Labour productivity in hotels: an empirical analysis

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Among the current issues confronting hotels that of improving productivity is one of the more compelling and challenging. For while the need to secure greater productivity becomes increasingly evident to hotel managers the elusiveness of the concept persists. Not only have managers frequently been at a loss to understand it but also to know how to measure it satisfactorily. This paper introduces approaches to the measurement of hotel productivity and, within the context of one hotel company's quest to manage labour productivity, concentrates upon two particular factors which have made hotel productivity elusive — productivity measurement and productivity evaluation.

Key words: labour productivity hotels measurement evaluation

Introduction

The difficulties within western economies in the early eighties have highlighted the relationship of productivity growth to the increase of gross domestic product (GDP). However, it has been recognised that modest increases in productivity are quickly outweighed by inflation and that for both short-term survival and longer-term prosperity, productivity improvements must be more substantial. Consequently, productivity management and the development of programmes to achieve productivity objectives have become prominent features of many industries. This has been particularly so in primary and secondary industries which, as with many other aspects of management, have been pioneers in the field of productivity management. In contrast, the service sector, and the hotel industry more specifically, has lagged behind in its productivity endeavours. Yet the pressures for improving productivity are as great in hotels as elsewhere.

In common with other service organisations hotels have traditionally had a high labour density, which invariably accounts for the greatest proportion of total hotel costs. These labour costs have not only risen more significantly than other operational costs, but, according to Blois (1984), have increased more steeply than inflation. This has occurred because of the problem of controlling staff time and maximising labour efficiency due to the inherent unpredictability of the pattern of business in hotels, particularly in food and beverage areas, and because of increasing rates of labour cost components such as insurance, wages and salaries. This rise in labour costs has been partly responsible, as Whiteman (1981) points out, for the service sector increasing its prices at a greater velocity than the rest of the economy. The dilemma, as Coltman (1980) states, is that the customer has begun to resist attempts to pass along these cost increases, and will continue to do so as demand grows for more and better hotel services, and employees continue to seek better working conditions and improved wages.

Despite these pressures for productivity improvements in hotels, productivity management has not progressed quickly. After setting out to examine approaches to the management of productivity in hotels, this paper discusses the positive efforts of one hotel company to measure and manage its labour productivity.

Approaches to productivity management in hotels

There have always been two fundamental ways of widening business profit margins. One is by increasing demand for a service or product and the other is by reducing fixed and/or variable costs. Each approach has commonly been regarded as distinct and unrelated to the other. Whilst cost control and cost cutting exercises have taken place within many hotels, the marketing mentality, as Geller (1985) indicates, has usually prevailed as the means for achieving the hotel profitability goal. This is con-
gruous with the early claim of Kotas (1975), that the most important determinants of hotel and catering profitability are to be found on the revenue side of the business. However, adopting either market or cost strategies is too limited an approach to hotel productivity. In contrast, it is our view that it is fundamental to the successful management of productivity in hotels to accept that a reciprocal relationship exists between demand and supply, inputs and outputs, market strategies and cost strategies. There would be little value, for instance, in pursuing marketing strategies to increase business within hotels during slack periods if the workforce were too inefficient to cope. Also, increasing the market level without regard to the size of the staffing complement would be undesirable for hotels at the top end of the market where the maintenance of a low ratio of customers to staff is traditional. Disregarding the profile of the staffing complement also commonly leads to the misuse of scarce resources, such as managers covering work which could be undertaken by less expensive staff. Conversely there would be no point improving systems of working and increasing staff flexibility, if customer demand was not present.

Hence there is a need for hotels to be more than simply cost- or market-oriented, but to be both simultaneously. Hotels, like any other business, need to ensure the efficient provision and sale of their products, facilities and services. In other words, it is our contention that for sustained success hotels need to become productivity-oriented. By squaring up to the market (output) and resource (input) aspects synergistically hotels can be managed within a productivity framework. Such hotels may still pursue cost strategies to change resource inputs, or market strategies to influence outputs, but must consider the appropriate outputs, or inputs, simultaneously for productivity improvement.

A productivity framework basically consists of four separate elements: the measurement of hotel outputs for a given period of time; the measurement of the hotel inputs responsible for these outputs; the expression of the related outputs and inputs in the form of a ratio, and the evaluation of the ratios themselves.

