The appraisal of local authority capital projects

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THE APPRAISAL OF LOCAL

AUTHORITY CAPITAL PROJECTS

by

GEORGE WOODS

A masters thesis submitted in partial fulfilment of the requirements for
the award of a Master of Philosophy Degree of the Loughborough University
of Technology.
SYNOPSIS

1 OBJECTIVES

Preliminary enquiries had shown that there had not been any recent research into the capital appraisal procedures of Local Authorities. Existing knowledge was, therefore, very limited. The objective of this project was, therefore, to provide accountants, managers and researchers with evidence of current practices. It was hoped that this knowledge would stimulate further research and the development of existing evaluation techniques.

2 THE RESEARCH PLAN

A research plan was developed which included both the examination of conceptual aspects and the collection of empirical evidence.
- conceptual aspects were studied by developing a model of investment behaviour and by examining the concepts underlying commonly used appraisal techniques.
- empirical evidence was collected by issuing questionnaires to all twenty Outer London Boroughs and a control group of twenty other authorities. Officers of the London Boroughs were interviewed following the completion of the questionnaires.

3 CONCLUSIONS

The research showed that concepts underlying commercial appraisal techniques are valid when applied to local authorities and that the techniques were used more widely in Local Government than had been supposed before the research was undertaken. Five aspects were identified which should be evaluated by effective local authority appraisal procedures - these were used to select the best practices found during the research.

4 ACKNOWLEDGEMENTS

The author gratefully acknowledges the assistance he has received from the university staff, officers of the authorities surveyed and many others too numerous to name. Without their help the research would not have been possible.
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INTRODUCTION

1.1 Local Authority Capital Expenditure

The speed of technological change and the comparative economic prosperity of the 1960s led to an increased demand for local authority services. The development of these services required large amounts of money to be invested in new capital projects and local authority treasurers found it necessary to review their evaluation techniques.

By the mid 1970s the economic scene had changed and was dominated by unprecedented high rates of inflation. This brought in its train the problems of assessing the effects of changing prices on investment proposals.

This period of changing price levels was followed by one in which the government's main priority was a reduction in the rate of inflation. Credit was restricted, interest rates were high and both the private and public sectors found it difficult to finance capital projects. The problems for local authorities were exaggerated by the government policy of deliberately transferring resources from the public to the private sector. The need to demonstrate that each local authority investment was a justifiable use of scarce resources therefore became paramount.

In little more than a decade the emphasis of appraisal practices had moved from that of dealing with evaluation and selection of projects during a period of affluence and expansion to that of dealing with problems of retraction and economic recession.

During this decade there had been published a seemingly endless stream of articles, research papers and books dealing with appraisal techniques but rarely did any of these make reference to the evaluation of local authorities' capital projects.
1.2 Objectives of the Research

The main reason for this lack of comment relating to local authority appraisal (during the 1960s and 70s) was because it was just not known what those practices were. Preliminary research at the commencement of this project showed that there had been no recent research in this area and existing knowledge was still very limited.

The objective of the research was therefore to provide accountants, managers and researchers with evidence of the capital expenditure evaluation practices of local authorities. It was felt that this extension of existing knowledge would encourage local authority accountants to review and improve their own practices in the light of practices followed by other authorities.

The need for information which facilitates comparison could have been satisfied by a simple presentation of the facts in the form of a statement of "the state of the art". Merely finding the facts would have been a valid research objective because prior to the completion of the study the information was not available. It was felt, however, that the information would be more helpful to readers and was more likely to stimulate further research if it could:
- also show trends and developments in appraisal practice
- be related to conceptual studies of appraisal methodology and
- facilitate examination of the extent to which decision makers were provided with the information they needed in order to make rational investment decisions.

1.3 Problems Encountered

Preliminary research showed that there would be difficulty in providing this additional evidence:
- There were no earlier surveys of local authority appraisal practice with which the findings could be compared
1.4 Response to the Problems

Because there were no previous surveys of local authority appraisal practices the survey findings were compared, where appropriate with a recent survey of large commercial organisations. Whilst this did not enable any view to be taken of trends within local government, it did provide a crude comparison of the degree of sophistication reached in local government as compared with that of the private sector.

There was also a lack of previous conceptual studies concerned with local authority financial appraisal. This was dealt with by making such a study part of the research project.

Because there were no recognised criteria for evaluating local authority investment proposals a simple model of local authority investment behaviour was developed. Construction of the model identified factors which affected local government investment behaviour and the information derived was used to:

- select topics for inclusion in the questionnaire
- identify information required by decision takers
- develop criteria which enabled the best practices, found during the research, to be identified.

1.5 The Conceptual Framework

A research plan was formulated which would enable the objectives outlined above to be achieved. This is shown diagramatically in table 1.1
TABLE 1.1
The Research Plan

Formulate Objectives
Provide evidence of local authority appraisal practice in order to stimulate improvement of existing practice and stimulate further research.

Model Building
In order to identify factors affecting investment behaviour

Empirical Evidence
Survey of appraisal practice and factors evaluated

Report
Presentation of Survey and analysis together with best practices - in order to facilitate practice and in order to stimulate further research
1.6 Structure of Research Report

The main report has four main sections which correspond closely to those shown in table 1.1

- Chapter 1 deals with the formulation of objectives and the research plan
- Chapters 2 and 3 describe the construction of the model and the interpretation of findings arising from its construction
- Chapters 4 - 11 summarise the results of the research and review the 'best practices'

Four subsidiary aspects of the research are presented as appendices:
These are:
- the nature of local authority capital expenditure
- concepts of appraisal as applied to local government
- design of the questionnaire and
- selection of the authorities to be surveyed

These aspects are subsidiary only in so far as their primary objectives are to enable the main objective - the presentation of evidence on local authority - appraisal to be achieved. They are an integral part of the research and the importance of any particular part of the project will depend on each reader's particular needs.
2.1 Synopsis
This chapter examines the investment behaviour of local authorities. A model is developed and used to identify factors which affects local authority investment decisions and which therefore need to be evaluated during the appraisal process.

2.2 Development of the Model
A model building approach to the study of investment behaviour was developed, particularly in the 1960s and 1970s, but its origins can be traced back to the writings of Fisher* and Hicks**

Effective model building requires two stages:
- the conceptual identification of factors to be built into the model
- Empirical testing that the model does in fact represent the real life situation which has been modelled

This inter-relationship between conceptual identification and empirical testing was particularly appropriate to this research project. The relationships are shown below in Table 2.1.

TABLE 2.1
Inter-relation of Empirical and Conceptual Studies

* Fisher I - The Theory of Interest, Kelly 1930
** Hicks R - The Value of Capital, Oxford University Press 1946
The model acts as a link between the initial formulation of the research plan and the actual collection of evidence. It facilitates the analysis of empirical evidence and enables criteria to be developed which can be used to assess the effectiveness of existing appraisal procedures.

2.3 The Model of an Individual's Investment Behaviour
A model of investment behaviour, of an individual, is developed in this section and used to examine the contrasts between individual and local authority investment behaviour. The model is derived from Carsberg's Model.*

The model is based on the following assumptions. These have been made so that the relationships between the main factors which affect investment behaviour can be studied without too many distractions;

1 Money has different values depending on the time it is available to the recipient of the income. These differences are reflected in discounting procedures.

2 Individuals can lend indefinitely large sums of money at fixed rates of interest (assumed to be 10% for the sake of the illustration below) and no other investment opportunities are available.

3 The individual can borrow indefinitely large amounts at a fixed rate of interest.

4 Initially, for the sake of this illustration, the individual has £100,000 for investment and no further income will be earned, also the investor is only concerned with the next ten years.

Individuals, when considering economic activity, regard the provision of cash for consumption as the ultimate goal. Other uses of cash are merely aimed at increasing cash availability at a later date. There is no such thing as a generally optimal consumption plan over a period of time as each individual's spending plan will depend on his personal preferences. It is, however, unlikely that the full £100,000 would be used in year '0' if a ten year period was being considered. In order to develop the model it is assumed that the consumption plan is as illustrated in Table 2.2

TABLE 2.2

Model of an Individual Investor

<table>
<thead>
<tr>
<th>Time</th>
<th>Cash available</th>
<th>Transfers from time 0</th>
<th>Interest factor</th>
<th>Cash used for consumption</th>
<th>Discount factor</th>
<th>Present value of cash used for consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>yr</td>
<td>£</td>
<td>£</td>
<td>%</td>
<td>£</td>
<td>%</td>
<td>£</td>
</tr>
<tr>
<td>0</td>
<td>100,000</td>
<td>(85,000)</td>
<td>1.00</td>
<td>15,000</td>
<td>1.00</td>
<td>15,000</td>
</tr>
<tr>
<td>1</td>
<td>12,000</td>
<td>11,000</td>
<td>1.10</td>
<td>13,200</td>
<td>0.91</td>
<td>12,000</td>
</tr>
<tr>
<td>2</td>
<td>11,000</td>
<td>10,000</td>
<td>1.21</td>
<td>13,310</td>
<td>0.83</td>
<td>11,000</td>
</tr>
<tr>
<td>3</td>
<td>10,000</td>
<td>9,200</td>
<td>1.33</td>
<td>13,310</td>
<td>0.75</td>
<td>10,000</td>
</tr>
<tr>
<td>4</td>
<td>9,200</td>
<td>8,400</td>
<td>1.46</td>
<td>13,469</td>
<td>0.68</td>
<td>9,200</td>
</tr>
<tr>
<td>5</td>
<td>8,400</td>
<td>7,400</td>
<td>1.61</td>
<td>13,528</td>
<td>0.62</td>
<td>8,400</td>
</tr>
<tr>
<td>6</td>
<td>7,400</td>
<td>6,500</td>
<td>1.77</td>
<td>13,110</td>
<td>0.56</td>
<td>7,400</td>
</tr>
<tr>
<td>7</td>
<td>6,500</td>
<td>5,500</td>
<td>1.95</td>
<td>12,667</td>
<td>0.51</td>
<td>6,500</td>
</tr>
<tr>
<td>8</td>
<td>5,500</td>
<td>5,000</td>
<td>2.14</td>
<td>11,790</td>
<td>0.47</td>
<td>5,500</td>
</tr>
<tr>
<td>9</td>
<td>5,000</td>
<td>10,000</td>
<td>2.36</td>
<td>25,937</td>
<td>0.39</td>
<td>10,000</td>
</tr>
</tbody>
</table>

In each period the first £1 consumed will give the most satisfaction because the most pressing wants will be met first ie a pattern of diminishing marginal utility applies.

Using period 1 and period 2 as an illustration;

- In period '0' there will be a strong incentive to carry resources forward up to a total of £85,000. But after that point each extra £1 transferred means giving up increments of consumption, each succeeding one of which is more attractive than the preceding one.

- In period one there is a strong attraction to make the first £1 available to meet the planned consumption of £13,200 but less incentive for each succeeding £1 - and little incentive when the £13,200 point is reached.

The model shows that transfers to future periods will be made while the £1.10 principal and interest received in the subsequent period gives more satisfaction than the £1.00 foregone in the previous one. Discount factors express the preferences for early consumption. Columns 6 and 7 of Table 2.1 show that if a 10% discount rate is applied to the planned consumption the net present value is equal to the original £100,000. This consumption plan is therefore an
optimal one because transfers to future periods have continued up to the point where satisfaction from the interest earned is equal to the satisfaction foregone by giving up the opportunity for present spending.

It can be shown that for all optimal consumption plans (within the conditions laid down at the start of this section) the marginal rate of time preference (discount rate) will equal the market rate of return.

This model of the investment behaviour of an individual takes account of
- the cash initially available
- the market rate of return
- the time preference of the investing individual

The analysis would not have been fundamentally altered if the pattern of receipts had been different from the £100,000 in year '0' but had the same Net Present Value. Borrowing could be used to spread the cash available for consumption backwards as well as spreading it forward by temporary investment. Such a pattern is illustrated in Table 2.3. The original cash flow has a Net Present Value of £100,000 as does the cash flow in Table 2.2 (because this is the optimal consumption plan) the consumption in both tables also equals the original cash inflow ie £100,000.

**TABLE 2.3**

<table>
<thead>
<tr>
<th>Time</th>
<th>Original cash flow</th>
<th>Consumption Change in Interest on Accumulated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£</td>
<td>£</td>
</tr>
<tr>
<td>yr</td>
<td>Original</td>
<td>Change in borrowing or lending</td>
</tr>
<tr>
<td></td>
<td>£</td>
<td>£</td>
</tr>
<tr>
<td>0</td>
<td>25,420</td>
<td>10,420</td>
</tr>
<tr>
<td>1</td>
<td>4,000</td>
<td>9,200</td>
</tr>
<tr>
<td>2</td>
<td>4,000</td>
<td>9,310</td>
</tr>
<tr>
<td>3</td>
<td>4,000</td>
<td>9,310</td>
</tr>
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<td>4</td>
<td>4,000</td>
<td>9,469</td>
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<td>9,528</td>
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<td>4,000</td>
<td>9,110</td>
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<tr>
<td>7</td>
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<td>8,667</td>
</tr>
<tr>
<td>8</td>
<td>4,000</td>
<td>7,790</td>
</tr>
<tr>
<td>9</td>
<td>4,000</td>
<td>7,790</td>
</tr>
<tr>
<td>10</td>
<td>113,690</td>
<td>107,753</td>
</tr>
</tbody>
</table>

Source Carsberg
2.4 Budget Financed Organisations

The validity of the model of an individual's investment behaviour is dependent on the assumptions given. In particular the model is based on the assumption that the individuals primary objective is to maximise the amount of cash available for consumption. This assumption cannot be made in a local authority context because the authorities aim to maximise service provision not to maximise cash generation. Most local authority investments result in net outflows of cash which can only be sustained because taxes are levied to meet the cash deficiencies.

Table 2.4 illustrates this contrast between budget financed organisations and self sustaining (cash generating) entities.

The only form of taxation available to local authorities is rates. The deficits which are met by rates represent:

- a cash inflow to the authority from the community at large
- the authority's estimate of the value of the services to the community.

The conceptual examination of the nature of local authority capital outlay suggested that there were three fundamental assumptions which could be made which would assist with the model building.

1 In the absence of other constraints authorities will wish to maximise service provision.

2 In any given situation authorities will wish to minimise rate levies.*

*This excludes instances where rates levies are used as a means of income re-distribution and not for the financing of expenditure.
TABLE 2.4

Budget Financed and Self Sustaining Organisations

Source Rutherford*

---

*Rutherford B.A Financial Reporting in the Public Sector Butterworth 1983
3 Investment will take place when the desire to maximise service provision exceeds the reluctance to levy rates.

These assumptions developed from the conceptual research were supported by evidence collected during the empirical research. In particular it had been noted that:

- the view was frequently forcibly expressed (by practitioners during the research interviews) that the only factors which ultimately mattered, when appraising capital projects, was the service provided and the effect on the rate poundages.

- in all of the authorities visited evidence was found of data relating to investment proposals presented in a form which gave particular emphasis to the effects on rate poundages.

Statements prepared in the form mentioned above are, in effect a very over-simplified form of model. An example of this type of presentation is given in table 2.5

| TABLE 2.5 |
| Example of a Presentation which Emphasises the Effect of Capital Expenditure on Rate Levels |

<table>
<thead>
<tr>
<th>CAPITAL EXPENDITURE PROPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>£000</td>
</tr>
<tr>
<td>Capital Outlay</td>
</tr>
<tr>
<td>Annual Revenue Consequences</td>
</tr>
<tr>
<td>Loan charges (10 yrs, 10%)</td>
</tr>
<tr>
<td>Running costs</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Less</td>
</tr>
<tr>
<td>Fees</td>
</tr>
<tr>
<td>Savings on discontinued Services</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Total annual cost</td>
</tr>
<tr>
<td>Product of 1p Rate</td>
</tr>
<tr>
<td>Rate consequences</td>
</tr>
</tbody>
</table>

This type of presentation starts with the capital cost of the project - but the layout suggests that the most important factor to be considered, by the decision takers, is the annual effect of the expenditure on the rate poundage.
The frequency with which this type of model was used suggests that it had been found to have considerable practical value—but it has two fundamental defects as a model of local authority investment behaviour:

1. It is an inert model. That is it shows the effects at only one given period of time. Usually the models were constructed to show the effects in the first year in which the full operational and financing costs affected the rate fund accounts.

2. As a consequence of showing the financial effects at one particular time and ignoring the effects at all other times it fails to model the effects of the proposal over the full time span of the investment.

2.5 A Model of the Full Life-span of a Local Authority Investment

When the inert-model was contrasted with the model of an individual investor it became apparent that the local authority model could be improved if it showed the cash flows for each year of the proposed investment's life.

The model of an individual shown in table 2.2 assumed that there was a time preference which could be represented by the discount factors. During the examination of the concepts underlying appraisal techniques it was found that discounting could be validly applied to local authority situations (see appendix 2). In fact it was argued that the assumptions relating to the investment and interest earned by intermediate flows were more likely to be realistic in local authority situations than in commercial ones. It was therefore appropriate to discount the annual flows when constructing a revised model of local authority investment behaviour.

Most writers on commercial appraisal practice suggest that financing arrangements should be excluded from the initial appraisal of projects by D.C.F methods and this practice was therefore thought to be appropriate in the development of a local authority model which:

- covered the full life of the project
- discounted the flows
- excluded the financing arrangements

A model on this basis, using the same data as is used in table 2.5 is shown in Table 2.6.
### TABLE 2.6

**A Full Life-span Model of Local Authority Capital Outlay**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>DESCRIPTION</th>
<th>OUT £000</th>
<th>IN £000</th>
<th>TOTAL £000</th>
<th>DISCOUNT FACTOR</th>
<th>NPV £000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Capital Investment</td>
<td>100</td>
<td>100</td>
<td>1.0000</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.9091</td>
<td>30.90</td>
</tr>
<tr>
<td>2</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.8264</td>
<td>28.10</td>
</tr>
<tr>
<td>3</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.7513</td>
<td>25.54</td>
</tr>
<tr>
<td>4</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.6830</td>
<td>23.22</td>
</tr>
<tr>
<td>5</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.6209</td>
<td>21.11</td>
</tr>
<tr>
<td>6</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.5645</td>
<td>19.19</td>
</tr>
<tr>
<td>7</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.5132</td>
<td>17.45</td>
</tr>
<tr>
<td>8</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.4665</td>
<td>15.86</td>
</tr>
<tr>
<td>9</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.4241</td>
<td>14.42</td>
</tr>
<tr>
<td>10</td>
<td>Annual Flow</td>
<td>50</td>
<td>16</td>
<td>34</td>
<td>0.3855</td>
<td>13.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td>160</td>
<td>400</td>
<td></td>
<td>308.89</td>
</tr>
</tbody>
</table>

The model shown in table 2.6 is a considerable improvement on the inert model from which it was developed. The improved model would be valuable in assessing the full life effects of proposals and would assist when making comparisons between alternative solutions to service provision problems.

However, it reflects the real world situation (where the effect on rates is a primary consideration) in only one set of circumstances. That situation is when the capital expenditure is charged in full against the rates in the year in which it is incurred. In all other situations the model does not show the actual outflow and therefore the charge to the rate fund. Capital expenditure is sometimes financed by Revenue Contribution to 'Capital Outlay' but most major projects are financed from loans.

It had already been noted that most writers suggested that financing aspects should be excluded from DCF calculations. Further examination of this argument showed that it was difficult to sustain in a local authority situation. The main reasons for this arose because the primary objective of local authority accounting is to account for the application of moneys collected from the general public. If this objective is to be taken into consideration loans raised and repaid, together with the interest payments should be
included in DCF calculations because:

1. interest is a real outflow and should not be treated differently to other flows

2. loans raised and repaid affect the timing of cash flows caused by capital investment. The model should show this real situation and particularly so if the flows are to be discounted to reflect time preferences.

A model which takes into account the full life span, loans raised, loans repaid and interest transactions is shown in table 2.7.

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Expenditure (£000)</th>
<th>Loan Repaid (£000)</th>
<th>Interest (£000)</th>
<th>Other Flows (£000)</th>
<th>Net Flows (£000)</th>
<th>Discount Factor (10%)</th>
<th>Present Value (£000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>6.27</td>
<td>10.00</td>
<td>34.00</td>
<td>50.27</td>
<td>0.9091</td>
<td>45.70</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6.90</td>
<td>9.37</td>
<td>34.00</td>
<td>50.27</td>
<td>0.8264</td>
<td>41.55</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7.59</td>
<td>8.68</td>
<td>34.00</td>
<td>50.27</td>
<td>0.7153</td>
<td>37.77</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8.35</td>
<td>7.92</td>
<td>34.00</td>
<td>50.27</td>
<td>0.6830</td>
<td>34.33</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9.18</td>
<td>7.09</td>
<td>34.00</td>
<td>50.27</td>
<td>0.6209</td>
<td>31.27</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10.10</td>
<td>6.17</td>
<td>34.00</td>
<td>50.27</td>
<td>0.5645</td>
<td>28.38</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>11.11</td>
<td>5.16</td>
<td>34.00</td>
<td>50.27</td>
<td>0.5132</td>
<td>25.80</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>12.22</td>
<td>4.05</td>
<td>34.00</td>
<td>50.27</td>
<td>0.4665</td>
<td>15.86</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>13.44</td>
<td>2.83</td>
<td>34.00</td>
<td>50.27</td>
<td>0.4241</td>
<td>21.32</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>14.84</td>
<td>1.43</td>
<td>34.00</td>
<td>50.27</td>
<td>0.3855</td>
<td>19.38</td>
<td></td>
</tr>
</tbody>
</table>

The model (Table 2.7) now shows all the aspects which affect the authority as an accounting entity.

