

Implementing Restaurant Revenue Management

A Five-step Approach

by Sheryl E. Kimes

Revenue management for restaurants hinges on an appropriate measure of revenue. Here's the basis of one such measure—revenue per available seat-hour.

The goal of restaurant revenue management (RRM) is to maximize revenue per available seat-hour by manipulating price and meal duration. An earlier *Cornell Quarterly* article discussed the theory behind RRM,¹ but the application of RRM has not been explored. In a series of articles on the application of RRM, of which this is the first, I will discuss how to develop a RRM system, demonstrate how RRM was

¹ Sheryl E. Kimes, Richard B. Chase, Sunmee Choi, Elizabeth N. Ngonzi, and Philip Y. Lee, "Restaurant Revenue Management," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 39, No. 3 (June 1998), pp. 32–39.

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applied to a pilot restaurant, and develop guidelines that restaurant operators can use to increase their revenue per available seat hour.

In this paper I discuss the fundamentals of restaurant revenue management, examine methods of measuring revenue-management success, explain how those measures are different from the traditional gauges of restaurants' success, and outline a five-step approach to establishing a revenue-management system.

Overview of Restaurant Revenue Management

Restaurant revenue management can be defined as selling the right seat to the right customer at the right price and for the right duration. The determination of "right" entails achieving both the most revenue possible for the restaurant and also delivering the greatest value or utility to the customer. Without that balance, RM-type practices will in the long term alienate those customers who will feel that the restaurant has taken advantage of them.

Revenue management, or yield management, is commonly practiced in the hotel and airline industries. Companies implementing revenue management report increases in revenue of 2 to 5 percent over the results of prior procedures. Revenue management requires a focus on the revenue per available inventory unit. For example, hotels measure revenue per available room-night (commonly referred to as RevPAR), airlines measure revenue per available seat-mile (RPSM), and cruise lines measure revenue per available cabin. When restaurant operators apply revenue management to their restaurants, I recommend that they measure their results in terms of revenue per available seat hour (RevPASH).

Concentrating on RevPASH has major implications for the way in which a restaurant is operated and

evaluated. Many managers currently measure their restaurant's success by tallying the average check or by maintaining certain labor- and food-cost percentages. While such measures are valuable for many purposes, they do not explicitly reflect a restaurant's revenue- (or profit-) producing performance. RevPASH, on the other hand, combines information from the average check and seat use (or occupancy) to provide a measure of the flow of revenue through the system and to indicate how effectively a restaurant is using its productive capacity.

Restaurant operators have two main strategic levers that they can use to manage revenue: namely, price and meal duration.² Price is a fairly obvious target for manipulation, and many operators already offer price-related promotions to augment or shift peak-period demand (e.g., early bird specials, special menu promotions). More sophisticated manipulations of price include day-part pricing, day-of-week pricing, and price premiums or discounts for different types of party size, tables, and customers.

Managing meal duration is a bit more complicated. On the production side, managers must streamline and control their service-delivery process, as well as understand customer-arrival patterns and determine ways of influencing meal duration.³ One of the things that makes implementing revenue management so difficult in restaurants is the fact that their explicit unit of sale is a meal (or event) rather than

²Kimes *et al.*, June 1998; see also: Sheryl E. Kimes and Richard B. Chase, "The Strategic Levers of Yield Management," *Journal of Service Research*, Vol. 1, No. 2 (Nov. 1998), pp. 156–166.

³For a discussion of the effects of altering the service-cycle time, see: Christopher C. Muller, "A Simple Measure of Restaurant Efficiency," on pages 31–37 of this *Cornell Quarterly*; for an analysis of arrival times, see: Brian Sill and Robert Decker, "Applying Capacity-management Science: The Case of Browns Restaurants," on pages 22–30 of this *Cornell Quarterly*.

an amount of time—although one could argue that the true measure of the restaurant's product is time.⁴ While one can estimate a likely mean length for that meal, the actual duration is not set. By comparison, implementing revenue management is much easier for the hotel, airline, cruise-line, and car-rental businesses, because they sell their service for an explicitly contracted amount of time. Restaurants rarely sell tables for a fixed amount of time, and in most western cultures are reluctant to broach this topic with customers. Moreover, North American restaurateurs cannot even rely on the practice common in some countries of charging for the cover.

