

# **An Empirical Investigation of Implicit Incentives For Nonfinancial Performance Improvement**

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**ABSTRACT:** In this paper, I examine the sensitivity of promotion and demotion decisions for lower-level managers to financial and nonfinancial measures of their performance. Additionally, I investigate the extent to which the behavior of lower-level managers reflects promotion-based incentives for improving nonfinancial dimensions of performance. I find that promotion and demotion decisions for store managers of a major U.S. based fast-food retailer (QSR) are sensitive to nonfinancial performance measures of service quality and employee retention after controlling for financial performance. The likelihood of demotion in this organization is also sensitive to nonfinancial performance on the dimension of service quality, while the probability of termination (voluntary or involuntary) is primarily sensitive to financial performance measures rather than nonfinancial performance measures. I also find some evidence that the behavior of lower-level managers is consistent with the incentives created by the weighting of nonfinancial performance measures in promotion decisions at QSR. Operators in locations where there is a higher *ex ante* probability of promotion demonstrate significantly higher levels and rates of performance improvement in service quality. These findings provide some of the first empirical evidence on an alternative to the explicit weighting of nonfinancial metrics in compensation contracts as a mechanism for generating improvements in nonfinancial dimensions of performance.

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## **I. Introduction**

In this paper, I examine the sensitivity of promotion and demotion decisions for lower-level managers to financial and nonfinancial measures of their performance. Additionally, I investigate the extent to which the behavior of lower-level managers reflects promotion-based incentives for improving nonfinancial dimensions of performance. Prior empirical research in accounting examining weights placed on nonfinancial performance measures in incentive compensation has largely focused on the context of relatively short-term bonus-based compensation contracts (Ittner et. al. 1997, 2003). However, research across the finance, accounting, and economics literatures suggests that most of the average increases in employee compensation can be traced to promotions rather than continued service in a particular position (Baker et. al. 1988; Gibbs 1995; Medoff and Abraham 1980). Despite the documented size of incentives associated with promotion within organizations, there has been little research on the role of nonfinancial performance measures in the promotion decision.

Nonfinancial performance measures may play a large role in promotion decisions in organizations. In particular, promotion in organizations is commonly believed to serve two important functions: matching and the provision of incentives (Baker et. al. 1988). Promotions provide incentives when they reward past performance with increased pay and rank in the organization. Promotions serve a matching function when they sort employees into the jobs for which their skills and abilities are best suited. Given the potential matching role of promotions, nonfinancial performance measures may provide incremental information to superiors about the capabilities and expected future performance of a lower level employee in a different task. For example, consider evaluating a lower level manager for a more senior management position. Lower levels

of employee turnover and higher-levels of employee training, skill, and satisfaction of employees under the direct supervision of the lower-level manager may be informative about that manager's ability to take on the added responsibility of a more senior management role.

Considering next the incentive role of promotions. The large documented wage differentials around promotions in prior research suggest that implicit incentives created through the weighting of nonfinancial performance measures in subjective promotion decisions may be a powerful mechanism for generating performance improvements on nonfinancial dimensions of performance such as customer satisfaction, product quality, or employee retention.

I investigate these issues using panel data on restaurant managers (operators) from Quick-Service Restaurant (QSR), a large U.S. based fast-food retailer. Operators at QSR have several opportunities for promotion including gaining opportunities to work as a consultant to new operators, relocating to a more profitable unit, or gaining an additional unit to become a multi-unit operator. I examine whether operator movements into, or out of, better opportunities is sensitive to past financial and nonfinancial performance measures in QSR's balanced scorecard. I then investigate the extent to which operator behavior is consistent with the incentives created by the weighting of nonfinancial performance measures in promotion decisions at QSR.

I find that promotion and demotion decisions for store managers of QSR are sensitive to nonfinancial performance measures of service quality and employee retention after controlling for financial performance. The likelihood of demotion in this organization is also sensitive to nonfinancial performance on the dimension of service

quality, while the probability of termination (voluntary or involuntary) is primarily sensitive to financial performance measures rather than nonfinancial performance measures.

Perhaps more importantly, I find some evidence that the behavior of lower-level managers is consistent with the incentives created by the weighting of nonfinancial performance measures in promotion decisions at QSR. Operators in locations where there is a higher *ex ante* probability of promotion demonstrate significantly higher levels and rates of performance improvement in service quality.

Whether firms use promotions to generate incentives for improving nonfinancial dimensions of performance or, alternatively, use nonfinancial measures of individual performance to provide more efficient matching through promotion, the basic empirical prediction of this paper is the same: *promotion decisions will be sensitive to nonfinancial performance measures*. It is difficult to distinguish the matching versus incentive roles for nonfinancial measures in promotion decisions empirically in my setting. However, by combining the results of my empirical tests with qualitative evidence from interviews and internal documents at QSR, I attempt to provide some insight into the extent to which the role of nonfinancial measures in the promotion decision at QSR is to facilitate better matching versus provide incentives.

While my empirical evidence suggests the presence of incentive effects from the weighting of nonfinancial performance measures in the promotion decision, my interviews with senior QSR executives as well as insights from internal documents suggests that the primary role of nonfinancial performance measures in the promotion decision in this organization is to facilitate matching.

This study makes three contributions to the performance evaluation and compensation literatures. First, I extend prior work in accounting examining weights placed on nonfinancial measures in bonus-based compensation contracts (Ittner et. al. 1997, 2003) to consider the sensitivity of promotion and demotion decisions to nonfinancial performance measures.

Second, and perhaps more important, I provide empirical evidence on an alternative incentive mechanism for generating improvements in nonfinancial performance measures than has been documented in the past literature. Banker et al. (2000), in one of the few studies to empirically examine the effects of incentives based on nonfinancial performance measures, found evidence that the direct weighting of customer satisfaction in a new compensation plan led to increased levels of customer satisfaction and financial performance. I provide evidence of improvements in nonfinancial performance metrics generated by implicit, promotion based incentives.

Third, I contribute to the relative handful of studies which examine promotion or demotion based incentives at lower levels in the organization (Medoff and Abraham 1980; Gibbs 1993; Baker et. al. 1994). These studies have primarily been focused on the existence of promotion based incentives in the form of wage differentials across hierarchies or, alternatively, have examined the sensitivity of promotion and turnover to financial performance and subjective performance reviews by superiors. I extend this literature to consider the sensitivity of promotion and demotion decisions to a broader set of potentially more objective nonfinancial performance measures<sup>1</sup>. Additionally, I contribute to this literature by documenting evidence of lower-level employee behavior that is consistent with promotion based incentives.

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<sup>1</sup> Superiors may have an incentive to manipulate performance reviews to influence the promotion process.

The remainder of the paper proceeds as follows. In the next section, I discuss the research setting and data for this study. Empirical tests and results are presented in Section III. Finally, I conclude with a brief discussion in Section IV.

## **II. Research Setting**

The research site for this study is Quick-Service Restaurant (QSR), a large U.S. based fast food retailer which counts firms such as McDonald's and Burger King as major competitors. QSR operates multiple locations throughout the United States. Individual restaurant units operated by QSR consist primarily of three formats. First, mall-units are typically located within dedicated areas of shopping malls or in mall food courts. Second, free-standing units (FSU's) are stand-alone units which typically have a full-seating area and a drive-thru window. Third, licensee locations are locations operated by a third-party which purchases a license to sell QSR products and operate under the QSR brand name. Licensee locations are typically small units located within college campuses, hospitals, and large corporate office buildings.

