

SECOND EDITION

Cost Accountancy

W.M. Harper



M&E HANDBOOKS

THE M. & E. HANDBOOK SERIES

COST ACCOUNTANCY

W. M. HARPER, A.C.M.A.

SECOND EDITION



MACDONALD AND EVANS

PREFACE TO THE SECOND EDITION

IN the first edition of this book I attempted to summarise all the costing theory required by the major professional examining bodies for their papers relating to cost accountancy. The success of the edition suggests that, ambitious as the attempt was, it did in the main achieve this objective. The reason that this was possible probably lies in the fact that cost accountancy is essentially a practical technique involving relatively limited theory.

In this second edition I have repeated the attempt to discuss all the major aspects of costing between the covers of, by modern standards, a short book. Costing theory has, of course, developed over the years but although examining bodies now demand a more sophisticated understanding of decision-making and cost control theory, they have tended to restrict their examination of material and labour management to papers more specifically designed to cover these topics. Consequently I have been able somewhat to reduce discussion of those subjects and devote further space to the development of modern cost concepts. I hope this small adjustment to the balance of the book meets with the approval of the lecturers and students who found the first edition helpful in their work.

1. Intermediate and final costing. The difference between intermediate and final costing, as defined by most examining bodies, is essentially one of degree, the final candidate being expected to have a deeper insight into topics than the intermediate candidate. In the text of this book I have made no distinction between these two grades, though intermediate students would probably be wise to give priority to topics up to and including the section on Simple Process Costing in Chapter X and final students priority to subsequent topics.

2. Progress tests. The Progress Tests at the end of each chapter have been divided into two parts, *Principles* and *Practice*. The questions in the part on principles of costing can be answered from the text and the numbers in brackets after each question refer to the relevant paragraphs of the chapter. Full worked answers to the practical questions are provided in Appendix I.

3. The theory of cost control. Over the years the subject of cost control has been one of increasing concern to me. It is my personal conviction that the conventional technique of standard total absorption costing is based on a fundamentally erroneous principle. Historically the technique evolved from the traditional form of cost ascertainment and as a result it retained the concept of absorbing fixed costs into cost unit costs. However, control is *not* concerned with cost ascertainment and the application of this absorption technique in my view renders the subsequent control analyses invalid.

I have therefore been faced with a difficult personal choice. Should I, in a book written for examination students, put forward the conventional, but in my view erroneous, technique? Or should I put forward only what I believe to be valid costing theory? Fortunately there are reasons to believe the theory I advocate is now gaining acceptance and I have, therefore, written the section on cost control primarily in terms of this theory. However, in order to ensure any reader who would have preferred me to have made the alternative choice is not deprived of the conventional theory, I have outlined this latter theory of standard total absorption costing at the end of each of the relevant chapters.

4. Terminology. By and large the terminology in this book follows that recommended by the Institute of Cost and Management Accountants. Unfortunately the Institute is currently in the process of up-dating its official terminology and for a little while it is possible that one or two words I have defined will differ slightly in definition from those in the forthcoming I.C.M.A. publication. I have, moreover, on occasions simplified the official definition since I have learnt from experience that detailed definitions that are ideal for the practitioner who appreciates the full significance of each phrase are often only confusing to the less sophisticated students. For these reasons then, I.C.M.A. students should carefully study the official terminology of the Institute before taking their examinations.

5. Bibliography. For further study the student is referred to the following books:

For more detailed study of cost accounting:

L. W. J.owler and J. L. Brown, *Wheldon's Cost Accounting and Costing Methods*, 12th ed. (Macdonald & Evans).

Buyers & Holmes, *Principles of Cost Accountancy* (Cassell).
 R. Warwick Dobson, *An Introduction to Cost Accountancy* (Gee).

For a more detailed coverage of labour remuneration and incentives:

Institute of Cost and Management Accountants, *Employee Remuneration and Incentives* (Gee).
 H. Beeley, *Industrial Management Services* (Macdonald & Evans).

For more detailed coverage of standard costing and budgetary control:

J. Batty, *Standard Costing* (Macdonald & Evans).
 Institute of Chartered Accountants in England and Wales, *Standard Costing*.

