis of cost distribution. The square foot area occupied by several of the functions, i.e., industrial workshop, solicitation and collection, retail stores, food services, etc., is devoted to both production and rehabilitation activities. Thus, the square foot area which should represent rehabilitation costs is (1) that area devoted solely to rehabilitation plus (2) a share of those

areas where the direct joint costs of production and rehabilitation are incurred simultaneously. As a solution to this problem, this study proposes a two-step distribution of indirect housing and occupancy costs. First, distribute these costs to the workshop functions on the basis of square foot area occupied as presently is being done. Second, redistribute indirect housing and occupancy costs assigned to those functions where direct joint costs are incurred on the same effective manning factor that was developed in the discussion above for separation of direct occupancy costs. This second step of the distribution adds to rehabilitation costs a portion of the indirect costs allocated to functions which exert both rehabilitation and production efforts. It arrives at that portion of indirect costs through the same work station and productivity factors by which direct joint occupancy costs previously were ascribed to rehabilitation.

The third group of indirect costs distributed is costs of the management and general service function. On the Summary of All Functional Activities these costs are distributed to the industrial workshop and rehabilitation functions on the ratio of the period's average client population (rehabilitation) and average non-client employee population (production). Such an allocation assumes (1) that the management and general function is concerned only with the

two functions industrial workshop and rehabilitation services, (2) that the management and general function's services are provided only to employees, including clients, within industrial workshop and rehabilitation services functions, and (3) that workshop clients are not involved in a workshop's production operations at all. These assumptions ignore functions other than the two to which the allocations are made and the duality of cost inherent in the use of clients in production operations.

A better approach to allocating management and general costs than the number of employees in two functions is (1) to recognize that the management and general function serves all workshop functions and (2) to make an allocation on the basis of the supervisory efforts that occur in each of the other functions. Such an allocation basis is a common one for many accounting entities. For the workshop, it assumes that the management and general function services principally the supervisory level which, in turn, services the employee-client level of worker. Such an assumption is realistic because personnel who make up the management and general function are more involved with the supervisory level of worker than they are with clients and production workers. An allocation could be made on the basis of either (1) number of supervisors or (2) supervisory wage costs in

each function. Like the housing and occupancy allocation, this allocation should be made on a two-step procedure that would recognize the element of rehabilitation costs within any costs assigned to those functions where production and rehabilitation efforts are undertaken simultaneously. The second step of the allocation is an addition to rehabilitation costs of a portion of indirect costs allocated to such functions. The basis for this second allocation could be the same developed for the distribution of direct supervisory joint costs, which simply extends the rationale for the first step of the indirect cost allocation to this second step.

As an alternative approach, the allocation of the management and general function costs could be accomplished in one step on the basis of total costs after the allocation of the direct joint costs. Such an approach also would take into account the rehabilitation element of cost within the functions where both production and rehabilitation efforts take place. This allocation basis assumes that management and general costs are related to total costs incurred within a function rather than to number or wage costs of supervisors. The decision on a basis of allocating the management and general function costs is another one on which agreement must be reached between the parties involved to the use of the resulting data.

With the completion of the distribution of direct joint costs, as developed on Table VIII, and the distribution of indirect costs, as discussed above, the vocational rehabilitation workshop has a total cost of rehabilitation for use in setting rehabilitation fees. This synthesis of rehabilitation costs has been presented in the format of the Summary of All Functional Activities financial statement because it was in this format that the data were introduced. The suggestions and alternatives that this study proposes are designed for a specific purpose--the determination of a cost which can serve as a basis for rehabilitation fees. Therefore, because allocations must be matched with those uses to be made of the resulting data, the cost allocation procedures are not general ones which are proposed as appropriate for general usage in published financial statements.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

The problem of separating joint costs which has pervaded accounting efforts of vocational rehabilitation workshops is neither new nor unique to this singular type of organization. While the combination of social and business objectives which a workshop embraces makes a workshop an unusual kind of accounting entity and creates an overt need for joint cost separation, the joint cost problem itself has existed for many years within many kinds of organizations.

At least as far back as the maturity of the railroad industry in the middle of the nineteenth century, the problem of separating joint costs has plagued economist and accountant alike. Whenever an entity's operations fall into segments, efforts to balance values against costs or match costs and their benefits require a determination of costs applicable to those segments. But costs that can be traced to a segment are only a part of an entity's total costs. The remaining costs--the joint costs--need separation if there is to be a cost determination for each segment.