QSR does not franchise any of its locations. Individual restaurant units are owned or leased by QSR and managed by "Operators". Operators have a high degree of autonomy in managing their locations. One senior QSR executive noted that "...operators have almost complete discretion in how they run their units within the constraints of brand rules". QSR's brand rules put tight limits on operator discretion with respect to changes in menu items or recipes. With respect to pricing decisions, corporate management at QSR sets price ceilings. Operators have discretion to lower prices, but rarely do according to one senior QSR executive. Corporate sets minimum operating hours for units and allows operator discretion over the decision to remain open for longer

hours. Operators have complete discretion over personnel decisions for their units as well as for decisions regarding inventory ordering and management as well as customer service.

Regional managers oversee restaurant operations within a particular region. Their primary functions are to ensure compliance with brand standards and to help operators run their units more effectively. Regional managers, in turn, report to the Director of Field Operations.

### ***Performance Measurement at QSR***

QSR's performance measurement system consists primarily of a "strategic priorities" scorecard and a restaurant level scorecard both modeled after the balanced scorecard concept of Kaplan and Norton (1996, 2000). The restaurant level scorecard captures a variety of performance measures designed to evaluate the performance of individual operators and locations. The strategic priorities scorecard includes measures of restaurant performance (e.g. same store sales growth) as well as more aggregate measures of corporate wide performance (e.g. new store openings, brand awareness). The primary objective of this paper is to examine promotion and demotion based incentives and behavior for individual operators at QSR. Thus, I focus on the measures contained in the restaurant level scorecard.

The performance measures in the restaurant level scorecard fall into five categories: quality and customer satisfaction, people, sales and brand growth, financial return, and vision<sup>2</sup>. Measures in the quality and customer satisfaction category capture basic dimensions of service quality (Zeithaml 2000; Fitzsimmons and Fitzsimmons 2001) including taste of food, speed of service, and overall cleanliness of facilities. Quality

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<sup>2</sup> See Appendix A for a definitions of measures in QSR's restaurant level scorecard.

metrics capturing each of these dimensions were constructed once per quarter for each store via customer surveys. Quality on each dimension is measured as the proportion of surveyed customers who responded that a particular QSR location was “excellent” on that dimension. For example, speed of service is measured as the proportion of surveyed customers rating a particular location as “excellent” on speed of service. The “people” category contains a measure of non-operator employee retention and a measure of attentive and courteous employees. The metric of attentive and courteous employees is also collected via customer surveys and measured as the proportion of customers giving a location an excellent rating on this dimension.

The sales and brand growth category contains measures of growth in same store sales, transaction counts, and average check size. The financial return category captures measures of operating profit as a percentage of sales, growth in operating profit, and variance in controllable expenditures relative to targeted expenditures. Finally, the vision category captures metrics representing QSR’s key strategic priority, “winning and keeping customers”. This category contains measures of customer attraction (e.g. the proportion of customers responding that they are new customers to the QSR brand), customer retention (e.g. customer loyalty index), and overall service quality. QSR’s overall service quality metric is measured as the proportion of surveyed customers reporting that a location is excellent on each of the dimensions of attentive and courteous employees, speed of service, taste of food, *and* cleanliness.

QSR senior management tends to monitor most of these metrics on a rolling 12-month basis to eliminate effects of seasonality. For example, in month ‘t’ the relevant sales metric would be the sum of monthly sales from month’s t-12 to t. Sales growth

would then be measured relative to the same 12-month period in the prior year. Similarly, in month ‘t’, the service quality or customer loyalty metrics would be averaged over the last four surveys<sup>3</sup>. Since this is the way metrics are monitored for internal decision-making at QSR, I primarily use these “12-month” measures in subsequent tests.

### ***Compensation at QSR***

QSR’s explicit compensation plan for operators bases operator compensation exclusively on the “adjusted profitability” of units under their supervision. Specifically, QSR’s formula-based compensation plan awards operators a high percentage,  $\alpha$ , of the operating profit of units under their supervision net of 15% of sales of those units<sup>4</sup>. Thus, on an annual basis, a given operator would receive  $\alpha(0.85*\text{Sales}-\text{Cost})$  and the profitability generated for QSR by that operator would be  $0.15*\text{Sales}+(1-\alpha)(0.85*\text{Sales}-\text{Cost})$ . The cost figure in the profitability calculation includes controllable expenses such as labor and food cost as well as uncontrollable (by the operator) costs such as rent.

On a monthly basis, operators receive compensation according to the above formula. However, in order to shield operators from risk associated with seasonality, each month QSR bases this formula on average monthly sales and costs over the prior 12-months rather than on sales and costs in the given month. Additionally, QSR’s compensation plan includes a minimum income level. Operators whose units are not profitable enough to generate the minimum income are paid at this level.

### ***Promotion and Demotion at QSR***

While QSR’s explicit compensation plan for operators is formula-based and driven purely by financial performance, there are several opportunities for additional

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<sup>3</sup> Recall that customer surveys are only carried out once every quarter.

<sup>4</sup> Due to confidentiality concerns, I am not able to reveal the actual percentage of adjusted profits paid to operators.

income that arise through promotion. First, operators can be promoted to the position of operator-consultant. Operator-consultants work with licensees and new operators to ensure implementation of QSR's brand standards and to assist them in running their units more effectively. Operators who are promoted to this position earn an ongoing consulting fee from QSR in addition to their regular profit based compensation. The decision to promote an operator to an operator consultant is a joint-decision between the regional manager and the director of field operations.

Second, operators in mall locations can be relocated to a free-standing unit. This is considered a traditional career path for operators at QSR. Free-standing units operate at a much larger scale than the typical mall location and are significantly more profitable than mall locations on average. Given QSR's profit based compensation plan, moving from a mall location to a free-standing unit can have a significant impact on operator compensation<sup>5</sup>. Opportunities for mall operators to move to a free-standing unit arise when either a new free-standing unit is opened in the operator's market area or there is turnover of an operator in an existing free-standing unit in the market area. Relocation opportunities, (mall location to free-standing unit) are evaluated by the regional manager, human resources, and the director of field operations.

Third, operators can gain an additional unit to become a multi-unit operator. Opportunities for operators to gain an additional unit arise when a new unit of any type is opened in the operator's market area or when there is turnover among existing operators in the market area. Promotions of operators to multi-unit opportunities are evaluated jointly by the regional manager, human resources, the director of field operations, and the

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<sup>5</sup> In the next section, I provide evidence on the potential gains in compensation for a mall operator who moves to a free-standing unit.

CEO of the company. The involvement of the CEO in this decision suggests the importance of this particular promotion category.

Senior executives at QSR apply a considerable amount of subjectivity when making these decisions. For example, when asked which of the various scorecard measures were most important for operator promotion decisions, a QSR executive replied

...the decision is made on Operator performance as a whole. They really need to have strong performance in all areas. I wouldn't say there is one metric that is more important than the others. ...[our criteria] are very light on hard and fast rules...

QSR issues a set of “guidelines” for these promotion opportunities organized around the five perspectives of the restaurant-level scorecard. Criteria for the various promotion opportunities are not generally specific. For example, for the “people” category of the scorecard, the guidelines provide team member training, selection, recruitment, and retention as important criteria for evaluation, but do not give targets or benchmarks for these criteria. Similarly, in the “quality and customer satisfaction” category, the guidelines list service quality and customer satisfaction scores as important criteria, but do not provide benchmarks. Even the financial category of “sales and brand development” provides non-specific criteria for evaluation stating “...[the operator’s] unit should exhibit real growth in sales and transaction count over time”.