For the appreciation of presentation of information, scatter-graph analysis and other statistical techniques:

W. M. Harper, *Statistics*, 2nd ed. (Macdonald & Evans).

6. Acknowledgments. I gratefully acknowledge permission to quote from the past examination papers of the following bodies:

Association of Certified Accountants (A.C.A.).
 Institute of Chartered Secretaries and Administrators (I.C.S.A.).
 Institute of Chartered Accountants in England and Wales (I.C.A.).
 Institute of Cost and Management Accountants (I.C.M.A.).
 Royal Society of Arts (R.S.A.).

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PART ONE

FUNDAMENTALS

In this part the fundamental concepts and principles of costing are outlined. Students approaching costing for the first time may find this a difficult or even, on the face of it, an inconsequential part; indeed, there is educational evidence that the importance of the foundations of a subject can be appreciated only after the "building," as it were, is virtually complete. However, it should be tackled first before passing on to the rest of the book, and then read again at the end, when the student may well gain more than he did at the first reading. Moreover, by doing this the student will to some extent have subjected himself to the valuable educational technique whereby the lecturer first tells the student what he *will* be telling him, then *tells* him and then tells him what he *has* told him.

THE THEORY OF COSTING

WHY COST?

It is the function of managers to manage those enterprises, or parts of enterprises, that are under their control. They can carry out this function effectively only if they have full information relating to all factors relevant to the area under their control. Among these factors are the following:

- (a) Market, *e.g.* market potential, customer requirements.
- (b) Competitive position, *e.g.* competitors' prices and quality, plans of competitors.
- (c) Economic environment, *e.g.* economic trends, availability of credit.
- (d) Personnel, *e.g.* skills, morale, union objectives.
- (e) Production, *e.g.* processes, capacity, quality levels.
- (f) Engineering, *e.g.* plant life, power requirements.
- (g) Purchasing, *e.g.* material prices, quality, reliability of suppliers.
- (h) Legal, *e.g.* law of contract, tax laws.
- (i) Costs.

It is the purpose of costing to provide management with information relating to this last factor, costs. Costing, then, is a service to management.

Careful consideration of this concept of costing as a management service reveals that:

(a) Costs are prepared *for management* in order to *assist them to manage*. There is no virtue in preparing cost figures for their own sake.

(b) Cost is not the only factor managers must consider. They will not, therefore, run their enterprises or departments on a basis of cost figures only. Conversely, no good manager will attempt to manage without having the best cost information it is possible to obtain.

1. The objective of costing. Costing, then, aims at presenting managers with the cost information they need in order to

manage effectively. More specifically, it indicates the *economic consequences of carrying out, or having carried out, any specified activity*. If a manager is, for example, considering the acceptance of a contract, he needs to know whether or not an adequate profit will arise from it—and if the contract is accepted, he will need to know how much profit he actually made (or lost) so that his future actions can benefit from past experience. Similarly, when considering replacement of hand labour by a machine, the manager will need to know the probable savings or otherwise. (However, the final decision may be made, of course, on other than economic grounds; for instance, the possibility of provoking a strike may be the determining factor.)

2. Money as a measure of economic performance. It is vitally important to appreciate that money has a double function in the running of modern enterprises:

(a) *It is an economic factor of production.* Money is *physically* as necessary as land, labour and materials. Without money (or credit, which is the same thing to a businessman) machines cannot be bought, debtors and stocks financed, nor taxes paid. In the same way as there are suppliers of materials there are suppliers of money—banks, finance institutions, shareholders and, of course, customers.

(b) *It is a measure of economic performance.* Many management decisions hinge upon varying the proportions of the economic factors used, *e.g.* reducing labour hours by increasing machine hours, or reducing losses of material by improving storage equipment. Unfortunately usage of different economic factors cannot be directly compared; one cannot compare labour hours with machine hours, or hundredweights of material with feet of shelving. In order to render these things comparable they must be converted to a common measure, and money is the measure adopted. By converting the hours, hundredweights, etc., involved in various projects into money values (and, if need be, similarly converting the goods or services produced to money values) the projects can be compared with each other and the most economical one selected.