One of the stumbling blocks to successful implementation of restaurant revenue management is the struggle that restaurant operators have in developing internal methods of managing meal duration. In the context of managing meal duration, one should not think only of reducing diners' average meal length. Quite often the factor interfering with revenue management is the variability in meal lengths, and not just their duration. Some of the ways in which managers can influence meal duration include changing reservation policies, redesigning menus, and pacing service procedures and making them more efficient. Managers can also train employees to respond to customers' apparent wishes regarding the length of the meal. While some customers may wish to linger over coffee, for instance, managers might be surprised at how often the holdup in turning a table is the restaurant's own lackadaisical approach to service and servers' inattention to customers' needs.

⁴An argument made by: Daryl Ansel and Chris Dyer, "A Framework for Restaurant Information Technology," on pages 74–84 of this issue.

Exhibit 1

Various calculations of RevPASH

Restaurant	Capacity use	Average check	RevPASH
A	40%	\$18.00	\$7.20
B	60%	\$12.00	\$7.20
C	80%	\$9.00	\$7.20
D	90%	\$8.00	\$7.20

Exhibit 2

Revenue effects of meal-duration reduction

Meal duration (minutes)	Turns	Revenue	RevPASH	Percentage increase	Cumulative increase
60	4.00	\$6,000	\$15.00	—	—
59	4.07	\$6,102	\$15.25	1.69%	1.69%
58	4.14	\$6,207	\$15.52	1.72%	3.45%
57	4.21	\$6,316	\$15.79	1.75%	5.26%
56	4.29	\$6,429	\$16.07	1.79%	7.14%
55	4.36	\$6,545	\$16.36	1.82%	9.09%
54	4.44	\$6,667	\$16.67	1.85%	11.11%
53	4.53	\$6,792	\$16.98	1.89%	13.21%
52	4.62	\$6,923	\$17.31	1.92%	15.38%
51	4.71	\$7,059	\$17.65	1.96%	17.65%
50	4.80	\$7,200	\$18.00	2.00%	20.00%
49	4.90	\$7,347	\$18.37	2.04%	22.45%
48	5.00	\$7,500	\$18.75	2.08%	25.00%
47	5.11	\$7,660	\$19.15	2.13%	27.66%
46	5.22	\$7,826	\$19.57	2.17%	30.43%
45	5.33	\$8,000	\$20.00	2.22%	33.33%
44	5.45	\$8,182	\$20.45	2.27%	36.36%
43	5.58	\$8,372	\$20.93	2.33%	39.53%
42	5.71	\$8,571	\$21.43	2.38%	42.86%
41	5.85	\$8,780	\$21.95	2.44%	46.34%
40	6.00	\$9,000	\$22.50	2.50%	50.00%

Measuring Success

Restaurant managers are typically evaluated by the check averages and by the food- and labor-cost percentages that they have been able to maintain. As I indicated before, none of those measures captures sufficient information about the revenue- (or profit-) generating performance of the restaurant. Some measure of the revenue-generating potential and performance of the restaurant must be developed.

For a restaurant manager to concentrate only on a high average check, for instance, is equivalent to a hotel's focusing solely on a high average room rate.⁵ Without information on the percentage of capacity use or occupancy of the restaurant, revenue performance cannot be evaluated. A high average check may even be detrimental in times of strong demand if, for example, customers linger over their meal while other parties wait for a table.