The practical needs of entity decision-making required an answer to the joint cost problem that could not wait

on theorists to produce the ideal solution. That practical solution was allocation, the distribution of joint costs between an entity's segments on some predetermined basis. That solution only presented new problems, however. One was the selection of an allocation base. Another was the lack of any theoretical foundation which could justify one method of joint cost allocation as opposed to another. Any costs produced in whole or in part by means of a cost allocation, therefore, were subject to controversy and criticism. The other problem was a lack of understanding on the part of users of financial information of the nature of an allocated cost. Once joint costs were allocated, users of cost data wanted to apply those allocated costs to any and all situations.

Out of these problems several concepts regarding the satisfactory use of cost allocations have evolved. Whenever allocations are a part of cost determination, users of accounting information must realize that they are working with a cost--an amount which is the result of decisions that selected a means of allocation from among alternatives. Because there are alternative allocation bases available for use in separating joint costs, it also is essential that an allocation technique selected conform to the uses that are to be made of data which that allocation produces.

In other words, a method of allocation must be logically consistent with the objectives of that allocation. This conclusion leads to another: allocated costs should be used only for that purpose for which they were prepared. An allocated cost is not generally applicable to all cost decisions. Finally, satisfactory use of allocated costs requires that parties to that use understand the assumptions inherent in the allocation bases selected.

The effort of this study has been to seek a solution to a vocational rehabilitation workshop's joint cost problem in the light of these concepts about useful cost allocations. That search began with an analysis of the nature of a workshop and those characteristics of its operations which make the separation of its joint costs seem necessary.

A vocational rehabilitation workshop's social goal of rehabilitating the physically, mentally, and socially handicapped and its business goal of producing and marketing goods and services create a dual focus of activities that causes its operations to fall into two natural segments-- production and rehabilitation. Whenever decisions relate to one or the other of these segments, workshop administrative personnel seek costs that likewise relate to these segments.

Unfortunately, however, all workshop costs do not fall into the same production-rehabilitation dichotomy that do

its objectives. Some costs clearly identify with one or the other of the segments. Wherever workshop operations co-mingle production and rehabilitation efforts, however, there are costs that are likewise co-mingled. Workshop philosophy views placing a client in a work environment and having him produce goods and services as the core of the rehabilitation process. Thus, the co-mingling of rehabilitation and production efforts is the essence of workshop operations, and joint costs are an integral part of workshop cost structure. The workshop's joint cost problem, therefore, as seen by its administrators, is one of separating the joint costs so that they can be attached to one or the other of its natural segments.

Given this state of affairs in workshop accounting, this study has undertaken three steps and made three contributions towards a solution to a workshop's joint cost problem. The paragraphs which follow discuss each of these three steps in turn.

If workshop joint costs are to be separated, they must be identified and isolated from those costs which do attach themselves to a given segment. Accordingly, the first effort of this study was an analysis of actual cost data of a workshop with the objective of identifying and isolating the joint costs. That task was accomplished for the first

six months of 1970 at Goodwill Industries of San Antonio. In this workshop cost data had been accumulated and summarized by a standard accounting system that has been developed for voluntary health and welfare organizations and is in use in many such organizations across the nation. Thus, the same cost data with which joint costs were compiled in this study are available and arranged in the same format in many other workshops. The analysis of the San Antonio workshop's costs was of necessity an after-the-fact study. However, once types of costs which are joint are identified, there is no reason why the coding of cost inputs into the standard accounting system cannot be modified to make a compilation of joint costs available quickly and easily through computer programming. The accomplishments of this first step were (1) an identification of kinds of workshop costs that are joint and (2) a demonstration that an isolation of those joint costs is not only possible but also practicable.

The second step in the effort to solve a workshop's joint cost problem was an examination of the objectives of joint cost separation. Consistent with the concept of matching allocation bases with objectives of an allocation, this examination probed behind the natural segmentation of workshop activities into production and rehabilitation operating decisions to find out how and why workshop

personnel planned to use separated costs if and when the data became available. That examination disclosed four specific objectives which workshop administrators have in seeking separated costs: performance judgments, resource allocations, pricing of contract services, and pricing of rehabilitation services. Following the identification of these objectives, the study examined the question of whether or not separated costs were the relevant information to decisions which derive from these objectives. That question had to be answered in the light of the constraints that have been identified on the usefulness of allocated costs.

For the first three of the objectives of joint cost separation--performance judgments, resource allocations, and pricing of contract services--the study concluded that allocated costs do not provide the information necessary for useful decision-making. For performance judgment decisions, "pure" and, therefore, allocated costs would be useful only if (1) there are standards available against which the actual "pure" costs could be compared and (2) the "pure" costs were objectively determined so that they were not subject to being questioned. Neither of these requirements is met. Competitive industry costs, traditionally the standard for workshop production cost comparisons, are first of all inappropriate. Secondly, they are usually not available.