While there does not appear to be any specific criteria for demotion in this organization, I also consider how subjectivity was used in operator demotion decisions. Demotion can take two forms at QSR. First, an operator may voluntarily or involuntarily separate from employment at QSR due to poor performance. Second, a multi-unit operator may voluntarily or involuntarily lose a unit due to poor performance. I am not able, in either case, to observe whether a particular “demotion” event is voluntary or

involuntary for a particular operator. Therefore, in subsequent tests, I interpret the results with this caveat in mind.

### ***Data***

The data for this study are collected from QSR's performance measurement system and restaurant operator compensation files. The sample used for subsequent analyses consists of 24,643 operator-months including observations on 852 unique operators over 39 months from January 2001-March 2004<sup>6</sup>. I am able to track operator movements over this time period and classify these movements into various promotion or demotion categories. I observe all of the performance measures in QSR's restaurant scorecard over this period (listed in Appendix A) with the exception of customer loyalty and new to brand percentage. These measures are only available for the last 18-months of the sample period. Because I identify a small number of operator promotions and demotions over the full 39-month period, I exclude these variables from subsequent analyses rather than restricting the sample period further.

Consistent with QSR's performance evaluation practices, I use rolling "12-month" versions of each performance measure in most of my subsequent tests. I also use QSR's overall measure of service quality in subsequent tests and exclude measures of the underlying dimensions of attentive and courteous employees, speed of service, taste of food, and cleanliness. The overall measure of service quality captures the extent to which operators are performing well on all of these dimensions. Moreover, untabulated results show that correlations among these measures range from 0.65 to 0.89 making it difficult to disentangle their potentially unique weights in promotion and demotion decisions.

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<sup>6</sup> Not all operators are observed over the entire 39-month period due to new operators and operator turnover in the sample.

For multi-unit operators, I face the challenge of how to aggregate data across multiple locations into performance measures for a single operator. I use mean performance across units for multi-unit operators. However, my results are insensitive to alternative measures such as performance in the multi-unit operator's worst or best performing unit.

For some tests, I am able to observe financial and nonfinancial measures over a longer period from January 2000 to March 2004. However, for periods earlier than 2001, I can only trace these measures to specific locations and not to specific operators.

### **III. Empirical Tests and Results**

#### ***Descriptive Statistics on Short-Term and Promotion/Demotion Based Incentives at QSR***

Before turning to promotion/demotion based incentives at QSR, I first examine shorter-term incentives embedded in QSR's explicit compensation plan. My first tests examine whether nonfinancial measures of service quality and employee retention are weighted in short-term compensation awards despite QSR's formula-based compensation plan. QSR's compensation plan explicitly links short-term operator compensation solely to adjusted profit. However, prior research has found that subjectivity (e.g. discretionary pay) is positively related to financial losses and manager tenure (Gibbs et. al. 2002). Variation across operators and time at QSR in both operating losses and tenure levels may have lead QSR executives to weight alternative measures in short-term compensation awards. Table 1 contains results from linear regressions of 12-month operator compensation (*Compensation*) on 12-month operating profit (*Profit*), overall service quality (*ServiceQuality*), employee retention (*EmployeeRetention*), and manager

experience (*ManagerTenure*). The adjusted  $R^2$  in Column 1 shows that 97% of the variation in operator income over the sample period of this study is explained by variation in store profitability. Consistent with QSR's formula-based compensation plan, short-term compensation for operators is based almost exclusively on the profitability of units under their control. The coefficient on *Profit* is, of course, statistically significant ( $p < .01$ ). Moreover, the coefficient on *Profit* is not significantly different from  $\alpha$  (the stated percentage of adjusted restaurant profitability paid to operators per QSR's explicit compensation plan). Neither the coefficient on *Profit* nor the regression  $R^2$  changes substantively when QSR's measures of service quality, employee retention, and manager tenure are added to the specification. Manager tenure is the only additional significant explanatory variable, consistent with the findings of Gibbs et. al. (2002). However, the estimated coefficient on manager tenure is economically small; even a relatively large difference in operator tenure of 10 years would make little difference in operator compensation with a coefficient of this magnitude. Profit-based incentives dominate short-term operator compensation. Any financial incentives in QSR's explicit compensation plan for operators to improve nonfinancial dimensions of performance such as service quality and employee retention depend largely on the extent to which operators perceive the profitability of their units to be sensitive to these measures.

Turning to promotion and demotion based incentives, Table 2 suggests economically significant differences in compensation across promotion categories at QSR. Examining first the distinction between operators and operator/consultants, there appear to be large differences in compensation associated with this promotion category. On average, *Compensation* for an operator with one mall location and an outside

opportunity as an operator consultant is 40% higher than for an operator with one mall location and no outside opportunity. On average, *Compensation* for an operator with one free-standing unit and an outside opportunity as an operator consultant is 15% higher than for an operator with one free-standing unit and no outside opportunity. Moving next to differences between mall locations and free-standing unit's, an operator with one free-standing unit and no outside consulting opportunity earns approximately *double* the compensation of an operator with one mall location and no outside opportunity. Similarly, an operator with one free-standing unit and an outside consulting opportunity earns approximately 85% more than an operator with one mall location and an outside consulting opportunity. Turning finally to multi-unit operators, columns 5 and 6 of Table 2 suggest potentially large incentives associated with multi-unit opportunities. Two and three unit operators earn 3 and 4 times as much, respectively, as the base category of an operator with one mall location and no outside opportunity. A two-unit operator earns approximately 44% more than an operator with one free-standing unit and an outside opportunity as a consultant, while a three-unit operator earns approximately 24% more than a two-unit operator on average. All differences between promotion levels are statistically significant ( $p < .01$ ). Together, these results suggest that long-term promotion based incentives are large in this organization.

While Table 2 relies on comparisons across operators at different promotion levels in the organization, Table 3 provides evidence on relatively short-term changes in compensation following promotions and demotions. The first row of Table 3 shows changes in compensation for operators with no outside consulting opportunity as of January 2001 ( $n=13,755$  operator-months). For the 80 of these operators who were

awarded an outside consulting opportunity by April 2004, compensation increased by approximately 10% on average. The second row of Table 3 shows changes in compensation across operator-months where operator-months are restricted to those in which (1) the operator first appeared in the sample operating one mall unit and (2) the operator is in a market area in a month in which an opportunity to move to a free-standing unit becomes available (n=1,457 operator-months). A free-standing unit will become available if either a new free-standing unit is opened or another operator leaves an existing free-standing unit. For the 36 operators in this sample who were awarded a free-standing unit by April 2004, compensation increased by approximately 50% on average.

The third row of Table 3 shows changes in compensation across operator-months where operator-months are restricted to those in which (1) the operator first appeared in the sample operating less than 3 units and (2) the operator is in a market area in a month in which an opportunity to gain an additional unit becomes available either due to a new unit opening or due to an operator leaving an existing unit (n=2,815 operator-months)<sup>7</sup>. For the 16 of these operators who were awarded an additional unit by April 2004, compensation increased by approximately 10% on average.

Next, considering demotion based incentives, the fourth row of Table 3 shows changes in compensation for operators who first appeared in the sample operating more than one unit (n=2,764 operator-months), subsequently lost one unit, and continued operating at least one unit for QSR. For the 18 of these operators who lost a unit by April 2004, compensation decreased by approximately 3% on average. All differences around

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<sup>7</sup> Interviews with QSR executives suggested that awarding an operator with more than three units would be an extremely rare occasion. Generally, operators with three units are not eligible for additional unit opportunities.

changes in promotion levels are statistically significant ( $p < .01$ ). While relatively small compared to differences in compensation across promotion levels in QSR, the short-term changes around promotion and demotion documented in Table 3 provide additional evidence of the existence and strength of promotion/demotion based incentives at QSR.

