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Labor Productivity - The Use of Staffing Guides and Other Productivity Methods in U.S. Hotels: A Survey Study

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Cover Page Footnote

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Introduction

Numerous studies over the past few decades have noted a slowdown in the productivity of the service sector and the hotel and restaurant industries in particular (Brown & Dev, 2000; Triplett and Bosworth, 2000). Among the reasons often cited for this are characteristics of the Hospitality industry such as seasonality, high labor intensity and the difficulty of substituting capital investments for labor (Lee-Ross & Ingold, 1994). Researchers have also blamed this on a lack of sophistication of managers (Baker and Riley, 1984), or because managers don't understand or seldom use advanced methods and this limits their ability to make improvements (Witt & Clark, 1990; Witt & Witt, 1990). Solving this problem is further complicated because no generally accepted means of measuring productivity in the hotel sector exists (Brown & Dev, 2003). Moreover, there isn't even an agreed upon definition of what a hotel's labor productivity is (Hu & Cai, 2004). However, the literature is incomplete in that much of what has been published about what hoteliers do or purportedly know is taken from studies outside the United States. Moreover, research is focused on finding out what is not being done in industry; as a result, academic knowledge of industry practices may be patchy (Lee-Ross & Ingold, 1994).

When research has been done on American hotels, it is focused on finding the best performing results in accordance with a preferred measurement methodology such as

Value Added (Brown & Dev, 2003) or Total Factor productivity methods like Data Envelopment Analysis (Andersson, 1996; Hu & Cai, 2004; Morey & Dittmer, 1995; Sigala, 2004) or Stochastic Frontier Analysis (Anderson, Fish, Xia & Michello, 1999). But such methods seldom give concrete answers to what make properties more efficient, or lead to a methodology to systematically and regularly make them more so. One approach that seeks to do this is the staffing guide methodology, yet it rarely gets mention in context of a hotel. This paper contends that this method is a “best” practice as it focuses on achieving the optimum staffing level needed to produce the desired quality levels of output specific to each property.

Yet another issue is that the various methods in use often measure only a portion of productivity; total productivity is accomplished only when both physical and financial components are optimized. Much of the existing research focuses on only one of these aspects.

Because of these gaps in existing research, the purpose of this paper is to summarize the existing productivity measurement techniques; determine which methods are being used by American hoteliers and to verify that staffing guides specifically are in common use.

Review of Literature

What is productivity?

Productivity is not easily defined in the context of a hospitality firm. A typical definition is simply the ratio of outputs produced to inputs consumed. However, some feel that this definition is an outdated construct of the manufacturing era (Baker & Riley,

1994; Jones & Hall, 1996), or that it cannot capture the qualitative differences in the service industry (Anderson, Fornell & Rust, 1997; Heap, 1996; Lee-Ross & Ingold, 1994). Hotel guests' perception of quality is based on the physical characteristics of the property, the level of service received and the pleasure derived from the food and beverage products they consume. In sum, guest satisfaction is based upon the totality of the experience, (Anderson, et al., 1997, Jones & Hall, 1996; Hope, 2007) and any measurement of productivity must take the quality of outputs into account. While improving productivity through labor cost reduction is easily attainable, the result may well yield a qualitatively inferior product (Anderson, et al., 1997; Grönroos & Ojasalo, 2004).

The definition of productivity is further complicated when different types of productivity are being discussed. Some (Pavesic, 1983; Van Der Hoeven & Thurik, 1984) chose to focus on labor productivity alone - a "partial factor of productivity" approach. More recently researchers (Brown & Dev, 2000; Hu & Cai, 2004) have examined productivity as a combination of not only labor, but also capital, materials and other inputs. The latter "total factor productivity" approach has gained in popularity in research under the belief that synergies exist between the total inputs and outputs and that to omit other factors would be to introduce bias (Cooper, Seiford, & Tone, 2007). These viewpoints result in different methods of measuring productivity.

