



Cornell University
ILR School

Cornell University ILR School
DigitalCommons@ILR

Faculty Publications - Human Resource Studies

Human Resource Studies

January 2005

Service Management and Employment Systems in U.S. and Indian Call Centers

Rosemary Batt

Cornell University, rb41@cornell.edu

Virginia Doellgast

King's College, London

Hyunji Kwon

Rutgers University

Follow this and additional works at: <http://digitalcommons.ilr.cornell.edu/hrpubs>

Thank you for downloading an article from DigitalCommons@ILR.

Support this valuable resource today!

This Article is brought to you for free and open access by the Human Resource Studies at DigitalCommons@ILR. It has been accepted for inclusion in Faculty Publications - Human Resource Studies by an authorized administrator of DigitalCommons@ILR. For more information, please contact hlmdigital@cornell.edu.

Service Management and Employment Systems in U.S. and Indian Call Centers

Abstract

"The explosive growth of call centers in India has gained widespread attention because of its potential impact on employment in the United States and other advanced economies. Media accounts report that Indian operations are more likely to use college-educated workers while paying one-tenth of U.S. wages. Some argue that these advantages may allow Indian centers to outcompete U.S. centers on both cost and quality. Nonetheless, complaints about poor quality and security, as well as consumer backlash, have led some firms to pull out of India, while leaders in the offshoring business such as General Electric have sold their Indian operations altogether. High turnover rates have become a particularly serious problem in recent years as an expanding number of employers compete for a small pool of educated employees, a trend that both increases costs and undermines service quality."

Keywords

service, management, employment, system, U.S. Indian, call center, strategies, practice, customer, human, capital

Comments

Suggested Citation

Batt, R., Doellgast, V., & Kwon, H. (2005). Service management and employment systems in U.S. and Indian call centers. In S. Collins & L. Brainard (Eds.), *Brookings trade forum 2005: Offshoring white-collar work – the issues and implications* (pp. 335-372). Washington, D.C.: The Brookings Institution.
<http://digitalcommons.ilr.cornell.edu/hr/39/>

Required Publisher Statement

Copyright by [The Brookings Institution](#).

ROSEMARY BATT
VIRGINIA DOELLGAST
HYUNJI KWON
Cornell University

Service Management and Employment Systems in U.S. and Indian Call Centers

The explosive growth of call centers in India has gained widespread attention because of its potential impact on employment in the United States and other advanced economies. Media accounts report that Indian operations are more likely to use college-educated workers while paying one-tenth of U.S. wages. Some argue that these advantages may allow Indian centers to outcompete U.S. centers on both cost and quality.¹ Nonetheless, complaints about poor quality and security, as well as consumer backlash, have led some firms to pull out of India, while leaders in the offshoring business such as General Electric have sold their Indian operations altogether. High turnover rates have become a particularly serious problem in recent years as an expanding number of employers compete for a small pool of educated employees, a trend that both increases costs and undermines service quality.

With heated debate more prevalent than systematic empirical investigation, our understanding of this emerging sector is based largely on anecdotal evidence. National figures on employment, industry trends, and the percentage of centers operated in-house (as opposed to outsourced or offshore) are unreliable.²

We thank the Alfred P. Sloan Foundation, the Russell Sage Foundation, and the Cornell University Center for Advanced Human Resource Studies for generous funding that made this study possible. Thanks also to the Survey Research Institute, ILR School, Cornell University, for administration of the U.S. survey and to Priti and Mudit Nopany for conducting the Indian survey. This research is part of a broader international survey of call center establishments in twenty countries in North America, Europe, and industrializing economies, coordinated by Rosemary Batt, David Holman (U. Sheffield, UK), and Ursula Holtgrewe (U. Duisburg, Germany).

1. See Dossani and Kenney (2004).

2. Data on numbers of call centers and employment come largely from interested parties, such as India's National Association of Software and Service Companies (NASSCOM), and industry

Our own national survey of U.S. call centers suggests that after two decades of rapid growth, the outsourced sector represents less than 15 percent of the market; and Indian offshore centers cover a tiny fraction of the U.S. market.

In addition, there has been little or no research on management and employment practices in this sector, either in the United States or in India. In this paper, therefore, we consider two questions. First, how similar or different are call center management strategies and employment systems in each country? Here our goal is to map the management practices adopted by three types of operations: in-house centers in the United States, outsourced centers in the United States, and offshore centers that are owned and operated by subcontractors in India and serve the U.S. market. Are there systematic differences in these practices, or is there a call center “production model” that has diffused across very different institutional and organizational contexts? Second, what are the implications of different management practices for outcomes such as turnover? In other words, which practices explain the high levels of turnover in the industry?

To answer these questions, we draw on an original establishment-level survey of 330 call centers in the United States and India. We focus on customer contact rather than back-office operations such as check processing or online order fulfillment. For each center, the survey provides information on the customer base, market and ownership conditions, organizational characteristics, work functions, workforce skills and training, call center technology, work organization, compensation, and outcomes such as absenteeism and turnover. In the next section, we discuss prior research that informs our study. We then present the study methods and analytic strategy and our findings. Finally we outline the study’s limitations and implications for policy.

consultants such as Datamonitor in the United States. NASSCOM put the number of call center positions in India at 158,000 in 2004. For the United States in 2001, Datamonitor estimated a total call center workforce of 2.5 million, with 88.7 percent located in in-house centers and 11.3 percent in outsourced centers. It projected that by 2005 call center employment would grow by 14 percent, reaching a total of 2.86 million, with 13.4 percent located in outsourced centers (Datamonitor 2001). That estimate is close to the 14.6 percent of U.S. centers outsourced that we found in our 2004 national survey.

