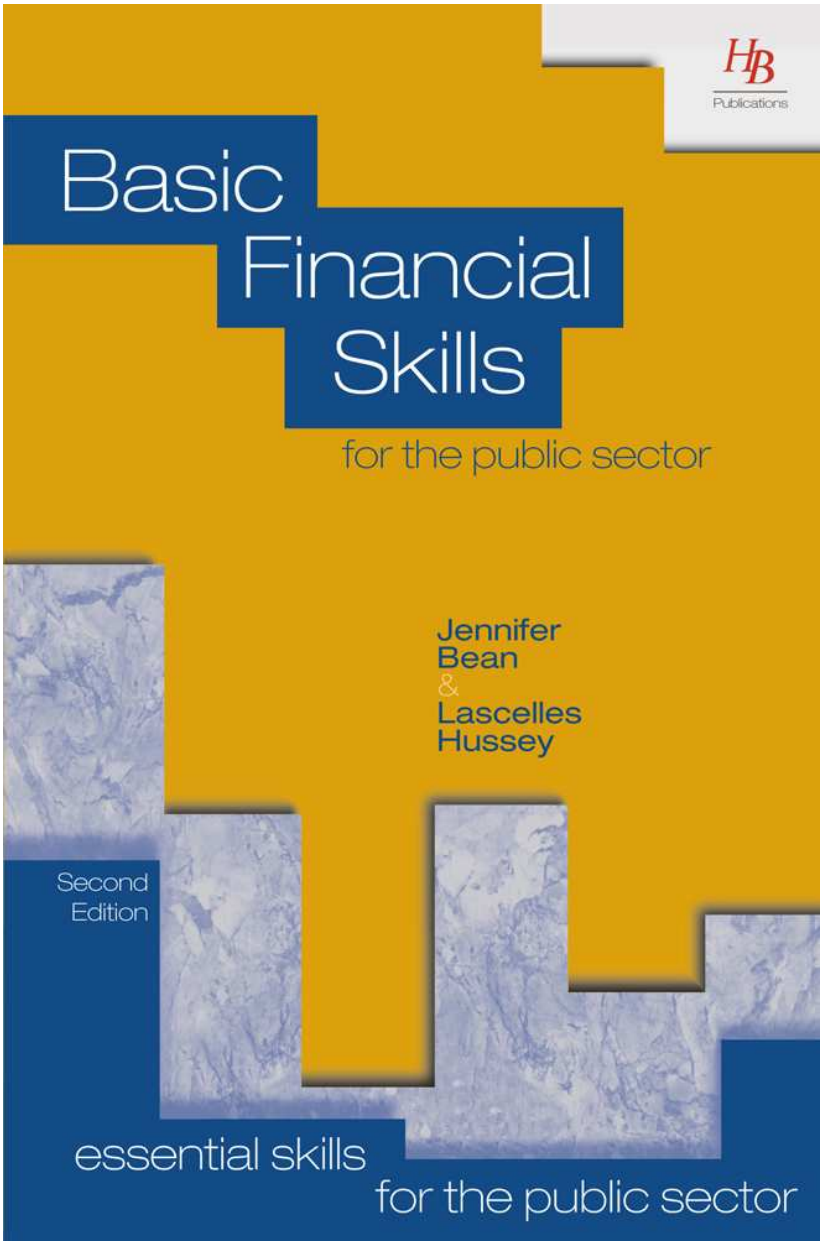
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Contents

Chapter 1

Introduction

Public sector managers will increasingly find finance to be an important part of their role, and a basic understanding of finance is now essential to the delivery of "value for money" services.

This book seeks to provide the public sector manager with basic skills often overlooked in other finance texts. It is usually assumed that managers know how to use a calculator, and that they are familiar with certain basic calculations such as percentages. There is also an assumption that a manager is able to present information in a numerical format, and can undertake data analysis in order to make management decisions which may have financial implications. This book does not make these assumptions. It gives a quick overview of the underpinning knowledge needed to use and manipulate figures effectively. The key areas covered show the reader how to undertake basic calculations; use statistics; make use of spreadsheets; appraise projects; and present financial information.

Basic Financial Skills for the Public Sector provides useful reference material which can be used as part of a manager's own personal development. The book contains exercises that encourage the reader to focus on the issues covered therein.

Suggested solutions for the exercises are provided in the final section of the text.