The results in Tables 2 and 3 suggest that promotion based incentives are potentially strongest for operators in mall locations. Differences in compensation between operators in mall locations and free-standing units are substantial as documented in Table 2. Moreover, as documented in Table 3, operators moving from a mall location to a free-standing unit over the sample period of this study show the largest average increase in compensation relative to pre-promotion levels when compared with all other promotion categories. Finally, Table 2 documents that holding location type constant (e.g. 1 mall or 1 free-standing unit) an outside consulting opportunity is associated with a much larger difference in compensation for operators in mall units versus operators in free-standing units (40% vs. 15% respectively).

Table 2 provides little in the way of potential clues about the extent to which financial and nonfinancial performance measures in QSR's scorecard were weighted in promotion decisions over the sample period of this study. Both the level of sales (*Sales*) and growth in sales (*SalesGrowth*) are higher for operators with one mall location and an outside consulting opportunity versus operators with one mall location and no outside consulting opportunity. However, sales growth is *lower* for operators in free-standing units with an outside consulting opportunity versus operators in free-standing units without an outside opportunity. Sales growth is markedly high for operators with 3 units. This may simply reflect the awarding of relatively new, high-growth units to existing

multi-unit operators. Neither controllable cost relative to target, customer loyalty, nor new customer percentage appears to show a discernable pattern across promotion categories. Operator tenure is generally higher for operators with outside consulting opportunities versus those without (12 years versus 5 years for mall locations; 13 years versus 7.5 years for free-standing unit's;  $p < .01$  for both differences) and appears highest on average for multi-unit operators. Service quality is generally higher on average for free-standing units versus mall locations, but is actually lower for multi-unit operators when compared to operators with a single free-standing unit.

### ***Sensitivity of Promotion/Demotion to Financial and Nonfinancial Performance***

To examine the implicit weights placed on QSR's scorecard measures in promotion/demotion decisions in more detail, I use the samples defined in Table 3 to estimate logit models for each type of promotion/demotion category. The samples defined in Table 3 were chosen to control for (1) eligibility for promotion (e.g. movement from a mall location to a free-standing unit is conditional on an operator starting in a mall location) and (2) the opportunity for promotion (e.g. movement to a free-standing unit requires the availability of a vacant free-standing unit in an operator's market area). Note that the data in Table 3 suggests promotions and demotions are relatively rare events at QSR over the sample period of this study. Thus, my tests will have low power to detect the sensitivity of promotions/demotions to QSR's restaurant scorecard measures. For each type of promotion, operator-month observations are dropped from the sample once

an operator has earned the promotion opportunity. I exclude operators from the sample who operated a unit which was closed at anytime during the sample period<sup>8</sup>.

Results of the basic logit regressions of promotion decisions on one-month lagged financial and nonfinancial performance measures are presented in Table 4a. For each type of promotion decision, I include sales or sales growth and controllable expenses relative to target (*RelativeCost*) to allow for potentially different evaluations of revenues, revenue growth, and cost in the promotion decision. Recall that all performance measures are calculated as rolling sums or averages over the previous 12 months. Thus, in month 't', the one-month lagged values of each performance measure capture an operator's performance over the 12-month period leading up to month 't-1'. An alternative research design would be to pool observations at the operator-year level rather than the operator-month level. However, executives at QSR do not evaluate operators for promotion at regular time-intervals. Rather, they evaluate operators for promotion or demotion as opportunities arise (e.g. opening a new unit, operator retirement) or circumstances warrant (e.g. a poor performing operator may lose a unit or be asked to leave QSR). Thus, I use pooled-operator month data with controls for the occurrence of promotion opportunities (e.g.  $NewUnits_t = \#$  new units opened in an operator's market area during month 't'). Additionally, market area indicators are included in each specification in Table 4 to control for unobserved differences in promotion opportunities across market areas. All specifications include a control for the length of operator experience at QSR (*OperatorTenure*). I do not make predictions on the relationship between experience and the likelihood of promotion/demotion. Experience may be

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<sup>8</sup> The closing of a unit may reflect factors outside of the control of an operator such as: (1) a decline in economic conditions in a market area or (2) the selection of a site location by QSR which *ex post* did not turn out to be a good location.

correlated with ability, in which case we might expect a positive relationship with the likelihood of promotion. Alternatively, managers with a high level of experience who have been skipped over for promotion in the past may be less likely to be promoted in the future.

In Column's 1 and 2 of Table 4, the regressions with *ConsultingOpp* (an indicator for an operator being promoted to an operator-consultant) as the dependent variable show that controlling for financial performance, nonfinancial measures of performance are significantly associated with the probability of an operator gaining an outside consulting opportunity. In column 1, the logit coefficient on *ServiceQuality* ( $p < .05$ ) implies that, holding all other variables at their mean values, when *ServiceQuality* is 10 percentage points higher, the probability of an operator gaining a consulting opportunity increases by approximately 0.003 percentage points. While small, this represents an approximate 50% increase over the unconditional probability of an operator gaining a consulting opportunity in a given month (0.6%; Table 3). Similarly, the coefficient on *EmployeeRetention* ( $p < .01$ ) suggests that a 10 percentage point increase in QSR's measure of employee retention is associated with an increase in the probability of gaining a consulting opportunity during a given month of approximately 0.002 percentage points or an approximate 33% increase over the unconditional probability of gaining a consulting opportunity.

The level of sales is significantly related to the probability of an operator gaining a consulting opportunity ( $p < .05$ ). However, the probability of gaining a consulting opportunity does not appear sensitive to sales growth, which captures the level of sales relative to a unit-specific benchmark. There are several potential reasons for this finding.

First, the level of sales is strongly related to market area characteristics. To the extent that the inclusion of market area indicators in my tests controls for these characteristics, remaining differences across locations in the level of sales may be attributable to operators. Second, due to data limitations, I am only able to include sales growth measured over the previous one-year period. Interviews with QSR executives and divisional managers suggest that they tend to evaluate operators for promotion opportunities based on prior performance over one to three year periods. The lack of significance on sales growth may reflect the fact that that I am not capturing longer term sales growth trends in my tests. The level of sales at a particular point in time, however, will reflect past sales growth. Thus, differences in the levels of sales within a particular market area may be correlated with past sales growth over longer periods. Third, differences in the level of sales may proxy for underlying differences in unobserved operator ability. This would be the case if either (1) better operator's selected to join QSR only if they could earn a high expected wage by being placed in a high performing location or (2) QSR management selects better operators to run units with high sales volumes<sup>9</sup>. Performance against location-specific cost targets is not significantly related to the probability of an operator gaining a consulting opportunity.

In Column's 3 and 4 of Table 4, the logit regressions with *MallFSU* (an indicator for a mall-unit operator being relocated to a free-standing unit) as the dependent variable show that controlling for financial performance, nonfinancial measures of performance are significantly associated with the probability of an operator gaining an opportunity to move to a free-standing unit. In column 3, the logit coefficient on *ServiceQuality* ( $p < .05$ ) implies that, holding all other variables at their mean values, when *ServiceQuality* is 10

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<sup>9</sup> Discussions with QSR management suggest that any or all of these explanations may be operational.

percentage points higher, the probability of a mall-unit operator moving to a free-standing unit increases by approximately 0.004 percentage points representing an approximate 15% increase over the unconditional probability of a mall unit operator moving to a free-standing unit in a given market area and month where an opportunity arises (2.5%; Table 3). The coefficient on *EmployeeRetention* ( $p < .01$ ) suggests that a 10 percentage point increase in QSR's measure of employee retention is associated with an increase in the probability of gaining a consulting opportunity during a given month of approximately 0.001 percentage points or an approximate 36% increase over the unconditional probability of a mall unit operator moving to a free-standing unit in a given month and market area where an opportunity arises. The probability of promotion from a mall unit to a free-standing unit is significantly related to sales growth ( $p < .05$ ) but not to the level of sales. Controllable cost relative to target is significant in the specification with sales level ( $p < .10$ ) but not when sales growth is included.