Columns (2) and (3) show the capital outlay and its financing from loan.

Column (4) shows how the loan is repaid by charging it to the ratepayers on completion of the repayments the capital expenditure has been financed by the rate payers.

Column (5) shows the interest and column (6) the other net outflows.
Column (7) shows for each individual year the amount which has to be raised by rates.

*The total of column (9) shows the present value of the net flows over the life of the asset.

It is unwise to impute greater or lesser importance to any of the above aspects. The significance of any part of the model depends entirely on the use to which the model is to be put. However it is reasonable to assume that the net present value is particularly valuable for comparing the financial effects of alternative projects and the annual net flows (column 7) will be of value to politicians in deciding whether the desire to provide services overrides the desire to levy taxes.

2.6 The Interface With Other Models

The model which has been developed represents one aspect of the balance which has to be struck between reluctance to levy rates and the desire to increase service provision. The other side of the balance is the evaluation of the benefits produced.

Authorities will try to maximise net benefits achieved. That is they will try to maximise the expression;

\[ B - C \]

where \( B \) is the benefit from each project and \( C \) is the cost of each project.

*Because this model uses a 10% interest rate and a 10% discount factor these two elements cancel out leaving a net present value the same as in table 2.6. This demonstrates that both models accurately model the consequences of making an investment of £100,000 which causes net running cost of £34,000 pa. The model shown in table 2.7 is accurate as regards annual cash flows where the loan is involved whereas the model in table 2.6 is not. In any instance where the interest rate differs from the discount rate the model in 2.5 would also be inaccurate in respect of the net present value.
In the real world resources are always limited and the problem becomes one of ranking projects according to the degree of net benefit expected to be produced. Projects cannot be ranked according to absolute benefits because the larger schemes will always tend to have the larger benefits when expressed in monetary terms. Any ranking which is undertaken will therefore have to be on a basis of relative benefit. This could be expressed as 

\[ \frac{B}{C} \]

or if a measure more akin to commercial profit is preferred

\[ \frac{B - C}{C} \]

Elected members making investment decisions are unlikely to be aware of this conceptual framework of optimising benefits - but each member, in weighing the costs against his perception of the benefits will be trying to maximise net benefits according to his own (political) criteria. He will require information relating to benefits produced and details of costs and rate consequences. The research brief for this project excludes any detailed examination of cost benefit analysis but clearly there is an interface between the financial model of (internal) investment behaviour and cost benefit models of (external) consequences.

Financial models of investment behaviour and investment models showing cost benefit aspects have not got a clear cut relationship because -

1 Cost benefit analysis values the benefits and disbenefits from the point of view of the user of the service or from the point of view of the public who have forgone the opportunity to use those resources on alternative projects. Market prices are used where possible and when this is not practicable shadow prices are used which make allowances for the distortion caused by the imperfect market conditions.

Decisions to levy rates and provide services are however taken by elected councillors who may in fact value the services differently to the recipient of those services.

2 Cost benefit analysis imputes economic values to the transaction but the investment decision is made on political not economic criteria.

The interface is further distorted because local authority services tend to benefit comparatively small groups of the population whereas rates are levied on all occupiers of property. Politicians, therefore, when
making decisions will need to know which groups receive the benefits and which will pay the taxes. This emphasises the necessity of identifying the precise nature of benefits produced and the need to quantify the effect of taxes to be levied.

The financial model as constructed shows the amount to be charged against rates but the amount to be levied on any individual depends on:
- The tax base and
- The rate of tax

The tax base for a rate payer is the rateable value of the premises they occupy. This is a hypothetical annual rental value fixed independently of the authority and over which they have no control.

The tax rate no longer has a simple relationship with the amount of expenditure to be financed, this is because of the Rate Support Grant. The grant was conceived as a means of ensuring the Government contributed to each local authority a greater proportion of 'essential' expenditure and a lesser proportion of their 'desirable' ie optional expenditure.

The grant has been used however as a weapon to force local government to incur less expenditure. The basic formula is -

\[ G = E - (GRP \times R.V. \times \text{multiplier}) \]

Where
- \( G \) = grant
- \( E \) = expenditure
- \( GRP \) = notional rate poundage fixed by the Government
- \( RV \) = total rateable value of the authority
- Multiplier = a multiplier used to adjust the total grant payable.

The GRP is different from different levels of expenditure in order to achieve the Government's objective of contributing less to each increment of optional expenditure. The relationship between expenditure and percentage grant received is not linear because at 'The threshold' (a point a little way above the prescribed standard level of expenditure) the change in GRP becomes more pronounced and after 'The Target' (a level of outlay based arbitrarily on past expenditure the grant can even become negative)

For example the London Borough of Bexley estimates that below the target every £1 of revenue expenditure costs the ratepayers 70p net of grant. At only four percent above target the cost of each £1 spent to the ratepayer
is £2.85. This accumulator effect is of great importance to investment behaviour patterns because it so obviously affects the point of balance between the political wish to provide services and the political reluctance to increase rate levies. The complexity of the grant system has resulted in many local authorities developing computer models of the effects of expenditure on rate poundages.

There is, therefore an important interface between models of investment proposals and the model of poundage levels as affected by Rate Support Grant.

Table 2.8 shows how the financial models of investment proposals interface with other inter-related models.

**TABLE 2.8**

Investment Model Interfaces
2.7 Conclusion

This chapter briefly examined a model of the investment behaviour of an individual investor, developed a model of investment behaviour of a local authority and showed the interface between this and other models. Construction of the models identified the factors which influence local authority investment behaviour and which, therefore need to be examined further by conducting a survey of current appraisal practice.

All financial appraisal is concerned with relationships of capital outlay, capital resources and the revenue consequences of investment proposals. The model had, however, shown that in the case of local authority investment there were other factors which had to be taken into consideration. These were:

1 In the absence of other constraints local authorities will invest in capital projects whenever the (political) desire to improve service provision overcomes the (political) reluctance to increase rates.

2 In practice the desire to develop services is limited by three further constraints - the shortage of capital resources - Governmental controls - distortions of the revenue consequences of investment caused by the Rate Support Grant.

3 The absence of profit both as a regulator and as a measure of performance means that other criteria of performance need to be built into local authority appraisal procedures.

4 The relationship between rate increases and benefits accruing to the public by way of improved service provision is the principal factor which influences investment decisions.

The constraints on investment, the influence of externalities and the need for inter authority comparisons where other measures of performance are not available are examined further in Chapter 3.
CHAPTER 3

Local Authority Investment Behaviour

3.1 Synopsis
The result of:
- constructing a model of investment behaviour (chapter 2) and
- conducting research into the nature of local authority capital outlay (appendix 1)

was that four differences between local authority and private individual investment behaviour were identified. These are examined in this chapter and subsequently used to:
- select areas for further investigation by the collection of empirical evidence.
- assess the significance of that evidence
- assist identification of the Best Practices** observed during the research.

The four differences are:

1. Local authority investment is constrained because of limited capital resources, whether or not the net benefits of investment exceed the cost of capital repayments and interest. (An individual operating in a perfect market will borrow money on any occasion when the net return exceeds the cost of capital and interest.)

2. Local authority investment decisions unlike those of an individual, are corporate decisions.

3. A private individual invests to increase his own wealth or income. Benefits arising from local authority investment may not accrue to the authority itself.

4. In local government there is a preponderance of non-income generating investment.

3.2 Constraints on Capital Expenditure

All methods of appraisal used in the public sector imply that there is a shortage of resources - otherwise, all socially desirable projects would be immediately undertaken. This contrasts with the model of a private individual which in its initial form assumes unlimited borrowing opportunities. Bristow and Leversidge* recognised that in the private sector there are also constraints which restrict the amount invested even when profitable investment opportunities exist.

* Bristow, R. J. and Leversidge, J. A. A Practical Approach to Investment Decisions MacMillan Press Ltd 1979

** The term 'Best Practice' is used in this thesis to indicate a practice (i) observed during the research, (ii) found by the users to be especially effective in evaluating one of the areas identified in section 10.6, (iii) and which is worthy of consideration by other authorities investigating ways of improving existing practices.
These constraints are:-

1. Self imposed rationing by firms which restrict their growth to that which can be financed from internally generated funds.

2. Restrictions because the firm does not have access to parts of the capital market.

3. Restraints imposed by the high cost of capital in relation to the profitability of the firm.

4. In times of economic prosperity the flow of viable projects may outstrip the capital available even for the multi-national corporation.

5. Firms may adopt a capital structure with a maximum amount of loan capital, in such cases the risk of default on the repayment of debt can be a restricting factor.

6. In the short term factors other than the shortage of capital itself, for example managerial ability, can affect the availability of resources.

7. The desire to achieve a stable growth pattern rather than violent fluctuations in growth rates will restrain the allocation of capital to projects income accounting periods.

Most of these constraints have their equivalents in local government:

1. A few authorities have moved towards a policy of financing most projects from internal resources. Many others adopt a policy of rationing certain types of capital outlay to the amount which can be financed internally, eg vehicle replacements. In these instances the 'self-imposed rationing' is similar to the situation recognised by Bristow in commercial organisations.

2. Bristow's second constraint does not apply to local authorities, because their financial security ensures access to most capital markets - (unless the government imposes statutory limitations). They do not have direct access to equity funds but even in this area a number of authorities have obtained some limited access by setting up limited companies.

3. The high cost of capital, the unlimited flow of desirable projects and limitations of management expertise (Bristow's constraints No 3 - 6) are problems which affect all organisations public and private.
Local authorities have never been known to default on loan repayments so the fifth constraint listed above does not have a local authority equivalent but the cost of the repayments often restricts the number of projects undertaken. This factor is closely related to the seventh constraint noted by Bristow and Leversidge - the wish to achieve stable growth patterns. The size of loan repayments and the fluctuations which occur from year to year are important in determining the amount of rates levied by the local authority. A number of practitioners, with whom this research project was discussed, felt that the only criterion against which appraisal methodologies should be judged was their ability to measure the effect on rate poundages. This seems to be a rather narrow point of view, because a project has little effect on the rates does not necessarily mean that it is a good scheme.

Appraisal should have wide objectives which go beyond assessing the effect on rate poundages. It should also be concerned with:
- ensuring that the scheme makes general economic and financial sense
- identifying sensitive areas which are critical to success or failure
- identifying ways of improving the original proposals.

Factors which restrict the availability of capital to large private sector organisations, clearly, affect local authorities also. Because resources are so restricted and socially desirable schemes are unlimited, appraisal is a matter of prime importance. In particular the existence of limited resources but unlimited wants suggests that local authorities need to arrange projects in priority order and apply a cut off point when all available resources are exhausted. This is not very different to the situation represented by the model - the individual had to limit personal consumption to the amount included in the spending plan.

The existence of constraints was further investigated by including questions in the survey relating to:
- long term capital budget procedures
- methods of selecting priorities.
3.3 Local Authority Decisions are Corporate Decisions

The basic model assumes that an individual determines his own time preferences, develops an optimum spending plan, and selects projects on economic grounds.

In local government projects can arise in a variety of ways, the objectives are varied and the decisions will not be taken on economic considerations alone. For example in discussions with the staff of the Planning and Transportation Department of the Greater London Council it was suggested that investment proposals might arise from:
- council members
- council officers
- citizens pressure groups
- press and media reports
- certain government influences

Each type of originator would tend to have different primary objectives in mind when they made the proposal. Initial appraisals would be likely to concentrate on these primary objectives but all objectives would have to be taken into account before the final decision was taken.

The stage at which the appraisal moves from examination of the originator's prime objective to a multi-objective appraisal will depend on the procedures and the organisational structure of the firm or authority. *Bowyer in an empirical analysis of capital expenditure decisions found that the definition stage of a project involved rational elements in the form of technico-economic analysis; but, the political perspectives prevailed as the project moved towards approval and funding. In contrast to Bowyer's findings the Greater London Council practice is to carry out the detailed appraisal of highway schemes at a fairly late stage in the capital programme cycle, that is when the project is to be included in the Transport Planning and Programme Submission (application for approval of government grant). Clearly the move towards political (subjective) perspectives occurs in different ways in differing organisations. However, in local authorities the final decision always involves a substantial political aspect and this one would expect to be reflected in the appraisal procedures.

Corporate decisions involve, in practice, a number of separate individuals each making their own decision. Each individual may have different priorities and objectives. It was decided therefore to include in the questionnaire sections which deal with:
- The information available to decision makers at the time investment decisions are taken.
- The place of non-economic objectives in the decision making processes.

3.4 Benefits/Disbenefits may Accrue to Either the Investing Authorities or to the Public at Large.

In Local Government A Preponderance of Investments are Non-Income Generating.

In the preceding section it was noted that non-economic objectives affect local authority investment decision and appraisal procedures. The movement away from a model with a single economic objective towards a multi-objective situation is taken further by the aspects considered in this section. As well as having economic effects on the authority, investment decisions have non-monetary reactions on the investing authority and also have effects monetary and otherwise, on the population as a whole.

This suggests that some form of social cost benefit analysis should be undertaken.

Social cost benefit analysis is similar to financial analysis in so far as they both assess the profit on an investment.* However they differ in what they consider as costs and what they consider as benefits, i.e. the concept of social benefit is not the same as that of financial profit. If private benefits and social benefits did coincide there would be no need for two distinct types of analysis, but for that to apply there would have to be a host of assumptions concerning full employment, perfect competition, external effects and income distribution.**

*See for further discussions of this topic.
Imboden M A. Management approach to project appraisal and evaluation with special reference to non-directly productive projects op. cit.

**Little J.M. and Mirrlees J.A. Project appraisal and planning for developing countries Heineman Educational Books 1974 -discusses these assumptions
Since these assumptions are not usually fulfilled social cost benefit analysis adjusts financial analysis by:

- Including/excluding certain costs and benefits which have been included (excluded) in the financial analysis eg sunk costs are excluded from cost benefit analysis and externalities are included.

- Revaluing certain inputs (outputs) according to shadow prices which reflect their real cost rather than their market cost eg rather than use the market cost of labour cost benefit analysts use the opportunity cost, that is, the marginal cost of labour forgone elsewhere. Shadow prices are put on factors which are not traditionally taken into financial appraisal.

In the 1960s practitioners in Cost Benefit took the view that any benefit could be valued in financial terms - if this were not so it was only because methodologies had not so far been sufficiently developed. For example Newton wrote:

"A narrow economic appraisal based on financial profitability is often irrelevant as a basis for decision making in the public sector"*

In discussions with the officers of the Royal Institute of Public Administration my attention was drawn to a distinct change which emerged following the Leitch report.**

Library research confirmed that there has been a very distinct move away from the 'measure everything' approach. It was recognised that where this approach had been adopted the 'measureable' had tended to drive out the 'immeasurable'. It had not resulted in appraisals bringing in all factors, it had resulted in appraisals which were biased.

***The practice therefore developed of measuring only those factors which can reasonably be priced. Other items are presented to decision makers as a form of trade off eg.

- are you willing to ask 50 householders to put up with more noise and disturbance in order to achieve the benefits of £x calculated for this road improvement scheme?

The Greater London Council adopted similar approach to this in appraising highway proposals. Costs and benefits other than construction and related costs, which are taken into the assessment are:

*Newton I, 'Cost benefit analysis and administration RIP. 1967
**Report of the Advisory Committee On Trunk Road Assessment 1977 Department of Transport.
***This practice is sometimes known as 'Cost Effectiveness Analysis'
TABLE 3.1

OUTLINE OF HIGHWAY INVESTMENT ANALYSIS

INPUT DATA
- Financial costs
- Accident figures
- Movement data
  vehicles and pedestrians
  flows and speeds

CALCULATING EFFECTS
- Calculate future
  traffic levels
- Calculate accident
  savings
- Calculate time
  savings

VALUING CHANGES
- Value of accident
  savings
- Value of time
  savings to
  people
- Operating cost
  savings

PRESENTING RESULTS
- Economic value
  of scheme NPV
- Statement of quantified
  non-economic effects

Source Controller of Planning and Transportation Greater London Council
1 Traffic Accident Cost Savings
2 Vehicle Journey times savings
3 Effects on pedestrians and public transport.
The main reason why they include these three elements is that they are well recognised and accepted techniques exist for valuing them.

Other aspects of the proposals are included in appraisal reports as 'trade-offs'

The following diagram Table 3.1 illustrates the procedures adopted.

There has been some movement away from the view that economic appraisal, by way of cost benefit analysis, and financial appraisal should be considered to be distinct and separate disciplines. Cost benefit practitioners have recognised that factors which cannot be measured in orthodox financial terms do not readily lend themselves to monetary valuation and accountants working in the public sector have had to accept that factors which do not appear in their accounts are of great importance to decision makers.

The influence of cost benefit analysis on financial appraisal can be summarised as:

1 Recognising that most public sector investment decisions are multi-objective. It is unlikely, therefore, that any one appraisal technique will assess adequately the probability of each of these objectives being achieved.

2 Demonstrating that appraisal techniques as well as measuring the effects on the local authority itself need to indicate the effects of the proposals on others - particularly - users of the service and non-users who will be directly affected by the project.

3 Emphasising that financial information should be presented in a way which enables the decision makers to relate it to the non-financial trade-offs.

3.5 Conclusions

This section of the research examined the main ways in which the investments of local authorities differ from those of an individual operating in a perfect market. The following aspects were then selected for further study by survey and analysis of current local government practice:
1 Capital budgeting procedures
2 Methods of allocating priority rankings.
3 Information made available to decision takers.
4 The place of non-economic objectives in the decision taking processes.
5 The extent to which cost benefit analysis is used in practice.
6 Other methods used to present non-economic information in relation to capital projects.
7 The extent to which DCF and other appraisal techniques are used.
CHAPTER 4
The Postal Survey

4.1 Synopsis
This chapter shows the authorities which were included in the survey and analyses the response which was generated. Further details of the approach adopted to collect empirical evidence are given in appendix 3 and the detailed analysis of the survey data is contained in chapters 5 - 8.

4.2 The Authorities Surveyed

Survey forms were issued to each of the twenty outer London Boroughs:

- Barking and Dagenham
- Barnet
- Brent
- Bexley
- Bromley
- Croydon
- Ealing
- Enfield
- Harringey
- Harrow
- Havering
- Hillingdon
- Hounslow
- Kingston On Thames
- Merton
- Newham
- Redbridge
- Richmond on Thames
- Sutton
- Waltham Forest

4.3 The Respondents

Table 4.1 summarises the replies received. The response rate of 90% was exceptionally high and justifies the decision to confine the main survey to a small homogenous group.
TABLE 4.1

Questionnaire Response - Outer London Borough

<table>
<thead>
<tr>
<th>Numbers of forms issued</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of forms returned</td>
<td>18</td>
</tr>
<tr>
<td>Range of capital expenditure of respondents - forecasted 1983/4</td>
<td>£8m - £49m</td>
</tr>
</tbody>
</table>

It is not thought that the replies from the other two authorities would have differed materially from the eighteen which did complete the questionnaire. It has been suggested by Pyke* that the most likely bias is that organisations with sophisticated systems reply and those with less well-developed ones do not. This bias suggested by Pyke may not however apply to this survey. Several respondents were critical of the concept that commercial appraisal methods were appropriate to local authority investment decisions, therefore, in relation to outer London Boroughs reply/non-reply situations may not be taken as an indication of sophistication/non-sophistication in adopting commercially accepted appraisal techniques.

Questionnaires were also issued to a control group - selected to include authorities from all geographical areas of England and Wales and to include authorities of each type existing in the local government structure (appendix 3 explains why such a control group was selected).