Measuring Productivity

If defining productivity in services is difficult, measuring it is even more complex. Because outputs are partially intangible, measuring inputs and outputs can be

daunting and the task is exacerbated by the heterogeneity between hotels (Anderson, et Al., 1997; Sigala, 2004; Witt & Witt, 1989). In industry, it is common practice is to measure payroll and other factor efficiencies separately, through the use of ratios. These can take the form of either financial ratios, which measure dollars outputs divided by dollar inputs; physical ratios, which measure physical inputs relative to outputs, or a combination of the two.

Percentages are an example of financial ratios which are used extensively by hotel operators (Ball, Johnson & Slattery, 1986). They serve a very useful purpose in allowing managers to compare various costs and departmental profits to budgets and industry averages. Because percentages measure the cost of payroll as a portion of the dollars that produce them, they fail to measure the reciprocal effect – the revenue benefit provided by each payroll dollar. Moreover, while percentages can be very useful, they are not without potentially serious shortcomings when used to assess productivity. They can be misleading due to such factors as wage and price differences and the need to maintain minimum and fixed staffing levels (Pavesic, 1983). Additionally, they can mask the effects of inflation and can lead to misinterpretations when comparing similar properties with very different revenue streams.

An alternative financial measure is revenue per labor dollar. This method, however, suffers the same mathematical problems as percentages as it simply yields the reciprocal of the labor cost percentage. Some improvement can be made if constant dollar (inflation adjusted) numbers are used. It is favored by those who believe that only the revenues received can adequately reflect the qualitative differences due to the heterogeneity existing between hotels products (Grönroos & Ojasalo, 2004).

Value added has been increasingly used as a productivity measure in the more recent literature. Value added is also preferred by those who believe that only the (adjusted) revenue number has the ability to measure the qualitative differences in hotels (Anderson, 1996; Baker & Riley, 1994; Brown & Dev, 2000; Triplett & Bosworth, 2000). Value added can be measured in several ways but the main intent is to eliminate duplicate revenue streams in an economy (or industry). In their research, (Brown & Dev, 2000) defined value added as revenues less fees paid to the chain. They regressed value added on multiple factors including, among others, full time equivalent employees, size (as a proxy for capital), and type of hotel. Interestingly, one of their conclusions was that most hotels could add value by increasing labor. A potentially added benefit of using value added as a productivity measurement is that governments typically follow a similar approach. Published government statistics that indicate declines in productivity are normally based on value added per full time equivalent employee (FTE). If value added industry statistics were published, it would be possible to make hotel comparisons to industry averages. Potential disadvantages to this approach are that capital inputs are not considered in dollar amounts and although a comparable metric is created, it does not give management an instrument or a means of measuring productivity in a specific situation (GrÖnroos & Ojasalo, 2004), nor does it lead to any methodology to enable improvements. Finally, productivity declines measured in value added terms could be due to the saturation of hotels in the marketplace, or be caused by significant economic events such as a recession, either of which do not reflect true productive activity.

In addition to financial measures, a variety of physical measures have been in use for many years. Examples include covers per labor hour, front desk hours per check-in,

and maids used per occupied room. Although physical measures are useful to capture how efficient a hotel is in converting inputs to outputs, they have the disadvantage of ignoring the effects of revenues and costs (GrÖnroos & Ojasalo, 2004). To maximize productivity it is necessary to achieve both optimal physical and financial measures. Having more total outputs is good, but not all outputs are equal – some generate more bottom line profits. In the productivity literature these are known as technological and allocative efficiencies respectively. Stated mathematically, technological efficiency achieves an optimum on a productivity frontier; however, a global maximum occurs when inputs and outputs are also optimally used (allocated) based upon their respective prices (Coelli, et al., 2005; Cooper et al., 2007).