In Columns 5 and 6 of Table 4, the logit regressions with *Gain* (an indicator for an operator gaining an additional unit) as the dependent variable show that the probability of gaining an additional unit is generally not sensitive to nonfinancial performance measures. Employee retention is significant ( $p < .05$ ) when the level of sales is included but not when sales growth is included. Service quality is not significant in either specification. The level of sales is significantly related ( $p < .01$ ) to the probability of an operator gaining an additional unit but sales growth is not. There are at least two possibilities for the inconsistency between these findings and those for *ConsultingOpp* or *MallFSU*. First, there are only 16 operators at QSR who gain an additional unit over the period of this study. Thus, my tests may have low power to detect the sensitivity of

promotion to nonfinancial performance for this category of promotion. Second, promotion to a multi-unit opportunity is the highest level of promotion for an operator at QSR. Executives at QSR generally consider many factors outside of the formal performance measures included in my tests when evaluating operators for this opportunity (e.g. personal interaction, evaluations by division managers, etc...).

Turning next to demotions and exits from QSR, Table 4b provides evidence that after controlling for financial performance, the likelihood of a multi-unit operator losing a unit (*Lose*) is sensitive to operator performance on the dimension of service quality. In Columns 1 and 2, the logit coefficients on *ServiceQuality* ( $p < .05$ ) imply that, holding all other variables at their mean values, when *ServiceQuality* is 10 percentage points lower, the probability of a multi-unit operator losing a unit increases by approximately 0.006 percentage points. This represents an approximate 85% increase over the unconditional probability of a multi-unit operator losing a unit (0.7%; Table 3). The likelihood of a multi-unit operator losing a unit in a given month does not appear to be significantly related to employee retention. Moreover, the likelihood of losing a unit is significantly related to sales growth ( $p < .01$ ) but not to the absolute level of sales. The relationship between sales growth and the likelihood of losing a unit may reflect two factors. First, given QSR's profit-based compensation plan, sales growth in a new unit awarded to an operator will be a significant determinant of the incremental compensation that the operator earns from the additional unit. Multi-unit operators may voluntarily give up units that do not yield an increase in compensation sufficient enough to reward the extra effort involved in running the additional unit. Second, operators could be asked to give up a unit if their performance is not at the level desired by QSR management.

Columns 3 and 4 of Table 4b show that the likelihood of an operator leaving QSR (*Exit*) either voluntarily or involuntarily is significantly related to sales ( $p < .01$ ), sales growth ( $p < .01$ ), and the level of controllable expenses relative to target ( $p < .01$ ). However, the likelihood of exit does not appear to be significantly related to either service quality or employee retention. The level of controllable expenses relative to target is not significantly related to any other promotion or demotion decision in QSR. Interviews with senior QSR executives suggest that the ability to control expenses is considered an important, but basic requirement for an operator. Thus, good performance on this measure appears to be a necessary condition for continued employment, but not a sufficient condition for promotion.

Overall, the results in this section provide evidence that both financial and nonfinancial performance of an individual are significant determinants of promotion and demotion decisions at QSR. The results also provide evidence that termination (either voluntary or involuntary) is primarily related to individual performance on financial rather than nonfinancial dimensions.

### ***Does the Behavior of Operators Reflect Promotion Based Incentives at QSR?***

In this section I explore whether there is systematic variation in the behavior of operators over time with respect to improving service quality. The previous section documented (1) the existence of large promotion based incentives at QSR (Tables 2-3) and (2) that promotion decisions at QSR are sensitive to individual performance on the dimension of service quality. My primary interest in this section is to examine whether operator behavior reflects these promotion based incentives.

Incentives generated by promotion depend on the probability of promotion (Baker et. al. 1988). Ideally, to examine whether behavior reflects promotion-based incentives, I would like to have some measure of each operator's *ex ante* assessment of her own probability of promotion. Lacking such a measure, I attempt to capture differences in *ex ante* promotion possibilities by partitioning QSR locations based on market area characteristics likely to be correlated with the *ex ante* probability of promotion.

I am able to obtain clear predictions in this regard for two types of promotion opportunities at QSR. First, consider the opportunity for a mall-unit operator to be promoted to operating a free-standing unit (*MallFSU*). The incentives generated by the potential for this opportunity should be highest for mall-operators in market areas where (1) the likelihood of a free-standing unit becoming available in the future is high and (2) the number of other operators likely to be vying for the same unit is relatively low<sup>10</sup>. The *ex ante* likelihood of a free-standing unit becoming available in the future is likely to be highest in markets in which there is a high concentration of free-standing units. This is the case since normal retirements and other types of management turnover will lead to the availability of free-standing units in these markets. Moreover, any individual mall-unit operator will have a higher likelihood of being promoted for this opportunity if there are fewer other mall-unit operators to compete with for this opportunity<sup>11</sup>.

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<sup>10</sup> Predictions on the incentive effects of the number of coworkers vying for the same promotion opportunity are unclear. Competition for promotion is a central source of incentives in tournament models such as that of Lazear and Rosen (1981). However, promotion incentives diminish for those who cannot conceivably win a promotion tournament (Baker et. al. 1988). In the tests in this section, I assume that "excessive" competition for a particular promotion opportunity is likely to dampen the incentive effects of promotion.

<sup>11</sup> Note that even when there is only one mall-unit operator in a particular market area, that operator still faces competition for promotion since QSR can award an open free-standing unit to an existing free-standing unit operator (e.g. award a multi-unit opportunity) or simply hire a new operator to run the open unit.

To examine the extent to which mall-unit operator behavior reflects promotion based incentives, I partition market areas based on the ratio of the number of free-standing units to the number of mall-units in the market area. Specifically, I partition market areas into quartiles based on the ratio of free-standing to mall-units. Promotion incentives for mall-unit operators are expected to be higher in higher quartiles. If the behavior of mall-unit operators is consistent with these implicit promotion-based incentives, I predict that the level of service quality as well as the rate of performance improvement of service quality should be higher in higher quartiles<sup>12</sup>. To test this prediction, I use quarterly data on service quality for all single unit mall operators over the period from January 2000 to March 2004 representing 17 quarters<sup>13</sup>.

My findings are consistent with these predictions. In untabulated results, the mean level of *ServiceQuality* in quartiles 1-4 are 27.8%, 28.8%, 30.2%, and 30.4% respectively. Differences in means across quartiles are all significant ( $p < .01$ ) except for the difference in means between quartiles 3 and 4. Table 5 provides results from fixed effects regressions of service quality on time and time interacted with dummies for each quartile. Column 1 shows that, on average *ServiceQuality* improves at a rate of approximately .95 percentage points per quarter. Column 2 reveals stark differences in the rate of performance improvement on this metric across quartiles. The coefficient on time suggests that operators in the bottom quartile improve service quality at a rate of approximately .77 ( $p < .01$ ) percentage points per quarter. Those in the top quartile

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<sup>12</sup> Service quality is a measure of *customer perceptions* of service quality rather than an internal process oriented measure. I assume that changes in this measure reflect changes in the level of operator effort on the underlying dimensions of service quality captured by this metric (employee interaction, service speed, taste of food, and cleanliness).