The authorities include in the control group were:

**Metropolitan County Councils**
- Greater Manchester
- Merseyside
- South Yorkshire
- Tyne and Wear
- West Midlands
- West Yorkshire

**Non-metropolitan County Councils**
- Avon
- Cheshire
- Clwyd
- Dorset
- Hereford and Worcester

*Pyke 1982 Op Cit*
Metropolitan District Councils
Barnsley Borough
Bradford City
Gateshead Borough
Birmingham City

Non-metropolitan District Councils
Aberconway Borough
Adur District
Allerdale District
Bath City
Bromsgrove District

The sample was selected from an alphabetical list of authorities in England and Wales - the first ones which satisfied the criteria for geographical area and type of authority were included. Sixteen responses (80%) were received from the control group. One of these was in the form of a letter outlining methods used by the authority and referring to the authority's reply to a questionnaire recently issued by the Chartered Institute of Public Finance and Accountancy. The information contained in this response was very useful in so far as it indicated the views of one very major local authority but it could not be analysed and tabulated for inclusion in the results of the survey - other than in tables 2 and 3. The useable response rate was, therefore 75%.

It is not thought likely that the remaining four authorities would have given significantly different results to that derived from those which did reply. The most likely form of bias (if any) is for organisations with more sophisticated systems to reply and organisations with poorer ones not to reply ie the bias mentioned by Pyke is more likely to apply to the control group than to the outer London Boroughs. (Because London Boroughs with less-developed systems could explain their practices at the follow up interviews but completed questionnaires from the control group which showed less developed systems would have to be accepted at face value).

---

1 At the time of preparing this thesis the results of the CIPFA survey had not been published.
2 Pyke R H Op Cit
The control group is much less homogeneous than the main group:

<table>
<thead>
<tr>
<th>Type of Authority</th>
<th>Main Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of Capital Outlay</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4.2 compares the number of forms issued with the replies received analysed in accordance with the type of authority.

Table 4.3 analyses the same data according to geographical areas.

The respondents from the control group included authorities of all types and from differing geographical areas and therefore, provided information which could be compared with data from the Outer London Boroughs in order to check that the situation in London did not differ materially from that pertaining elsewhere in the country.

In some of the tables it has been necessary to give data relating to individual authorities. In order to preserve the confidentiality of respondents the authorities listed in these table have been designated A, B, C, etc. The same letter used in different tables does not, therefore, refer to any one particular authority.

Table 4.2

Control Group

Questionnaire Response According to Type of Authority

<table>
<thead>
<tr>
<th>Type of Authority</th>
<th>Sample</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Councils (Metropolitan)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>County Councils (non-metropolitan)</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>District Council (metropolitan)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>District council (non-metropolitan)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>

*1983/4 estimated capital expenditure.
TABLE 4.3
Control Group
Questionnaire Response According to Geographical Area

<table>
<thead>
<tr>
<th>Geographical Area</th>
<th>Sample</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Midlands</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>South</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>West Country</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wales</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>
Analysis of Data Collected by Postal Survey - Capital Budgeting Procedures

5.1 Synopsis

In chapters 5 - 9 the data collected by postal survey is analysed. Comments are made on the most relevant points and reference is made to the areas which were identified for further investigation during the follow-up interviews. This chapter deals with the capital budgeting procedures. It summarises the practices found during the survey and contrasts these with the model of investment behaviour of a private individual.

5.2 Administrative Background to Appraisal

The first section of the questionnaire aims at establishing the background against which detailed appraisals are made. Questions were included in respect of:

1. Long term planning and the use of capital programmes
2. The formalisation of procedures affecting capital programmes and project appraisals.

5.3 Capital Programmes

The summary of the data collected relating to capital budgeting procedures is shown in Table 5.1.

For both the main survey group - outer London Boroughs - and also for the control group of authorities more than 70% of the respondents had capital programmes covering three or more years. This is the result which was to be expected because:

1. There is a long standing tradition of capital budgeting in local authorities.
2. Public authorities are frequently required to provide the Government with forecasts of capital outlays. It would be reasonable to assume that the data, once collected, would be used for internal as well as external purposes.
3. Many local government investment decisions are socio/political in nature and do not generate income for the investing authority. The selection/rejection decisions are, therefore, based on ranking according to the authority's own particular scale of preferences. Ranking will involve scheduling the projects in a logical way and the obvious way to do this is to prepare a formalised capital programme.
It is perhaps surprising that any of the authorities answered 'NO' to the question:

'Does your authority have a capital programme covering three or more years'

One of the London Boroughs which answered the question in the negative appended a note stating that although they did not have a three year programme they operate a system of rolling capital programmes. It was possible that other authorities which did not have three year (or more) programmes may have had some similar form of long or medium term capital budget. This was found to be the case in the follow up interviews.

Respondents which did not have capital programmes covering three or more years are shown in table 5.2 together with the amount of the authorities' forecast expenditure in the financial year 1983/4.

It can be seen from table 5.2 that for the control group authorities which did not have capital programmes (of three or more years) tended to be from the lower end of the range of capital outlays.

In contrast to this result there was no such tendency for the London Boroughs. The five London respondents which answered 'NO' to the question about capital programmes all came from the middle or upper ranges of the sample (as measured by forecast capital outlay for 1983/4.)

5.4 Instruction Manuals

The next two questions relating to procedures were:
- Does your authority have an updated procedures manual for capital programming?
- Does your authority have an updated procedures manual for project appraisal?
(see table 5.1)

Although 72% of authorities in the main survey group prepared capital programmes only 28% had updated procedures manuals (for capital programming)
TABLE 5.1

Capital Budgeting Procedures

<table>
<thead>
<tr>
<th>Authorities which have a:</th>
<th>Control Group</th>
<th>Outer London Boroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital programme covering 3 years or more</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Updated procedures manual for capital</td>
<td>73</td>
<td>72</td>
</tr>
<tr>
<td>Updated procedures manual for project</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>appraisal</td>
<td>13</td>
<td>20</td>
</tr>
</tbody>
</table>

The control group data confirmed that it is a common practice not to have procedural manuals. As shown in table 5.1 the figures for the control group are:

Authorities with capital programmes 73%
Authorities with procedural manuals 27%

TABLE 5.2

Authorities Which Indicated They Did Not Have a Capital Programme Covering Three or More Areas

<table>
<thead>
<tr>
<th>London Boroughs</th>
<th>Forecast Capital Outlay 1983/4 £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>19</td>
</tr>
<tr>
<td>C</td>
<td>49</td>
</tr>
<tr>
<td>D</td>
<td>31</td>
</tr>
<tr>
<td>E</td>
<td>35</td>
</tr>
</tbody>
</table>

Control Group

<table>
<thead>
<tr>
<th>A</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
</tr>
</tbody>
</table>
Preliminary discussions held at the start of this research project confirmed the researcher's own experience, that written instructions often exist in the form of a 'hand-out' which is updated and re-issued each year. The lack of a procedural manual cannot, therefore, be taken, in respect of capital programming, as indicating that there is a lack of formal instructions for staff responsible for preparing the programmes.

Only a small number of respondents have manuals relating to capital programmes but even fewer had them for detailed appraisal procedures - 20% of Outer London Boroughs and 13% of the control group.

The view is sometimes propounded, that where investment decisions are political, techniques of detailed appraisal are not appropriate, (or at least should be used only in individual isolated cases). There were no readily available or collectable statistics to indicate the extent to which this point of view has affected the local government appraisal methodology but:

- the frequency with which the view was expressed and
- the force with which it was put

suggests that it may have been considerable. It may also have influenced the decisions not to produce formal manuals of appraisal procedures.

Discussions at the follow-up interviews showed that practitioners who expressed these views were familiar with the argument that decision takers should always be aware of the cost impacts of alternative solutions. They felt, however, that this view was too idealistic. In practice, where the political preference for one of the alternatives could be anticipated the time spent on evaluating the others could not be justified.
The lack of formal instruction manuals implies that appraisal methods are selected by the officers responsible for particular investment proposals. (The follow-up interviews confirmed that in most authorities written instructions on the application of appraisal techniques did not exist in any form). This was borne out by comments appended to the questionnaire of which the following are typical:

'used where appropriate'

'.... when the spending department thinks it helpful'

The danger of this approach is that techniques will be used only if they confirm the predetermined (subjective) opinion of the desirability or otherwise of the project. Members taking final investment decisions will not be provided with unbiased information.

I was grateful to one London Borough which appended to the completed questionnaire a recently issued internal document concerning their appraisal procedures. They had obviously been aware of the dangers discussed in the last paragraph. The authority had set up two appraisal panels to provide independent reviews of capital projects. Initially it had only been possible to carry out appraisals of selected schemes but with tighter programming it was hoped to review a wider range of investment proposals at each of four stages:

- pre-design
- pre-working drawing
- pre-contract
- review appraisal when the scheme is fully operational

It was suggested that more use should be made of:

- DCF Techniques
- Cost Benefit Analysis
- Studies of increased Cost Effectiveness.

These techniques were part of the need they had identified to appraise for 'value for money'. The documents also emphasized the need to appraise for:

- planning and environmental gains
- replacing obsolete and dangerous equipment/structures
- level and standard of service
- alternative ways of meeting the need/demand
Further research would clearly be needed to establish if similar approaches are being developed elsewhere but the information provided by this authority shows that at least one progressive authority recognises the need to examine ways in which appraisal methodology can be applied to local authorities.

5.5 Information available to members when Making Investment Decisions

All the respondents stated that elected members, when making investment decisions were aware of:

1. The capital cost of the scheme and
2. The annual cost of adopting the proposals

Subsequent interviews and discussions showed that officials felt that members were more concerned with annual costs and their effect on rates and charges than with capital values. Capital costs and provision of finance were regarded as technical problems, provision of services and rate/charges as political ones. The extent to which this attitude is in fact held by elected members and its effect on investment decisions would be a suitable topic for further research.

*Only 67% said that the costs of not adopting investment proposals were reported to members. This is in contrast to the 100% of respondents who stated that capital and annual costs were so reported (see table 5.3)*

Public sector decisions not to adopt investment proposals often generate costs elsewhere. For example a decision not to erect an additional Old Peoples Home can affect the level of essential maintenance and staffing costs of existing homes. If these costs are not identified and off-set against the costs of alternative projects, incorrect investment decisions can be made.

Further investigation of this aspect was clearly desirable and the topic was noted for discussion in the follow-up interviews. The results of the further investigation is discussed in Chapter 9.

The percentage of respondents who stated that they reported, to elected members, the costs of alternative courses of action were:

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main survey group</td>
<td>84</td>
</tr>
<tr>
<td>control group</td>
<td>80</td>
</tr>
</tbody>
</table>

*The positive replies to this question were 67% for both the main survey group and also for the control group.*
Two authorities which answered no to the question (are members making investment decision aware of the costs of major alternative courses of action?) indicated that in exceptional circumstances they might report costs of alternative schemes.

During the initial research it was noted that in the 1970s writers on local government frequently discussed programme budgeting and similar techniques. These techniques tried to get away from the practice of accepting the present position as the only valid starting point for reviewing future action. The aim was to ensure that consideration was given to all alternative means of meeting the objectives.

The frequency with which these articles appeared declined significantly towards the end of the 1970s. The less favourable economic and political climate for local government had in this period reduced investment opportunities. The tighter constraints seem to have reduced the search for radical solutions to problems rather than stimulate the search for new ones.

One official said 'we no longer have any alternatives to consider. If it is absolutely essential and urgent we include it in our programme - otherwise it is rejected.'

The danger of allowing a researcher's own statements to distort research findings was appreciated but in order to test if the opinion expressed above was widespread suggestion was made to the officials interviewed that it would be desirable to always present three sets of costs to members:

- the cost of the 'do nothing option'
- the cost of the main proposal
- the cost of one alternative

The most common reaction was that in many cases there were no alternatives, not even a 'do nothing' option, and in other instances the expense of costing three approaches could not be justified.

The size of authorities which said that they did not report the costs of alternatives schemes, (forecast capital outlay 1983/4) are shown in table 5.4. Two of these respondents had stated that in 'special cases' they may report alternative scheme costs.

It is interesting to note that none of the very large authorities are included in this.


### TABLE 5.3

<table>
<thead>
<tr>
<th>Information Available to Elected Members at the Time Investment Decisions Are Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Control Group</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Capital Costs</td>
</tr>
<tr>
<td>Annual Costs of adopting the proposals</td>
</tr>
<tr>
<td>Annual Costs of not adopting the proposals</td>
</tr>
<tr>
<td>Costs of major alternative source of action</td>
</tr>
</tbody>
</table>

5.6 **Classification of Projects**

The model assumed the existence of one individual who has one single objective. Local authority investment decisions involve many individuals and many objectives and the objectives might be expected to differ for different types of investment - eg contrast the objective of socio/political projects and those with commercial aims.

Authorities had been asked:

"In order to select appropriate evaluation techniques does your authority classify investment proposals as:

1. Mandatory/essential/optional
2. Commercial/non-commercial
3. In some other way?"

Table 5.5 shows the percentage of authorities classifying investment proposals - a majority of respondents did not have any formal system of classification. This had not been anticipated and a question later in the questionnaire asked for what types of project each appraisal technique was used. The three main classes shown above were broken down into seven more detailed ones. Because few authorities had systems of classification the information shown in table 5.6 must be treated with caution. It shows the number of times each classification of project was mentioned as a type which attracted the use of a particular technique. It does however show that some authorities found a system of classification was useful.
### TABLE 5.4

**Authorities which do not Report Costs of Major Alternative Courses of Action - Size Analysis**

<table>
<thead>
<tr>
<th>London Boroughs</th>
<th>Forecast Capital Outlay 1983/4 (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
</tr>
</tbody>
</table>

### TABLE 5.5

**Authorities which, in Order to Secure Appropriate Appraisal Techniques, Classify Projects**

<table>
<thead>
<tr>
<th>Type of Classification</th>
<th>Control Group</th>
<th>Outer London Boroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory or Essential/Optional</td>
<td>53</td>
<td>6</td>
</tr>
<tr>
<td>Commercial/non-commercial</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>39</td>
</tr>
</tbody>
</table>
### TABLE 5.6

Investment Categories and Related Techniques - Number of Times Each Category was Listed by Respondents

<table>
<thead>
<tr>
<th>Technique</th>
<th>Category of Investment</th>
<th>Number of Times Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Control Group</td>
</tr>
<tr>
<td><strong>Pay Back</strong></td>
<td>Obligatory public works</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Optional public works</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Commercial projects</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Plant and vehicles replacement</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Admin. and service projects</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Buy/lease decisions</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Direct provision/privatisation</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>DLO plant and buildings</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Return on Capital Employed</strong></td>
<td>Obligatory public works</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Optional public works</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Commercial projects</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Plant and vehicles replacement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Admin. and service projects</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Buy/lease decisions</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Direct provision/privatisation</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>DLO plant and buildings</td>
<td>4</td>
</tr>
<tr>
<td><strong>DCF Internal Rate of Return</strong></td>
<td>Obligatory public works</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Optional public works</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Commercial projects</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Plant and vehicle replacements</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Admin. and service projects</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Buy/lease decision</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Direct provision/privatisation</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>DLO plant and buildings</td>
<td>1</td>
</tr>
<tr>
<td><strong>DCF Net Present Value</strong></td>
<td>Obligatory public works</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Optional public work</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Commercial projects</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Plant and vehicle replacements</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Admin and service projects</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Buy/lease decisions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Direct provision/privatisation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>DLO plant and buildings</td>
<td>1</td>
</tr>
</tbody>
</table>
5.7 The timing of appraisals

The examination of decision making aspects was concluded by reviewing the timing of appraisals.

Authorities were asked - are detailed appraisals made:
1. before projects are included in the capital programme
2. after inclusion but before implementation
3. not at all

The replies are shown in table 5.7 both the control and main survey groups showed similar results.

More authorities appraise projects after inclusion in the capital programme (but before implementation) than before inclusion. It is important when trying to draw conclusions from this data to bear in mind the number of respondents is small. For both survey groups the difference between the 'befores' and 'afters' is only one authority. Because the number of respondents from the main survey group are a very substantial proportion of the total of twenty Outer London Boroughs, it can be said, with certainty that both practices are commonly used in Outer London Boroughs. The data from the control group suggests that it is not unreasonable to assume, subject to further research, that a similar situation can be found throughout local government.

A number of respondents marked both the before and after sections of the questionnaire. One of these indicated that the timing of the detailed appraisal depended on the type of project.

The classes of investment which are appraised before inclusion were:
- obligatory public works
- optional public works
- administrative and service projects
- direct provision/privatisation

The classes appraised after inclusion were:
- plant/vehicle replacements
- buy/lease decisions
- direct labour organisation plant/buildings

Only one respondent from each group said that they did not carry out appraisals.
It is interesting to note that the upper quartile of authorities in both groups contain authorities which appraise before inclusion and authorities which appraise after inclusion in the capital programme. Different timings can therefore be found in the large as well as the (comparatively) small organisations.

At the follow-up interviews the officials of the authorities which appraised after inclusion in the capital programme were asked if they considered the fact that projects had already been included in an 'approved document' influenced the approach to appraisal

1 made ultimate rejection less likely irrespective of the outcome of the detailed appraisal.

The view most generally expressed was that once a project had been included in the programme it was unlikely to be excluded at a later date as the consequence of a detail of appraisal.

**TABLE 5.7**

**Timing of Detailed Appraisals**

<table>
<thead>
<tr>
<th>Authorities which carry out appraisals</th>
<th>Control Group</th>
<th>Outer London Boroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before projects are included in capital programmes</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>After inclusion in capital programme but before implementation</td>
<td>39</td>
<td>33</td>
</tr>
<tr>
<td>At both stages</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>At no time</td>
<td>11</td>
<td>20</td>
</tr>
</tbody>
</table>

5.8 **Summary and Conclusions**

Both the replies to the questionnaire and the follow up interviews confirmed that two of the most important differences between individuals and local authority investment decisions is that local authorities decision, unlike individuals, involve:
- many decision takers and
- many objectives

In these circumstances it might have been expected that local authorities would have attempted to simplify and rationalise the decision taking process by:

- clearly identifying alternatives and costs
- identifying the main factors to be taken into consideration by categorising investment proposals according to objectives and constraints.

Some respondents had developed procedures to ensure that all alternatives were considered, there was however some evidence that projects could be included in capital programmes without adequate consideration of the objectives of the investment and the alternative ways of achieving those objectives.

Although many respondents had not developed systems of classifying capital investment proposals - those who had systems of categorisation had found it to be a valuable aid to evaluation and priority ranking.
CHAPTER 6

Analysis of Data Collected by Postal Survey - Appraisal Techniques

6.1 Synopsis

The questionnaire examines the use, in local government, of the financial appraisal techniques which are most frequently used in the private sector:

- Payback Period
- Return on Capital Employed
- DCF Internal Rate of Return
- DCF Net Present Value

Local government's use of the techniques is contrasted with a recent commercial survey and with the findings of the section of this research (see appendix 2) which shows that the techniques are both valid and useful when applied to local authority situations.

6.2 Local Authority Usage of Financial Appraisal Techniques

Table 6.1 shows the percentage of authorities using each technique. For all of the techniques, the survey showed a higher usage by the control group and a lower percentage usage by the outer London Boroughs.

There is no readily sustainable explanation as to why this should be the case. One possibility which was examined was that the London Authorities had tried the techniques, had not found them of value and had discontinued their use. This explanation was not, however, sustainable. The questionnaire had asked if any techniques had been used in the past but the usage discontinued. Only one respondent had, in fact, discontinued the use of a technique - and only one technique, internal rate of return.

It is possible that some bias is built into the samples. London Boroughs were aware that completion of the questionnaire would lead to the follow-up interview and further in-depth investigation. There was no follow-up for the control group. If techniques had been used, but only infrequently London Borough personnel may have been reluctant to imply that they had expertise in their use. This possibility was discussed at the follow-up interviews but the results were inconclusive.
Data from all respondents (control group and outer London Boroughs) was analysed according to the size of capital budgets - Table 6.2. It is suggested in Appendix 3 that significance testing is not appropriate to the analysis of data for this research project. The arguments put forward apply particularly to Table 6.2 - the small number of authorities in some ranges and the bias contained in the sample when the eighteen London Borough respondents and the fifteen other authority respondents are taken together. However it is worth commenting that for the combined group

- none of the respondents in the smallest capital budget range used DCF techniques.
- for all of the techniques authorities in the highest capital budget range showed the highest percentage usage.

The data suggests that larger authorities tend to use more sophisticated techniques. Further research would be needed to check if this is in fact the case.

**TABLE 6.1**

**Evaluation Methods**

<table>
<thead>
<tr>
<th>Evaluation Methods</th>
<th>Control Group %</th>
<th>Outer London Boroughs %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay back period</td>
<td>60</td>
<td>17</td>
</tr>
<tr>
<td>Return on capital employed</td>
<td>60</td>
<td>22</td>
</tr>
<tr>
<td>DCF-internal rate of return</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>DCF - Net present value</td>
<td>67</td>
<td>50</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>17</td>
</tr>
</tbody>
</table>
TABLE 6.2

Evaluation Methods
Size Analysis - Both Groups

<table>
<thead>
<tr>
<th>METHOD</th>
<th>Size of Capital Budget in £m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
</tr>
<tr>
<td>Pay back period</td>
<td>%</td>
</tr>
<tr>
<td>Return on capital employed</td>
<td>36</td>
</tr>
<tr>
<td>DCF Internal rate of return</td>
<td>39</td>
</tr>
<tr>
<td>DCF Net present value</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

NOTE Some respondents use more than one method and others use none of them. Figures do not therefore total to 100%.