With the exception of value added, all of the methods discussed thus far utilize partial productivity measures. Recent research has focused on multiple factors to simultaneously measure the collective productivity effect of multiple inputs on multiple outputs. Traditional regression techniques cannot do this as they are limited to a single dependent variable. However, a new econometric technique called Stochastic Frontier Analysis does show great promise in being able to assess efficiency using multiple inputs and outputs. It is a parametric technique, requiring the use of a functional form and it can measure both industry and firm specific efficiency, separating both technological and allocational efficiency components. It is the newest tool to be applied to productivity measurement and few studies have yet used this approach. One exception is a study done by (Anderson, et al., 1999) which evaluated forty eight hotel companies and found the hotel industry to have a mean efficiency rating of .89 out of 100%. This technique is easily the most complex yet devised, but shows promising results. Another relatively new

multi-factor technique called Data Envelopment Analysis has become very popular in published research in recent years.

Data Envelopment Analysis

Data Envelopment Analysis (DEA) is a nonparametric technique that produces one composite score – the best performing unit scores a “1” (or 100%) and underperforming units receive lower scores relative to the best unit. Due to this ranking mechanism, DEA has been used to identify “benchmark” Decision Making Units (DMUs) and the relative rankings of other properties in several hotel studies (Andersson, 1996; Hu & Cai, 2004; Morey & Dittmer, 1995; Sigala, 2004; Weiermair & Fuchs, 2007). DEA has been said to have many advantages including the ability to create benchmarks; it does not require any functional form; it can objectively identify best performing units; it identifies each unit in its best light; and it calculates efficiency based on best observed practices (Sigala, 2004). Most often, DEA has been used to measure physical inputs and outputs. Under an output orientation, a property that maximizes outputs (rooms, covers, beverage guests, etc.) with a given number of inputs would be the most efficient. Alternatively, an input approach has been used where a property that produces a set amount of outputs with the least number of inputs would be the most efficient. DEA can also be used to study financial inputs and outputs though the methodology is more complex. For example, a study by Morey & Dittmer (1995) ranked management efficiency at fifty four hotels based upon their use of dollars spent for a given level of outputs. They found the average hotel score to be .89, while the lowest scored .64. It was estimated that if all properties were to achieve an efficiency ratio of “1”

the total savings in costs would be in excess of \$15 million dollars.

Despite its growing popularity, the use of DEA to analyze multi-factor productivity is not without its critics. It's been noted that DEA is highly susceptible to outliers and that all random deviations from the productivity frontier are deemed inefficiencies (Anderson, et al., 1999). Some authors point out that while "best of class" units can be identified, DEA doesn't provide answers as to what makes them efficient (Hu & Cai, 2004; Reynolds, 2003). Moreover, a single composite score doesn't show where specific improvements could be made. In an effort to compensate for this, Sigala (2004) used an innovative step-wise approach to DEA to narrow down a very long list of potential inputs and outputs. The study ultimately showed that outputs were underachieved and suggested that the channel distribution system needed improvement. Like DEA generally, the step-wise approach shows great promise, but less advanced versions generally only measure technological efficiencies. Only more advanced studies like those by Morey & Dittmer can shed light on total productivity. To date few of these have been done. One disadvantage to the methodology is that it does not readily lead to any structured methodology to improve productivity. One method that does attempt to do this is the staffing guide approach.

Staffing Guides

The use of staffing guides is another efficiency measurement tool that has been widely used in American hotels for decades. Yet, except for mention as a methodology used in food & beverage operations (Dittmer & Keefe, 2009; Ninemeier, 2006), the approach has been largely ignored in scholarly studies of productivity in hotels. One of

the strengths of this approach is its unique ability to pair efficiency standards with expected qualitative outcomes. If properly applied, the “optimal” staffing level will occur, because the “right” number of staff is scheduled to provide the level of service quality required to meet company standards. The system need not be confined to food and beverage operations, as each position in a hotel can be staffed according to company standards. This does not mean that all hotels will have the same standards; on the contrary, standards will vary according to both the desired product quality and the dictates of the environment (i.e., smaller hotel rooms). A further advantage of staffing guides is that as a measurement tool they are time invariant – they can be monitored daily, monthly or even yearly. Moreover, if customer surveys are regularly completed, the effectiveness of meeting the associated quality standards will also be measured. For all the above reasons, this paper proposes that the staffing guide approach is a “best practice” in controlling labor productivity.