The measurement of hotel outputs

The first obstacle to productivity measurement in hotels is the problem of satisfactorily identifying hotel outputs. According to Adam Jr et al. (1981), outputs are easiest to measure when physical units of limited type are produced which can be stored. However, in contrast with other sectors of the economy, hotels and the service sector in general supply a diverse range of products, facilities and services, many of which are difficult to measure, such as customer satisfaction, image and atmosphere. Moreover, Renaghan's view (1981), that customers perceive the hotel experience as a whole rather than separate constituents, exacerbates the problem.

Whilst these features are complex and inherent in hotels they have frequently been perceived as deterrents to output and productivity measurement rather than as hurdles which can often be surmounted. For instance, although all outputs may not have accepted measures much hotel provision has. For example: the number, kind and production time of menu items produced by the kitchen, the number and price of meals and drinks served in restaurants and bars, the rate at which bedrooms are cleaned and the number of bookings received in the front office are all measurable.

For productivity management the many features of hotel output which can be measured accurately need to be identified and measured.

The measurement of hotel inputs

The identification and measurement of hotel inputs is also problematic. Inputs are simply the resources needed to operate hotels and can be categorised into such broad types as labour, capital, raw materials, energy and customers. While the consideration of single inputs has been regarded as unsatisfactory by Blois (1984), as output production is normally the consequence of a combination of input factors, considerable difficulties arise when attempting to measure and accumulate total factors. Furthermore, the value of considering total inputs for practical productivity improvement within hotels has also to be questioned. A vital area of productivity to the management of hotels is labour productivity since labour is present in almost all output-generating endeavours. Labour productivity relates outputs to units of labour input and, according to Bernolak (1980), in many cases can be used as an alternative to the more complex multi-input factor productivity concept. With labour representing a significant proportion of hotel costs labour efficiency is also a legitimate focal point for managerial concern. Simple measures of labour input are the numbers of employees, the hours which they work, the payroll costs.

Ratios of hotel productivity

Once the range of hotel outputs and inputs have been identified, a large catalogue of productivity ratios can be calculated by comparing inputs to outputs. Coltman (1980), Mali (1978), Medlik (1980), Pavesic (1983), Powers and Powers (1984) and Sandler (1982) have all cited productivity measures in the context of the hospitality industry. This work has been summarised and extended in
Table 1. Example ratios of hotel productivity

<table>
<thead>
<tr>
<th>Physical measures</th>
<th>Physical/financial measures combined</th>
<th>Financial measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour measures</td>
<td>Kitchen meals produced</td>
<td>Restaurant revenue</td>
</tr>
<tr>
<td></td>
<td>No. kitchen staff</td>
<td>Hours worked in restaurant</td>
</tr>
<tr>
<td></td>
<td>Housecount</td>
<td>Total room sales</td>
</tr>
<tr>
<td></td>
<td>Total employee hours</td>
<td>Total reception employees</td>
</tr>
<tr>
<td></td>
<td>Restaurant covers</td>
<td>Total room sales</td>
</tr>
<tr>
<td></td>
<td>Hours worked in restaurant</td>
<td>Chambermaid day</td>
</tr>
<tr>
<td>Energy measures</td>
<td>Total guest rooms</td>
<td>No. cooked meals</td>
</tr>
<tr>
<td></td>
<td>Total kilowatt hours</td>
<td>Total cooking costs</td>
</tr>
<tr>
<td>Capital measures</td>
<td>Total hotel customers</td>
<td>No. rooms sold</td>
</tr>
<tr>
<td></td>
<td>Square foot of hotel</td>
<td>Total capital expenditure</td>
</tr>
<tr>
<td>Raw material</td>
<td>Chips prepared (lb)</td>
<td>No. bar customers</td>
</tr>
<tr>
<td>measures</td>
<td>Potatoes used (lb)</td>
<td>Cost of liquor used</td>
</tr>
<tr>
<td>Total factor</td>
<td>No. satisfied hotel customers</td>
<td>Housecount</td>
</tr>
<tr>
<td>measures</td>
<td>Total no. hotel customers</td>
<td>Cost of contributing resources</td>
</tr>
</tbody>
</table>

Table 1 which provides examples of productivity measures available for the hotel.

The choice of which measure to use can at first sight appear bewildering, however, each measure relates to different aspects of performance and to different organisational activities. Thus, those concerned with measuring financial performance will be attracted to accounting ratios. Those concerned with energy management will be attracted to those ratios which relate to energy inputs and outputs. Those concerned with labour productivity will focus on the ratios which include features of labour inputs and outputs. In fact, productivity ratios can be identified for any feature of hotel operation once the inputs and outputs have been identified.