Similarly, a manager's achieving specified food-cost and labor-cost percentages is laudable, but that does not tell the entire story. In particular, the margin is not a measure of profitable use of capacity. A restaurant manager can do a good job of maintaining margins and still be unprofitable. An overemphasis on margins can lead to a propensity to focus unduly on minimizing costs. Again, reducing cost is fine, but not when that causes reduced revenue due to disgruntled customers.

The extent to which available seats are occupied is another commonly applied measure of success, since a busy restaurant is generally a revenue-producing restaurant. Reliance on seat occupancy as a measure of success suffers from the same problem as reliance on hotel-room occupancy (in the absence of consideration of ADR), because high use does not necessarily mean high

⁵ See: Kimes et al. (June 1998), pp. 32–39.

revenue. A restaurant can run at 90-percent of capacity and still not make money if menu items are sold at too low a price, for example.

Because it embraces capacity use, check averages, and cost margins, revenue per available seat-hour (RevPASH) is a much better indicator of the revenue generating performance of a restaurant than the commonly used measures that I just discussed. RevPASH indicates the rate at which revenue is generated and captures the trade-off between average check and facility use. If occupancy percentages increase even as the average check decreases, for instance, a restaurant can still achieve the same RevPASH. Conversely, if a restaurant can increase the average check, it can maintain a similar RevPASH with a slightly lower facility use.

Exhibit 1 gives a hypothetical illustration of this principle. The four restaurants in the exhibit all have the same RevPASH (\$7.20), but each achieves it in a different manner. Restaurant A has a facility use of 40 percent and an average check of \$18.00, while Restaurant D has a use ratio of 90 percent but an average check of \$8.00. Restaurants B and C also achieved a RevPASH of \$7.20, but with varying facility-use and average-check statistics.

The easiest way to calculate RevPASH is to divide revenue (or profit) for the desired time period (e.g., day part, day, month) by the number of seat-hours available during that interval. For example, assume a 100-seat restaurant makes \$1,500 on Fridays between 6:00 and 7:00 PM. Its RevPASH would be \$15 ($\$1,500 \div 100 \text{ seats} \times 1 \text{ hour}$). Similarly, if that same 100-seat restaurant made \$5,000 over a four-hour meal period, its RevPASH would be \$12.50 ($\$5,000 \div 100 \text{ seats} \times 4 \text{ hours}$, or $\$5,000 \div 400 \text{ available seat-hours}$).

Exhibit 3
Hourly RevPASH for September

	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM
Sunday	\$2.39	\$6.72	\$6.43	\$6.36	\$3.63
Monday	\$0.19	\$2.91	\$2.92	\$3.52	\$2.95
Tuesday	\$0.61	\$2.96	\$5.46	\$4.61	\$5.47
Wednesday	\$0.75	\$2.70	\$3.92	\$4.29	\$2.26
Thursday	\$0.22	\$1.47	\$4.86	\$3.37	\$2.84
Friday	\$1.49	\$6.04	\$8.76	\$8.17	\$9.21
Saturday	\$2.72	\$6.22	\$11.89	\$12.60	\$11.59

RevPASH is closely related to the number of turns and the length of the meal, or service cycle. As the number of turns increases and meal length decreases, the RevPASH increases. Just a one-minute reduction in meal time during a high-demand period can lead to an increase in RevPASH of 1.5 to 2.0 percent. Returning to our hypothetical 100-seat restaurant with its four-hour dinner, say that its average service cycle is 60 minutes. In that case, the restaurant can potentially handle 400 customers per night. If the average check is \$15, its maximum nightly revenue is \$6,000, and its potential RevPASH is \$15. If the meal time can be reduced to 59 minutes, the restaurant can handle an additional 6.8 customers. If the average check remains at \$15, its potential nightly revenue increases to \$6,102 and its potential RevPASH increases to \$15.26 (a 1.7-percent increase). With the increased volume, the check average could even drop by \$0.20, and revenue would still increase.