TABLE 6.3

Evaluation Methods - Comparison of the Data Relating to Local Authorities Obtained by this Survey With the Results of Richard A. Pyke,* Survey of Methods used by Large Companies in the United Kingdom.

<table>
<thead>
<tr>
<th>Method</th>
<th>All Respondents</th>
<th>Size of Capital Budget £m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comp</td>
<td>LA</td>
</tr>
<tr>
<td></td>
<td>Comp</td>
<td>LA</td>
</tr>
<tr>
<td>No of Firms</td>
<td>150</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Pay back</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Return on Capital Employed</td>
<td>32</td>
<td>39</td>
</tr>
<tr>
<td>DCF Internal Rate of return</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>DCF Net present value</td>
<td>17</td>
<td>58</td>
</tr>
</tbody>
</table>
NOTE Because some authorities use more than one technique and others use none of them, the percentages do not total to 100%.

6.3 Comparison with the Private Sector

The data from table 6.2 was compared with that collected by *Pyke's 1982 Survey of large industrial companies.

Results of the comparison are set out in Table 6.3

It would be unwise to read too much into a comparison of entities as different as commercial corporations and local authorities. However, it is interesting to note that for three out of four techniques a larger percentage of local authority respondents used the techniques than did respondents to Pyke's survey. The fact that a higher percentage of authorities used the techniques is of limited significance because it was not known if they used them for all appropriate appraisals or only used them occasionally. Comments appended to the questionnaire suggest that occasional use may often be the case and this was confirmed to be so at the follow up interviews.

The data which was collected has, however, shown that the techniques can be used and are used by local authorities to a greater degree than had been supposed before the research was undertaken.

An important objective of the research was to test the hypothesis that commercial appraisal techniques can be applied to local authority investment proposals. No one technique was used universally but with the exception of Internal Rate of Return as regards the local authorities, the techniques were used to validate a substantial number of both Private and Public Sector investment decisions.

The research has clearly confirmed the validity of the hypothesis. The analysis has shown that commercial appraisal techniques have been used widely by public authorities. The Postal Survey did not, however, examine the opinions of practitioners as to the effectiveness of the techniques. This, together with other attitudinal aspects, was examined during the follow-up interviews - see Chapter 9

*Pyke (1982) Op Cit
The remainder of this chapter briefly examines the more important aspects of the data relating to each particular technique.

6.4 Pay Back Period

This method calculates the number of years taken to recover the capital invested in a project. It has been criticised by many writers particularly because it may not show when it will be available for consumption and ignores flows which occur after the payback period. However surveys of commercial appraisal practice have shown that it is still frequently used. *Pyke's recent survey confirmed its widespread application in current appraisal practice.

Only 17% of the main survey group of authorities said they used Pay Back but 60% of the control group used this method.

Because many local authority projects do not earn income, one would expect, the opportunities to use the technique to be limited. The large number of authorities in the control group who said they used the method is, therefore, surprising. Without further research it is not possible to explain why the number of respondents using payback from the control group should be so much higher than the percentage from the main survey group and also higher than that shown by the most recent commercial surveys. The follow up interviews did however identify a number of authorities which had used the technique since the completion of the questionnaire. In each of these cases it had been used for evaluating the effects of investment made with a view to saving revenue costs. In these a pay-back calculation item forms a simple and useful model of capital and revenue effects of the investment projects.

6.5 Return on Capital Employed

This method measures profitability in terms of average annual net income as a percentage of the amount invested.

The basic elements of the return on capital calculation - income and amount invested - are the same as for Pay Back but the result is expressed as an annual percentage rate. It is not surprising, therefore, that the survey results are similar for both of these techniques. The number of respondents from the

*Pyke (1982) Op Cit
control group using the technique being high compared with the main survey group and also with commercial surveys. Comments made in section 6.4 in respect of Pay Back are in the main equally applicable to Return on Capital Employed.

The survey was carried out at a time when considerable pressure was being put on local authorities to measure the return on the capital resources used. Local authority Direct Labour Organisations, for example, had been required to achieve a target rate of return or be closed down.* In these circumstances local authorities might have been expected to use the technique for DLO investment proposals. The survey results from Outer London Boroughs were, therefore un-expected.

The main criticisms of the technique when applied to individual investment behaviour are:
- ignores timing of flows and ability to re-invest generated income
- because cash may not be received when income is recognised (by accounting convention) it is not useful for studying the effect on financial models.
Both of these criticisms may be less valid when applied to local authorities than they are when applied to commercial organisations (see Appendix 2).

Cash flows and income/expenditure do not in practice differ materially for Local Authority services. Income recognised by accounting convention will therefore be available for investment or reduction of temporary borrowing.

If the pressure for more external comparison of Local Authority performance continues, it will be useful to carry out research at a future date into the extent to which this technique is used.

6.6 DCF Internal Rate of Return

This method was used less frequently than other techniques included in questionnaire
- Outer London Boroughs 6%
- Control Group 13%

It was also the only technique which was listed as having been used in the past but for which the use had subsequently been discontinued.

Discounting cash flows in order to calculate Internal Rates of Return is often considered to be less conceptually valid than discounting in order to

*The return was on the overall annual performance, not on individual investments.
calculate Net Present Values. In spite of this, surveys of commercial practice have, over a period, continued to show a preference for IRR methods. For example *Pyke found that:

54% of large companies used Internal Rate of Return
38% of large companies used Net Present Value

He also commented:
'The use of IRR has increased more rapidly than any other method'

Commercial organisations are used to expressing income in terms of percentage return in order to:
- measure estimated income against a pre-set target rate
- rank schemes or compare alternatives

Against such a background it is not unexpected that of the DCF methods the one which expressed results as a percentage return is the preferred option.

In local government there is no similar tradition of calculating return on capital employed and this has, no doubt, contributed to the lack of interest in the use of IRR by local authorities.

Another reason why this use is so limited is the small number of income generating projects undertaken by local authorities. Internal Rate of Return can be used to compare non-income generating projects - this was illustrated by **Wilson but its use in this type of situation is less obvious and less well known than its use for evaluating proposals which produce income directly.

Its main value to local authorities is that it can indicate the rate of interest which the authority could afford to pay on loans and still break even on income generating projects. When this aspect was discussed at the interviews the practitioners all held the view that the cost of loans aspects was best dealt with by traditional budgetary methods - statements of income and expenditure including annual principal and interest payments.

6.7 DCF Net Present Value

This method combines each years positive and negative flows into one cumulative figure - the Net Present Value.

**Wilson JP The Graffiti Machine Management Accounting May 1982
Of the techniques listed in the questionnaire, Net Present Value was the one used most frequently. It was used by:

- 67% of the control group
- 50% of the main survey group

These results contrast with Pyke's survey of commercial entities, which showed that Payback was the most frequently used technique and IRR was the preferred DCF method. Commenting on the results he said:

'a much smaller group preferred the NPV method .... only two respondents thought it easy for the non-financial personnel to understand.'

(54% used IRR and 38% DCF)

The view that DCF was not easy for non-financial personnel to understand was found also in Local government inspite of its fairly widespread usage.

A typical comment was;

'Perhaps we should express outcome in terms of Net Present Value more frequently. But it is more use to officials and experts. Members want reports in simple language - they would not understand or welcome NPV being introduced into committee reports.'

Discussions with respondents revealed three main reasons why the NPV method was favoured:

1. It lends itself to the comparison and ranking of non-income generating projects.

2. The assumptions made about investment of intermediate flows (and interest earned or paid) are easily understood by personnel used to financing capital projects from loan.

3. The long term nature of local authority projects makes it desirable to weight figures included in forecasts in favour of the present and certain and against the future and uncertain. Discounting is a logical way to achieve this.

6.8 Other Techniques

The questionnaire invited respondents to give information concerning their use of other appraisal methods - 33% of the control group and 17% of the main group used other techniques.

Replies to this section of the questionnaire fell into four main categories which are summarised below:

1. The most important consideration is the annual cost because
   - most capital schemes are financed from loan and
   - most investments are non-income generating

*Pyke R H Op Cit.*
Appraisal is, therefore, mainly concerned with forecasting future annual costs (including rate changes) as accurately as possible.

2 Data is most meaningful when expressed as income and expenditure, without discounting and without converting to percentage terms.

3 When the main objective of the outlay is socio/political the aim of appraisal is to clearly state the socio/political objective and report the cost/income involved as simply and accurately as possible - complex techniques do not do this.

4 Due to the diversity of local authority projects there can be no set method of appraisal. The approach to data processing and presentation has to be different for each individual project.

These replies to the questionnaire express clearly the problems faced by accountants when appraising local authority investment proposals due to:
- lack of income generation
- reduced value of percentage return calculations when there is no readily available or acceptable comparator against which the forecast can be measured.
- difficulty of relating costs/income to non-financial objectives
- diverse nature of the investments
- the greater emphasis on short term annual effects because of political and rate fixing considerations.

None of the comments pointed to new solutions to the problems. However clear problem definition is an essential stage in problem solution. In this instance the clarification was of particular value.

1 In drawing the researcher's attention to factors which had to be taken into account in recognising the best practices used by the survey group of authorities.

2 In clearly indentifying problems which practitioners or academics may wish to make the subject of further research.

6.9 Conclusions

This part of the survey had investigated the use, in local government, of four techniques which are commonly used in the private sector.

Analysis of the data showed all of them were used to a greater or lesser extent by local authorities. Perhaps surprisingly the percentage of
respondent using three of the methods:

- Payback
- Return on Capital Employed
- Net Present Value

was higher than the percentage of commercial organisations using them according to the survey carried out by *Pyke in 1982.

It would be dangerous to assume that this indicated that the techniques are used more widely in local government than in commerce. The survey did not reveal whether the authorities used the techniques for all appraisals of a particular type or if the methods were only used on occasions. This aspect was discussed at the follow-up interviews and clearly 10 of the authorities used the techniques only on an occasional basis.

The technique least used by local authorities was Internal Rate of Return. This is the reverse of the situation in commerce where Internal Rate of Return is the preferred technique.

The analysis has shown that there is no one technique which is used very widely but all of them are used to some extent. With the exception of Internal Rate of Return the techniques are used sufficiently often to suggest that they are of considerable value in helping local authorities to make valid investment decisions.

On the other hand, the percentage of authorities using the techniques is sufficiently low to suggest that there is a need to further develop their application to local authority situations.

CHAPTER 7

Analysis of Data Collected By Postal Survey Treatment of Non-monetary Aspect of Appraisal

7.1 Synopsis

The application of basic appraisal techniques to local government was discussed in Chapter 6. This chapter reviews the use of wider management science methods. In particular it examines the ways in which authorities assess 'need' in relation to non-income generating investments and contrasts this with an individual whose sole objective is to construct an optimal spending plan.

7.2 Management Science Techniques

The questionnaire asked authorities to indicate if they used:
- mathematical modelling
- computer simulation
- cost benefit analysis

The results are shown in Table 7.1. The responses indicated that it might have been better to have combined the first two techniques into one question - 'do you use either mathematical modelling or computer simulation' - alternatively the questionnaire should have included a formal definition of each of these methods.

In practice Mathematical Modelling involves the use of computers, (except for simple models which are expressed as formulae.) Computer Simulation is normally taken to include techniques (such as that described by *Hertz) for assessing the results of investment policies - it is, of course, a form of mathematical modelling.

| TABLE 7.1 |
| Use of Management Science Techniques |
| --- | --- | --- |
| Authorities which use | Control Group % | Outer London Boroughs % |
| Mathematical Modelling | 27 | 5 |
| Computer simulation | 20 | 11 |
| Cost benefit analysis | 47 | 22 |

Discussions with personnel involved in developing local authority financial models showed that they thought models should have a wide data base and should 'model' non-financial consequences of alternative courses of action as well as the financial ones. It was probable that financial modelling had been interpreted, by some respondents, as including methods which others would have called computer simulation.

In the following paragraphs respondents' answers relating to financial modelling and to computer simulation have been grouped together.

These management science methods were used by:

- 11% of outer London Borough Respondents
- 27% of the Control Group

(The percentages could not be obtained by simply adding together the appropriate lines of table 7.1 because some authorities indicated they used both methods)

**TABLE 7.2**

<table>
<thead>
<tr>
<th>Management Science Techniques Used in the Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Pyke R H</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Programming</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Computer Simulation</td>
<td>8</td>
<td>4</td>
<td>27</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>4</td>
<td>48</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 7.3**

The Size of Local Authorities Which Used Mathematical Modelling and Computer Simulation (As Measured By The Amount Of Capital Budgets)

<table>
<thead>
<tr>
<th>Authority</th>
<th>Capital Budget, in £m</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>48</td>
</tr>
<tr>
<td>D</td>
<td>92</td>
</tr>
<tr>
<td>E</td>
<td>97</td>
</tr>
<tr>
<td>F</td>
<td>180</td>
</tr>
</tbody>
</table>

(Management Science in Table 7.3 include both mathematical modelling and computer simulation)
The techniques are at a relatively early stage of development - both in the private and public sectors. Increasing use is, however, being made of them - particularly by large organisations.

Table 7.2 shows the use of Management Science Methods by large companies in the United Kingdom.

Table 7.3 lists the local authority respondents which use the techniques and the size of their Annual Capital Budgets (1983/4 forecast capital outlay).

Computer simulation and financial modelling are clearly not yet widely used - but an increasing number of large organisations, in both the public and private sectors are taking an interest in their development. As they develop techniques of appraisal will have to be found which take into account all of the factors included in the authority's model. The models which the researcher saw in operation were for single (multimillion pounds) projects- but several practitioners saw the possibility of the development of complex models of the authority as a whole which would include

- all financial aspects
- other quantifiable resources and needs

7.3 **Cost Benefit Analysis**

This approach, in addition to valuing economic aspects of projects, attempts to quantify and evaluate in money terms the social benefits/disbenefits. Research carried out for chapter 3 of the thesis had shown:

1. Current cost benefit practice - in contrast to the 1960s - prefers to put values on non-economic elements in only a limited number of cases (those where the method of valuing is readily accepted and therefore becomes normal practice in Cost Benefit circles)

2. Although the techniques had been used for different types of investment proposals the predominant use in the United Kingdom was for evaluating transportation and highways proposals

The research into cost benefit analysis had been of two types:

- interview and discussion with practitioners

- library research into a wide range of published papers (and also some unpublished material which was made available)

It is interesting to compare the picture revealed by this initial research - more restrictive studies of a narrow range of investment types - with the result of the postal survey.
Table 7.1 shows that:

47% of the control group
22% of the outer London Boroughs had used Cost Benefit Analysis.

Respondents were also asked for what type of projects they had used the technique. Table 7.4 shows the number of times each type of project was shown as having been subjected to Cost Benefit Analysis.

**TABLE 7.4**

Cost Benefit Analysis - Number of Times Each Category of Investment Was Listed as Having Been Subjected to Cost Benefit Analysis.

<table>
<thead>
<tr>
<th>Type of Investment</th>
<th>Number of Times Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Group</td>
</tr>
<tr>
<td>Obligatory public works</td>
<td>1</td>
</tr>
<tr>
<td>Optional public works</td>
<td>4</td>
</tr>
<tr>
<td>Commercial projects</td>
<td>Nil</td>
</tr>
<tr>
<td>Plant/Vehicle replacements</td>
<td>2</td>
</tr>
<tr>
<td>Admin. and service projects</td>
<td>2</td>
</tr>
<tr>
<td>Buy/lease decisions</td>
<td>Nil</td>
</tr>
<tr>
<td>Direct provision/privatisation</td>
<td>Nil</td>
</tr>
<tr>
<td>DLO plant and buildings</td>
<td>1</td>
</tr>
</tbody>
</table>

In interpreting the data from Table 7.4 the small number of respondents using Costs Benefit should be kept in mind:

7 control group respondents
4 main survey group respondents

Cost benefit was most frequently used for reviewing investment proposals for 'optional public works'. This is the result which intuitively would be expected because:

- This type of project is non-income generating - commercial appraisal techniques are therefore less appropriate and alternative methods of measuring the net benefit-disbenefits of the investment have to be found.
- This category of public works is optional (as opposed to obligatory/essential categories). The optional nature makes it likely that members will have to be satisfied that there is a net benefit from the scheme and also they will want to rank those benefits in relation to alternative schemes. Alternatives in this context includes alternative schemes which achieve broadly the same objectives and also entirely different projects on which the scarce resources could be used.

Two of the respondents specifically indicated that the 'optional public works' on which Cost Benefit Analysis was used were highways schemes. It is probable that this would also be the case for other respondents.

None of the respondents used Cost Benefit methods for 'commercial' projects. The researcher's initial reaction was that is what one would expect - because of the existence of well developed commercial appraisal techniques which could be used to evaluate the investment. Further consideration, however, showed there was an unanswered question. If loss making commercial operations are not justified by identifying compensatory social benefits, in what way are they justified?

This seemed to be a matter of some importance which required further research. The problem was investigated further during the follow-up interviews. The views expressed can be summarised as implying that if commercial criteria were not the critical ones for an income generating project, then the criteria were essentially political ones (and subjective) and should not be quantified.

Two authorities in the control group indicated that they used Cost Benefit Analysis for assessing the value of the following types of investment proposals:

- Plant/Vehicle Replacements
- Administrative and Service Projects
- Another one said they used it for reviewing Direct Labour Organisation investments in plant and buildings. No further information is available to clarify the precise nature of these three Cost Benefit Studies. (follow-up interviews were not made in the case of the control group of authorities.)

The use of the Cost Benefit Approach implies that non-financial factors are taken into account in some way. This is consistent with the comments which were made by respondents that commercial appraisal techniques did not adequately compare benefits gained with resources consumed.
The survey also asked how non-financial aspects were shown in reports - in a separate report - as trade-offs against financial consequences - in the financial report but not as trade-offs.

The most common practice was for financial and non-financial aspects to be included in one report.

7.4 Measurement of Need

Authorities were asked:

'What measures of need are used to support non-commercial investment proposals'?

The extracts given below are typical of the replies to the question.

'......Cost per job created. Cost per accident saved'

'Depends on service provided eg traffic flows; accident statistics deprivation factors for social services; employment potential for economic projects'

'The competing needs of the services are examined in relation to the limited capital resources'

'Demographic statistics, existing service provision in relation to recognized standards'

'Each spending department assesses its own priorities when including them in the capital programme'

'......Economic factors - whilst a return on capital expenditure from constructing factories and industrial sites is an aim, the improvement of run down areas and the likely number of jobs created have major bearing on investment decisions'

'Social and environmental factors; employment potential'

'Social need employment potential'

'Priority given to urgent projects; otherwise no strict measure other than the burden it will put on resources'

'Professionad advice'

'.....based on statistics of client groups but overall a political judgement'

These comments in relation to the measurement of need are summarised below:
TABLE 7.5
Replies To The Question On The Way Need Is Measured For Non-commercial Projects

<table>
<thead>
<tr>
<th>Question not answered</th>
<th>Control Group</th>
<th>Main Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question answered as no measure is used other than political opinion</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Answer shown above or is very similar to the ones quoted above</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total in group</strong></td>
<td><strong>15</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Whilst it is clear that some two thirds of the authorities in both groups make some attempt to measure need there is no one acceptable way of making the evaluation.

'Demographic statistics' and 'Client Numbers' was mentioned several times but only one respondent specifically made mention of comparison with nationally recognized standards. Whilst it cannot be assumed that such standards are not at some stage referred to by most authorities it is obvious that they do not play a big role in the decision making process.

Social factors and job creation potential were mentioned by several respondents. In this respect, as in all other aspects of Need Measurement there was little difference between the replies of the main survey group and those of the control group.

The survey was carried out at a time of economic restraint and a time of high unemployment. Several interviewees commented that by the time the desperately urgent jobs had been done there was little money left for anything else. If the survey had been made in less difficult times it is possible that more authorities would have indicated they were looking for ways to assess need and rank relative priorities.

7.5 Conclusions

The measurement of need by local authorities has no equivalent in the study
of investment behaviour of individuals.

During the interviews all authorities expressed dissatisfaction with their progress in measuring need. However, whereas some of them felt that they should accept the lack of measures as inevitable, others felt the recent attempts to develop more measures should be intensified.

Cost Benefit Analysis attempts to bring together the costs incurred with financial gains and the satisfaction of non-financial needs, the technique has however been used only to a limited extent.

Increasing interest is being shown in the development of models but the complexity of models of local authorities cannot be overstated. Research which made available to all the knowledge which exists at present would enable progress to proceed at a quicker pace.
CHAPTER 8

Analysis Of Data Collected By Postal Survey - Other Matters Relating to Appraisal

8.1 Synopsis

The examination of local government investment practice was concluded by collecting information showing how the authorities dealt with:
- inflation and
- risk and uncertainty

Respondents were also invited to append, to the questionnaire any comments they wished to make.