Staffing Guides as a Cost Control Process

A staffing guide approach to controlling labor productivity requires establishing standards for the number of hours that should be used for each output. A nonexclusive list of outputs could include covers, check-ins or check-outs, rooms occupied, bar customers served, calls placed or simply the number of rooms in the hotel. In each case a standard number of hours are allowed to provide an acceptable output, taking into consideration the desired quality to be obtained. It has been suggested that while task analysis should be an element of this process, it often is accomplished through the intuitive judgment of management (Dittmer & Keefe, 2009).

In brief, a cost control process involves setting standards, training employees to adhere to them, monitoring results using timely reporting methods and taking corrective actions when necessary (Dittmer & Keefe, 2009). With regards to labor this suggests:

1. Staffing standards should be established to meet management's goals of providing a quality of service appropriate to the property.
2. Labor reporting should be done daily when possible, to ascertain if standards are met.
3. For meaningful comparisons, actual labor hours and dollars must be maintained by job position (Coelli, et al., 2005; Kaufman & Hotchkiss, 2006).
4. The effectiveness of the quality aspect must be measured both by periodic in-house management and independently through customer surveys. Since management of each hotel determines the quality standard, they must also establish acceptable satisfaction scores on surveys.

An anonymous referee offered a potentially useful and innovative refinement to this list. It is possible, and may be useful to adjust outputs to a quality adjusted basis. For example, if two hotels each had 2,000 rooms occupied and one scored 85% guest satisfaction while the other scored 90%, their quality adjusted output would be 1,700 and 1,800 rooms respectively. This number then could be used in ratios such as rooms per maid. It brings together the concepts of quality outputs and productivity in a way not found in the literature. It should also be noted that any successful system of staffing requires that a reasonably accurate forecasting system is in place to ensure that demand is met according to fluctuating patterns. Because of seasonality and sometimes random demand patterns, however, it is necessary to ensure that staffing guidelines are

sufficiently flexible to ensure that quality service standards are being met. Like other methods, the staffing guide approach is not perfect alone as it largely measures physical inputs and outputs.

Purpose and Scope

The purpose of this study was to determine what methods hoteliers use to control labor productivity, to document if staffing guides were included in those methods and what standards, if any, are in place. While research has demonstrated that large, branded hotel chains score higher in productivity scores (Brown & Dev, 2009), to date, no research has been undertaken to find out how they accomplish this. This study did look at *some* units of branded hotel companies; however, the focus was not to evaluate any single type of property. It was believed that both brand operated and hotels managed by independent management companies will both seek to maximize productivity, since competition in the marketplace will place pressure on achieving results.

Labor productivity alone was investigated in this study. This partial factor approach was chosen for the following reasons: (1) labor cost is by far the single biggest expense in hotels, accounting for as much as forty percent of revenues; (2) since total factor productivity has been shown to have a .90 positive correlation with labor (Anderson, et al., 1997), it is more likely a complement to labor, rather than a substitute and (3) when combined with the common finding that capital improvements provide little opportunity for substitution (Anderson, et al., 1997; Lee-Ross & Ingold, 1994; Smeral, 2007), the argument that omitting the contribution of capital to productivity would provide misleading results may be questionable. Finally, it seems that while academic

researchers prefer to analyze multi-factor productivity, the common practice in industry is to measure payroll and all other productivity factors separately. This may be due, in part, to the fact that while labor costs may be easily obtained daily, most other factors of production must await the monthly financial statements. Additionally, operators tend to look at the efficiency ratio (Gross Operating Profit divided by total revenue) or GOPAR (GOP per available room) as measures to gauge multi-factor productivity.