<sup>13</sup> I aggregate the service quality metric at the quarterly level since *ServiceQuality* is measured through customer surveys once per quarter.

improve service quality at a rate that is .31 percentage points higher ( $p < .01$ ) or 1.08 percentage points per quarter. The estimated rates of performance improvement are consistently increasing across quartiles 1-4.

The second type of promotion opportunity where I am able to obtain a clear prediction is for the awarding of an outside consulting opportunity (*ConsultingOpp*). Consulting opportunities are typically given to existing free-standing or mall-unit operators to assist licensees with improving financial performance and operating within QSR's brand standards. Using similar reasoning to that above, I partition market areas into quartiles based on the ratio of licensee units to all other units (e.g. mall and free-standing). Operators in both mall and free-standing units vie for these consulting opportunities. The *ex ante* likelihood of a promotion opportunity arising in a market area should be positively related to the number of licensees in the market while the likelihood of any particular operator obtaining that opportunity should increase when there are fewer operators competing for the opportunity. Again, I predict that the level of service quality as well as the rate of performance improvement of service quality should be higher in higher quartiles.

My findings for this prediction are mixed. The coefficient estimates in Columns 1 and 3 show that, on average, *ServiceQuality* is increasing by .95 ( $p < .01$ ) percentage points per quarter in mall units and 1.02 ( $p < .01$ ) percentage points in free-standing units. For mall-units, the rate of performance improvement for *ServiceQuality* is not monotonically increasing across quartiles. The coefficients for the first and fourth quartile are positive and significant ( $p < .01$ ), but are not significantly different from each other. The coefficient for quartile 2 is positive and significant ( $p < .05$ ), but implies a

lower rate of performance improvement than for operators in the first quartile. Column 4 shows that the rate of performance improvement on *ServiceQuality* for free-standing unit operators in the first quartile is much lower than the average rate of performance improvement (.83 versus 1.02 percentage points per quarter). The rate of performance improvement for free-standing units in the second quartile is .27 percentage points higher ( $p < .01$ ) or 1.10 percentage points per quarter. However, no other quartiles exhibit significant differences in the rate of performance improvement for *ServiceQuality*.

Overall, the results in this section provide strong evidence that operator behavior at QSR reflects promotion based incentives for mall to free-standing unit promotions but mixed evidence in the same regard with respect to promotions from operator to operator-consultant.

#### **IV. Discussion and Conclusion**

This paper examines the sensitivity of promotion and demotion decisions to financial and nonfinancial performance measures for lower-level managers as well as the extent to which the behavior of lower-level managers reflects promotion-based incentives. I find that promotion and demotion decisions for store managers of a major U.S. based fast-food retailer (QSR) are sensitive to nonfinancial performance measures of service quality and employee retention after controlling for financial performance. The likelihood of demotion in this organization is also sensitive to nonfinancial performance on the dimension of service quality, while the probability of termination (voluntary or involuntary) is primarily sensitive to financial performance measures rather than nonfinancial performance measures.

Perhaps more interestingly, I find some evidence that the behavior of lower-level managers is consistent with the incentives created by the weighting of nonfinancial performance measures in promotion decisions at QSR. Operators in market areas where there is a higher *ex ante* probability of promotion demonstrate significantly higher levels and rates of performance improvement in service quality. This finding provides some of the first empirical evidence on an alternative to the explicit weighting of nonfinancial metrics in compensation contracts as a mechanism for improving nonfinancial dimensions of performance (Banker et al. 2000).

The finding that nonfinancial performance measures were weighted in promotion decisions at QSR is consistent with either the incentive or matching role of promotions. Nonfinancial measures may be used to facilitate better matching in the sense that they provide incremental information on a lower-level manager's expected ability to perform well in a different task environment. Alternatively, senior executives may simply select for promotion the best performers on a given set of nonfinancial metrics in order to generate incentives for improvement. In either case, the prediction would be the same: a positive weight placed on nonfinancial performance measures in the promotion decision.

It is difficult to distinguish these two roles for nonfinancial measures in promotion decisions empirically in my setting. However, the results in this paper, when coupled with qualitative evidence from interviews and internal documents at QSR, suggest that the primary role of nonfinancial measures in the promotion decision in this organization is to facilitate better matching. At QSR, each type of promotion opportunity constituted a different task assignment and placed different demands on the operator. For example, the formal written guidelines for additional opportunities at QSR state as one criterion for

promotion that "...[the operator's] team should be able to function effectively without the operator being present". The retention rate of employees under the operator's supervision is then listed as an important criterion for evaluation. Thus, when making a decision about which operator will be best suited to run more than one unit or perform an outside task such as consulting for another unit, it appears that QSR executives rely on measures of the operator's ability to retain employees -- a measure that may be a signal of the operator's ability to delegate the effective operation of a unit to employees under her supervision. This is consistent with my finding of the weighting of employee retention in promotion decisions across promotion types at QSR.

Similarly, nonfinancial performance measures may facilitate better matching *ex post* if, for example, such measures provide information about where "mistakes" in matching occurred. As one senior QSR executive noted: "...an operator may be asked to give up a unit because performance is not where we would like it to be. Only really good operators get an opportunity for a second location, and there is lots of pressure for them to run both of these locations as well as two separate operators would run those locations". Nonfinancial measures may be informative about the *ex post* ability of a manager to perform well in the function of operating more than one location. This is consistent with my finding that the likelihood of an operator losing a unit is related to the level of service quality after controlling for financial performance. Given the extensive involvement by senior management up to the CEO level prior to selecting operators for multi-unit opportunities, it seems unlikely that the possibility of demotion would be used primarily as an incentive mechanism to maintain service quality. It seems more likely that problems with maintaining service quality are informative of the manager's ability to

perform the function of a multi-unit operator, consistent with a matching role for nonfinancial measures in the demotion decision.

A potentially interesting direction for future research would be to empirically distinguish between the matching versus incentive role of nonfinancial performance measures in promotion and demotion decisions. Moreover, with the obvious caveat of the difficulty of generalizing the results of a field-study, a limitation of this study is that I examine promotions and demotions over a relatively short time-period. This limits the number of movements in and out of positions that I am able to observe. Future research can perhaps examine similar issues in settings where a longer history of personnel performance records is maintained.

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Table 1  
Relationship Between Short Term Compensation, Profitability, and Nonfinancial Measures of Performance

Variable	Dependent Variable: <i>Compensation<sub>t</sub></i>	
	(1)	(2)
<i>Profit<sub>t</sub></i>	+++ (166.4)	+++ (115.2)
<i>ServiceQuality<sub>t</sub></i>		-70 (-1.48)
<i>EmployeeRetention<sub>t</sub></i>		-45 (-1.24)
<i>ManagerTenure<sub>t</sub></i>		351*** (4.16)
Adjusted R <sup>2</sup>	97%	97%
Number of observations	23,200	23,200

Each column is a linear regression of operator compensation on selected independent variables. All variables are defined in Table 2. t-statistics in parentheses.