Datamonitor bases its estimates on market research and the sale of call center work stations and other technology. The numbers of work stations may underestimate employment because they may be used for two or three shifts of workers. More recently, Datamonitor (2004) estimated that the U.S. call center employment would fall to 2.7 million positions in 47,500 call centers by 2008. Our calculations, based on Bureau of Labor Statistics data, suggest a U.S. call center workforce in 2004 of 3.97 million, or an upper limit of 3 percent of the workforce. These calculations are limited by the available data. See appendix for a technical note on these calculations.

Prior Research

The first question we address in this study concerns the extent to which call center management practices vary across markets and institutional settings. Call centers represent a new industrial model driven by advances in information technologies that are now ubiquitous. These technologies facilitate the automation of services through interactive voice recognition units, standardize customer transactions through skill-based routing systems, create machine-paced operations through automated call distribution systems, and routinize work through widespread use of scripting and electronic monitoring.

However, research shows that service management strategies and employment systems vary substantially across centers that serve different industry and customer segments, and that perform different work functions—from professional approaches to service to highly transactional or cost-driven ones.³ In this line of research, work and employment systems typically are defined to include three dimensions: (a) the level of education and training required; (b) the level of discretion and collaborative problem-solving embedded in the design of work; and (c) the level and type of compensation system designed to motivate effort.⁴

The professional service model includes a set of employment practices based on high skills and training, employee discretion and collaborative problem-solving, and high relative pay.⁵ This approach to service management is typically found in business-to-business centers and information technology (IT) help desks or technical service centers. By contrast, centers that focus on simple transactions, such as telemarketing, reservations, or credit card handling, require relatively low skills, and jobs are likely to be highly routinized with low pay. Quality control is ensured through extensive use of electronic monitoring systems.⁶

A more complex question is how to explain the variation in customer contact centers that fall between these two extremes: centers that target the mass market or a mixture of markets and that provide service and sales for products that entail some degree of complexity along with opportunities to bundle services and customize offerings. These represent the overwhelming majority of contact centers,

3. Frenkel and others (1998); Batt (2000); Shire, Holtgrewe, and Kerst (2002).

4. Appelbaum and others (2000); Batt (2002).

5. Heskett, Sasser, and Schlesinger (1997); Batt (2002).

6. Heskett, Sasser, and Schlesinger (1997).

serving customers in such sectors as financial services, insurance, telecommunications, and a variety of manufacturing industries. Here, management strategies vary considerably in how much weight they give to competing on quality and mass customization⁷ versus focusing primarily on cost.

In-house versus Outsourced Strategies

How does the variation in call center management strategies and employment systems align with their ownership status—that is, with whether call centers are in-house, outsourced, or offshore operations? There are many reasons to believe that outsourced and offshore centers will adopt management strategies that focus more on controlling costs than on investing in employees. First, outsourcing allows firms to avoid paying the high wages associated with internal equity norms and internal labor markets or union contracts.⁸ Several studies have found that subcontractors hire workers at lower pay and benefits to do the same work.⁹ Erickcek, Houseman, and Kalleberg (2003) found that this is particularly true for low-skilled work, where subcontracting led to the loss of union representation as well as lower pay and benefits.

Second, the literature on transaction cost economics suggests that outsourced centers will focus on cost reduction because, as work is turned over to a third party, the client firm must absorb the costs of monitoring and contract enforcement.¹⁰ Thus, client firms are likely to exert pressure on subcontractors to keep costs low in order to justify the additional transaction costs of managing the vendor relationship. In addition, client firms worry about the operational risks associated with third-party subcontracting and as a result are likely to outsource those processes that are easily standardized or codified and monitored through objective performance metrics. As research by Ravi Aron and Ying Liu (this volume) shows, the more work processes are codified and the higher the number of performance metrics agreed upon by the buyer and seller, the lower the operational risk. Other research also demonstrates that subcontractors drive efficiency through greater work intensity and capital utilization than in-house operations.¹¹ Grugulis, Vincent, and Hebson (2003) examined outsourcing in three functions requiring radically different levels of skill and complexity and found that in each

7. Pine (1993).

8. On internal labor markets see Abraham (1990); on union contracts, see Pfeffer and Baron (1988).

9. See, for example, Davis-Blake and Uzzi (1993).

10. Williamson (1985).

11. Marsden (1999).

case the process of subcontracting led to higher levels of employee monitoring, adherence to specific performance metrics, and lower levels of employee discretion. For consumers, high levels of process standardization also reduce service quality by limiting options for customization and relying on menus and self-servicing.

In the call center industry these issues are likely to be particularly salient because arm's-length contracting and attention to the bottom line are widespread, and contract enforcement typically is ensured through ongoing monitoring and adherence to performance metrics.¹² Performance management technologies such as electronic monitoring systems provide real-time measures of talk times, adherence to schedules and scripted texts, and sales productivity, allowing client companies to regularly monitor the employees of subcontractors. Thus, subcontractors are under intense pressure to contain costs and meet these efficiency goals.