Methodology

General Managers were selected from the Guam Hotel and Restaurant Association and asked to participate in a survey by completing a labor productivity questionnaire. In order to test the instrument, certain pilot surveys were done through one-on-one interviews and in some cases actual data was examined and verified. Guam is a tiny island three hours away from Asia by air. Although Guam is a U.S. territory, it also has many Asian influences and in fact many of the hotels are Asian owned. However, it also has many of the U.S. International hotel brands represented, though nearly all are managed operations. Thus, while there are comparatively few hotels in Guam, in many cases their procedures and processes are essentially the same on a world-wide basis and could reasonably be expected to be generalizable to the United States in particular.

Having received a low response rate to survey requests and after several follow-ups, it was decided to expand the selection to include companies known to the researcher outside of Guam. Thus, an American management company with six franchise properties, and an American international chain hotel in Saipan (a U.S. Commonwealth) were added. In total, thirteen hotels were surveyed consisting of a total of 5,510 rooms and reporting the same procedures in use in 4,346 hotels worldwide. Table 1 provides a description of

the properties by hotel size, service level, rate type and affiliation.

Table 1 – Description of Subject Properties

Rooms	N
200 – 350	6
351 – 500	3
500+	4
Type	
Full Service	10
Select Service	2
Extended Stay	1
Rate Type	
Economy	2
Mid range	5
Luxury	6
Affiliation	
Chain Managed (none owned)	4
Independent Management Group	3
Franchise – independent management	4
Independent	2

Interestingly, the sample does not include any hotels that are both brand owned and operated. Rather, the branded hotel companies manage hotels for their owners and in other cases their brands are managed by independent management companies as

franchises. The hotels in the sample included three of the ten largest hotel companies in the United States (as reported in the industry press) and another large regional chain. Independent management companies operated six franchised hotels of the brands already mentioned. The sample does not cover a full range of hotels. All hotels categorized themselves as full service, though two hotels have no bell service. Generally, the hotels could be categorized as four star hotels though a few are probably three-star. The average hotel also is rather large, having 434 rooms and all have a financial executive who can ensure that productivity measures are being monitored.

Although the hotels are in Guam or Saipan and some on the U.S. mainland, it should not be assumed that they are not comparable. On the contrary, the business practices of the branded hotels are identical in most respects in all locations. Moreover, the cultural differences found in the communities of the sample are not significantly different than comparing a mainland hotel in the U.S. heartland with a one located in the Southwest United States, for example. In fact, Guam has a peculiar culture that resulted due to the combination of both its Spanish and Asian heritage.

Assumptions

This paper explores whether chain hotels and independent hotel management companies in the US adopt “best” practices to maximize productivity. This includes a variety of methods including the use of staffing guides and other ratios which are based on the premise that there is an “optimal” level of staffing. In specific terms, the study hypothesized that in order to maximize labor productivity, hotel companies adopt the following practices:

1. Prepare daily revenue reports and also monitor payroll daily, separating fixed

- and variable hours and costs by position, tracking percentages at a minimum.
2. Use staffing guides to compare actual hours used against outcome-based company standards.
 3. Have an ongoing program in place to survey customers on both service and physical property satisfaction measures to determine how effectively they meet productivity goals.
 4. Under-utilize value added measures like sales per employee due to the popularity of percentages and physical ratios.

Results and Discussion

To test the above hypotheses, the reported responses were analyzed using a binomial distribution assuming that a majority is defined as more than half the respondents. As expected, all hotels in the sample had some form of daily payroll reporting, monitoring and control. In many cases, while the detail was available daily, comparisons were made weekly or monthly. The probability of this occurring by chance for all thirteen hotels is less than .0001 ($p = .00001$) and hypothesis one was not rejected. In addition, virtually all properties did segregate fixed and variable salaries and wages and comparisons were made between daily revenues and labor resulting in labor cost percentages.