+++ Not significantly different from  $\alpha$ =percentage of restaurant profitability paid to operator as stated in QSR's compensation plan;  $\alpha$  cannot be revealed due to confidentiality concerns

\*\*\* Statistically significant at the 1% level (two-tailed)

**Table 2**  
Cross-Sectional Differences in Mean Compensation, Experience, and Performance for Operators at Different Promotion Levels

	1 Mall/No Outside Opportunity (n=8,491)	1 Mall/ Outside Opportunity (n=1,980)	1 FSU/No Outside Opportunity (n=8,722)	1 FSU/ Outside Opportunity (n=2,208)	2 Units (n=2,887)	3 Units (n=355)
<i>Compensation<sub>t</sub></i> *	1*	1.4	2.0	2.3	3.3	4.1
<i>Sales<sub>t</sub></i> *	1*	1.2	1.9	2.2	1.9	2.1
<i>SalesGrowth<sub>t</sub></i>	1.6%	4.3%	4.9%	3.9%	3.6%	8.2%
<i>RelativeCost<sub>t</sub></i>	46,837	47,160	60,634	63,360	56,764	96,179
<i>OperatorTenure<sub>t</sub></i>	5	12	7.5	13.3	17.6	25.8
<i>ServiceQuality<sub>t</sub></i>	29%	28%	36%	36%	34%	31%
<i>EmployeeRetention<sub>t</sub></i>	49.6	53.7	53.7	54.4	51.7	41.5
<i>CustomerLoyalty<sub>t</sub></i> <sup>+</sup>	13%	13%	18%	19%	18%	16%
<i>NewCustomerPct<sub>t</sub></i> <sup>+</sup>	1.1%	1.2%	0.65%	0.60%	0.56%	0.46%

\*Mean compensation and sales levels for operators with one mall unit and no outside consulting opportunity are normalized to 1 to maintain confidentiality; All differences in compensation between different promotion levels are significant at the 1% level (two-tailed); <sup>+</sup>*CustomerLoyalty* and *NewCustomerPct* are only available for later months in the sample.

Table shows means of all variables across different promotion categories. Each column represents the means for operators with the specified number and type of unit (e.g. 1 mall or 1 free-standing unit, 2 units, 3 units). “Outside opportunity” denotes that an operator earns a “consulting” fee from QSR for coaching licensees and new operators of QSR restaurants in the operator’s market area. All observations are operator-months. *Compensation<sub>t</sub>* and *Sales<sub>t</sub>* are the rolling sum of monthly compensation and monthly sales, respectively, from month’s t-12 to t. *SalesGrowth<sub>t</sub>* is growth in *Sales<sub>t</sub>* relative to the same 12-month period one-year earlier. *RelativeCost<sub>t</sub>* is the difference between actual controllable expenses over the previous 12-month period and targeted controllable expenses over the same 12-month period. *OperatorTenure<sub>t</sub>* is the number of years an operator has been with QSR. *ServiceQuality<sub>t</sub>* is measured as the percentage of surveyed customers giving an “excellent rating” in each of the areas of employee interaction, service speed, taste of food, and cleanliness; surveys are carried out once per quarter; the “12-month” measure of service quality reported in this table is the average over the last four surveys as of month ‘t’. *EmployeeRetention<sub>t</sub>* is the number of regular staff paid in month ‘t’ divided by the number of regular staff paid in month ‘t’ plus the number of regular staff terminations from month’s t-12 to t. *CustomerLoyalty<sub>t</sub>* is the percentage of surveyed customers who have eaten at QSR at least 4 times in month ‘t’ and rate QSR as one of their favorite restaurants; surveys are carried out once per quarter; the “12-month” measure of customer loyalty reported in this table is the average over the last four surveys as of month ‘t’. *NewCustomerPct<sub>t</sub>* is the percentage of surveyed customers responding that this is their first visit to any QSR locations; surveys are carried out once per quarter; the “12-month” measure of new customer attraction reported in this table is the average over the last four surveys as of month ‘t’.

Table 3  
Compensation Changes for Operators around Promotion and Demotion

	Pre-Promotion/Demotion Compensation	Post-Promotion/Demotion Compensation
<b>Gain Outside Consulting Opportunity:</b>		
# Operators-Months for operators without consulting opportunity at start of sample period:	13,755	
	1*	1.1
# Operators-Months in which Operator gains a consulting opportunity:	<u>80</u> 0.6%	
<b>Move from Mall Unit to FSU:</b>		
# Operators-Months for operators who start with one mall unit at beginning of sample period <i>and</i> are in a market area in which an opportunity to move to an FSU becomes available:	1,457	
	1*	1.5
# Operators-Months in which a Mall Operator gains a free-standing unit:	<u>36</u> 2.5%	
<b>Gain an Additional Unit:</b>		
# Operators-Months for operators who start with less than three units at beginning of sample period <i>and</i> are in a market area in which an opportunity to gain an additional unit becomes available:	2,815	
	1*	1.1
# Operators-Months in which an Operator gains an additional unit:	<u>16</u> 0.6%	
<b>Lose a Unit but Stay with QSR:</b>		
# Operators-Months for operators who start more than one unit at beginning of sample period:	2,764	
	1*	0.97
# Operators-Months in which an Operator loses a unit:	<u>18</u> 0.7%	
<b>Operator Leaves QSR:</b>		
# Operators-Months:	24,141	
	1*	-
# Operators-Months in which an Operator is terminated from, or voluntarily leaves, QSR:	<u>86</u> 0.4%	

\*Mean compensation levels before promotion/demotion are normalized to 1 for each type of promotion/demotion to maintain confidentiality; All differences in compensation before and after promotion/demotion are significant at the 1% level (two-tailed);

Table shows mean levels of compensation before and after each promotion or demotion category. Operators who operated a restaurant which was closed down at any point in the sample period are excluded from all calculations. The number and proportion of operator-months in which each promotion/demotion event occurred are provided in the first column.

Table 4  
4a: Logit Analysis of Promotion Opportunities Regressed on Financial and Nonfinancial Performance Measures and Control Variables

	<u>Dep. Var.=ConsultingOpp<sub>t</sub></u>		<u>Dep. Var.=MallFSU<sub>t</sub></u>		<u>Dep. Var.=Gain<sub>t</sub></u>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Sales<sub>t-1</sub></i> (000's)	0.01 <sup>b</sup> (2.2)		0.003 (0.54)		0.003 <sup>a</sup> (3.23)	
<i>SalesGrowth<sub>t-1</sub></i>		0.02 (1.1)		0.07 <sup>b</sup> (2.1)		-0.11 (-0.74)
<i>RelativeCost<sub>t-1</sub></i> (000's)	-0.004 (-0.6)	0.001 (0.1)	-0.17 <sup>c</sup> (1.53)	-0.12 (-1.21)	0.001 (0.10)	0.001 (0.73)
<i>OperatorTenure<sub>t-1</sub></i>	0.03 (0.77)	0.06 <sup>b</sup> (1.86)	0.02 (0.67)	0.003 (0.93)	-0.08 (-1.15)	-0.04 (-0.43)
<i>ServiceQuality<sub>t-1</sub></i>	0.11 <sup>b</sup> (1.82)	0.09 <sup>c</sup> (1.54)	0.04 <sup>b</sup> (1.65)	0.04 <sup>c</sup> (1.54)	-0.07 (-0.63)	0.04 (0.73)
<i>EmployeeRetention<sub>t-1</sub></i>	0.07 <sup>a</sup> (2.8)	0.07 <sup>a</sup> (2.9)	0.10 <sup>a</sup> (3.26)	0.11 <sup>a</sup> (3.58)	0.15 <sup>b</sup> (2.07)	0.06 (1.15)
<i>NewUnits<sub>t</sub></i>	0.57 <sup>b</sup> (2.2)	0.57 <sup>b</sup> (2.1)			-0.74 (-0.66)	-1.31 (-1.04)
<i>NewFSUUnits<sub>t</sub></i>			0.77 <sup>b</sup> (2.1)	0.85 <sup>b</sup> (2.03)		
Market Area Dummies	+++	+++	+++	+++	+++	+++
n	9,647	9,647	1,004	1,004	1,308	1,308
Pr>ChiSq	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

+++Jointly significant at the 1% level using  $\chi^2$  test

<sup>a,b,c</sup> Significant at the 1%, 5%, and 10% levels respectively (one-sided test where sign is predicted; two-sided test otherwise); t-statistics in parentheses

Dependent variables: *ConsultingOpp<sub>t</sub>* is an indicator for whether an operator was awarded a consulting opportunity during month 't'; *MallFSU<sub>t</sub>* is an indicator for whether an operator in a single mall unit was awarded a relocation to a free-standing unit during month 't'; *Gain<sub>t</sub>* is an indicator for whether an operator gained an additional unit during month 't'. *NewUnits<sub>t</sub>* and *NewFSUUnits<sub>t</sub>* represent the number of new units of all types and the number of free-standing units opened in an operator's market area during month 't'.