The work of Levy and Murnane (2004) on computers, skills, and the organization of work provides additional insights into the process of subcontracting. They have argued persuasively that computers are best able to automate jobs that require rules-based logic, such as data management and order processing—precisely the kinds of jobs frequently found in call centers. Automation does not eliminate all jobs, but creates standardized work processes that reduce operational risk and allow electronic monitoring of a wide range of performance metrics. Once these processes are computerized and standardized, they are more easily outsourced to third-party vendors. However, more complex processes with higher levels of uncertainty are more likely to be retained in-house, where companies have direct control over operations that require more tacit knowledge and entail more nuanced interactions with customers.

The strategic management literature on core competencies provides another perspective on how and why outsourced work systems are likely to be more cost-focused and standardized than those managed in-house.¹³ Core competencies are defined as those that contribute value to customer benefits and end products, that provide access to a wide variety of markets, and that are difficult for competitors to imitate.¹⁴ In theory, firms should retain functions that they consider to be their core competency while outsourcing those functions that are noncore. When applied to the choice of employment systems, the theory suggests that firms should retain human capital that creates value for the firm, is rare

12. Kinnie and Parsons (2004).

13. See Prahalad and Hamel (1990); Quinn (1992).

14. Prahalad and Hamel (1990).

or unique, and is difficult to imitate.¹⁵ For example, firms are likely to choose internal employment systems for operations that involve firm-specific knowledge and skills, team-based systems, or work processes that involve “social complexity,” “causal ambiguity,” or “idiosyncratic learning.”¹⁶ They are likely to externalize or subcontract work that is more generic, involves lower-order skills, or is transactional in nature. Much call center work appears to fall into this latter category, and thus would be viewed as a prime candidate for outsourcing.

According to this argument, whether call center work is outsourced depends on whether customer relationship management is considered central to a firm’s competitiveness. If the products and services offered by a company are relatively complex, involving firm-specific knowledge of products, processes, or customers, then firms are likely to retain their customer service and sales functions in-house. Similarly, if companies seek to compete on quality service or customer loyalty, they are also likely to keep call center work in-house because they do not want to lose control of their customer base or have their customers treated generically—in the same fashion as the customers of their competitors, who may be using the same call center subcontractor.

For high-value-added customers, such as business customers, firms are particularly likely to use a strategy of service quality, customization, and loyalty and therefore retain business-to-business channels in-house.¹⁷ For mass-market service channels, the costs and benefits of keeping operations in-house are more ambiguous from a strategy perspective; and there appears to be considerable variation in what companies actually do. Although the number of call center subcontractors grew dramatically in the 1990s in the United States, at least 85 percent of contact centers in this country continue to be in-house operations.¹⁸ This would suggest that a large majority of firms view their customer service and sales operations as central to their competitiveness—or at least have not yet become convinced that they should outsource them.

The implications of these arguments for the design of work and employment systems are straightforward. Companies are more likely to retain in-house services that are complex, that involve customer transactions that are nuanced or uncertain, and that provide services to highly valued customers. In order to meet the demands of these types of products and customers, they are more likely to use a strategy of service quality and customization, and therefore to adopt a

15. Williamson (1981); Barney (1991).

16. Lepak and Snell (1999, p. 35).

17. Batt (2002).

18. See Datamonitor (2001, 2003); Batt, Doellgast, and Kwon (2004).

more professional approach to service. Centers that are operated by subcontractors, either in the United States or offshore, by contrast, are more likely to compete on costs through lower wages and benefits, more standardized work processes, and higher levels of performance monitoring.

Outsourced versus Offshore Strategies

The academic literature provides much less guidance for predicting the differences between U.S. outsourced and offshore centers operated by Indian subcontractors. On the one hand, arguments regarding the likelihood of a more cost-based strategy in outsourced operations may be equally or more relevant to offshore subcontractors. U.S. companies have sent work overseas to take advantage of lower wages, but at the same time they are concerned about the level of service quality provided. They also worry about consumer backlash and the security and privacy of financial databases. A recent survey of U.S. executives reported that the top driver for moving operations offshore was cost savings, while the top reasons for staying onshore were security and service quality.¹⁹

For these reasons, U.S. companies may impose tighter constraints on managerial discretion in Indian centers and higher levels of performance monitoring and adherence to call center metrics. If so, then we would expect the work and employment systems in Indian call centers to be more tightly constrained and standardized than those found among U.S. subcontractors. But unique conditions in the Indian labor market suggest that both the reasons for moving work to this segment and the incentives for investing in employees may differ from those in the U.S. outsourced sector. First, the offshore workforce tends to be drawn from a relatively small pool of college-educated, middle-class Indians. We might expect these employees to be more self-motivated, allowing managers to rely on more professional, or at least quasi-professional, employment practices to motivate their workforce. Moreover, given the large cost advantages that Indian centers enjoy, there is opportunity to relax adherence to performance metrics such as talk time so that employees can use their skills to respond more effectively to customer requests.