The evaluation of hotel productivity

Once ratios of hotel productivity have been calculated the next task is to identify their meaning and significance for the management of productivity. This is not an easy task since the late entry of hotels into the arena of productivity has meant that few yardsticks exist for the evaluation of hotel performance. Accounting ratios which have a long history of use do provide such yardsticks for the measurement of the business performance of hotels, but for an area such as labour productivity much systematic measurement and analysis still needs to be undertaken. Until a databank of comparative yardsticks is available for inter-hotel analysis hotels must develop their own benchmarks against which to evaluate productivity levels. So in brief, despite the mounting urgency for hotels to seek ways of improving their productivity levels, we are still some way from producing a productivity framework for the management of hotels. We now turn to an empirical analysis of labour productivity in hotels which can make a contribution to the development of such a framework.

The measurement of labour productivity in hotels — an empirical analysis

During 1983 discussions were held with senior executives of the U.K. division of an international hotel company about performance in hotels. The discussions developed to the point at which it was recognised that analysis of work performance should be undertaken within a labour productivity framework. In other words, both market and workforce factors should be considered simultaneously to measure the levels of performance in the company's hotels. It was also decided to concentrate on food and beverage departments since customer use of them was most variable and their potential for performance improvement was greatest. Subsequently, the Hotel and Catering Research Centre was commissioned to measure the levels of labour productivity within the food and beverage departments of the company's hotels, to explore strategies for improving productivity and to outline the organisational implications of such improvements. The first phase of this project was the measurement and evaluation of labour productivity in the food and beverage departments which we now discuss.

Measures of labour productivity were obtained from nine hotels in Britain which are operated by the company. They were all A.A. four star hotels in urban areas offering a branded package and broadly similar in terms of the products, facilities and services provided. A pilot study was undertaken for the period from January to December 1983 to test a range of measures of labour produc-
tivity within the food and beverage departments of the hotels, namely restaurant, coffee shop, ban-
queting, room service, bars and kitchen.

On the basis of discussions with company execu-
tives, six measures of labour productivity, drawn
from the wide range of possible measures, were
identified for the analysis. The measures selected
related labour inputs to food and beverage depart-
ments outputs and included the following:

Revenue : Full-time equivalent employee (FTEE)
Covers : Full-time equivalent employee
Revenue : Payroll
Housecount : Full-time equivalent employee
Profit : Full-time equivalent employee
Profit : Payroll

The idea of full-time equivalent employee was
adopted because, like hotels generally, those under
study employed part-time and casual staff. In such
circumstances the FTEE measure provides a means
for standardising labour input around a given time
period. For this study the following equation is
illustrative:

Hotel IV, coffee shop, May 1983:

\[
\text{FTEE} = \frac{\text{total hours worked for the month by}}{\text{number of working hours per day}} \times \frac{\text{the total working days for the month}}{\text{(total number of Mondays–Fridays in the month)}}
\]

\[
= \frac{2601}{8 \times 22}
\]

\[
= 14.8.
\]

Thus, the standardised labour input to the coffee
shop for May 1983 is equivalent to 14.8 members of
full-time staff.

The sources of data to compile the measures
were the uniform operational and financial informa-
tion produced monthly by each hotel. This in-
cluded: the monthly payroll report from which
hours worked and gross wages for each department
were obtained; the daily report for the last day of
each month for the housecount and covers in each
restaurant, banqueting and room service depart-
ment; and the monthly profit and loss accounts for
food and beverage departments from which reven-
ues were extracted. A problem became evi-
dent with profit since the monthly profit and loss
account included only an overall operating profit
for food and for beverage. This meant that profits
for each department analysed were not available
and consequently the measures of Profit : Payroll
and Profit : FTEE had to be discarded.

An example of the measures for one month in
one hotel can be seen in Table 2.

Following the pilot study further refinements
were made to the measures. Housecount : FTEE
was discarded because the housecount — the
number of resident customers for a given month —
did not relate to the food and beverage depart-
ments. Revenue : Payroll was also excluded
because the measures themselves were small, as
were the differences between them, and this
reduced their explanatory value. The remaining
measures, Revenue : FTEE and Covers : FTEE
were retained and were utilised in concert to pro-
vide a picture of workforce productivity.