All hotels used staffing guides and compared actual wage hours used by position to their standards, most often on a monthly basis. Therefore, hypothesis two was not rejected ($p = .00001$).

Interestingly, in the case of one large international chain, the staffing standards

are reported in the company policy manual yet the local property did not monitor them at all. It seems that in this company, standards were not uniformly followed in all international properties.

As expected and stated in hypothesis three, nearly all hotels (n= 12) had some form of customer survey which included satisfaction measurements of service, food and beverage products, cleanliness and facilities. Hypothesis three was also not rejected ($p = .0015$). The chains all distributed these surveys to headquarters. In the case of the biggest chains, quality audits were done on a surprise basis. Only one owner-operated facility randomly conducted surveys. In addition to surveys, all hoteliers conducted regular visits to properties in their competitive set in order to determine how well their facilities compared to the competition.

Finally, only two properties monitored revenue per server or bartender. This was expected due to the popularity of relying on labor cost percentages for this position and hypothesis four was not rejected ($p = .0095$). The implications of this are interesting. While labor cost percentage monitors the cost of labor, sales per employee monitors the *benefit* the employee provides. It would seem that American companies are predisposed to monitor labor costs while largely ignoring the potential benefits of value added measures. There may well be opportunity costs inherent in not creating an environment where employees can help grow revenues. In fact, adding staff may even lead to added value (Brown & Dev, 2000). This approach however, illustrates one of the paradoxes in productivity measurement. Since all measurement methods rely on ratios, an increase in payroll dollars will lead to a lower payroll percentage and value added ratio, *unless* the increase is proportionately less than the increase in revenue. This is true even

though value added and profits would increase as long as the marginal product of labor is positive.

Staffing Standards

Although not all companies were willing to share actual staffing guidelines, nine of the thirteen did. The results are attached in Table 2.

Table 2 – Selected Staffing Standards

	Average	Std. Deviation
Breakfast covers per server	24	6.3
Lunch covers per server	22	6.1
Dinner covers per server	18	4.8
Buffet covers per server	36	14.2
Rooms per room attendant	17	2.3
Covers per cook	57	29
Covers per dishwasher	112	56
Covers per cashier	125	65
Check-in/outs per front desk agent	63	21.7
Check-in/outs per bell staff	56	9.8
Sales per bartender	\$ 360	\$ 198
Sales per cocktail server	N/A	N/A
Accounting per 100 rooms	1.5	.77
Engineering per 100 rooms	2.8	1.45

Human Resources per 100 rooms	.9	.2
Sales & Marketing per 100 rooms	2.0	.95

Some clear differences are shown. First, although fifteen to sixteen rooms cleaned per room attendant is clearly the norm in the U.S., the average in the sample is 17, in part due to the small rooms built in some of the Guam hotels to accommodate (mostly) Japanese visitors. Naturally, the averages also mask the differences that occur due to many factors like the existence of suites, kitchen units and the number of stay-over rooms. Other physical standards like covers per server and units per employee were surprisingly similar across hotels. As one might expect, the luxury hotels tended to allow more hours especially for front of the house employees. In fact, interviews with management indicated that employees were expected to interact more with guests and given guidelines as to specific topics to discuss. In this manner, the guests themselves more actively participated in the experience. Employees and management alike were rewarded on their customer service scores on surveys. Standards for fixed positions like accounting were also remarkably similar on an available room basis. The large standard deviation in the engineering department was due to a property that was in the midst of a major renovation and the operational staff was heavily utilized for this purpose.

A second observation is that nearly all properties reported some reduction in staff due to the current global recession. When staffing guides were used, some of this occurred naturally, through a reduction in hours in response to lowered volume. Other properties reduced hours across the board and several did not replace management personnel who left.