In addition, the growing competition for these employees has put pressure on employers to invest in benefits intended to promote commitment and reduce turnover. Many call centers serving the international market occupy sprawling complexes outfitted with gyms and canteens. They often provide employees with free lunches and door-to-door taxi services and seek to create

19. See Ventoro (2005).

a “fun” environment with games and prizes. The additional investment in “accent neutralization” training required by many companies, which averages one to two weeks, makes it particularly costly to lose employees. Moreover, the use of fixed employment contracts in India also means that there is a long wait for new employees, which increases the expense of recruitment. One manager of a multinational third-party center explained:

You have to think about hiring way, way ahead. . . . Let’s say I was trying to hire someone from another company in India; she has to give thirty days’ notice, so I have a delay for the thirty days. And once I get her, she has to do the normal products training, but she also goes through two and a half to three weeks of accent neutralization training. So there is a long, long wait for employees offshore. It’s a month longer than in the U.S., easy. (Interview, March 2005)

In sum, the unique labor market conditions and cost advantages of Indian offshore centers suggest that they will adopt a less cost-driven approach to work and employment systems than subcontractors located in the United States.

Management Practices and Turnover

The second question we ask in this paper is how the different management strategies adopted across segments of the market translate into organizational outcomes. Empirical research on the performance effects of alternative approaches to service management has expanded in recent years. There is growing evidence that a more professional, or at least quasi-professional, approach is associated with higher employee satisfaction and customer satisfaction, higher sales productivity, lower turnover and higher sales growth, and higher service quality and higher net revenues.²⁰

Low-cost systems, by contrast, typically are associated with high levels of employee dissatisfaction, absenteeism, and turnover; and these in turn often produce added costs, reduce options for customization, and lead to lower service quality. For example, several studies of call center workers have found that routinized work design and high levels of electronic monitoring lead to stress, anxiety, depression, emotional exhaustion, and burnout.²¹ Deery, Iverson, and Walsh

20. On those issues, see, respectively, Loveman (1998); Batt (1999); Batt (2002); and Batt and Moynihan (2004).

21. Carayon (1993); Singh (2000); Deery, Iverson, and Walsh (2002); Holman, Chissick, and Totterdell (2002); Holman (2004).

found that customer interactions, scripts, routinization, workloads, and managerial emphasis on quantity predicted emotional exhaustion, which in turn predicted absenteeism. Singh demonstrated that as worker burnout with customers increased, call center workers were able to maintain their productivity levels, but their self-reported quality was lower.

In this paper, we focus on turnover because it is extremely high in the industry and viewed as a major problem by employers. Industry analysts estimate that it averages between 30 and 70 percent in the United States, but in our interviews some managers reported rates of 100 to 150 percent annually. In India, news reports suggest that turnover rates are often 50 percent or higher. Voluntary turnover, or the employee quit rate, is of particular interest to organizational researchers because it represents a large cost to employers. When employees leave, their experience and the firm's investments in training are lost. Moreover, as noted earlier, the factors that influence turnover also influence other important outcomes, including employee motivation, service quality, and labor costs.

Empirical studies of voluntary turnover have found that it is significantly related to human resource practices,²² particularly with respect to work design and compensation. Shaw, Delery, Jenkins, and Gupta (1998) found that quit rates were lower when monitoring and work intensity were lower and pay and benefit levels were higher. Similarly, Batt, Colvin, and Keefe (2002) found that greater discretion and collaboration at work coupled with high relative pay predicted lower quit rates while high levels of electronic monitoring and use of commission-based pay led to higher quit rates.

Expected Findings

We have argued above that ownership status is likely to be associated with particular approaches to work and employment practices. Based on the theoretical and empirical literature, we expect that in-house, outsourced, and offshore establishments will differ systematically in their service management and employment systems. In comparison with outsourced or offshore centers, in-house establishments are more likely to adopt employment practices that involve a higher educated and better trained workforce, that provide employees with more discretion and problem-solving capability, and that offer higher relative pay. We also expect differences between outsourced and offshore centers, with the latter more likely to adopt a professional approach to employment management than the former. These differences in choice of employment system, in

22. Arthur (1994); Huselid (1995).

turn, should explain variation in turnover rates, with the more professional approach associated with significantly lower turnover. In other words, work and employment practices should partially explain the relationship between ownership status and turnover. To examine these arguments, we developed a model of turnover that includes controls for market and organizational characteristics, while examining the independent variables of ownership status and employment system characteristics, as follows:

$$\text{Turnover} = f(\text{market and organizational characteristics,} \\ \text{ownership status, education and training,} \\ \text{work organization, compensation strategy})$$

Methods

Sample

The sample for this study is based on two identical establishment-level surveys conducted in the United States and India between mid-2003 and mid-2004. The U.S. survey was administered to a stratified random sample of 472 call centers drawn from the subscriber lists of *Call Center Magazine* (60 percent of the sample) and the Dun and Bradstreet listing of establishments in the telecommunications industry (40 percent of the sample). Using the two lists was necessary to identify call centers in different industries. A survey team conducted the survey by telephone with a forty-minute average interview, yielding a 65.4 percent response rate. The sample was reduced to 464 after eliminating outliers and observations that were missing substantial data.

The Indian survey was administered to a nonrandom sample of sixty Indian call centers compiled from Internet sites and the membership list of the National Association of Software and Service Companies (NASSCOM) in India. The research team focused on six cities with large call center concentrations (Chennai, Kolkata, Bangalore, Mumbai, Hyderabad, and Delhi). In each city, the research team had one week to contact the call centers on the list, make appointments, and conduct the survey, which averaged ninety-five minutes in length. The team did not target any particular type of center, but rather conducted surveys on a first come, first-served basis as appointments were made.