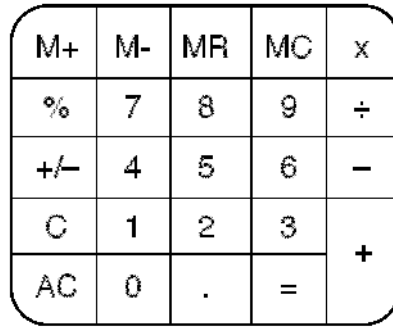
This book is one of a series of "Essential Skills for the Public Sector" titles. The series aims to assist public sector managers become more efficient and effective in carrying out their important management responsibilities. We consider this book to be an important part of the tool kit for public sector management development.

Chapter 2

Basic Calculations

Using Your Calculator

In order to undertake simple financial calculations, it is necessary to understand how to use a calculator. Shown below is a diagram of the most common and basic calculator functions:



The function keys shown above are described as follows:

Symbol	Function	Symbol	Function
+	Addition	x	Multiplication
–	Subtraction	÷	Division

Symbol	Function
M+	Memory plus: adds numbers to the total figure in the memory
M-	Memory minus: subtracts numbers from the total figure in the memory
MR	Memory recall: shows the figure being held in the memory
MC	Memory clear: clears the memory to zero
=	Equals sign: gives the outcome of all the mathematical functions undertaken to that point
C	Clear: clears the number currently entered on the calculator without clearing the whole calculation being undertaken. For example, if an error is made whilst adding a series of numbers, the last entry can be cleared using this key and the correct number entered and the addition continued
+/-	Plus to Minus: changes a positive number into a negative number or vice versa
AC	All Cancel: pressing this key will clear all numbers and functions
%	Percentage: this key performs percentage calculations

These function keys are common to all calculators. An understanding of the above is all that is required for the majority of financial exercises likely to be encountered by the public sector manager.

Fractions and Percentages

Fractions and percentages are amongst the most common calculations needed for the presentation and analysis of numerical data. The public sector manager needs to be very conversant in how to calculate, and then present fractions and percentages.

Fractions show the number of parts of a whole number. For example, 10 people out of 50 is represented as a fraction of 10 over 50, where 10 represents the **numerator** and 50 the **denominator.**

It is normal to show fractions in the following way:

$$\frac{10}{50}$$

This fraction is ten fiftieths. Fractions are usually shown at their lowest possible level, which is to have the numerator and denominator as near to 1 as possible. In this case, if you divide the numerator and denominator by 10 (which is the common denominator), the fraction becomes one fifth. For example, if 10 out of 50 people were satisfied with the service, this could be stated as "one fifth" were satisfied. In order to identify the common denominator, it is necessary to establish the largest number by which both the denominator and numerator can be divided.

It is common to express fractions in terms of percentages. This is particularly useful when the fraction is not one of the more commonly used fractions, but a more complex number such as 32 over 71. Percentages express the fraction in terms of parts of one hundred. In order to calculate the percentage, one must undertake the division represented by the fraction. In the above example, this is 1 divided by 5, which equals 0.2. This is then multiplied by 100 to give 20, (20 per cent) which represents 20 parts of 100.

Percentages are easily calculated with the aid of a calculator by following these steps:

Enter the numerator	*e.g.*	*1*
Press divide		*÷*
Enter the denominator	*e.g.*	*5*
Press percentage		*%*

The calculator will then display the result as 20 which represents 20%.

We could also calculate 20% of a number, for example, 20% of 50. This is again easily performed using the calculator as follows:

Enter the number	*50*
Press multiply	*x*
Enter the percentage amount	*20*
Press percentage	*%*

The calculator will then display the result as 10

Managers are often required to calculate the percentage increase or decrease of activities. For example, calculate the percentage increase in users of a service that has increased from 500 to 575. Again, the following steps are undertaken:

Identify the increase in absolute terms (ie 575 - 500)	*75*
Press divide	*÷*
Enter the base figure, ie the figure from which we are increasing	*500*
Press percentage	*%*

The calculator will then display the result as 15 which represents a 15% increase.

If the number of users has fallen from 500 to 450, then the following steps are necessary to identify the percentage decrease:

Identify the decrease in absolute terms (ie 500 - 450)	*50*
Press divide	÷
Enter the base figure, ie the figure from which we are decreasing	*500*
Press percentage	*%*

The calculator will then display the result as 10 which represents a 10% decrease.