Other refinements were also made as a result of
the pilot study. Of the departments covered bars
were excluded since the nature of their operation
meant that the productivity measurements taken
of them were not comparable with the other food
and beverage departments which have greater labour
inputs to their operations. Insufficient data for
banqueting was available for all hotels which pre-
vented the calculation of FTEE and thus banquet-
ing calculations had to be dropped from the
analysis. Combined food and beverage figures were
taken for the restaurant, coffee shop, and room
service departments and food figures only were
taken for the kitchen and stewards' department to
provide a more accurate assessment of work tasks
in the hotels. Finally, the apportionment of indirect
hours and pay across the departments studied was
dispensed with and direct hours only were taken to
focus more specifically on the staff performance in
their home department.

After these refinements were made a more exten-
sive analysis was undertaken for the company’s
fiscal years May 1983–April 1984 and May 1984–
April 1985. The fiscal year was chosen for analysis
rather than the calendar year to make the labour

<table>
<thead>
<tr>
<th>Table 2. Hotel I, food, September 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Revenue : FTEE</td>
</tr>
<tr>
<td>Covers : FTEE</td>
</tr>
<tr>
<td>Revenue : Payroll</td>
</tr>
<tr>
<td>Housecount : FTEE</td>
</tr>
</tbody>
</table>
productivity study compatible with the company’s other performance monitoring.

Although the full study took fewer individual measures than the original pilot study the total number of measurements were extensive. Nine hotels were surveyed for each of 24 months and two productivity measures were developed for the restaurant and coffee shop combined, room service and kitchen and stewards’ departments in each hotel during the two-year period. In total 648 measurements of Revenue : FTEE and 648 measurements of Covers : FTEE were taken. It is not possible to review all of these measurements in this article, but Table 3 illustrates their range.

Table 3 is of interest because it illustrates the scope for productivity improvement in a group of homogeneous hotels. Room service is a case in point. The room service departments provide a similar package of products, facilities and services to resident customers and are organised on broadly similar lines. However, during one month one hotel’s room service productivity measured by Covers : FTEE was 8 times greater than another. In other words, for every customer served by one full-time staff member in the lowest-performing hotel, 8 were served in the highest-performing one.

**The evaluation of productivity measures**

Covers : FTEE figures give an indication of the quantity of work performed by each full-time equivalent member of staff, whilst the Revenue : FTEE ratio is a more suitable measure of the qualitative aspects of their work performance. Used together these figures provide a valid, yet simple and easily constructed, guide to productivity management and improvement. In order to act as such a guide these ratios must of course be evaluated against a suitable benchmark. In the absence of a pre-existing standard the easiest way to evaluate these figures is by internal comparison. There are a number of possible bases for such comparisons. Those detailed below have the greatest validity and utility for managerial action.

One way of evaluating a particular department’s performance is to compare it longitudinally, that is, against its own performance over time. Figures 1 and 2 illustrate such an exercise for hotel VII using, in the first case, Revenue : FTEE figures and then Covers : FTEE figures for its coffee shop over a 2-year period. Peaks and troughs of performance are immediately noticeable on both graphs. Again, this is a useful guide for managerial action at hotel level since it facilitates the use of a management by exception approach. Exceptionally good and exceptionally bad productivity periods are easily identifiable and can be concentrated on. The peak periods illustrate productivity levels which can be achieved and these levels can then be used as realistic targets for all other months in the future. Similarly, the minimum figures highlight the times of most concern. The identification of the causes underlying why a particular period has a good or
bad productivity level can be used for the future improvement of other monthly levels.

Comparisons on Fig. 1 which involve a particular period with the same period in another year (e.g. March 1984 and March 1985) are also valid and extremely useful provided that some allowances are made for changing prices, operational modifications, cover composition alterations, etc. Any productivity trends which comparisons such as this reveal can be analysed to ascertain their cause. For example, are cyclic productivity variations being caused by regular increases or decreases in labour input levels, or by fluctuations in customer numbers and average expenditure, or by some combination of both? Answers to questions of this type are necessary in focusing productivity management initiatives effectively.

Another worthwhile method of evaluation is to compare the labour productivity of a single food and beverage department, in this case room service, across all of the company’s hotels. Table 4 illustrates the results of this process for the year 1983/84. Mean monthly productivity levels were calculated, thus smoothing out some of the variability in each unit, so that it is possible to see at a glance how units compare with each other. This enables a single department to be judged not only against its own performance over time but against all its other sister departments in the company. Such a technique is useful for hotel level management and also provides the overview required at corporate level.