All survey respondents were asked to answer questions pertaining to the “core” workforce in their establishment: the largest group of customer contact employees who carry out the primary work activity at that location. Owing to variations in the sample, we use a portion of the full dataset in this analysis.

First, we restrict our sample to three market segments: large business, mass market, and all markets. We dropped 106 small business centers and ten operator services centers from the U.S. sample, since these segments were not present in the Indian sample. Second, we excluded sixteen call centers that serve only the Indian domestic market (located primarily in Kolkata) because only the international centers serve the U.S. market. These exclusions reduced the sample size to 392. Because of randomly missing observations in the dataset, our regression analyses are based on a sample of 310 call centers (237 U.S. in-house, 42 U.S. outsourced, and 31 Indian offshore).

In both the United States and India, we conducted extensive site visits in different industry segments to aid with the design of the survey and the interpretation of results. In the United States, we visited twelve in-house call centers and six outsourced call centers, where we interviewed managers, supervisors, and employees on various aspects of their human resource policies and work design strategies. In India, each survey was administered onsite, allowing the researcher to cross-check responses and providing an additional test of the reliability of survey responses.

Measures

The independent variables of interest include the ownership status of the center (in-house, outsourced, or offshore), and the work and employment system, as defined along three dimensions: human capital (employee education and training), work design (opportunities for discretion and problem solving), and rewards (compensation practices). To determine whether an establishment was in-house or outsourced in the U.S. sample, respondents were asked how they would best describe the call center: as an in-house center providing services to their company or as a subcontractor providing services to other companies. The offshore segment includes Indian call centers that serve an international market. Almost all of the Indian centers were owned and operated by Indian subcontractors, with only a handful owned by U.S. subsidiaries or U.S. subcontractors.

To measure human capital, we control for the sex composition of the workforce and use two measures of education and training: the years of formal education of the typical worker in the call center and employer investment in initial training (an additive index of the number of weeks of initial training an employee receives and the number of weeks to become qualified). For work design, three measures capture the extent to which employees have opportunities for discretion and problem solving. First, discretion over customer interactions is measured by the variable *script use*, based on a 1 to 5 Likert response to

the question, "To what extent are core employees required to use scripts when talking to a customer?" where 1 is "not at all" and 5 is "a great deal." Second, we used three measures to construct a *work discretion index*, again based on Likert-type questions. Respondents were asked to rate the extent to which core employees had discretion over their daily work tasks; tools, methods, or procedures; and pace of work. The three measures were highly correlated ($p < .001$) and were combined into a mean index. The third measure of discretion, *percent in offline teams*, is the percentage of employees who participate with supervisors in problem-solving groups or teams.

The final group of variables measure compensation practices, including total compensation and percent commission pay. We were unable to use average annual salary in the analysis owing to the large differences in pay between the United States and India. While there are national statistics in the United States on average compensation for customer service and sales employees, it is difficult to find accurate information on the typical pay of a call center employee in India. We therefore constructed a *pay ratio* measure based on the ratio of a call center's average gross annual pay to the median pay in each full country sample (\$29,000 in the United States and \$2,444 in India). Informal documentation from industry publications gave similar estimates for average pay levels in the Indian market. The U.S. median pay in our sample was also similar to estimates from the Bureau of Labor Statistics for the median pay of customer service representatives (\$28,720). *Percent commission pay* is measured as the percentage of total annual pay that is based on individual commission.

DEPENDENT VARIABLE. The dependent variable of interest is the average annual quit rate, as reported by managers for the previous calendar year. A square root transformation was used to correct for the non-normal distribution of the variable.

CONTROL VARIABLES. We included additional controls for common turnover determinants. The primary customer segment served by employees has been found in several previous studies of front-line service workplaces to influence both management practices and turnover rates.²³ Call centers serving higher-value-added segments, such as large business customers, can be expected to invest more both in the skills of the workforce and in employee retention, as well as to be more selective in hiring, which reduces quit rates. Call centers serving multiple market segments typically have a broader skill base and more diverse job requirements. We thus control for whether the establishment serves primarily large business, mass market, or multiple market segments. We also control

23. Batt (2000).

for union presence, which has been found in past studies to be negatively correlated with quit rates.²⁴ Employees in unionized establishments are able to exercise “voice” versus “exit,” which leads to improved pay and working conditions and reduces turnover.²⁵

In earlier analyses we tested the effects of several other control variables that have been used in past studies of turnover, including systematic selection procedures for hiring new employees, the ratio of applicants hired, whether the call center was part of a larger organization, and the age of the call center. We also analyzed variation in outcomes when controls for industry and type of call center work were added, including a control for whether the call center predominantly handled sales or customer service. None of these had a substantial effect on the coefficients of the independent variables of interest and either reduced or had a negligible effect on the overall Chi-square. Several of these additional controls were also highly correlated with other variables included in the model. For example, both the outsourced and offshore centers have a significantly lower average age than in-house call centers. Thus, in the final model we included a more parsimonious list of control variables that captured key measures of markets and organizational characteristics.

Results

Comparison of Mean Characteristics

Table 1 presents a comparison of organizational characteristics, workforce characteristics, employment system variables, and organizational outcomes for the in-house, outsourced, and offshore centers. We use a broader range of variables here than were included in our analysis of turnover antecedents to provide a more comprehensive picture of how organizational characteristics and management practices differ across the segments. In addition, in order to make comparisons more precise, we restricted the mean comparison in table 1 to nonunion call centers serving mass-market or multiple customer segments.