This chapter examines the survey data in respect of inflation and risk. It also reviews the comments made by respondents.

8.2 Inflation

The treatment of inflation in the private sector has been widely investigated, for example by *Westwick and Shoet in 1976 and more recently by **Pyke. Westwick found that 76% of firms made some allowances for inflation Pyke's survey produced a figure of 89%. Table 8.1 shows the data collected by this survey for local authorities.

Control group 53%

Main survey group 67%

The figures are clearly much lower than those produced by surveys of the private sector.

<table>
<thead>
<tr>
<th>Authorities which</th>
<th>Control Group</th>
<th>Outer London Boroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust the discount rate</td>
<td>13 %</td>
<td>22 %</td>
</tr>
<tr>
<td>Adjust the values of inflows and outflows</td>
<td>40 %</td>
<td>45 %</td>
</tr>
<tr>
<td>Use other methods</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Make no allowance</td>
<td>47 %</td>
<td>33 %</td>
</tr>
</tbody>
</table>

| Total | 100 | 100 |

*Westwick CA and Shoet PSD Investment Appraisal and Inflation I.C.A.E.W Research Committee Paper No 7 1976

**Pyke RH 1982 Op Cit
TABLE 8.2
Methods Of Handling Inflation In Evaluation Size Analysis - Both Groups

<table>
<thead>
<tr>
<th>Authorities which</th>
<th>Number of Authorities Capital Budget in £</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over 5</td>
</tr>
<tr>
<td>Adjust the current rate</td>
<td>Nil</td>
</tr>
<tr>
<td>Adjust the value of inflow and outflow</td>
<td>2</td>
</tr>
<tr>
<td>Use other methods</td>
<td>Nil</td>
</tr>
<tr>
<td>Make no allowance</td>
<td>1</td>
</tr>
</tbody>
</table>

Most significant factor is the large number of authorities which do not make any allowances.

Only five respondents from the two groups stated for which of the classes of investment proposals they made inflation allowances. All five of these mentioned commercial projects - no other class of project was mentioned more than once.

These respondents held the view that it is more important to allow for inflation when appraising income generating projects and less important when the projects do not produce income. The follow-up interviews showed that this view was fairly widespread and it was pointed out to me that this view had been reinforced by the Government's insistence that the assessment of the commercial viability of Direct Labour Organisations should be on a Current Cost Accounting basis.

This attitude has, probably, also been influenced by the method of financing local government capital outlay. Most capital projects are financed from loan and the repayments of principal are charged to revenue as a form of amortisation; (no further charge for depreciation is made in the accounts). Commercial appraisal techniques assume that one objective of the evaluation is to check that the entity's capital is preserved and that the assets can be
replaced in due course.

In contrast local authorities look to:
- paying off loans within the life of the asset
- returning to the starting position of no asset and no debt outstanding
- being in a position to repeat the cycle if the asset is to be replaced.

The opinion which was expressed by several respondents was that in the local authority situation, there is no need to allow for inflation because capital preservation is not involved and loan charges remain fixed throughout the life of the asset whatever the level of inflation.

There is, however, a counter argument to be considered. Most local authority capital projects do not generate income. They are ultimately financed from rates or government grants - both of which have, in recent years, been restricted by central Government.

The effect of inflation, therefore, is to increase cash outflows without a corresponding increase in cash inflows. This restricts authorities' ability to finance future capital expenditure. The difficulties facing local authorities during periods of inflation are, therefore, very similar to those faced by commercial organisations with capital preservation difficulties. Both public and private organisations need to preserve their ability to replace capital assets. Effective appraisal techniques should recognise this fact.

Table 8.2 shows the responses in respect of inflation analysed according to the size of the authorities' annual capital programmes (1983/4 forecast). The main objective of this analysis was to see if there were authorities of all sizes which made no allowances for inflation when appraising capital expenditure proposals.

All of the respondents in the largest size category - capital estimates over £50m - made some allowance for inflation but in the other size groups there were respondents who made no allowances. Because some methods of allowing for inflation (For example adjusting the inflows and outflows for changing money values) can be applied to all appraisal techniques while others apply to only one technique (for example adjusting the discount rate in DCF
calculations) it is difficult to make a meaningful interpretation of the data relating to the differing methods of adjusting for inflation. Due to the limited use of IRR in local government the alternative methods of dealing with inflation, when appraising projects, may well be limited to:

- all authorities - adjust flows
- authorities using net present value - adjusted flows or adjusted discount rate

Because of these limited options it was not possible to compare the use of different methods with a recent commercial survey. The only valid deduction which can be made is that overall the practice of allowing for inflation in project appraisals is less widespread in local government that it is in commerce.

8.3 Risk

The survey revealed that:

- 87% of authorities in the control group and
- 78% of authorities in the main survey group

used some method which formally took account of risk. Table 8.3 shows the data analysed according to method.

Results for the control group and the main survey group of Outer London Boroughs were similar - the method used most frequently was drawing elected members attention to sensitive areas.

Some respondents used more than one method.

The survey did not show whether the sensitivity analysis was done on a formalised basis or if the officers merely included in their reports a note of areas which they expected would be sensitive. This matter was investigated further at the follow-up interviews and is referred to in Chapter 9.

'Other Methods' which local authorities indicated they used were:

- 'require a high initial yield if the project is considered to be risky'
- 'We produce all estimates on a very conservative basis if the project is a risky one'
'Our form of sensitivity testing involves trying different discount rates and making different inflation assumptions'

The percentage of authorities analysing risk factors seems to be higher than the percentage of companies making an analysis - as shown by *Pyke's survey. Pyke stated:

'The survey revealed the following risk appraisal methods in use:

<table>
<thead>
<tr>
<th>Method</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity analysis</td>
<td>38</td>
</tr>
<tr>
<td>Raising required rate of return</td>
<td>36</td>
</tr>
<tr>
<td>Shortening pay-back period</td>
<td>31</td>
</tr>
<tr>
<td>Probability analysis</td>
<td>17</td>
</tr>
</tbody>
</table>

Given that only 37% of firms surveyed formally analysed risk, it is clear that many firms use a combination of methods for assessing project risk while others appraise risk on a more informal basis.'

(As stated in sections dealing with other aspects of appraisal, it is not possible to make any wide assumptions from the comparison because it is not known if the respondents used the methods for all appraisals or only for certain specific ones)

It is worth noting that the questionnaire issued to local authorities included Probability Analysis as one of the methods which respondents were asked if they used. None of the respondents used this method of risk analysis.

**TABLE 8.3**

Methods Used to Allow For Risk And Uncertainty

<table>
<thead>
<tr>
<th>Authorities which allow for risk/uncertainty</th>
<th>Control Group</th>
<th>Outer London Borough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculating optimistic and pessimistic estimates</td>
<td>% 27</td>
<td>% 11</td>
</tr>
<tr>
<td>Drawing councillors' attention to sensitive areas</td>
<td>67</td>
<td>55</td>
</tr>
<tr>
<td>Other methods</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>No allowance made</td>
<td>13</td>
<td>22</td>
</tr>
</tbody>
</table>

*Pyke RH Op Cit.*
TABLE 8.4

Methods Used to Allow for Risk/Uncertainty
Size Analysis - Both Groups

<table>
<thead>
<tr>
<th>Authorities which allow for risk/uncertainty by</th>
<th>Number of Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size of Capital Budget £m</td>
</tr>
<tr>
<td></td>
<td>Under 5</td>
</tr>
<tr>
<td>Calculating optimistic and pessimistic estimates</td>
<td>1</td>
</tr>
<tr>
<td>Drawing councillors' attention to sensitive areas</td>
<td>1</td>
</tr>
<tr>
<td>Other methods</td>
<td>Nil</td>
</tr>
<tr>
<td>No allowance made</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 8.3 has clearly indicated that the predominant method of dealing with risk was to draw the decision-takers attention to sensitive areas.

In order to check if this predominance applied to all sizes of authority the data from all respondents was re-analysed according to size of authority (1983/4 forecast capital outlay). The results of this analysis are shown in Table 8.4.

The smallest size category of this table, included only three respondents. Each one of these adopted a different approach to risk - one of which was drawing attention to sensitivity. In all the other size categories the most commonly used method was the same as shown by the initial analysis shown in table 8.3 - that is drawing the elected members attention to sensitive areas.

8.4 Comments Appended to the Questionnaires

The high response rate to the postal survey and the trouble which was taken to append comments is evidence of the growing interest of local authorities in the development of appraisal methodology.

The percentage of respondents appending comments was:
Control group 67%  
Main survey group 62%

Four respondents commented on the difficulty of formally categorising investment proposals and laying down appraisal procedures to be followed for each category. An example of this type of comment is:

'All three (payback, return on capital employed; N.P.V) methods have been used ... at some time or other. Appraisal and evaluation tends to be on a horses for courses basis, clearly the larger the project the more detailed the evaluation will be.'

There were also four comments to the effect that the final decision is always political - the final opinion is influenced more by the viewpoint (subjective) expressed by the departmental officers as to the desirability of the scheme, than it is influenced by appraisal techniques.

The comments of one large authority, quoted below, indicates the difficulty of appraising public sector projects and shows how one large authority has in the past tried to tackle the problem:

'schemes are not classified with a view to selecting appraisal techniques. Major land acquisitions, construction projects and schemes involving the purchase or hire of expensive vehicles or plant are appraised using appropriate techniques.'

**Highways**

Pedestrian safety, traffic congestion and suitability for heavy traffic usage as measured by accident statistics and traffic volumes are some sort of criteria to support investment proposals.

**Economic Development**

Whilst return on capital expenditure from constructing factories and industrial sites is the aim the improvement of run-down areas and the likely number of jobs created have a major bearing on investment decisions.

**Environmental Investment**

The aim is to provide an environment which will attract commercial investment. Judgements regarding the aesthetic value of schemes form the basis of investment decisions.'

In contrast to the comments discussed in the preceding paragraphs, three authorities expressed their concern at the subjective nature of many evaluations. They took the trouble to briefly indicate the steps they were taking to improve their appraisal practices. The two main aspects of these developments were:
- objective identification of short fall/surplus service provision
- independent appraisal - that is independent of departmental or political wishes to invest in the project.

One authority has set up two independent appraisal panels to deal specifically with this work. (see chapter 10)

8.5 Conclusion

Local authority accountants had tended to take little account of the effects of inflation when carrying out appraisals. The researcher felt that statements made by respondents implied that because loan repayments are fixed in monetary terms but rates and other income tend to increase with inflation there was a tendency towards higher capital outlay in inflationary periods. This could well be subject for further research. The absence of commercial motivations should not lessen the need to allow for risk and uncertainty.
9.1 Synopsis

Respondents from the main survey group were asked if they would grant the researcher an interview:

17 authorities agreed

1 authority was not able to comply with the request but did agree to answer additional specific questions.

At these follow up interviews, respondents were invited to enlarge on the answers given to the questionnaire and were encouraged to discuss the attitudinal aspects which had not been covered by the questionnaire.

A work sheet was designed to record the discussions and to ensure that comparable topics were discussed at each of the interviews.

The main areas covered were:

1. The importance of further development of the methodology of appraising local authority capital projects.
2. The extent to which attention is paid to the costs/revenues arising from decisions to reject proposals
3. The value of classifying proposals into specific categories or types
4. The selection of discount rates.
5. The extent of the usage of commercial techniques by those authorities which made some use of the methods.
6. The reason for the rejection of commercial techniques by respondents who had indicated they did not use these methods.

The remainder of this chapter summarises and analyses the data collected at the interviews.

9.2 The Importance of Further Developments of Methodology

Respondents were asked if the further development of local authority appraisal methods was important. Table 9.1 summarises the results
TABLE 9.1
Practitioners' Views of the Importance of Developing Local Authority Appraisal Methods

<table>
<thead>
<tr>
<th></th>
<th>Replies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Not Important</td>
<td>4</td>
</tr>
<tr>
<td>Important</td>
<td>8</td>
</tr>
<tr>
<td>Very important</td>
<td>6</td>
</tr>
</tbody>
</table>

Some interviewees who thought development was important/very important had taken action to initiate developments within their organisations.

One of these authorities saw the most pressing need as the development of methods which take into account the multi-objective nature of most local authority investment decisions.

Aspects which they considered should be evaluated were:

- the extent to which the project met a recognized need
- the immediate capital outlay required and the effect on revenue in the first full year of operation
- the project's contribution to meeting political objectives

Although the authority had always tried to consider these aspects it was felt that the methods needed to be improved. Each aspect was at present evaluated by a different official and it was felt that the initial evaluation when presented forcibly, had undue influence on the final corporate view. In particular:

- Service departments tended to present proposals with a missionary zeal not justified by sufficient evidence of an existing shortfall in service provision.

- Financial appraisals were often limited to estimating the capital cost and the immediate effect on the rates.

- When a clear political will had been expressed a search for alternative solutions was discouraged.
The respondent had set up appraisal teams with a duty to review proposals in the knowledge that these forms of bias were likely to be inherent in the initial evaluations. The aim was to exclude the bias as far as possible and when conflicting evaluations could not be reconciled to present data in a way which would enable decisions to be taken in full knowledge of the unresolved conflicting evidence.

Another authority had asked its officers to carry out a complete review of all procedures for the submission, appraisal and adoption of investment proposals. They were particularly concerned at the large number of submissions which were rejected after the preliminary investigation. The problem had been exacerbated by the very limited resources which had been available in the last few years. The aspects which were being reviewed and which in some cases are being tried on an experimental basis are:

Classification of Projects
---five categories had been used:
(1) Mandatory or removal of public danger
(2) Revenue saving
(3) Closure of service if not implemented
(4) Further economic benefits
(5) Other.

They had found that classification was valuable in appraising and ranking proposals in priority order. Initial difficulties were seen as showing a need to refine and develop the classes rather than as a weakness in the concept.

Cost of Rejecting
- The Chief Officers had been asked to specify the cost and other effects which would arise from deleting each item included in the Capital Programme.

Return on Capital
- All income generating proposals were to be subjected to a return on capital evaluation.

Medium Term Planning
- Individual projects were to be assessed in relation to their contribution to the established medium term objectives.
Two interviewees said that their concern to improve techniques could be seen from the fact that they had used techniques, since completion, of the questionnaire, which they had not previously used. Both instances were surprisingly similar:

- the use of Net Present Value methods to evaluate a 'lease or buy' decision
- use of Payback for appraising energy saving investment proposals

9.3 The Costs of Rejecting Proposals

The postal survey had shown that 67% of authorities informed members of the cost of rejecting proposals. Discussions with respondents however, indicated that in most instances information presented in relation to rejection costs was rather scanty. These costs were only given when the rejection caused another specific course of action to be undertaken. An example which was cited was a decision not to extend a school, which necessitated the extension of an agreement to hire portable buildings.

Seven interviewees, out of a total of eighteen, said that they considered insufficient attention was given to the costs of rejecting proposals in their current appraisal procedures.

In contrast to the above, one authority which had on a recent occasion given detailed costs of rejecting a proposal had found there was an adverse reaction. The elected members had apparently looked on the information as an attempt to pressurise them into accepting the proposal. The reaction, may have been due to the fact that rejection costs had only been presented to them on one isolated occasion.

9.4 Classification of Capital Projects

Table 9.2 summarises the replies to the section of the questionnaire which dealt with the classification of projects. Because of the wide range of types of projects undertaken by local authorities it might have been expected that a system of classification would have been common practice. However, replies to the questionnaire indicated that classification was not widespread.
The interviewees were asked if they thought a system of classification would be helpful in identifying the main characteristics of projects proposed and therefore assist in selecting appropriate appraisal techniques.

<table>
<thead>
<tr>
<th>Authorities' Views On Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Replies</strong></td>
</tr>
<tr>
<td><strong>Number</strong></td>
</tr>
<tr>
<td>Authorities which considered a system of classification would be helpful</td>
</tr>
<tr>
<td>Authorities which considered classification would not be helpful</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

The views of the practitioners was clearly that most of them did not think a system of classification would be useful. This is surprising as it would seem to be a logical step towards rationalising decision making. The reason given for the view was the same in each case - all projects were different, there is no form of classification which would usefully group like projects. It is difficult to accept that each local authority project really is unique in the way the practitioners suggested.

The authority which had tried a system of classification was enthusiastic about its value. They were taking steps to improve and refine the system.

9.5 The Rate Of Discount

The main questionnaire had not asked for information relating to the way percentage rates of discount were chosen for Discounted Cash Flow methods.

At the interviews respondents who had used the methods were asked how discount rates were chosen.
TABLE 9.3

Methods of Choosing Discount Rate

<table>
<thead>
<tr>
<th>Method</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current borrowing rate of loan pool</td>
<td>6</td>
<td>33</td>
</tr>
<tr>
<td>Real, i.e., exclusive of inflation rate</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Target rate</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>No regular method</td>
<td>9</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Because most local authority capital expenditure is financed from loan the Loans Pool rate of interest is the rate which is most comparable to the weighted average cost of capital - the rate usually suggested for limited companies. It must, however, be kept in mind that:

1 Some of the authorities' capital outlay will have been financed from revenue. In accounting terms, but not in economic ones, it will have a 'nil' cost. The opportunity cost of this capital has not been taken into account in calculating the pool rate of interest.

2 There is nothing in local government which equates to the cost of capital provided by the shareholders of a company.

The pool rate will in most cases be higher than a 'true' average rate which takes into account interest actually paid and funds provided by the rate payers by way of revenue contributions.

The pool rate is higher than the actual average cost of capital but the current borrowing rate which is used by other authorities for discounting purposes is likely to be even higher. This is because many Loans Funds have a substantial number of old loans, loans which were raised at interest rates below the current level and which therefore pull down the overall average.

The percentage most frequently used by local authorities for DCF calculations would, therefore seem to be higher (in relation to the costs of raising the capital) than those used in commerce.
One respondent who had used the 'real rate' ie exclusive of inflation, argued strongly that if inflation (as was the norm) was excluded from the estimates of cash flow it was not logical to use a discount rate based on interest charges inclusive of inflation. The rate which this respondent had used was 3%. This was derived from widely accepted 2 1/2% real rate earned on Gilt Edge securities and assuming that local authorities would have to pay slightly higher rates than Central Government. It is interesting to note that only one authority made this point - further evidence that inflation did not play a big part in influencing local authority investment behaviour. If this argument is accepted the problem of using too high a rate is exacerbated.

Two authorities had used a test rate of 5%. This had been selected because it is 'the required test rate' used by some nationalised industries. In practice this is a compromise between the borrowing rate and the real rate. (It cannot be justified as equating to the interest actually earned or forgone, but it does have some merit as a common sense weighting in favour of the present and certain and against the future and uncertain.)

Few investment decisions would, have been made entirely on the basis of DCF calculations but there is some evidence that more detailed research into the appropriate rates for local authority DCF calculations would be of practical value to public sector accountants.

9.6 The Extent To Which Techniques Were Used

Table 6.1 shows the number of authorities using each of the main commercial appraisal techniques. During the analysis of the data from the questionnaires it became apparent that although a substantial number of authorities used the techniques it was not possible to determine from the replies whether the techniques were used for all appropriate investment decisions or if the usage was more occasional.

Interviewees were asked to indicate the extent of their usage. None of the authorities were able to quantify their usage but comments summarised below give some indication of the pattern of application.

Authorities said that the proportion of projects which had commercial elements, or in which two or more alternatives were compared was small.
The opportunity to use commercial techniques was therefore limited.

Three authorities stated that because the objectives of most projects were socio/political (including some that were income generating) it was considered that techniques which measured income against outlay would not be helpful.

Two officers indicated that once a decision in principle had been made such information may even have been unwelcome to elected members.

It is probable therefore, that the percentages contained in Table 6.1 tend to overstate the importance of the techniques to local authority practice at the present time.

On the other hand there was evidence of an increasing recognition of a need to improve appraisal methodology, and this often involved further consideration being given to the techniques used in commerce.

Two authorities who had indicated in the questionnaire that they did not use DCF techniques said at the follow up interviews that they had used them since completion of the questionnaire.

One interviewee said that their search for improved methods would involve evaluating income or benefits generated against the capital outflows incurred.

Two authorities stated that pay back had recently been used to evaluate energy saving proposals.

Three authorities indicated that existing constraint forced them to search out new ways of providing capital assets. This involved leasing/buy; lease/sell; direct provision/private sector provision decisions. DCF methods in particular have been used or would be used in the future. This was because these type of decisions involve the evaluation of different patterns of cash flow whether or not the projects are income generating.

The point was made several times that although commercial appraisal methods had not been used in the past for a large number of projects the projects for which they had been used were often very large ones. For example major town centre shopping developments had been subjected to these techniques. The methods had therefore a significant if not widespread role in present local authority financial practise.