Reduced meal times can be achieved by changing the service process, altering staffing levels, or altering the menu. The first few minutes of reduction are not that difficult or expensive to achieve, for example, by picking up the pace of greeting, seating, and check settlement. Deep reductions, however,

may require substantial investment—for example, by adding kitchen equipment or more employees. A return-on-investment analysis that considers the effects of service-cycle changes on RevPASH can help operators decide whether a prospective investment is worthwhile. In making their plans managers should remember that customer preferences and expectations limit the minimum feasible meal duration and will set a theoretical minimum acceptable RevPASH.

RevPASH-based Strategies

Once operators understand their RevPASH patterns, they can develop strategies for dealing with high and low RevPASH periods. A full discussion of the RRM strategies available will be presented in a subsequent paper of this series. During low RevPASH periods, managers can either try to attract more customers and increase use or rely on suggestive selling to increase the average check. During those periods with high RevPASH, operators should consider raising menu prices or try to reduce meal duration so that the restaurant can increase its turn rate.

RevPASH can be used at different levels of analysis and for different purposes. At the individual restaurant level, managers may choose to develop hourly or quarter-hourly RevPASH figures to help develop a

Exhibit 4

Hypothetical comparison of check and RevPASH performance

Restaurant	Average check	RevPASH	Check performance	RevPASH performance
1	\$10.50	\$6.45	0.99	1.24
2	9.75	4.50	0.92	0.87
3	11.25	5.25	1.06	1.01
4	12.10	4.25	1.14	0.82
5	9.45	6.25	0.89	1.20
6	10.60	4.50	1.00	0.87
<i>Average</i>	<i>\$10.61</i>	<i>\$5.20</i>	<i>1.00</i>	<i>1.00</i>

Exhibit 5

Competitive RevPASH performance

Unit	Average check	RevPASH	Check ratio	RevPASH ratio
Your restaurant	\$12.50	\$5.60	0.89	1.12
Competitive set (mean)	\$14.00	\$5.00	—	—

Note: The two ratios compare the subject restaurant's performance to its competitive set.

revenue-management strategy best suited to their restaurant. RevPASH can also be used to evaluate the effectiveness of an operation's servers and managers.

Say that the manager of our hypothetical 100-seat restaurant wanted to understand her hourly RevPASH patterns for September. Obtaining data from the restaurant's POS system, the manager found that her highest RevPASH periods were on Fridays and Saturdays from 6:00 to 10:00 PM and on Sundays from 6:00 to 9:00 PM. The manager can use this information to help develop revenue-management tactics specific to high and low RevPASH periods. For example, during high-RevPASH periods, she may focus on reducing the meal time by having table servers skip suggestions of desserts or after-dinner drinks. On the other hand, at low-RevPASH times she may decide to increase the use of suggestive

selling or even reduce menu prices to boost traffic.

Comparative RevPASH

Regional or national managers could use RevPASH to compare performance of different restaurant units. One would want to adjust the unit RevPASH according to an area's cost of living, but a unit-by-unit comparison of RevPASH would give a good indication of the relative performance of different restaurants in an area, region, or nation.

Consider a city with six restaurants franchised by a particular chain, as shown in Exhibit 4. Restaurant 4 enjoyed the highest average check (\$12.10) of the six units, but it also has the lowest RevPASH (\$4.25). On the other hand, restaurant 5 has the lowest average check (\$9.45), but the second-highest RevPASH (\$6.25). Relative performance measurements can be calculated by dividing one restaurant's performance by the average performance of all the units. Thus, the check performance of restaurant 4 is above average (1.14), but its RevPASH performance is only 0.82 ($\$4.25 \div \5.20). By using relative-performance measurements like these, regional managers can better evaluate the revenue generation of the restaurants they oversee.

One could also calculate and compare competitors' RevPASH to get a sense of how well a restaurant, a region, or a chain is performing. For example, the RevPASH of a particular restaurant could be compared with the average RevPASH of the competitive set to evaluate performance (see Exhibit 5). This type of calculation is done for hotels, for example, by Smith Travel Research reports.⁶ While competitive information is not readily available, one

⁶ See: «<http://str-online.com/products/star.html>».

may be able to develop information to perform such an analysis.