4b: Logit Analysis of Demotions/Exits Regressed on Financial and Nonfinancial Performance Measures and Control Variables

	<u>Dep. Var.=Lose<sub>t</sub></u>		<u>Dep. Var.=Exit<sub>t</sub></u>	
	(1)	(2)	(3)	(4)
<i>Sales<sub>t-1</sub> (000's)</i>	-0.001 (-0.64)		-0.0015 <sup>a</sup> (-4.06)	
<i>SalesGrowth<sub>t-1</sub></i>		-0.09 <sup>a</sup> (-2.64)		-0.09 <sup>a</sup> (-5.02)
<i>RelativeCost<sub>t-1</sub>(000's)</i>	-0.007 (-0.45)	-0.009 (-0.64)	0.014 <sup>a</sup> (4.39)	0.011 <sup>a</sup> (3.66)
<i>OperatorTenure<sub>t-1</sub></i>	0.13 (1.43)	0.14 <sup>c</sup> (1.77)	0.06 (3.22)	0.022 (1.18)
<i>ServiceQuality<sub>t-1</sub></i>	-0.10 <sup>b</sup> (-1.84)	-0.09 <sup>b</sup> (-2.01)	0.00002 (0.00)	-0.02 (-0.74)
<i>EmployeeRetention<sub>t-1</sub></i>	0.05 (0.97)	0.05 (1.07)	0.001 (0.06)	0.002 (0.12)
Market Area Dummies	+++	+++	+++	+++
n	1,210	1,210	12,287	12,287
Pr>ChiSq	<0.001	<0.001	<0.001	<0.001

+++Jointly significant at the 1% level using  $\chi^2$  test

<sup>a,b,c</sup> Significant at the 1%, 5%, and 10% levels respectively (one-sided test where sign is predicted; two-sided test otherwise); t-statistics in parentheses

Dependent variables: *Exit<sub>t</sub>* is an indicator for whether an operator leaves QSR during month 't'; *Lose<sub>t</sub>* is an indicator for whether a multi-unit operator loses a unit during month 't'.

**Table 5**  
 Behavior of Service Quality Metrics Over Time Across Market Areas with Different *Ex Ante* Opportunities for Promotion

5a: Service Quality Improvements Over Time for Mall Units in Markets with Different *Ex-Ante* Opportunities for Relocation to a Free-Standing Unit

	Dependent Variable = <i>ServiceQuality<sub>t</sub></i>	
<i>Time</i>	0.949 <sup>a</sup> (57.5)	0.77 <sup>a</sup> (20.4)
<i>Time x FSU to Mall Ratio Q2</i>		0.08 <sup>c</sup> (1.33)
<i>Time x FSU to Mall Ratio Q3</i>		0.14 <sup>a</sup> (2.83)
<i>Time x FSU to Mall Ratio Q4</i>		0.31 <sup>a</sup> (6.70)
<b>Adjusted R<sup>2</sup></b>	<b>21%</b>	<b>23%</b>

<sup>a,b,c</sup> Significant at the 1%, 5%, and 10% levels respectively (one-sided test); t-statistics in parentheses; Table includes coefficients from fixed effects regressions of service quality on time and time interacted by *FSU to Mall Ratio Q<sub>j</sub>* ( $j=1,2,3,4$ ) which are indicators representing whether a QSR location is in a market area in quartile 'j' of the ratio of Free-Standing Units to Mall Units; Time represents quarters beginning January 2000 and ending March 2004; Units of observation are location-quarters.

5b: Service Quality Improvements Over Time for Mall and FSU Units in Markets with Different *Ex-Ante* Opportunities for Operator Consulting Income

	Dependent Variable = <i>ServiceQuality<sub>t</sub></i> Mall Locations		Dependent Variable = <i>ServiceQuality<sub>t</sub></i> Free-Standing Units	
<i>Time</i>	0.95 <sup>a</sup> (57.5)	0.81 <sup>a</sup> (21.7)	1.02 <sup>a</sup> (56.2)	0.83 <sup>a</sup> (15.1)
<i>Time x Licensee to Unit Ratio Q2</i>		0.26 <sup>a</sup> (5.4)		0.27 <sup>a</sup> (4.5)
<i>Time x Licensee to Unit Ratio Q3</i>		0.10 <sup>b</sup> (2.3)		0.08 (1.25)
<i>Time x Licensee to Unit Ratio Q4</i>		0.22 <sup>a</sup> (3.7)		0.10 (1.07)
<b>Adjusted R<sup>2</sup></b>	21%	21%	30%	30%

<sup>a,b,c</sup> Significant at the 1%, 5%, and 10% levels respectively (one-sided test); t-statistics in parentheses; Table includes coefficients from fixed effects regressions of service quality on time and time interacted by *Licensee to UnitRatio Qj* ( $j=1,2,3,4$ ) which are indicators representing whether a QSR location is in a market area in quartile 'j' of the ratio of licensee units to non-licensee units (e.g. mall or free-standing units). Time represents quarters beginning January 2000 and ending March 2004; Units of observation are location-quarters.

## Appendix A: QSR Restaurant Level Scorecard

### Quality and Customer Satisfaction

Taste of Food	Percentage of customers giving an Excellent rating in the area of Taste of Food; surveys conducted once per quarter
Speed of Service	Percentage of customers giving an Excellent rating in the area of Speed of Service; surveys conducted once per quarter
Cleanliness	Percentage of customers giving an Excellent rating in the area of Overall Cleanliness; surveys conducted once per quarter

### People

12 Month Retention	# of employees paid in the current month divided by # of employees paid in the last 12 months
Attentive and Courteous Employees	Percentage of customers giving an Excellent rating (5 on a 5 point scale) in the area of Attentive, Courteous Employees; surveys conducted once per quarter

### Sales and Brand Growth

Same Store Sales Growth	Same Store Sales Change; sales growth in \$ as a percentage of prior years sales
Transaction Count Change	Same Store Transaction Count Change; transaction growth in \$ as a percentage of prior years transaction count
Check Average Dollar Change	\$ Change in sales per transaction versus prior year

### Financial Return

Controllable Cost Gap Relative to Target	The dollar difference between expected expenditures for controllables and actual expenditures for controllables
Profit % Sales	Profit dollars as a percentage of sales
Same Store Profit Growth	Same Store Profit Change; Profit growth in \$ as a percentage of prior years profit

### Vision

New to Brand %	Percentage of customers responding that this is their first visit to ANY QSR location
Customer Loyalty Index	Percentage of customers eating with QSR 4 or more times in the last month <b>and</b> rate QSR as one of their favorite restaurants; surveys conducted once per quarter
Service Quality	Percentage of customers giving an Excellent rating in Speed, Taste, Cleanliness <b>and</b> Attentive Courteous Employees; surveys conducted once per quarter