9.7 Reason For Non-use Of The Technique

There was a surprising consistency in the views expressed by officials who had not made much use of commercial techniques. In all instances the gist
of their arguments were - that because all decisions were ultimately political the only points which were of interest to elected members were:

- the capital cost, because it was an indication of how much of the limited capital resources had been used up

- the immediate revenue consequences, because of its effect on rate or other charges.

The people who expressed these views accepted the argument that members when making political decisions should be aware of all the financial implications. They considered, however, that this was a rather theoretical concept and in practice that costs and time consumed in making the detailed appraisals could not be justified.

9.8 Practitioners' Comments

On three occasions practitioners' comments clarified attitudes which had not previously been openly expressed but the existence of which would explain some of the answer given by other interviewees.

"It is the cost now which is important in reaching political decisions - not the cost over the life of the asset"

This opinion would seem to explain why the view was expressed frequently and forcibly that the only useful figures in evaluating local authority investment proposals were the capital cost and the annual effect on the rates.

No empirical evidence was offered to justify the view that elected members were unduly influenced by the short term effects. However the appraisal practices of many authorities seemed to assume this to be the case.

There is a paradox in the way this leaning towards the short term view, contrasts with the long periods used when commercial techniques are applied. One authority evaluated the pay back of car parks over a 30 year period.

The two aspects may not, however, be entirely inconsistent. An evaluation over a period of 30 years would only be valid if accurate predictions could be made over that length of time. As they clearly cannot be so made, there may be a tendency to move to the other extreme and be excessively influenced by the short term aspects.

If projects had to be justified even an expected useful life of, say ten years different select/reject decisions might be expected than when
Appraisals are based on the very short and very long term aspects of proposals. The effects of the time scale of appraisals on patterns of capital expenditure could usefully be the subject of further research.

'The present grant structure imposes penalties for expenditure above target - we must therefore make our main consideration the immediate revenue consequences.'

'The capital authorisations are on the one hand inadequate and on the other resources are lost if not spent in the required period. Our main aim in selecting projects is to keep within the authorised limits.'

These comments from two different practitioners also help to explain why the long view/short view seem to squeeze out considerations of the medium term aspects.

Balancing capital outflows with the authorised capital expenditure approvals and the revenue consequences of that expenditure with the revenue targets seem to be the first priority. This may well not be consistent with selecting projects which give the greatest satisfaction of needs.

'There is always a certain local folklore of need - and who is to say it is not right. If for the last ten years the public has thought it needed a car park near the market what part have national statistics to play in measuring whether or not it is really needed?'

This view of the supremacy of local traditional views of need would appear to play a big part in selecting priorities.

The widespread acceptance of this view would explain the limited use of measures of need and why there is little urge to develop more effective measures.

Perhaps the problem arises from the failing to recognise that in evaluating projects two separate aspects need to be taken into consideration.

1. What is the need for the project measured by the shortfall in service provision when compared with accepted (national) standards.

2. What priority should that need (e.g. the provision of playing fields) be given in relation to other (for example the provision of Library facilities) measured needs.
9.9 Conclusion

The interviews provided useful additional information to that obtained by the postal questionnaire. This was especially valuable in trying to develop an understanding of why local authority investment behaviour differs from that of an individual operating in a perfect market. These differences and the significance of these variations between the model considered initially and the investment behaviour of local authorities is summarised in chapter 10.
CHAPTER 10

The Significance Of The Survey Findings

10.1 Synopsis

The preliminary list of ways in which local authority investment differs from that of an individual, operating in a perfect market (see chapter 3) can be summarised as:

1 Capital resources are limited even where the net benefits of the investment exceed the cost of repaying the capital and interest.

2 Investment decisions, in the public sector are corporate decisions.

3 Benefits arising from local authority investments may not accrue to the authority itself.

4 There is a preponderance of non-income generating investments in local government.

5 Appraisal procedures in the public sector should facilitate external comparisons of performance.

This chapter reviews the extent to which each of these conceptual differences was supported by the empirical evidence collected by the survey. The significance of the differences is assessed and their influence on local authority appraisal practice noted.

The findings are used to develop criteria for the evaluation of the effectiveness of local authority appraisal procedures.

10.2 Limited Resources

An individual operating in a perfect market will normally borrow funds whenever an investment opportunity is identified which generates cash inflows which exceed the initial loan and interest payable.

A local authority which identifies a project which creates net benefits - whether to the entity itself or to the general public - cannot always undertake the investment because:

- at the present time the Government imposes legal limits on the amount of capital expenditure which can be incurred

- if there were no such restrictions political and market constraints would not allow an indefinite expansion of public sector capital expenditure.
The existence of constraints would suggest that local authorities should select investment projects by a process of:
- identifying total resources
- ranking projects in priority order
- carrying out all projects which come above the 'cut off' line of the priority list.

The evidence collected showed that processes of budgeting for capital resources were well developed but procedures for selecting priorities were much less sophisticated. In many instances it was not possible to recognise any formal system of selecting priorities. In these instances the ranking seemed to be mainly influenced by:
- local traditional expenditure patterns
- the strength and influence of individual officers and members.

However, where the systems of appraisal were developed it seemed reasonable to assume that priorities were selected on a more rational basis than where the appraisals were less developed - even if it were only because the evaluations had had a marginal effect on the traditional expenditure patterns and on the choices made by the influential individuals.

10.3 Corporate Decisions

The model of an individual operating in a perfect market assumes a complete knowledge of the market conditions and the expected cash flows. Individuals who take part in a corporate decision making process will never be in this ideal position - but it might be expected that procedures would be implemented to strive towards that goal of perfect knowledge. It was surprising therefore that so few respondent authorities had formal manuals prescribing the appraisal procedures that should be used.

Although there were few procedural manuals the survey showed that appraisal techniques were used - in some cases to an extent greater than that shown by recent surveys of commercial practice. There must, however be some chance of bias where techniques are not laid down and therefore can be ignored if they do not give the 'desired result'. This risk of biased evaluation was further evidenced by:
- One authority recognising the danger area and setting up independent appraisal teams - separate from the initiating departments.
- The comments which were made by several practitioners that they would consider it a waste of resources to evaluate in depth alternatives which were known to be politically unacceptable or counter to the known preferences of technical officers.

**Effects On The Public And Economy In General**

Unlike the individual represented by the model, public authorities have to consider the effects of investment decisions on groups, or individuals external to the investing organisation. In many cases it will be these effects which are the main objective of the investment.

The view frequently expressed by practitioners, is that there can be no 'Best' alternative for local authorities, in the sense that there is for an individual who will adopt the alternative which maximises his wealth. An investment which maximises the achievement of one social objective will, when compared with another alternative have disbenefits in the form of increased costs or other social benefits foregone:

In these circumstances it would seem to be important to:
- identify the main objective and quantify it as far as possible.
- express the expenditure in terms of cost per unit of need satisfied.
- identify and quantify as far as possible subsidiary benefits and disbenefits.

These costs and benefits could most obviously be presented in the form of a cost benefit analysis. This technique has been used but tended to be out of favour because:

- accountants, at least, felt that the method was discredited because the techniques of quantifying and evaluating externalities could not be justified.
- the present government policies and the resultant regulations were concerned with controlling capital and revenue cash flows and took little cognisance of the benefits created.

Discussions with practitioners at the follow up interviews often turned to the need to develop more sophisticated models which facilitated the examination of the full effects of local authority investment decisions. This was taken as an indication that the existing evaluation techniques did not adequately measure all the complex effects which arise from local authority investment decisions particularly those which had important non monetary aspects.
10.5 **External Comparisons**

Because of the absence of the profit motive, Local Authority performance is sometimes measured by comparison with other authorities or organisations.

There is a well developed system of collection and publication of comparative statistics - mainly through the publications of the Chartered Institute of Public Finance and Accountancy.

Where investments have to be compared with the private sector alternatives the systems are less well developed. Comparisons were felt, by practitioners, to be unfair. The requirements that direct labour organisations should earn a return of 5% on capital employed on a current cost accounting basis was cited as the example of a comparison which could lead to sub-optimal investment decisions. (A private firm who did not have to observe this criteria might submit the lowest tender, be awarded a contract - but be using resources less efficiently than the Local Authority.)

There can be little doubt, however, that the increasing emphasis on external comparison will lead to some re-examination of local authority investment evaluation procedures. The decisions and the evidence recorded above suggests that more use may be made in future of Internal Rate of Return and Return on Capital Employed. Both of these are techniques which *Pyke's survey showed were favoured by commercial organisations inspite of the conceptual objections to them.

10.6 **Summary**

The examination of local authorities' investment behaviour and the contrasts between the local government situation and that represented by a simple model of the individual operating in a perfect market has suggested that local authority investment evaluation procedures should be concerned with five main areas.

1. Annual effects on rates (or other funds) - particularly in the short term.
2. Capital resources consumed
3. Costs/income generated over the full life of the asset.
4. Priority ranking in relation to other projects.
5 Degree of satisfaction of quantified needs (both in respect of the authority itself and of external individuals and organisations.)

The first two of these criteria are adequately dealt with by existing practices. The other three were met by only some of the respondent authorities and are areas which could benefit from further research and development.
CHAPTER 11

Best Practices* and Areas for Further Research

11.1 Synopsis

This chapter outlines the 'Best Practices' observed during the research. They are not presented as systems for automatic adoption by all authorities but as practices which have assisted some authorities to solve the investment decision problem. As such they may be useful to others who wish to carry out research into local authority investment practice - whether generally or with a view to improving their own procedures.

The chapter is concluded with a note of some aspects which could not be researched during this project but which were identified as areas about which there was only limited existing knowledge.

11.2 Best Practice

Observations during the research suggested that the best capital allocation and appraisal procedures involved the following stages.

1 Submission of project proposals.

2 Classification of submissions into pre-determined categories, each category indicating the relative priority to be given to proposals.

3 Detailed appraisal of proposals except those categorised low priority and therefore unlikely to be carried out. (Alternative courses of action, are identified and evaluated at this stage and provisional approval sought for the preferred option to be included in the draft capital programme.)

4 Capital resources available identified and allocated to main service blocks in accordance with Government regulations and Council Policy.

5 Approved schemes ranked by categories under each of the service capital resource blocks. Where in any block several schemes have equal rankings (ie are in the same category) preferences will be established within the categories.

6 Cut off points drawn at the position in each service's priority list which will fully utilise the resources allocated.

* A definition of the term 'Best Practice' when used in this thesis is given in a previous footnote - see page 21
The Best Practice found by the research are reviewed in the following paragraphs i.e.

Best Practice - Project Proposals
Best Practice - Co-ordination of appraisal procedures
Best Practice - Stage at which appraisal is made
Best Practice - Non-financial factors
Best Practice - Capital Programmes

11.3 Project Proposals

Suggestions for investment in a new project may come either from members or officials. A few authorities did not have any document which signified a proposal had been recognised. Some form of documentation would appear to be essential to an effective system.

Proposal forms which were seen were of two types.

1 Those which give the minimum information possible. These usually showed the name of the scheme, a brief outline of the purpose and possibly an initial estimate of the capital and annual costs.

An example of this type is shown in table 11.1. This was considered a good example of its type. It is concise (both sides of an A4 sheet) but gives some breakdown of both the capital and revenue costs.

2 Those which give a lot of detail and in fact constitutes the initial appraisal. Because the content will depend on the nature of each project the documents were often in the form of summary of (or an index to) more detailed papers attached to the formal proposal document.

Table 11.2 - a checklist used by one authority, summarises the areas which might be included in such a proposal document.
TABLE 11.1

RATE FUND CAPITAL PROGRAMME 1983/84 - 1985/86

Application to Add/Change/Delete a Capital Project

COMMITTEE

TITLE OF PROJECT

PROJECT REFERENCE NUMBER

COMMITTEE APPROVAL

<table>
<thead>
<tr>
<th>Committee Priority</th>
<th>Starts Year</th>
<th>Lead Time/Earliest Practical Start Date</th>
<th>Planned Start Date</th>
<th>Planned Completion Date</th>
</tr>
</thead>
</table>

BRIEF DESCRIPTION OF PROPOSAL

NEED AND JUSTIFICATION FOR PROPOSAL (INCLUDING ASSESSMENT OF ALTERNATIVES AND CONNECTIONS WITH OTHER DEPARTMENTS/LOCAL AUTHORITIES/OTHER BODIES/PROJECTS)

DETAILS OF ANY ADDITIONAL APPROVALS, LAND ACQUISITIONS OR OTHER PREREQUISITES BEFORE PROPOSAL MAY COMMENCE

SIGNATURE OF CHIEF OFFICER .................. DATE .................
FINANCIAL DETAILS (ALL COSTS QUOTED TO BE AT NOVEMBER 1983 PRICES)

(i) POLICY SUB-COMMITTEE APPROVAL YES/NO
(ii) CAPITAL COSTS

<table>
<thead>
<tr>
<th>Total Estimated Cost</th>
<th>Estimated Capital Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To 31.3.83</td>
</tr>
<tr>
<td>Land</td>
<td>£</td>
</tr>
<tr>
<td>Construction Works</td>
<td>£</td>
</tr>
<tr>
<td>Architect's Charges</td>
<td>£</td>
</tr>
<tr>
<td>Other In-House Charges</td>
<td>£</td>
</tr>
<tr>
<td>External Consultant Charges</td>
<td>£</td>
</tr>
<tr>
<td>Equipment/Vehicles</td>
<td>£</td>
</tr>
<tr>
<td>Furniture</td>
<td>£</td>
</tr>
<tr>
<td>Other*</td>
<td>£</td>
</tr>
<tr>
<td>Total</td>
<td>£</td>
</tr>
</tbody>
</table>

Sector Analysis

Prescribed expenditure
Non-prescribed expenditure

Total

(iii) REVENUE COSTS

<table>
<thead>
<tr>
<th>1983/84</th>
<th>1984/85</th>
<th>1985/86</th>
<th>Full Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>£</td>
<td>£</td>
<td>£</td>
<td>£</td>
</tr>
</tbody>
</table>

Employees*
Running Costs of Premises
Equipment*
Other (please specify)
Debt Charges

GROSS EXPENDITURE

Income*
Operational Savings*

Total Income

Net Revenue Cost

* A detailed analysis of costs of these items should be provided on an attached sheet.
TABLE 11.2
CHECKLIST OF INFORMATION NEEDED AT PRE-DESIGN APPRAISAL

1. Basic Description
   (a) What is the name of the scheme?
   (b) What is its main purpose(s)?
   (c) What, if any, consideration has been given to this particular scheme by officers and members in the past?
   (d) What, if any, alternative ways are there to meet the need or demand?
   (e) What level of service to the public etc. is intended.

2. Need
   (a) On what basis has the need for this scheme been established? (e.g., Local surveys, government standards, waiting lists etc)
   (b) What type of needs are to be served by this scheme?
   (c) What is the proposed capacity of the scheme? (numbers of students, clients, users etc)
   (d) Why has this particular capacity been chosen?
   (e) What will be the size of the total local provision for this service if this scheme is implemented?
   (f) Which Council policies and plans will be implemented by this scheme?
   (g) Is the scheme a high priority relative to others submitted by the client department?
   (h) Which parts of the scheme are considered to be of lower priority?
   (i) What are the main design features of the scheme likely to be (including layout, construction techniques and materials)?
   (j) Why has this particular approach to the design be chosen?
   (k) Has a site been identified for the scheme? If so why this particular site?
   (l) Are there any lessons to be learnt from similar scheme already in existence?

3 Cost
   (a) What is the total cost of the scheme likely to be (at current prices)?
   (b) How will this be spread over the different financial years?
(c) How is the total cost estimate made up? (give general split between the main elements of the design, including fees and salaries, and some estimate of any land acquisition).

(d) Are there any elements of the cost which could be considered to be above average? If so, what are these and why?

(e) Has a schedule of fixed furniture and fittings been prepared?

(f) Is there any scope for cost reduction in the quality of materials and the finish of the project?

(g) Are there opportunities for financing the scheme/part of the scheme from joint finance or income from other organisations?

(h) What are the revenue costs of the completed scheme likely to be (again at current price levels, including a breakdown between salaries, maintenance, fuel etc)?

(i) Are there likely to be any revenue savings as a result of the scheme? If so, how much per year and from what? For how long would these savings recur?

(j) What provision for energy conservation will be made in the scheme? What would be the revenue saving from installing extra energy conservation measures?

(k) Is there scope for improved cost-effectiveness resulting from the proposal.

4. Programming

(a) In which financial years will construction of the scheme be started and completed?

(b) When is design of the scheme programmed to begin?

(c) Is this design programme achievable with existing manpower?

(d) Does the scheme involve any land acquisition? If so, are there any factors likely to delay design and/or start on site?

(e) Are there any legal or planning problems with using the site for the purpose intended? If so, are these likely to delay the overall programme for the scheme?

(f) Are there any other factors which may affect the programming of the scheme?

5. Corporate Implications

(a) Will completion of the scheme result in the release of other, existing accommodation? If so, what and when will this be available?
(b) Does the scheme involve the joint use of facilities by more than one Council Department and/or other organisations? If not, could this be a possibility? Would such joint use involve making changes to the design of the scheme?

(c) What, if any, is likely to be the impact of the completed scheme on the need for other Council Services (eg in terms of maintenance, refuse collection etc.)?

The amount of information which should be provided at the project proposal stage will depend on the procedure at subsequent stages of appraisal. Sufficient information must always be provided to enable those projects to be recognised which will be allocated to low priority categories which will not therefore warrant the application of time consuming and expensive later stages of appraisal.

11.4 CO-ORDINATION OF APPRAISAL PROCEDURES

For major projects each of the different aspects of appraisal will be carried out by a separate official. Effective appraisal requires all the aspects to be co-ordinated. In some authorities the co-ordination was the responsibility of a particular official and in others a committee carried out this duty as one of several functions allocated to it.

Perhaps the most effective system of co-ordination was that seen in the authority which had appointed two project appraisal panels.

Each panel had an accountant as permanent chairman and other regular members from the Policy Analysis Unit and Technical Services Section. Additional members were recruited for particular projects either because of their involvement in that project, or because of their known ability to criticise or 'tease out' information.

Officers who had experience of this system were convinced that the effects were that:
- Some form of alternatives were always identified
- Measures of need were demanded and found
- An unbiased appraisal of the financial factors emerged from the multidisciplinary analysis of the project - often in a form suitable for presentation as a committee report.

Table 11.3 shows the terms of references of these panels.
11.5 THE STAGES AT WHICH APPRAISAL IS MADE

The authorities which had the most developed systems had all given and continued to give consideration to the stages of projects at which evaluation should be made.

They did not always meet their own criteria, because of pressures of other work but, ideally, it was felt that some form of appraisal should be made at the following stages:

- Pre-design - general justification
- Pre-working drawing - the main detailed appraisal of alternative solutions
- Pre-contract - A re-appraisal if tenders considerably in excess of budget provision.
- Post implementation - A comparison of expected and actual results and a search for lessons to be learnt for the future.

The first two stages should perhaps be a pre-requisit before items are accepted for inclusion in Capital programmes.

TABLE 11.3
CAPITAL PROGRAMME APPRAISAL PANEL

Draft Terms of Reference

1 Justification of individual schemes
(a) planning and environmental gains.
(b) value for money - to be assessed by various methods for example:
   (i) increased cost effectiveness
   (ii) discounted cash flow
   (iii) costs against benefits.
(c) replacement of obsolete/dangerous structures and equipment.
(d) level of service to public, other Council departments, ie as to standard and extent of service.
(e) alternative ways of satisfying need/demand.
2. Maximising use of Limited Capital Finance Available
   
   Consideration of the level of expenditure relating to an approved scheme.
   
   (a) most economical way of achieving development
   (b) consideration of brief
   (c) examination of Bills of Quantities and Tenders.

3. To have regard of the programme of capital projects schedule for review.

4. To report the results of the appraisals to the appropriate service groups.

The appraisals made at all of these stages involved both financial and non-financial aspects.

The order in which the aspects were best dealt with by the co-ordinating team were:
   - ensure the objectives are clear
   - appraise the financial aspects
   - evaluate non-financial but quantifiable factors
   - non-financial and un-quantifiable factors are specified and defined as benefits/disbenefits
   - a report is drafted of financial results set against other factors.

11.6 Financial Appraisal:

In the private sector financial appraisals:
   - signify which projects should be adopted because they have met predetermined criteria (eg they have met target rates of return).
   - rank projects in priority order by expressing the evaluation result in terms comparable with other schemes (eg internal rate of return).

Because most local authority projects have socio/political objectives they are ranked according to political scales of preference and the setting of monetary targets is difficult.