A third observation was that while all properties used percentages or simple ratios and nearly all used staffing guides, value added measures were not used and none of the respondents had even heard of Data Envelopment Analysis. In the latter case, even when the process was described, none were aware of this method.

This paper argues that the use of staffing guides is a “best practice” since their use can produce the theoretically optimal staffing level on a daily basis and hours used can also be monitored for variances from standards. However, the use of staffing guides alone cannot guarantee that productivity is maximized since physical standards can only ensure that technological productivity is on the productivity maximum frontier. In order to achieve optimum economic efficiency, the best mix of resources must also occur. However, if staffing guides are properly used and augmented by measuring revenue per employee, an operational system is in place that can lead to enhanced productivity and effectiveness in meeting guest satisfaction. Since many properties do not monitor variances daily, or measure revenue per employee, clearly some productivity improvement can yet be gained.

Suggestions for further Research

A review of industry practices is helpful in analyzing how hotels control payroll and thereby attempt to maximize labor productivity. Clearly, a shortcoming of this paper is that the sample is small. It could be very informative to gain participation by a much larger data set, preferably including most of the ten largest companies.

This paper assumes that the use of staffing guides and other techniques employed by best performing units will maximize productivity. However, a need exists to test this

more fully by identifying those properties that perform better on productivity assessments and to pair them with the methods that are being used by those properties. In short, it is not enough to identify “best” performing units; it is equally important to identify the practices or characteristics of the firm that make them best. Moreover, this study showed that even when companies have well-documented productivity practices, individual units may not uniformly follow them. A study that matches stated practices with actual results would help to determine if said practices are actually effective in maximizing productivity.

Another area that could be investigated is whether firms perform well over time. It is well known that hoteliers cut back on labor (and other factors as well) during slow periods. It is possible that such practices could lead to high productivity results in the short term, but a reduction in the long term and this could be researched.

The opposite of this premise is also possible. Some (mainly upscale luxury) properties invest more heavily in labor. It is possible that labor dollars are in fact an investment that may enhance the firm or franchise’s reputation and this in fact could lead to enhanced long-term profitability.

Finally, another issue that has arisen in several studies is “size”. Many studies have used size of a hotel as a proxy for the capital investment factor. Some have found that size matters and others have not. In a recent article (Jones & Siag, 2009) found that in a study of different hotels in one company size did not matter when comparing productivity in housekeeping departments. It may be that companies that are of “sufficient” size have standard procedures in place and score better or at least equally well in productivity measures. For example, a hotel of only one hundred rooms may not

have any property personnel to monitor productivity, but the home office of a centralized company may well have standards set for all properties and the procedures in place to monitor them. Thus, is it the size of the hotel or the size of the parent company more important?

On the other hand, using size as a proxy for the contribution for capital may well be problematic. Larger hotels will normally have more employees than a smaller one, which could explain the high correlation between total and labor factors of productivity (Anderson, et al., 1997). Moreover, a three hundred room hotel built in the past few years may well have a higher capital contribution to productivity than a one thousand room hotel built twenty years ago. There are other methods to assess the contribution of capital, including using deflated values of the underlying assets (Coelli, et al., 2005).

In summary, there is still much research to be done on improving hotel productivity. As stated earlier, a good start might be to establish which are the best performing units and then determine what common practices they have (if any) that make them so. Several of the tools discussed show promise in measuring productivity and each has attendant advantages and disadvantages. The staffing guide approach is unique in that it does have a methodology that allows labor to be tracked according to company standards on a daily basis. Perhaps other methods could be created as well? The ultimate goal for research should be to establish what is “good” when measuring productivity and to establish methods that operators could use to achieve those standards.