Similar, but more detailed, comparisons can be made using the format illustrated by Fig. 3, in which the figures for one department in three separate hotels are plotted side by side. Here the monthly variations have not been smoothed out so that more precise comparisons can be made between a selected grouping of hotels. The more precise nature of this comparison would make it more appropriate at hotel management level. Both of the above techniques are designed to stimulate inter-hotel competitiveness and encourage the cross-fertilisation of productivity initiatives between hotels. Similar thinking lies behind the company-wide league table depicted in Table 5. In this table, three food and beverage departments have been ranked according to the values of their mean monthly Revenue : FTEE figures. The table clearly shows that hotel III possesses two of the most productive departments but also lies last in terms of room service productivity. Consequently, the manager of hotel III could learn something from the manager of hotel IV about room service productivity. Conversely, the manager of hotel IV has something to gain from hotel III concerning the operation of the other two departments. Targeting hotel and departmental managers against both their own historical performance and that of their counterparts in other hotels of the company is seen as a simple way of highlighting the importance of labour productivity and its subsequent improvement. The productivity framework outlined above allows this to be achieved.

<table>
<thead>
<tr>
<th>Table 4. Summary of labour productivity levels for one department and one measure, May 1983–April 1984</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room service, Revenue : FTEE (£)</td>
</tr>
<tr>
<td>I     VII    V     III     IX     II     VI     IV     VIII</td>
</tr>
<tr>
<td>May 1983 2310 1440 1141 1160 3673 1473 2384 4326 1675</td>
</tr>
<tr>
<td>June 1983 2601 1722 1376 1480 3585 1439 1466 4310 1780</td>
</tr>
<tr>
<td>July 1983 2814 1888 1170 1254 3022 1419 1871 4693 2146</td>
</tr>
<tr>
<td>August 1983 3469 1730 1139 1533 3603 1645 2760 4855 2640</td>
</tr>
<tr>
<td>September 1983 3191 1647 1417 1405 4077 1805 2720 4861 1760</td>
</tr>
<tr>
<td>October 1983 2625 1172 1395 1127 2799 1700 2348 3863 1792</td>
</tr>
<tr>
<td>November 1983 2745 1379 1443 1168 2925 1475 1620 3618 1728</td>
</tr>
<tr>
<td>December 1983 2278 1157 1123 1273 2660 1320 1563 4006 1583</td>
</tr>
<tr>
<td>January 1984 2502 1225 1549 1196 2800 1333 1272 3405 1372</td>
</tr>
<tr>
<td>February 1984 2625 1480 1649 1123 2366 1682 1135 3023 1786</td>
</tr>
<tr>
<td>March 1984 3327 1719 1919 1424 3187 1718 1843 3168 1606</td>
</tr>
<tr>
<td>April 1984 3170 1609 1472 1263 2238 1771 1661 3901 1862</td>
</tr>
<tr>
<td>Monthly average (£) 2796 1507 1398 1292 3053 1567 1888 4002 1787</td>
</tr>
</tbody>
</table>

Fig. 3. Room service, Covers : FTEE; comparison between three hotels, May 1984–April 1985: — hotel IV; — hotel V; — hotel VI.
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Table 5. Labour productivity rankings of hotel food and beverage departments for May 1983—April 1984 (productivity indicator used is Revenue : FTEE)

<table>
<thead>
<tr>
<th>Units</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee shop/restaurant</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Room service</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Kitchen/stewards</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Summary and conclusions

As a result of the empirical work detailed above, the company is now able to measure labour productivity throughout its food and beverage departments using readily available data which it already collects. Moreover, the company can now identify hotel, departmental and temporal ranges in labour performance through comparative analysis. It must also be remembered, however, that the project discussed represents only the first part of a productivity analysis. Having identified, for example, that for Covers : FTEE, room service at hotel IV is able to achieve eight times greater productivity than hotel III, the next stage is to examine empirically the characteristics of provision and consumption in the two hotels which produced these results. It will be from this analysis that the operational strategies to manage productivity effectively will be deduced.

Lastly, it is our conclusion that the management of hotel productivity is difficult and that progress towards its effective management can only be achieved through extensive and detailed empirical research. Until that is undertaken the hospitality industry will fail to achieve the levels of performance of which it is capable.

References


Note

1. We do not underestimate the extent of the difficulties associated with measuring factors. Some research has already been undertaken but much remains to be done not only on the dilemmas of measurement but also on the methodologies necessary to extract the information from hotels.

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