Another of a workshop's social objectives--employing the handicapped--and the resulting increase in production costs preclude meaningful cost comparisons between a workshop and competitive industry. "Pure" rehabilitation cost standards are not available either. Because joint costs are inherent in workshop operations, such standards cannot be developed unless costs are allocated, and this allocation destroys the validity of the standards. As an alternative to the use of allocated costs for performance judgments, the study proposes the development of workshop cost standards based on joint costs without separation.

In the case of resource allocation decisions, no measurement process is available which can reduce social returns to dollar amounts that can be matched with dollar costs. Therefore, there is no "pure" statement of values or benefits against which to balance "pure" costs. Given this situation, this study has concluded that the best approach to effective resource allocation decisions is the treatment of sales proceeds of workshop goods and services as recoveries of cost and a matching of net costs, without separation, against intuitive measurements of social returns. This approach avoids (1) arbitrary allocations and (2) isolations of cost which are illusory because the decisions to which they apply, cannot, in fact, be isolated as either production decisions or rehabilitation decisions.

In the contract pricing decision, the concern of workshop administrators is to avoid prices that recover less than the "pure" costs of production. Their view is that the performance of a contract for less than a workshop's production cost is, in effect, a subsidy to private industry--a use of contributed funds that is not consistent with contributors' objectives. As noted above, this study has concluded that a workshop's "pure" production costs are not comparable to those of private industry. The social objective of employing handicapped persons creates additional costs of production. Use of contributors' funds to cover these additional production costs incurred because of social endeavors is not contrary to contributors' intentions. Therefore, costs that are relevant to the contract pricing decision are not a workshop's "pure" production costs but the costs that private industry would have to incur to acquire those same services elsewhere. As long as a workshop's contract price does not fall below private industry's costs, contributors' funds are not being diverted to subsidize private industry.

The fourth objective of separating a workshop's joint costs is the determination of a "pure" rehabilitation cost as a basis for establishing rehabilitation fees. This study concludes that this is the only objective for which an allocation of joint cost can provide relevant data.

Accordingly, the final step of this study, in seeking a solution to a workshop's joint cost problem, was an exploration of a means of effecting that cost separation.

For the purpose of setting rehabilitation fees, the principal ingredients to successful cost allocations are present. The objective of the allocation is explicit. Parties to the use of allocated costs are known, available, and have the requisite knowledge to agree upon bases of allocation that are satisfactory to both sides. The one remaining ingredient is the acceptance by the parties that where cost allocations are involved there are no "true" costs that are universally applicable to all situations. Neither party can place on the other the responsibility of cost determination. Rather, parties to the use of allocated costs must work together to agree on a cost that is meaningful. This means that (1) the parties must understand and accept the assumptions on which the allocation is based and (2) the allocation must be logically consistent with the use for which it is intended.

The suggestions for effecting a separation of joint costs for the purpose of setting rehabilitation fees have taken two forms. The first, intended as a general guideline for parties involved in cost allocation negotiations, is a discussion of concepts which are relevant to acceptable

cost allocation. These concepts focus on the qualities of fairness and practicality and how to attain them. The second suggestion deals with the specifics of implementing a cost allocation of a workshop's joint costs. It considers the concept of reasonable costs and how to measure them and then describes methods for a cost allocation to set rehabilitation fees. These methods include the assembling of costs into cost pools and the selecting of bases with which to attribute the pooled costs to either the production or rehabilitation segment of a workshop's operations. It is impossible for a single study to present all possible points of view and to consider all of the factors that may pertain to any one allocation at any particular workshop. For this reason, recommendations for allocating joint costs are offered as guides that would be helpful to parties in cost allocation negotiations. At several points, the study offers alternative methods for additional consideration.

It was suggested in Chapter I that because the demand for welfare programs is growing in the face of limited resources future allocations of both public and private funds will be to those programs that serve the most needs for the least cost. Therefore, attainment and demonstration of efficiency in every dollar of welfare expenditure could become the keynote in program decision-making. Whether or

not the goal of efficiency becomes this singularly significant to vocational rehabilitation workshops is only a matter of conjecture at this point. But certainly efficiency in the use of resources is a major goal even now, and it could become even more important in the future.

It is toward this goal of efficiency in the use of resources that this study has sought to make a contribution. With a workshop's objectives of joint cost allocation, the study has no argument. Performance judgments, resource allocations, and pricing decisions all play significant roles in efforts to achieve efficiency. It is only with the selection of data relative to those objectives that this study takes exception. In those instances where the study concludes that separated costs are not relevant, it offers alternative suggestions for reaching those same objectives. In the case where the use of separated costs is deemed relevant, the study offers a means of developing those separated costs.

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