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Appendix 1: Questionnaire

Part I: Information about the hotel

- 1) The hotel is full service, limited service (circle one)
- 2) Is the hotel luxury, mid-scale or economy? (circle one)
- 3) Hotel is part of: (Check one)
 - an international chain managed property
 - independent management group
 - stand-alone property
 - franchise hotel
- 4) How many rooms are in the hotel? _____
- 5) If part of a chain, how many hotels use the same reporting systems? _____
- 6) Your hotel is owned by which nationality:
 - Japanese
 - Americans
 - Other _____

Part II: Description of labor Control systems

- 1) Which of the following labor systems are used to monitor labor and how often?

	Daily	Weekly	Monthly	Yearly	Never
Segregate payroll into fixed and variable					
Breakdown in job categories					
Calculate percentages to dept sales					
Track FTEs					
Use productivity standards like:					
Rooms per attendant					
Servers per cover					
Cashiers per cover					
Cooks per cover					
Stewards per cover					
Bartenders per revenue					
Cocktails servers per dollar					
Front desk GSA per guest					
Telephone operators per guest					
Guest service per guest					
Bell staff per guest					

Sales per server or bartender					
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III. Comparisons are made for control purposes to:

1) Which if any comparisons are regularly performed?

	Daily	Weekly	Monthly	Yearly	Never
To budget					
To staffing guide					
To forecast					
To last year					

IV. Standard staffing levels

1. Please list your standard staffing levels if used. If you prefer (for confidentiality) list what you think industry standards are. Please add any others you think are important.

- a. Servers – breakfast: _____ covers per __ hour shift
- b. Servers –lunch _____ covers per __ hour shift
- c. Servers – dinner _____ covers per dinner shift
- d. Servers – buffet _____ covers per shift
- e. Guest room attendants _____ rooms per __ hour shift
- f. Cooks _____ covers per __ hour shift
- g. Stewards _____ covers per __ hour shift
- h. Cashiers _____ covers per __ hour shift
- i. Front desk agents _____ check-ins/outs per __ hour shift
- j. Bell staff _____ check-ins/outs per __ hour shift
- k. Bartenders _____ revenue per __ hours
- l. Cocktail server _____ revenue per __ hours
- m. Accounting (Line) _____ per 100 rooms
- n. Engineering (line) _____ per 100 rooms
- o. Human resources _____ per 100 rooms
- p. S&M _____ per 100 rooms

V. If other methods are used to monitor/control productivity, please list.

VI. Quality measurement

1. Does your hotel do customer satisfaction surveys? Check all that apply:
 - Daily
 - Weekly
 - Monthly
 - Other

2. Do your surveys monitor satisfaction about: Check all that apply
 - Facility design
 - Facility cleanliness
 - Amenities
 - Quality of service
 - Satisfaction with food & beverage
 - Satisfaction with phone service and reservation handling

3. If surveys are used, are they: (Check those which apply)
 - Sent to headquarters
 - Scored
 - Compared with other hotels in company
 - Disseminated to department heads for follow up?
 - Made part of employee/manager evaluations?

4. Does management make periodic comparisons with a competitive hotel set?
 - Monthly
 - Yearly
 - Other
 - N/A

5. How often visits to competitive properties conducted?
 - Weekly
 - Monthly
 - Yearly
 - N/A

VII. Independent productivity measurements

1. Does your company use Data Envelopment Analysis to monitor productivity?
 - Yes
 - No
 - Not sure

2. Assume that productivity is defined as outputs (revenue or rooms) achieved compared to labor (hours or dollars) used. If a researcher approached you with a

system that could rate your hotel productivity on a percentage basis with other hotels, (assuming your competitive set were chosen by experts) with 100% being the benchmark hotel, would you find this:

- Very important for your hotel
- Somewhat important
- Mildly important
- Unimportant

3. What would your answer above be if your annual bonus was determined by the result?

- Very important for your hotel
- Somewhat important
- Mildly important
- Unimportant

4. Does your company use other independent labor comparisons like: (Check all that apply)

- PKF Trends ratios
- Company ratio comparisons with other properties
- Outside consultant reports
- Other _____