Percentages are a common and useful tool for any manager wishing to present information requiring:

- *Comparisons year on year*
- *Comparisons between different activities*
- *Comparisons between similar activities*
- *Trends*
- *Growth rates*
- *Occupancy rates*
- *Profit margins*
- *Direct v Indirect Costs .....and so on*

It is useful to be aware of the most common fractions and their corresponding percentages, and these are presented in the following table:

Fraction	Percentage %	Fraction	Percentage %
1/2	50.0	1/8	12.5
1/4	25.0	3/8	37.5
3/4	75.0	5/8	62.5
1/3	33.3	7/8	87.5
2/3	66.6	1/5	20.0

Calculating Budget Profiles

Many public sector managers now hold some form of budgetary responsibility which may involve them in budget preparation and monitoring. One important tool in the preparation and monitoring of budgets is "profiling". Profiling the budget allows the manager to predict and plan how a particular budget will be spent during the year. In some areas, this is crucial as the budget may be heavily affected by peaks and troughs in demand. This may arise as a result of seasonal fluctuations or planned events.

A profiled budget enables the manager to take greater control over the pattern of expenditure, and identifies large over or under spending sooner rather than later. A "straight-line profile" assumes that a budget is spent in twelve equal amounts during the year. For many budgets this is unlikely and a more accurate profile should be developed based on the pattern of expenditure over time.

Profiled budgets are easily created using percentages. The manager should identify what percentage of the budget will be spent monthly, and this can then be used to allocate financial resources. For example:

A social services department provides home care services for older people. They have undertaken research into the patterns of annual expenditure in order to assist in budgetary control activities. This research shows that each year there is a significant increase in demand for services during the winter months. The average spend per client in the winter months is 50% higher than that for the rest of the year. The home care service also established that there was a continuing steady growth in demand year on year as numbers

of users increase (more people are living longer). This general growth rate appears to be climbing year on year at a rate of 10%. With this information, the department is able to calculate a budget estimate for the following year using percentages.

Assuming the average spend per client is £1,000 per month for spring, summer and autumn, and the number of clients for the previous year was 500, then the spend in the winter would be £1,500 (i.e. £1,000 + 50% of £1,000) and the number of clients for the following year would be 550 (i.e. 500 +10% of 500). Assuming no inflation, the budget calculation for the following year would be:

Spring, Summer & Autumn	***£***
550 clients @ £1000 per client per month multiplied by 9 months	***4,950,000***
Winter	
550 clients @ £1500 per client per month multiplied by 3 months	***2,475,000***
Total for the year	***7,425,000***

The budget profile shows how the total budget should be spent over the twelve months. This would take into account the seasonal fluctuation with respect to the winter months. Based on the above example, the following table identifies the profile.

Month	**Planned Expenditure**	**Percentage of Budget**
	(£)	(%)
April	550,000	7.4*
May	550,000	7.4
June	550,000	7.4
July	550,000	7.4
August	550,000	7.4
September	550,000	7.4
October	550,000	7.4
November	550,000	7.4
December	825,000	11.1
January	825,000	11.1
February	825,000	11.1
March	550,000	7.4
Total	**7,425,000**	**100 ****

* e.g. 550,000/7,425,000 x 100 = 7.4%

** rounded up

Note: The percentages are rounded to one decimal place.

It is usual to enter the budget profile onto the organisation's general ledger accounting system. However, the manager can also enter the profile onto a local accounting system or a spreadsheet. The comparison of the profiled expenditure against actual monthly expenditure, provides more accurate budget monitoring information.

Exercise 4

Using Statistics

Drawing on your own experience, indicate your use of statistics for each of the following areas:

Purpose	**How statistics have been (could be) used**	**Where the data came (could come) from**	**Potential Improvements**
Performance Measurement	*e.g. percentage increase in productivity, such as number of clients seen, number of forms completed, etc*	*e.g. data time log, client records, performance indicators etc*	*collected at first meeting*
Decision Making	*e.g. reduced service demand levels, leading to service closure*	*e.g. general statistics on population growth*	*e.g. more specific data by client type and by area*

Purpose	**How statistics have been (could be) used**	**Where the data came (could come) from**	**Potential Improvements**
Forward Planning	*e.g. estimating Probabilities of future events, i.e. potential sickness levels and need for agency staff*	*e.g. historic data on sickness levels and trends in work practice that impact on sickness levels*	*e.g. better systems for data collection and predictions*
Customer Relations	*e.g. customer satisfaction ratings and customer complaints*	*e.g. annual customer survey, complaints register*	*e.g. more frequent and specific survey forms, pro-active complaints policy*
Marketing	*e.g. promoting success, e.g. reduction on rent arrears by x%*	*e.g. data from performance indicators*	*e.g. coordination of information to identify successes*