We tested the significance of mean differences using one-way analysis of variance. In general, there are significant differences in most dimensions of organizational characteristics and work and employment systems across the three types of centers. The patterns are consistent with our expectations, but

24. Shaw and others (1998); Batt, Colvin, and Keefe (2002).

25. Freeman and Medoff (1984).

Table 1. Mean Comparison: In-house, Outsourced, and Offshore Call Centers

Percent unless otherwise indicated

	<i>In-house</i>	<i>Outsourced</i>	<i>Offshore</i>	<i>ANOVA p < .05</i>
<i>Organizational characteristics</i>				
Establishment age in years	15.7	9.4	3.4	a,b,c
Part of a larger organization	79.6	75.9	78.9	
Sales-oriented call centers	5.0	13.8	29.4	b
<i>Workforce characteristics</i>				
Female	68.9	71.5	43.1	b,c
Tenure of less than one year	28.1	36.8	61.8	a,b,c
Part-time	17.6	35.6	1.0	a,b,c
<i>Training and qualification</i>				
Average years of education	13.3	12.6	14.0	a,b,c
Typical education (high school)	38.3	69.0	36.4	a,c
Days of initial training	19.7	11.5	23.6	a,c
Days to become qualified	66.8	44.2	53.3	
Days of ongoing training per year	9.6	10.4	11.2	
<i>Employee discretion</i>				
Reliance on scripted texts ^d	9.9	48.3	32.4	a,b
Discretion over work ^d	9.9	3.4	5.9	
Discretion over handling customer requests ^d	39.2	17.2	2.9	a,b,c
Participation in offline teams	36.2	22.2	6.9	b,c
<i>Performance monitoring</i>				
Work time electronically monitored ^d	49.5	67.7	91.7	a,b,c
Frequency of supervisor monitoring ^e	49.7	67.9	82.4	b
Frequency of feedback and coaching ^e	46.0	55.2	94.1	b,c
<i>Compensation</i>				
Average annual pay (\$) ^f	27,713	23,881	2,635	a,b,c
Pay based on commission	8.4	4.1	18.5	b,c
<i>Turnover and absenteeism</i>				
Quits	15.8	25.6	24.5	a,b
Total turnover (quits + dismissals)	24.6	41.2	29.6	a,c
Absenteeism	5.5	8.9	5.3	a,c
Sample size	181	29	34	

a. In-house and outsourced are significantly different.

b. In-house and offshore are significantly different.

c. Outsourced and offshore are significantly different.

d. Percentage answering "a lot" or "a great deal" (4 or 5 on a 5-point scale).

e. Percentage with weekly to daily performance monitoring

f. Gross annual earnings

there are important exceptions and contradictory patterns as well. Overall, in-house centers tend to adopt a more quasi-professional approach to employment than either outsourced or offshore centers. They offer jobs with substantially more opportunities for discretion and problem solving, make significantly less use of electronic monitoring and performance management systems, and offer higher pay. Associated with these patterns are significantly higher rates of organizational tenure and lower turnover rates than those found in either outsourced or offshore centers. For example, while 28 percent of the workforce in U.S. in-house centers has less than one year of tenure, the comparable rate in outsourced centers is 37 percent, and in offshore centers 62 percent. The annual employee quit rate alone is reported at 16 percent in-house centers, 26 percent in outsourced centers, and 25 percent in offshore sites—that is, it is over 55 percent higher than in the in-house centers.

The exception to this pattern is that offshore centers rely on workers with somewhat more formal education than those in in-house locations. The typical worker in an Indian center has 14 years of education (on average two years of college) compared to 13.3 years among U.S. in-house establishments. Yet these differences are not as great as often portrayed in the media. Close to 40 percent of managers in both types of centers (38 percent in-house and 36 percent offshore) reported that the typical worker in their establishment has a high school education. Similar patterns hold for initial training, with offshore call centers providing 4.7 weeks on average, and in-house centers 3.9 weeks. However, given that much of the initial training in Indian centers is focused on accent neutralization, it appears that Indian centers do not provide more initial training for other aspects of the job.

The comparison between U.S. outsourced and Indian offshore centers yields results that do not match our expectations. On the one hand, the formal education levels of Indian centers are substantially higher than those found among U.S. subcontractors, where the typical worker has an average education of 12.6 years and almost 70 percent of managers report that the typical worker has a high school diploma only. Initial training in U.S. outsourced centers is less than half that found in Indian centers. However, the amount of on-the-job training to become qualified and the annual rates of ongoing training are not substantially different.

On the other hand, despite relying on a more educated and full-time workforce, the Indian centers have work systems that are more tightly constrained and standardized than those found among U.S. subcontractors, contrary to our expectations. With the exception of reliance on scripts, which is higher in the U.S. outsourced centers, Indian managers report substantially lower levels of

discretion in handling customer requests and use of problem-solving groups. For example, only 3 percent of offshore call centers report giving employees “a lot” or “a great deal” of discretion in handling customer requests, compared to 17 percent of outsourced centers and 39 percent of in-house centers. While in-house centers have an average of 36 percent of employees working in teams, 22 percent of employees in outsourced centers and only 7 percent of those in offshore centers do so.