Some respondents, because of these difficulties, limited the appraisals to estimating the capital costs and revenue consequences of each proposal. Other authorities had developed systems to overcome the difficulties - these were the same authorities which had introduced procedures to categorise the projects. The classification seemingly clarified objectives and indicated areas which needed to be evaluated.
One authority classified projects as
- Mandatory/Public Safety
- Cost Savings
- Income Generating
- Plant or vehicle replacement
- Long Term Economic and Social Benefits

These categories indicated priority ranking (in the order given above) and also clarified objectives. Another authority used a dual system of classification - one grouping indicating priority ranking and the other the objectives/appraisal method.

In addition to estimating capital costs and revenue consequences the factors which respondents with effective systems had evaluated were:

- Mandatory/Public Safety - Because the capital expenditure could not be avoided it was considered essential to seek out the most economical way of achieving the objectives. Sometimes this was no more than comparison of a quick cheap job with a short life with a longer-term more expensive solution. Frequently the different patterns of cash flow suggested DCF methods should be used.

- Cost Cutting - One authority had set two payback targets; 1 year - accept the project and finance from revenue 4 years or more - reject

- Income Generating - Return on capital - not less than the target rate which has been set for direct labour organisations - 5% on a current cost basis.

- Plant and Vehicle/Replacement - DCF methods were used to identify the stage at which the relationships between repair costs and capital outlay justified replacement. Although DCF methods were used more frequently for individual replacements, it was recognised that they could also be applied to planned replacement programmes.

- Long Term Economic and Social Benefits - This is perhaps the classification into which most local authority projects fell. It is certainly the one in respect of which it is frequently argued that appraisal techniques have no value. This argument cannot be sustained. Authorities which sought out alternatives found they needed to use commercial techniques to assess the merits of the alternatives.
Authorities with good appraisal procedures thought that commercial techniques were an essential tool. They used them to select 'preferred solutions' before including in draft capital programmes - rather than for ranking items within the programme.

Authorities which used simple financial models were able to consider a wider range of options because the models facilitated answering various 'What if' questions. One respondent had found that it was essential to carry out a sensitivity analysis at an early stage. Otherwise a lot of time could be wasted investigating variations which were unimportant because they did not alter overall results.

11.7 Non-Financial Factors:

Many comments were made at the interviews concerning the difficulty of evaluating needs and output. It was therefore of special interest when one respondent said

"We spend so long looking for the optimum measures that we ignore the perfectly usable existing ones."

Authorities which have made progress in measuring need and satisfaction of need had in fact applied "usable existing measures." These simple measures should be the subject of further research. Two examples of situations where they had been of value illustrate the point:

- Number of places in a proposed residential home compared with number on waiting list - this led to a successful search for ways to increase the numbers who could be accommodated from the list.

- Comparison of land value plus development costs with estimated valuation on completion indicated which alternative standards of development should be considered.

11.8 Capital Programmes

The capital programme relates individual projects to the resources available to finance them. It is both a planning device and a control device.

Some authorities include projects in the programme without first subjecting them to detailed appraisal. This seems to be undesirable and leads to problems.
As quoted earlier, the Chartered Institute Public Finance have stated*

"Another reason why implementation is poor is that projects appear to be included in the capital programme without adequate appraisal having been carried out".

The best practices observed included projects in the programmes only after they have been subjected to detailed scrutiny. Even when this detailed vetting had been carried out, not all the projects could be financed. Some form of ranking is needed so that a cut off point can be selected which will match the projects accepted with resources available.

The system which seemed to best achieve these objectives involved:
1. Approval of base revenue budget based on current activity levels.
2. Identification of resources available to finance each main service block of capital expenditure.
3. Ranking new schemes in priority order within each block - usually made by categorising projects into pre-determined classes - each class having a priority rank.
4. Listing schemes from earlier corporate plans which will increase the base budget.
5. Preparation of a list of 'contingency cuts' from the base budget.
6. Summarising the above elements on one document which can be presented to the decision makers at the time they have to fix the rate level.

Table 11.4 is a summarised version of a document used by one authority. Because routine on-going items have been removed to a base budget the decision takers are able to concentrate on the important areas. This single document effectively linked the corporate plan, the capital budget, and individually appraised projects with the revenue budget and rate fixing process. The document was large and complex, no doubt it was difficult to prepare but its value cannot be overrated.

* Implications of Capital Expenditure Controls for Local Authority Capital Programmes. CIPFA OP Cit.
## DRAFT CORPORATE PLAN

**Expansion - Next Years Proposals**

<table>
<thead>
<tr>
<th>HOUSING</th>
<th>TRANSPORT</th>
<th>EDUCATION</th>
<th>OTHER SERVICES</th>
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<td>PLAN</td>
<td>CAP</td>
<td>FYE</td>
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<td>Scheme A</td>
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<td>Scheme A</td>
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<tr>
<td>2</td>
<td>Scheme B</td>
<td>2</td>
<td>Scheme B</td>
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<td>Scheme C</td>
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**Expansion - Continuing Effects of Current Plan**

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<th>CAP</th>
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</table>

**Savings from base budget**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Rev Saving</th>
<th>Plan</th>
<th>Rev Saving</th>
<th>Plan</th>
<th>Rev Saving</th>
</tr>
</thead>
</table>

---

ALL FIGURES IN £000  CAP - CAPITAL COST  FYC - FULL YEAR COST  PYE - PART YEAR COST
11.9 *Areas For Further Research*

This project covers the wide area of Local Authority investment behaviour and appraisal practices. It identified the factors taken into consideration when investment decisions are made and the appraisal procedures used.

During the project topics were identified which could well be the subject of further research. These topics are referred to in the text of the thesis but for ease of reference are summarised below:

1. The development of models of the effects, monetary and otherwise, of local authority investment.

2. Undue consideration may be given to the very short term effects of investments - because of their effect on rates. In contrast to this financial assessment is sometimes made over 30 years or more if this is the authorised financing time scale. The middle-term seems to be ignored and little is known about the effects this has had on in investment decisions.

3. The existence of criteria which have been used in commerce to rank non-income generating investments - and their possible application to local authorities.

4. The measurement of need and the satisfaction of needs.
APPENDIX 1

Local Authorities And Their Capital Expenditure

1 The Structure of Local Government

Local authorities for the purpose of this study are:
- Metropolitan Counties
- Non-metropolitan Counties
- Greater London Council
- Metropolitan District Councils
- Non-metropolitan District Councils
- London Borough Councils.

The organisations included in the definition are the Local Government Units for England and Wales. Parish Councils have been excluded because (with one or two notable exceptions) they are too small to undertake major capital projects. This system of local administration came into operation in 1974 under the provisions of the Local Government Act 1972. The Greater London Council and the 32 London Boroughs were already in existence - Metropolitan London had been re-organised some years earlier by the London Government Act 1963. At the time of writing, the Government has proposed the abolition of the Greater London Council and Metropolitan County Councils.

2 The Number And Functions of Authorities

Prior to re-organisation there had been almost 1500 local authorities in England and Wales. This number was reduced at the 1974 re-organisation to:
- Greater London Council 1
- London Boroughs 32
- City of London 1
- Metropolitan Counties 6
- Non-metropolitan Counties 47
- Metropolitan Districts 36
- Non-metropolitan Districts 333
- Isles of Scilly 1

457 *

* There are also 65 Local Authorities in Scotland and 26 in Northern Ireland. The same principles of appraisal will apply to these authorities as to those in England and Wales but the detailed legislation and government controls will in some cases differ.
The main function of each type of authority (outside of London) are shown below:

<table>
<thead>
<tr>
<th>Highways and Traffic Planning (Overall)</th>
<th>Metropolitan County</th>
<th>Metropolitan County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police and Fire Transport Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Libraries Social Services</td>
<td>Metropolitan District</td>
<td>Non-Metropolitan District or Borough</td>
</tr>
<tr>
<td>Rating Environmental Health Housing Planning Planning (Local)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

London Boroughs have similar functions to the metropolitan districts, but in certain areas the Inner London Education Authority is responsible for education. The Greater London Council is not responsible for police functions (as are other Counties) but has some other functions which authorities outside London do not.

3 Capital Expenditure of the Authorities

The size of individual authorities varies widely from district councils serving populations of only fifty thousand to major counties with populations over a million. All of them are, however, large enough to undertake substantial capital projects. For example a small housing scheme of one hundred dwellings would require an outlay in excess of £1m* and the redevelopment of a town centre involving a small shopping precinct could cost £20m**. Routine less spectacular, but equally essential schemes for the replacement of plant, erection of offices and work-shops, and the development of productive capacity are undertaken in the public sector just as they are in the private sector: most of the functions mentioned in paragraph 2 require resources to be invested in capital projects. An indication of the overall value of this investment can be obtained from the following statistics.

* Based on a cost of £12,000 per dwelling

**Based on the cost of the Charter Place Development at Watford adjusted for changes in the value of money since the contract was signed.
TABLE 1
Local Authority Spending and Gross Domestic Product

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross domestic product at market prices £bn</th>
<th>Local authority spending on goods and services £bn as % of GDP</th>
<th>Local authority spending on goods &amp; transfers £bn as % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>63.4</td>
<td>6.8 10.7</td>
<td>8.4 13.2</td>
</tr>
<tr>
<td>1973</td>
<td>72.9</td>
<td>8.4 11.5</td>
<td>10.4 14.3</td>
</tr>
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<td>1974</td>
<td>82.9</td>
<td>10.1 12.2</td>
<td>12.9 15.6</td>
</tr>
<tr>
<td>1975</td>
<td>104.4</td>
<td>13.5 12.9</td>
<td>16.9 16.2</td>
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<tr>
<td>1976</td>
<td>124.3</td>
<td>15.0 12.1</td>
<td>18.9 15.2</td>
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<tr>
<td>1977</td>
<td>143.1</td>
<td>15.3 10.7</td>
<td>19.6 13.7</td>
</tr>
<tr>
<td>1978</td>
<td>164.0</td>
<td>16.8 10.2</td>
<td>21.3 13.0</td>
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<tr>
<td>1979</td>
<td>189.7</td>
<td>19.1 10.1</td>
<td>24.4 12.9</td>
</tr>
</tbody>
</table>

Source: CSO National Income and Expenditure 1980

Local Authority Spending By Category

<table>
<thead>
<tr>
<th>Year</th>
<th>Final Capital Debt Grants Other Consumption</th>
<th>Capital Interest</th>
<th>Debt Subsidies Other Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975/76</td>
<td>55.3</td>
<td>22.1</td>
<td>14.2</td>
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<tr>
<td>1976/77</td>
<td>58.3</td>
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<td>1978/79</td>
<td>63.2</td>
<td>15.4</td>
<td>14.0</td>
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<tr>
<td>1979/80</td>
<td>62.3</td>
<td>14.4</td>
<td>14.0</td>
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</tbody>
</table>

Source: Financial Statistics.

4 Relative Importance of Capital Expenditure And Revenue Expenditure

At the outset of the research it was recognised that it would be useful to examine how capital expenditure compared with revenue expenditure contrasted with similar ratios from the industrial sector of the economy. If the investigation had shown that capital expenditure in spite of its absolute size, was of relatively small importance to local authorities, there would have been little value in comparing the appraisal methods used in the private and public sectors - where capital investment has minimal effects on income earned and on future revenue costs - capital appraisal problems will also be of minimal significance.
This research was subsidiary to the main project and a search was therefore made to identify a suitable secondary source of information. A report prepared on behalf of the Confederation of British Industry* had examined this topic and the relevant figures are shown in table 2

**TABLE 2**

Capital And Revenue Expenditure In The Private And Public Sectors Compared

Source P A Consultants

a) Cheshire County

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Revenue Expenditure £000</th>
<th>Capital Starts Planned £000</th>
<th>% Of Capital to Revenue</th>
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<tbody>
<tr>
<td>1977/78</td>
<td>179,393</td>
<td>10,020</td>
<td>5.6</td>
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<tr>
<td>1978/79</td>
<td>203,031</td>
<td>14,635</td>
<td>7.2</td>
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<td>1979/80</td>
<td>231,057</td>
<td>19,034</td>
<td>8.2</td>
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</table>

b) Industry 1977

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Sales £ Million</th>
<th>Capital Expenditure</th>
<th>% of Capital to Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food, drink, tobacco</td>
<td>23,252</td>
<td>717</td>
<td>3.1</td>
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<tr>
<td>Chemicals</td>
<td>12,109</td>
<td>805</td>
<td>6.6</td>
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<tr>
<td>Mechanical Engineering</td>
<td>12,305</td>
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<td>4.0</td>
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<tr>
<td>Electrical Engineering</td>
<td>9,359</td>
<td>366</td>
<td>3.9</td>
</tr>
<tr>
<td>ALL MANUFACTURING</td>
<td>124,037</td>
<td>4,989</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Report on Cheshire County Council prepared for the CBI by PA Management Consultants (1979)
Whilst general conclusions cannot be drawn from the statistics they are indicative of the importance of capital expenditure in relation to total outlays. Further research* showed that in that year Cheshire County Council ranked fifth highest spender of capital expenditure among the non metropolitan counties of England and Wales. The figures are a useful illustration of the importance of capital projects to local authorities.

5 The Nature and Definition of Local Authority Capital Outlay

This topic has troubled theoreticians for almost a century. Paradoxically the difficulties in formulating a definition and developing a conceptual approach seem to have caused few practical difficulties for accountants working in the local government sector.

In the private sector some outlays are not charged immediately to production (ie against current revenue) and remain as balances in the ledger accounts. These balances are written down and charged against revenue by instalments over the life of the asset. The assets are usually tangible physical items but on occasions they may be intangible (eg goodwill) or a form of deferred revenue expenditure (eg development costs spread over a period of time). Such outlays are classed, in the private sector, as capital expenditure.

Definitions of capital outlay in the private sector often refer to expenditure which increases the earning capacity of the firm. This concept is not always easy to sustain - even when the main goal of the organisation is to maximise revenue. For example, expenditure on welfare facilities provided for altruistic reasons would be capitalised, although it is only remotely related to increasing the earning capacity of the firm.

Local authorities do not have to organise their accounting so as to avoid the repayment of capital - they do not have permanent capital resources equivalent to the equity of limited companies. They do, however, incur expenditure which provides benefits over a period of time and which, intuitively, it would seem reasonable, to class as capital expenditure.

* Statistics published by the Chartered Institute of Public Finance and Accountancy
In many cases the expenditure will not increase the earning power of the authority as any benefits which arise from the outlay:

1. May not be in a monetary form and
2. If the gains are monetary the beneficiary will be either the general public or the private sector of the economy - no benefits, monetary or otherwise will flow directly to the authority which invested the resources.

The following paragraphs briefly examine the historical development of concepts of capital in local government. The research was carried out by examining the present position and tracing back the earlier stages from which the present position has developed. The stages are, however, set out below in chronological order.

Several abstracts of account were examined covering accounting periods about the turn of the century. The balance sheets were in each case prepared in the 'double account' form. This practice was the one used by the railway companies and involved balance sheets with separate revenue and capital sections. Local authority 'double account' balance sheets showed on the left hand side of the capital section loans raised and other sources of finance. On the right hand side appeared the balances relating to assets acquired and capital cash balances held. The accounts were kept 'in balance' by posting to a capital provisions account an amount equal to loans which had been repaid (the contra entry to the credit to the capital provisions account would be a debit to the revenue account).

At this stage the latter part of the nineteenth century and the early part of the present century, the concept of local government capital expenditure was related more to the method of financing rather than to the nature of the outlay.

Henry Brown** writing in 1937 assumed that the double account system was the accepted local authority practice but in explaining the nature of the items which were shown in the capital section refers to legislation, current at that time, which stipulated the purposes for which local authorities could...

*The Railways Act 1868 required the companies to keep accounts which showed that capital was kept intact. The capital account showed the amount raised by the issue of ordinary shares, preference shares and debentures. Assets were not depreciated but the engineer had to certify that repairs and replacements had maintained the assets at their original value.

**Brown H Book Keeping and Accounts of Local Authorities First edition 1937 Butterworth and Company
borrow. The Act* as well as referring specifically to land and buildings - which are equivalent to commercial capital expenditure - also includes

'The execution of permanent works and any other thing which the local authority has power to execute ...... the cost of which ought to be spread over a term of years'

The earlier concept recognised expenditure as 'capital if it was financed from capital funds, the 1933 Act also takes into account the nature of the expenditure and also, by implication, the idea that it should give benefits spread over a period of years.

In 1955 The Chartered Institute of Public Finance and Accountancy (at that time known as the Institute of Municipal Treasurers and Accountants) published recommendations on the form of published accounts of local authorities. In the section dealing with the definition of capital expenditure it states:

'...it should be deemed to be in principle those outlays which are thought by the authority to have a longer term benefit than that of a single year of account (other than items which represent mere adjustments between one year and another, suspense accounts and stores accounts)'

A working definition was also given:

'All expenditure on an objective for which the local authority concerned could reasonably expect to obtain a loan sanction, regardless of the way it is actually financed, but excluding true deferred charges such as that incurred in presenting a local act. Expenditure on acquiring land should always be treated capital.'

The working definition has two elements worthy of comment. Firstly it indicates how deeply entrenched is the tradition of defining local government capital expenditure according to the method by which the outlays are financed. Secondly it recognised the practical point that small authorities may capitalise items which large organisations may not - for example, a single vehicle. Although the phrase "could reasonably expect to obtain a loan sanction" relates to the 1933 Act in practice the decision to capitalize and finance from loan was determined by the size of the authority. These definitions were, with minor amendments, carried forward to later editions of the recommended form of accounts. It is interesting to note that the recommendations classify expenditure into two groups.

* Local Government Act 1933 s.195
** The Form of Published Accounts of Local Authorities IMTA 1955
I Local Government Act 1933
1 Capital outlay - land, building, plant and other realisable assets which have a definite life and which should be written out when cease to exist.

2 Other long term outlay - unrealisable assets for which there is no precise day of alienation or falling out of use - for example roads, sea defence works.

This was the first real attempt to classify local authority capital outlay into separate groups.

The two types of capital outlay, first formally recognised in 1955 require different approaches to appraisal. "Other long term outlay" is not analagous to the private sector whereas "capital outlay" can be similar to commercial capital expenditure.

The LAYFIELD REPORT of 1976* contains the following definition

"Investment in physical assets....which continue to be of value long after their acquisition"

This is a simple but effective definition, it ignores the methods of financing, it includes assets that can be realised and it also includes public works.

Definitions which refer to loan sanctions became obsolete with the passing of the 1980 Act.† The Act altered the form of central government control of local authority capital investment from one based on control of finances to one based on limiting the actual outlay. Section VII of the Act is headed "CAPITAL EXPENDITURE" and it was therefore necessary for the draftsman to define what was meant by capital expenditure. No attempt was made to formulate a conceptual definition. The problem was circumvented by including a schedule 12 a list of expenditures to be classed as "prescribed" - that is capital expenditure. The main provisions of this part of the schedule are:

1 Subject to paragraph 2 and 3 below and to regulations under paragraph 4 below, expenditure on -

(a) The acquisition of land, including buildings and structures on land;

* The report of the Committee chaired by Lord Leyfield to look into alternative means of financing Local Government.
† Local Government Land and Planning act 1980,
(b) the acquisition of vehicles and vessels and of movable and immovable plant, machinery and apparatus;

(c) the reclamation, improvement or laying out of land;

(d) the construction, preparation, conversion, improvement, renewal or replacement of buildings and structures;

(e) the repair or maintenance;

(i) of land (including dwelling-houses and other buildings held under Part V of the Housing Act 1957; and 1957 c.5

(ii) dwelling-houses held otherwise than under that Part of that Act, to the extent that the expenditure is defrayed by borrowing;

(f) the renewal or replacement of vehicles and vessels and the installation, renewal or replacement of movable and immovable plant, machinery and apparatus; and

(g) the making of grants and advances of a capital nature other than grants and advances to local authorities or Passenger Transport Executives, is prescribed expenditure for the purposes of this part of this Act.

2 Expenditure in connection with the acquisition, renewal or replacement of any vehicle or vessel or the acquisition, installation, renewal or replacement of any item of plant, machinery or apparatus is not prescribed expenditure for the purposes of this Part of this Act if it is less than an amount prescribed by the Secretary of State."

The contents of schedule 12 form a good working list of the types of outlays which are usually capitalised by local authorities.

Attempts to formulate definitions through a conceptual approach have not been totally successful. In most instances the persons trying to develop the definition have fallen back on pragmatic approaches which do little more than list the physical assets and other expenditures which are traditionally capitalised by local authority accountants. As stated previously this has caused few practical difficulties although it is unsatisfactory from a theoretical point of view. This research project is concerned with the appraisal of projects which are in practice capitalised by local authorities. The unsatisfactory outcome of the historical search for a conceptual definition of capital expenditure which can be applied to local authorities.
has been recognised. The definition given below, which will be used to delimit the areas to be studied, owes its origins as much to the rule of thumb working definitions as to the examination of the concepts involved.