3. Financial, cost and management accounting. In modern business the three functions of financial, cost and management

accounting are all carried out together and in many ways merge with each other. Hard and fast distinctions between these functions cannot be made, but in general their basic approaches can be outlined as follows:

(a) *Financial accounting.* This function treats money as an economic factor of production. Consequently cheques, notes, bank balances and overdrafts, debtors and creditors feature largely in this type of accounting. Indeed, the historical origin of financial accounting was literally "to account for" the money entrusted to the business.

(b) *Cost accounting.* This function treats money as a measure of economic performance. Here, then, the values of resources used are found and the techniques employed are all aimed at arranging money information in such a way that management is given as clear an indication as possible of their economic performance and the direction in which they must move in order to improve their economic efficiency.

(c) *Management accounting.* This function evolved out of cost accounting and the two are still closely interlinked. In management accounting, however, economic performance is not only measured but the whole of the enterprise is looked at as a single unit of business operating within an economic environment. In brief, management accounting involves advising management of the economic implications and consequences of their decisions. This, incidentally, leads to a close study of money as an economic resource, a study in which money simultaneously takes on its other role, that of a measure of economic performance, to evaluate its use as an economic factor of production, e.g. the rate of return on capital employed.

4. Costing and price-setting. One point that should be appreciated from the beginning is that the object of costing is not primarily to enable prices to be set. Costing relates to economic performance; it is not a sales office clerical procedure aimed at producing mathematically precise selling prices.

Nevertheless, because the sales manager needs to consider the costs when deciding what prices to charge, costing data can be used to provide price-setting information. This aspect of costing is looked at in Chapter XIV. Meanwhile the student should bear in mind that selling prices depend primarily on

supply and demand, and should, therefore, be based on such economic considerations (and particularly in relation to the prices of one's competitors) rather than costs.

BASIC COSTING CONCEPTS

5. What is a cost? A *cost* is the *value* of economic resources used as a result of producing or doing the thing costed. Note the word "value." In a majority of cases the value of the economic resources used is the amount of money spent in acquiring or producing them, but this is not always so. For instance, if the market price of an article was £5 at the time of purchase and rose to £7 by the time it was actually used in production, then, strictly speaking, the cost is £7, since this is the *value* of the article used.

There are probably some people who would disagree with this definition of cost, and who would regard cost as simply what was paid for an economic resource. Yet clearly in the foregoing example, if the article was sold in its unmanufactured state for £6, then taking £5 as the cost means there is £1 profit. But this is not a valid measure of management's *trading* performance (though it may be a good measure of their speculative performance). This simpler concept of cost relates really to measuring excess of income over expenditure, that is, we are back to the financial accounting concept of money as cash. In cost accounting one should, however, always bear in mind the ultimate need to consider economic values for measuring economic performance rather than cash expenditure. (A word of warning: costing evolved as a practical business technique. As a result the practice is not always consistent with the theory. For example, a number of methods of costing stores issues aim only to recover the amount spent on purchasing the stores and not to show the value of the issues. The effect of different purposes on the form of costing analyses is discussed further in the final chapter.)

6. Opportunity cost. Another example where cost does not equate to expectation is where the enterprise may own and use a block of land for which an annual rent of £500 could otherwise be obtained. This is the use value of the land and should, therefore, be regarded as its annual cost, since the enterprise is sacrificing the £500 in order to use the land. A cost relating to

the *sacrifice* an enterprise makes, by use of some resource rather than the cash expenditure on that resource, is called an opportunity cost. More generally, an *opportunity cost* is the value of a benefit sacrificed as a result of taking a given course of action.

7. Cost = usage \times price. Cost has been defined as "the value of economic resources used." Note that for each resource the "value" is always made up of two components: the quantity used of the resource and the price per unit. Cost, therefore, can be mathematically stated as:

$$\text{Cost} = \text{Usage} \times \text{Price}$$

This means that costing involves ascertaining both a usage figure and a price figure. Students will find this double-component feature arises throughout costing theory, and it is particularly significant in standard costing and variance analysis.

8. Profit appropriations excluded from costs. Profit appropriations are *not* regarded as costs. Thus dividends and taxes based on profits are not regarded as costs, although in decision-making it sometimes happens that different alternatives do not result in the same tax incidence (*e.g.* different machine purchases will result in different capital allowances). In such cases any extra taxes payable must be regarded as part of the costs of the appropriate alternatives for the purpose of making the decision.