The Five Steps to RRM

When developing an RRM system a restaurant operator must first understand current conditions and performance. Following this, the operator must evaluate the possible drivers of that performance. This understanding will help managers determine how to improve RevPASH statistics. Finally, the manager must monitor the impact of implemented changes on revenue performance. I describe each of these steps below.

- (1) *Establish the baseline.* Most managers know their average check and their labor- and food-cost percentages, but few can accurately estimate the capacity use or RevPASH of their restaurants. To develop a RRM program, operators must collect detailed information on arrival patterns, meal times, RevPASH patterns, and customer preferences. This information can be collected from a variety of sources, including the POS system, guest checks, and methodical observation. Once collected, the data must be analyzed to determine the mean and deviation of dining time and daily and hourly RevPASH patterns.
- (2) *Understand the drivers.* Once the baseline data have been collected, managers should analyze the factors that affect meal duration and RevPASH performance. Simple tools such as process analysis,⁷ service blueprints,⁸ and fishbone dia-

grams⁹ can be used to better understand the possible reasons for why meals last as long as they do and to help identify the most important problems in controlling meal duration.

- (3) *Make recommendations.* After identifying the causes of the most important problems affecting the service cycle, managers should develop detailed recommendations on how to correct those problems. Some solutions may deal with reducing the overall meal duration, while others may deal with reducing variability in particular service steps (e.g., order-taking, bussing), and still others may involve table management or customer-arrival management. The manager should analyze potential return on investment for each recommendation to ensure prudent decision making. A later article will present a simple model for evaluating the ROI of RevPASH improvements.
- (4) *Implement the changes.* For RRM to be successful, restaurant operators must ensure that managers, servers, bussers, and other employees clearly comprehend the purpose and practice of RRM. This requires a position-specific training program that helps employees understand their role in RRM and how RRM can benefit both the restaurant and employees. Additionally, operators should align any employee-incentive programs to coincide with the objectives of RRM.
- (5) *Monitor outcomes.* As with any business practice, the success of

RRM cannot be ensured without measurement of improvement. After establishing the baseline and implementing RRM, operators must develop a system to measure RRM performance. One should, for instance, monitor RevPASH and the average and standard deviation of dining time and compare those figures to baseline performance.

Future Papers

This article is the first of a series on restaurant revenue management. In future articles I will discuss specifically how to develop an RRM system and establish a baseline—including the types of data to gather, the possible sources of data, and the analysis and interpretation of the information collected. These and the other restaurant revenue management points will be illustrated with the actual experience of a 100-seat restaurant in Ithaca, New York.

The series will review methods for analyzing the possible causes of problems, including service blueprints, fishbone diagrams, and process analysis, and it will examine restaurant revenue-management strategy and tactics. I will also discuss how to combine the information obtained from the baseline and causal analysis to develop specific strategies for increasing RevPASH.

Finally, the papers will examine issues surrounding RRM implementation and discuss methods of establishing appropriate incentive and training programs for servers, managers, and bussers, along with suggestions on how to monitor the success of the revenue-management system. By the end of the series, I hope to have drawn an outline of how to implement revenue management in your restaurant and thereby improve its revenue-generating performance. **CQ**

⁷For example, see: Sheryl E. Kimes and Stephen A. Mutkoski, "The Express Guest Check: Savings Steps with Process Design," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 30, No. 2 (August 1989), pp. 21–25.

⁸G. Lynn Shostack, "Designing Services That Deliver," *Harvard Business Review*, January–February 1984, pp. 133–139.

⁹D. Daryl Wyckoff, "New Tools for Achieving Service Quality," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 25, No. 3 (November 1984), pp. 78–91; and U. Apte and C. Reynolds, "Quality Management at Kentucky Fried Chicken," *Interfaces*, Vol. 25, No. 3 (1995), pp. 6–21.