The definition of local authority capital expenditure to be used for this research project will be:

- Expenditure on land, buildings, plant and other realisable assets other than those of insignificant value

- Expenditure on public works which provide benefits over more than one year of account

- Major renewals, replacements and repairs which local authorities traditionally treat as capital expenditure because it increases the value and/or life of the original asset.
The Validity and Usefulness of Commercial Appraisal Techniques when Applied to Local Authority Situations

1 Introduction

Intensive library research confirmed the initial impression that there was very little published information on this topic. There was also a conflict between the views of academics who implied that the same principles underly all appraisal, local authority or private sector and the attitude often expressed strongly by practitioners that the techniques were probably not valid and certainly not useful. (The view was expressed vociferously but not fully borne out by the subsequent survey findings). When applied to local authority situations it was therefore necessary to examine in depth each of the main commercial appraisal techniques.

The examination of the concepts showed that in the main the appraisal techniques were valid and in appropriate circumstances were useful to the evaluation of local authority investment proposals.

The reporting of this section of the research has therefore, been limited to a summary of the main findings, together with footnotes of the main published works to which reference was made.

2 Pay Back Period

Where local authority projects are financed by 'temporary' use of revenue resources or fund balances the pay back period is a useful measure of the relative burden of each of the alternative projects. It is particularly useful for appraising capital investments which have the objective of reducing future revenue costs. The technique is usually used to evaluate the short term aspect of individual proposals but Sarnat and Levy* and also Karathanasses† have studied the effects of ranking profits by this method.

† Karathanassis - Management Accounting July/August 1982

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One of the most significant factors to emerge when examining this technique, (and the same point was subsequently found to apply to other techniques) was that local authorities appraise projects over much longer periods than private companies - most commercial projects were 'justified' over a period of 10 years or less many local authority projects over 30 years or more.

Pay back calculations were understandably not made when a 30 year time scale is used for appraisal. There must be some doubt whether an authority can predict its needs or the value of an asset over so long a period. It is interesting to speculate how the pattern of capital investment in local government would change if projects had to be evaluated over a much shorter time scale. This is a suitable topic for further research.

3 Accounting Rate of Return

The second non-D.C.F method of appraisal which is to be examined is the accounting rate of return. This is a measure of the average annual income over the life of the project divided by the investment required to generate the income. This method assesses the net income and not the cash flow. It is arguable therefore, that it is more closely related to normal methods of measuring financial performances - the generation of profit - than are any of the other methods.

This type of approach has been imposed on local authorities by regulations which require a return of 5% on capital employed by direct labour undertakings. At first sight the Accounting Rate of Return is the method which should be used to appraise proposed investments. There are however disadvantages in practice. These can be usefully illustrated by reference to local authority direct labour organisations.

If the target rate of return to be achieved is 5% the probability is that investment proposals with an accounting rate of return above 5% will be accepted and those below rejected. This would be so whether most of the income was earned in the early years or most of it in the later years of the scheme. In practice both 'early' and 'late' earnings cause problems.
This is because both 'early' and 'late' imply that there are some years when the earnings will be below the annual average - if the average is only 5% there will be years in which the target of 5% will not be achieved. As the DLO has to make a five percent return in all years the acceptance of such a project could result in the target not being met in the 'lean' years. In certain circumstances - when the target had not been met for several consecutive years - this could result in the DLO being closed down. This demonstrates the problem of using accounting rate of return to appraise investment proposals - it is attempting to use a criterion which relates to annual project performances to a different situation, that of investment decision making. If the criterion of performances is return in individual years, appraisal methods which measure performance over the full life of the asset may not be appropriate.

The calculation of annual income is not easy, it is affected by accounting conventions relating to the recognition of income. Often,* when the calculations are made in order to assess the accounting rate of return, they are based on profit before deduction of depreciation. This means that the measurement is neither the recognised accounting concept nor a cash flow concept.

After the best possible estimates of income over the life of the asset have been calculated they have to be converted to an annual average. A straightforward arithmetical average does not take into account the time factor and any attempt to weight the average begs the question as to whether or not DCF methods would be superior.

The DLO regulations provide that the 5% return should be calculated on a 'current cost accounting' basis. If this factor is taken into account in estimating the effects of an investment proposal the appraisal is removed even further from the income and expenditure accounting convention and also is removed from actual cash flow methodologies.

The theory of the Accounting Rate of Return approach requires that the estimates of capital employed should include all capital outlays which would arise from the decision to proceed with the project. This is difficult enough to estimate for commercial projects but even more so for local authorities. Some of the assets used by the Direct Labour Organisation

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* This practice is not common in the private sector. The comment is based on observations made in public sector organisations which do not follow commercial depreciation conventions in the financial accounts.
may also be used for other services. The capital outlay figures needed to calculate the accounting rate of return can be defined as the marginal capital outlay, that is, the additional outlay which would be made if the project is carried out and which would not be spent if the scheme is rejected. It is a hypothetical concept which does not comply with the reality of complex organisations. Investment decisions are not concerned with isolated projects but with the whole complex accounting and financial structure of the entity.

These difficulties have not been expounded in order to indicate that accounting rate of return has no part to play in the appraisal of local authority projects. It does provide a useful ratio expressing the relationship between the amount invested and the income generated.

4 Discounted Cash Flow - Net Present Value

Boness writing in 1972 stated

"Present value methods used for the evaluation of private investment proposals can be formally carried over into the analysis of public sector investments"

Underlying the concept of comparing net present values is the assumption that intermediate flows can be invested (positively or negatively by borrowing) at the percentage rate used for discounting otherwise it would not be logical to assume that two projects with the same NPV are equally attractive even if they have diverse patterns of flow. The examination of this concept in relation to local government showed:

1 The DCF model of investment of intermediate flows was more likely to represent the real life situation than it is in commerce - because in local government the flow will affect cash balances which are in practice temporarily invested (or borrowed). In commerce the flows will probably be dissipated by paying dividends and not invested.

2 The assumption made concerning borrowing are valid for all the different types of loans used by the Local Authority.

Boness A J Capital Budgeting in the Public and Private Sectors - Publishers IMC 1972
Conclusions which were reached concerning the practical application of net present value calculations to local authority were:

1. Positive NPV, indicates that prima facie a project is worth undertaking. In commerce this is often subject to the constraint that the discount rate used is not less than the target rate of return on capital - otherwise acceptance of the project might lower the average return and reduce the net wealth of the shareholders. This additional constraint does not normally apply to local authorities but it might for a direct labour organisation where a target rate of return on capital employed is imposed by the Government's 'Code of Practice'.

2. Provided that funds can be invested (or borrowed) the NPV shows the amount of loan which can be serviced from the flows whether the loan is a maturity, annuity or equal instalments.

5. **Internal Rate of Return**

Because of the preponderance of non income generating projects this technique was not used a great deal by local authorities. However:

- The pressure for the government for more public sector/private sector comparison.
- The value of the techniques in evaluating cost saving investments by measuring savings as a return on the investment.

may lead to an increase in its use in the future.

The main criticism of the technique by practitioners was that in practice the results seemed to be capricious when used for modelling - changes in the size and timing of flows changing the order of ranking.

The various combinations of size of flow, relative earliness or lateness and the effect of time preference were examined for both NPV and IRR calculations. Practical local authority investment proposals which might be difficult to compare and evaluate because of different loan/capital/time weighting were examined. It was concluded that there should be no insuperable problem in interpreting the reaction of a model to changes in any of these factors or in judging the significance of the reaction of the model.

*As measured by market capitalisation*
There are two main justifications for discounting. Firstly that the early receipt of flows is more valuable than late receipt because the funds can be invested. It was shown by the research that the assumption of investment is realistic in respect of local authorities.

The second justification is that discounting gives more emphasis to the early (and more certain) estimated flows and less to the more distant (and uncertain). Because local authorities tend to evaluate projects over long periods this weighting for the present and certain and against the future and uncertain is to be recommended.
APPENDIX 3
Collection of Empirical Evidence

1 Synopsis

Chapters 1 - 3 of the thesis examined the investment behaviour of individuals and contrasted this with that of local authorities. The differences were codified into five main points.

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Local Authorities</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Constraints on investment</td>
<td>Many</td>
<td>None up to the point where costs and interest exceed profit</td>
</tr>
<tr>
<td>2 Decision Making</td>
<td>Corporate</td>
<td>Individual</td>
</tr>
<tr>
<td>3 Benefits expected to accrue</td>
<td>May accrue to the investor or to the public at large</td>
<td>Accrue to the investor</td>
</tr>
<tr>
<td>4 Objectives</td>
<td>Socio/political</td>
<td>Mainly income generating</td>
</tr>
<tr>
<td></td>
<td>Mainly non-income generating</td>
<td></td>
</tr>
<tr>
<td>5 Appraisal</td>
<td>Aimsto show effects on the community as a whole or to facilitate comparisons</td>
<td>Aimsto show effects on the investing individual</td>
</tr>
</tbody>
</table>

Arising out of these differences a number of areas were selected for further investigation by the collection and analysis of empirical evidence.

*Rummel and Bellaire emphasise, research into business topics must not only add to existing knowledge but must be of practical use. It was therefore, decided that the survey of current practice, should have three main objectives.

1) Collection of data to facilitate further study of the differences between the investment behaviour and practices of individuals and that of local authorities.

*Rummel and Bellaire - Research Machinery in Business
(2) Increasing existing knowledge of local authority investment procedures
(3) Identifying current 'best practice' and areas for further research.

2 Research Methodology

The main methods available to collect empirical evidence and their usefulness for this project are:

(1) Field Observation: This should involve the recording of actual facts and not merely interpreting them. It is a useful and flexible procedure which can be adapted to solving different types of problem and particularly appropriate to research into investment practices of local authorities.

(2) Literature Reviews: This time consuming, but valuable, method was extensively used in developing some parts of this thesis. It involves searching published bibliographies, on line computerised library catalogues and above all requires the patient help of librarians. Possible sources of information are read, irrelevant facts discarded, and relevant ones classified and recorded. Searches carried out had identified very little recorded information on the topic of local authority current investment practices. Further literature reviews would not, therefore have provided the additional knowledge required to progress this research project.

(3) Secondary Data Analysis. This consists of examining data already collected - but using it for a purpose different than that for which it was originally collected. Secondary data relating to commercial sector investment appraisal was identified and compared with that collected as part of this research project into local authority appraisal.
(4) Case Study: This involves carrying out an investigation into all aspects of a single entity or project. It was unlikely that any one project, series of projects or single local authority would provide the variety of types of investment proposals which was essential to this research.

(5) Experimental Research: Essentially this involves comparing two situations, identical in all respects except one. The causes of the results arising from that differences are then studied. It is unlikely that two such situations could be found in the complex real world of local government finance.

Some form of field study was clearly necessary for this part of the research. Collecting information solely by means of a postal survey was considered but rejected because:

(1) discussions with other researchers who has recently used this method indicated that a low response rate might be expected (in contrast - a very high response rate was achieved when the survey was undertaken)

(2) responses would probably not be typical of authorities as a whole - those with more developed systems being more inclined to reply.
(3) Information was needed on the (subjective) views of practitioners and these would be difficult to collect by postal survey.

It was therefore decided to collect data by postal survey and follow up interviews.

2 Selection of Authorities to be Surveyed

Four methods were considered

(1) Random selection

(2) Lottery

(3) Stratified

(4) Multiphase (large initial sample by postal survey followed by a sample by detailed interview.)

Although random selection or lottery had superficial attraction the advantages of 'Randomness' would be lost if only a small unrepresentative response was achieved.

Multiphase approaches would have caused problem of cost, the amount of time consumed and the likelihood of a small biased response.

A stratified approach was therefore considered and a review was made of the types and functions of local authorities in order to select the most appropriate units for inclusion in the survey.
TABLE 1

Principal Functions of Local Authorities in England, Wales and Their Distribution

<table>
<thead>
<tr>
<th>England and Wales*</th>
<th>Non-Metropolitan areas</th>
<th>Metropolitan areas outside London</th>
<th>London</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counties</td>
<td>Districts</td>
<td>Counties</td>
<td>Districts</td>
</tr>
<tr>
<td>Education</td>
<td>*</td>
<td>*</td>
<td>(a) (a)</td>
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<tr>
<td>Youth employment</td>
<td>*</td>
<td>*</td>
<td></td>
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<tr>
<td>Social services</td>
<td>*</td>
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<tr>
<td>Libraries</td>
<td>*</td>
<td>*</td>
<td></td>
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<tr>
<td>Museums/Art galleries (b)</td>
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<td>*</td>
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<tr>
<td>Housing (c)</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Town development (b)</td>
<td></td>
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<tr>
<td>Planning (d)</td>
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<tr>
<td>Transport including (e)</td>
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<td></td>
<td>highways &amp; Car Parks *</td>
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<tr>
<td>Environmental health (f)</td>
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<td>*</td>
<td>*</td>
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<tr>
<td>Refuse collection</td>
<td>*</td>
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<tr>
<td>Refuse disposal</td>
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<tr>
<td>Cemeteries</td>
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<tr>
<td>Police Service (g)</td>
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<td>Fire Service</td>
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<tr>
<td>Markets and Recreation (b)</td>
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<tr>
<td>Airports (b)</td>
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<table>
<thead>
<tr>
<th>GLC Boroughs or City</th>
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<tr>
<td>(a)</td>
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Notes*

a) In the Inner London boroughs, education is provided by the Inner London Education Authority (whose members are appointed by the GLC), but individual Outer London boroughs have this responsibility.

b) Responsibility for these services is determined by local agreement between counties/districts.

c) County councils possess certain reserve housing powers.

d) Strategic planning is primarily the responsibility of counties and local planning of districts. Certain control functions are allocated directly to counties or districts, and other functions are shared or allocated by agreement.

e) Metropolitan counties are Passenger Transport Authorities and are responsible for laying down the general policy to be followed by the Passenger Transport
Executives which provide the public transport services. PTE's have access to the Public Works Loan Board. The Greater London Council is no longer responsible for transport other than highways. The other transport functions having been transferred to the London Regional Transport Authority.

f) Refuse disposal and diseases of animals are the only environmental health responsibility of County Councils.

g) With the exception of the City of London which has its own police force, police is a first tier responsibility handled by an individual county or a group of countries in combination.
The initial suggestion of selecting a number of authorities from each class was rejected in favour of a main survey of outer London Boroughs and a control group of other authorities to cross check the results. The reasons for this decision were:

(1) Outer London Boroughs are responsible for a wider range of functions than any other group of local authorities. It is reasonable, therefore to assume that investment decisions similar to those found in the private sector are most likely to occur in this type of authority.

(2) County Councils, because of the nature of their functions, were the authorities least likely to have investment decisions of a type comparable with the private sector.

(3) At the time authorities were being selected for the survey, the most recent survey of private sector appraisal practice was that carried out by Pyke who selected the 100 largest companies as measured by market capitalisation. If a comparison was to be made, where appropriate, with the private sector survey it seemed sensible to select larger local authorities if they were to be compared with 'large' companies (For the purpose of this survey it is a pity that Pyke excluded heavily diversified companies and those not engaged in manufacture)

The desirability of selecting the survey sample from large authorities implied that Non-Metropolitan District Councils should be eliminated as a possible source because of their relative lack of size.

(4) Metropolitan Districts had no advantage as a sample over outer London Borough - in that they had less services and were a less homogeneous group.

*Pyke R H Op Cit*
4 Survey Method

The survey was planned for autumn 1983 and encompassed
- all twenty Outer London Boroughs and
- a control group of twenty other authorities

The questionnaire, as originally drafted had contained questions relating to
the authorities appraisal practices and also questions on attitudinal aspects
relating to the opinions of practitioners. However, experience gained during
an initial pilot survey showed that a postal survey was not an effective way
to investigate attitudinal aspects. Consideration of attitudinal aspects
was therefore limited to information which could be collected by interviewing
the personnel concerned.

It is arguable that a survey of views, expressed and recorded in interview
situations is less scientific than one in which the data is collected and
classified by means of a formal questionnaire but:

(1) Practitioners with whom the research was discussed were critical of
academic research which consisted of repetitious investigation in which
the rigour and complexity of calculations are equalled only by the futility of
the result. They implied that frank discussions which probe the opinions
held by practitioners were of equal importance to detailed statistical
analysis.

(2) Elliot and others, have stressed that each step in research should arise
logically from the previous stage. It was more logical, in this instance,
to postpone the research into attitudinal topics until factual data on
local authority appraisal practices had been obtained.

(3) Mann quoted Pearson as maintaining that any person who classified any
kind of facts, sees their mutual relationships and describes their
significance in carrying out a scientific task. The follow-up interviews
were to be carried out in order to classify facts and identify relationships -
and could, therefore be classed as a scientific task.

1 Source of quotation Dainty P. Graduate Management Research Vol 1 No 1 1983
2 Elliot K. Journey to an Unknown Destination - Graduate Management
   Research Vol 1 No 1 1983
5 Conclusions

The final form of the questionnaire had to take into account:

- The main areas of research
- The relevant concepts and methodology of the investigation
- Experience and practical problems identified by the pilot survey

The questionnaire (see appendix 4) was designed to collect data on four main areas:

- Capital Budgeting Procedures
- Decision Making Processes
- Appraisal Methods
- Treatment of Non-Monetary Aspects

The interviews aimed at verifying data collected from the questionnaires and investigating attitudinal aspects.

The data was collected in order to increase knowledge of current practices. Such knowledge would hopefully facilitate study of the differences between local authority and private investments, identify best current practices and stimulate further research and development.

That is, it was to be used for descriptive and not inferential purposes. The danger of over emphasis on analysis and the use of statistical techniques in the interests of 'scientificness' was as stated by *Phillips, to be avoided. Some techniques of analysis were tried but were rejected as not being particularly helpful.

It was concluded that a simple presentation of data showing the percentage of respondents using each technique (or method) would be most helpful way of achieving these objectives.


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APPENDIX 4

APPRAISAL OF CAPITAL PROJECTS

NAME OF AUTHORITY

ESTIMATED CAPITAL EXPENDITURE 1983/4 £MILLION

NAME OF OFFICER INTERVIEWED

POST HELD

DATE:
Question 1-3 are answered by drawing a ring round the correct answer.

1 **Does Your Authority:**

   1.1 have a capital programme covering three or more years?  
   1.2 have an updated procedures manual for capital programming?  
   1.3 have an updated procedures manual for project appraisal?  

2 **Inorder To Select Appropriate Techniques:**

   2.1 are schemes classified as mandatory or essential/optional?  
   2.2 are schemes classified as Commercial/Non-commercial?  
   2.3 are schemes classified in some other way? Please specify  

3 **Are Members, Making Investment Decisions, Aware Of:**

   3.1 capital costs?  
   3.2 annual costs of adopting the proposals?  
   3.3 annual costs of not adopting the proposals?  
   3.4 costs of major alternative courses of action?  
   3.5 the nature of alternatives but not the costs?  

Questions 4.10 are answered by drawing a ring round the correct answer and where appropriate putting the classification number of the type of project the answer applies to in the box. Classifications to be used are shown on page 2.

4 **Are Detailed Appraisals Made:**

   4.1 before projects are included in the Capital Programme?  
   4.2 after inclusion but before implementation?  
   4.3 not at all?  

5 **What Investment Appraisal Criteria Is Used By Your Authority:**

   5.1 Pay back?  
   5.2 Return on capital employed?  
   5.3 DCF - Internal rate of return?  
   5.4 DCF - Net present value?  
   5.5 Other? Please specify.  

6 **Does The Authority Use Any Of The Following Techniques:**

   6.1 Mathematical Modelling?  
   6.2 Computer Simulation?  
   6.3 Cost Benefit Analysis?  
   6.4 Other? Please specify  

7 **Are Non-Financial Aspects Of Investment Proposals:**

   7.1 Presented in a separate report?  
   7.2 Shown as 'Trade-Offs' against financial costs/benefits?  
   7.3 Shown in the financial report but not as 'Trade-offs'?  
   7.4 Other? Please Specify.
8 How Is Inflation Incorporated In Appraisals:

8.1 By adjusting the discount rate?  8.1
8.2 By adjusting the value of inflows and outflows?  8.2
8.3 Other? Please specify  8.3

9 What Method Is Used To Allow For Risk/Uncertainty:

9.1 By calculating 'optimistic' and 'pessimistic' estimates?  9.1
9.2 By drawing attention to sensitive areas?  9.2
9.3 By use of probability analysis?  9.3
9.4 No allowance made?  9.4
9.5 Other? Please specify  9.5

10 Has the use of any criteria/technique shown above been discontinued? Please specify.

11 What measures of need are used to support non commercial investment proposals? Please specify.

Investment Classes
1 - Obligatory Public Works
2 - Option of Public Works
3 - Commercial Projects
4 - Plant/Vehicle Replacement
5 - Administration and Service Projects
6 - Buy or Lease Decisions
7 - Direct Provision/Privatisation
8 - DLO Plant and Buildings

Other Comments

Would you like to make any other comments? Please use the space below.
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