Measures of performance monitoring illustrate a similar pattern. Most call centers adopt a mix of practices to track employee performance on adherence to talk time, whether they follow the scripts provided, and their effectiveness in both providing friendly service and resolving customer requests. In a sales environment, monitoring is also used both to control potential employee fraud and to provide coaching on selling techniques. Both electronic monitoring and supervisor monitoring and feedback are employed for this purpose, and the intensity of these practices varies substantially among the different sites. While about 50 percent of work time in in-house centers is electronically monitored, this average jumps to 68 percent in outsourced centers and 92 percent in offshore centers. Similarly, supervisors provide feedback and coaching on a weekly or daily basis in 94 percent of the offshore centers, but in only 46 and 55 percent of the U.S. in-house and outsourced centers.

With respect to compensation, the average median annual pay reported by managers is \$27,713 among in-house centers, \$23,881 in outsourced centers, and \$2,635 in offshore centers. Thus, in-house centers pay about 14 percent more than outsourced centers and 90 percent more than the offshore segment. The use of commission pay is surprisingly low across the in-house and outsourced segments, at 8 and 4 percent, but significantly higher in offshore centers (19 percent). This probably reflects the higher percentage of sales-oriented call centers in the offshore sample (29 percent) than in the in-house (5 percent) and outsourced (14 percent) sites.

Finally, we compare turnover and absenteeism, both important organizational outcomes. High investments in training at many workplaces mean that turnover is costly, and the often tight scheduling practices based on predicted fluctuations in call volume mean that excessive absenteeism has an immediate negative effect on customer satisfaction and sales. As noted earlier, quit rates as well as total turnover are the lowest among in-house centers and higher in outsourced and offshore centers. Absenteeism, by contrast, is highest in the U.S. outsourced segment (9 percent) and lower in both in-house and offshore centers (6 percent and 5 percent respectively). These measures capture the motivation of the workforce to show up and meet performance expectations and are largely in line with our

other results that indicate that outsourced centers tend to adopt a low-commitment employment system that combines low pay with intensive monitoring and low discretion.

Owing to variation in the industries represented in each sample, we checked to see whether these patterns held when the sample was further broken down. For example, we compared centers serving high-end customers as well as those in telecommunications and financial services and found similar patterns. That is, no particular sectors accounted for the variation found across in-house, outsourced, and offshore sites.

Multivariate Analyses

Table 2 provides the means, standard deviations, and pairwise correlations of the variables included in the final model. For our analyses of turnover, we estimate left-censored Tobit models because the dependent variable is truncated at zero.²⁶

PREDICTORS OF TURNOVER. Table 3 reports estimates of models for quit rates at the establishments. The first equation, model 1, includes the market segment and organizational characteristics. The second equation adds controls for employee human capital, while the third and fourth add measures of work organization and compensation practices.

In the first model, after controlling for market segment, outsourced and offshore centers have significantly higher quit rates (compared to the omitted variable, in-house centers), while unionized centers are associated with significantly lower quits.

In model 2, both the length of initial training investment and years of education are significantly associated with lower quit rates. The percentage of the workforce that is female is positively associated with higher quits, but this relationship becomes insignificant in the full model. Offshore ownership status continues to be positive and significant at the $p < .001$ level, while the significance of outsourced status decreases but is still marginally significant. With the introduction of work design variables in model 3, neither outsourced nor offshore status remains significant, and human capital variables decline in significance. Work discretion and the use of problem-solving groups are significantly negatively associated with quit rates ($p < .001$), while script use is positively associated ($p < .10$). In the full model (4), union presence, training investments, work

26. Maddala (1992).

Table 2. Means, Standard Deviation, and Pairwise Correlations

Variable	Mean	SD	1	2	3	4
1 Square root of annual quit rate	3.23	2.22				
2 Large business segment	0.34	0.47	-0.16			
3 Multiple market segments	0.19	0.40	0.02	-0.35		
4 Mass-market segment	0.47	0.50	0.13	-0.67	-0.46	
5 Union presence	0.08	0.27	-0.22	0.00	-0.05	0.04
6 U.S. in-house	0.76	0.42	-0.27	-0.04	-0.04	0.06
7 U.S. outsourced	0.14	0.34	0.13	0.12	-0.12	-0.01
8 Indian offshore	0.10	0.30	0.24	-0.08	0.19	-0.08
9 Percent female	0.64	0.25	0.08	-0.25	-0.04	0.27
10 Years education	13.53	1.64	-0.19	0.21	0.01	-0.21
11 Initial training investment	19.01	17.73	-0.23	0.06	0.00	-0.05
12 Script use	2.19	1.20	0.27	-0.03	0.03	0.01
13 Work discretion index	2.60	0.92	-0.37	0.15	0.07	-0.19
14 Percent in offline teams	0.36	0.38	-0.36	0.17	-0.05	-0.12
15 Pay ratio	1.19	0.60	-0.31	0.44	-0.11	-0.33
16 Percent of pay based on commission	0.11	0.20	0.04	0.11	-0.02	-0.09

Notes: For all correlations greater than .11, $p < .05$.
SD: Standard deviation.

discretion, use of problem-solving groups, and the pay ratio are all significantly associated with lower quit rates, while script use and percent commission pay are associated with higher quits.