9. Cost units. We cannot have "costs" unless there are things being costed (such as pens, bridges, theatre performances, departments or factories) and when these are the things that the enterprise or department is set up to provide, then such "things" are termed "cost units." A *cost unit*, then, can be defined as a unit of quantity of produce, service or time in relation to which costs may be ascertained or expressed.

These cost units may be:

(a) Units of production, *e.g.* jobs, contracts, tons of material, gallons of liquid, books, pairs of shoes.

(b) Units of service, *e.g.* kilowatt-hours, cinema seats, passenger-miles, hospital operations, consulting hours.

NOTE: Students should learn and understand the definition of a cost unit, as the term is frequently used in this book. In most cases cost units are simply the individual items of production, and providing the student appreciates the wider meaning (e.g. service units) he may regard them as such for study purposes.

10. Cost centres. Costs can relate to things other than cost units. They can refer to individual parts of the enterprise. Such parts can range from an entire factory (in the case of a company with a group of factories) down to a single machine or a single salesman. Any part of an enterprise to which costs can be charged is called a *cost centre*. A cost centre can be:

- (a) *Geographical, i.e. an area such as a department, store-yard or sales area.*
- (b) *An item of equipment, e.g. lathe, fork-lift truck, delivery vehicle.*
- (c) *A person, e.g. salesman.*

Charging costs to a cost centre simply involves charging to that centre those costs which relate to it. Thus a lathe will be charged with its costs of depreciation, maintenance, power and cleaning and also with a share of the rent, rates, heat and light costs of the enterprise. A salesman "cost centre" similarly will be charged with his salary, commission, expenses, entertainment, telephone, postage, samples, car costs (and the car itself may, of course, be a cost centre charged with depreciation, petrol, oil, maintenance, tyres, licence, insurance, etc.) and so on.

11. General costing principles. The following general costing principles should be observed:

(a) *Costs should be related as closely as possible to their causes.* A foreman's salary, for instance, cannot usually be pinned down to a single cost unit, but it should be so recorded that such a cost can be shared only among the cost units passing through that foreman's department and *not among any units remaining outside his department*. This relating of cost to cause, pinning the cost down so that it covers neither more nor less than the cost units or cost centres which caused it, is an important aspect of good costing. Grouping overheads into one single "general expenses" category is to be avoided.

(b) *A cost is not charged until it is incurred.* This appears obvious, but is often forgotten. For instance, care should be taken that a cost unit is not charged with any selling costs while it is still in the factory, since units cannot incur selling costs until they are sold. Similarly, when the cost of lost units must be carried by good units such a charge cannot be imposed on units which have not passed the point of loss.

(c) *The "prudence" convention should be ignored.* One of the historical functions of financial accounting is to value assets conservatively in order to avoid the risk of paying dividends out of capital. This results in the "prudence" convention of financial accounting. This convention must be ignored in cost accounting, otherwise there is a danger that management appraisal of the profitability of projects may be vitiated. For instance, to fail to take advantage of a project which would in fact net £20,000 means that in effect the enterprise loses £20,000. Cost statements should as far as possible give the facts with no known bias. If a contingency needs to be taken into consideration it should be shown separately and distinctly.

(d) *Abnormal costs are excluded from costs.* Costing aims to provide information on economic performance to assist managers to manage. Abnormal costs, however, do not promote this object, since they do not relate to normal economic performance that management can influence but instead to infrequent accidents that cannot be controlled. Their presence in the costs, therefore, would tend to distort cost figures and mislead management as to their economic performance as managers under normal conditions. To charge gale damage costs (for instance) may result in a doubling of normal costs per unit, but such a figure gives production managers no real information as to their production efficiency. Abnormal costs are therefore excluded from costs.

(e) *Past costs are never charged to future periods.* There is often a temptation to charge past costs, or unrecovered costs, to a later period on the grounds that these costs have to be recovered somewhere, and since the past has gone they can be recovered only in future periods. This is quite wrong. Inclusion of past costs in future periods results in the distortion of the performance figures for those periods and gives rise to a risk of misleading management.