We estimated the effect sizes of the Tobit coefficients by decomposing them into estimates of changes in outcomes above the left censored limit and changes in the probability of observing an outcome above the left limit.²⁷ This provides an interpretation equivalent to OLS estimates.²⁸ The Tobit coefficients in the model are 0.62 of the OLS coefficients. Thus when the work discretion index changes by one standard deviation, quit rates decrease by 0.45 percentage points (0.62×-0.73); a one-standard-deviation increase in the percentage of employees who participate in offline teams decreases the quit rate by 1.08 percentage points ($p < .001$).

27. McDonald and Moffitt (1980).

28. The adjustment based on the second term in the McDonald and Moffitt (1980) decomposition is calculated by multiplying the Tobit coefficients by $[1 - z^*f(z)/F(z) - f(z)^2/F(z)^2]$, where $F(z)$ is the cumulative normal distribution function associated with the probability of cases being above the left limit, $f(z)$, the first derivative of $F(z)$ is the unit normal density associated with this probability, and z is the corresponding z score for this probability. See Roncek (1992).

5	6	7	8	9	10	11	12	13	14	15
0.13										
-0.08	-0.71									
-0.10	-0.60	-0.13								
0.24	0.11	0.12	-0.30							
-0.06	0.07	-0.19	0.12	-0.46						
0.22	0.17	-0.15	-0.07	-0.04	0.06					
-0.01	-0.43	0.26	0.31	0.07	-0.18	-0.17				
-0.01	0.23	-0.09	-0.22	-0.16	0.24	0.04	-0.29			
-0.01	0.27	-0.12	-0.25	-0.18	0.19	0.15	-0.16	0.25		
0.09	0.17	-0.16	-0.05	-0.46	0.50	0.30	-0.20	0.33	0.26	
-0.13	-0.05	-0.05	0.13	-0.29	0.08	0.08	-0.05	0.14	-0.04	0.39

Discussion, Limitations, and Policy Implications

In this study, we examined the extent of variation in service management and employment strategies among in-house, outsourced, and Indian offshore call centers that provide similar services to U.S. customers. We found significant differences in the patterns of employment practices and related outcomes across these three settings, but not in ways that were entirely anticipated. In this sample of establishments, in-house centers tended to adopt a more coherent quasi-professional approach to service interactions than outsourced and offshore sites, with in-house jobs characterized by relatively higher levels of initial investments in training and pay, discretion, and problem-solving opportunities. Offshore centers, by contrast, had somewhat higher levels of formal education and initial training than in-house centers, but significantly lower levels of employee discretion and problem solving opportunities, and higher levels of electronic monitoring and performance management. From a managerial perspective, U.S. outsourced centers seem to present the worst of both worlds: a workforce with lower levels of formal education and training than in-house or offshore centers, low levels of discretion and problem solving opportunities that closely resemble those of offshore centers, and levels of pay much closer to those found among in-house operations than among Indian centers.

Table 3. Tobit Estimates for Quit Rates

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
<i>Organizational and market characteristics</i>								
Large business segment	-1.02 ^a	0.31	-0.61 ^a	0.32	-0.32	0.30	-0.17	0.31
Multiple market segments	-0.62 ^a	0.38	-0.50	0.37	-0.21	0.35	-0.20	0.34
Union presence	-1.99 ^a	0.54	-2.02 ^a	0.55	-2.15 ^a	0.51	-1.91 ^a	0.52
Outsourced	1.22 ^a	0.41	0.78 ^a	0.41	0.19	0.39	0.15	0.39
Offshore	2.03 ^a	0.47	2.30 ^a	0.48	0.57	0.50	0.40	0.50
<i>Human capital</i>								
Workforce: percent female			1.10 ^a	0.68	0.22	0.64	0.19	0.67
Years of education			-0.20 ^b	0.09	-0.06	0.09	0.01	0.09
Initial training investment			-0.02 ^b	0.01	-0.01 ^a	0.01	-0.01 ^a	0.01
<i>Work design</i>								
Script use					0.22 ^a	0.12	0.23 ^b	0.12
Work discretion index					-0.73 ^a	0.15	-0.73 ^a	0.15
Percent in offline teams					-1.84 ^a	0.37	-1.74 ^a	0.37

Compensation strategy

Pay ratio				-0.52 ^a	0.32
Percent of pay based on commission				1.47 ^b	0.71
Constant	2.27	5.47	6.28	5.70	
Sample size	310	310	310	310	
Chi square likelihood ratio	50.02	67.73	124.89	130.05	
Probability > Chi square	0.00	0.00	0.00	0.00	
Pseudo R^2	0.04	0.05	0.09	0.10	

Note: Unstandardized Tobit estimates are reported

a. $p < .10$

b. $p < .05$

c. $p < .01$

d. $p < .001$

In further multivariate analyses, we found that outsourced and offshore centers had significantly higher quit rates after controlling for the market segment served, union presence, and measures of employee human capital. Systematic differences in work design explained most of the variation in quit rates, so the significance of ownership status disappeared when these practices were included in our equations. That is, ownership status is an important driver in the choice of management and employment practices, with outsourced and offshore centers more constrained to use standardized operating procedures and performance monitoring. It is these practices, in turn, that explain the higher quit rates in these centers.

There are several limitations to this study. One concerns the representativeness of our samples, which we discussed earlier. Because larger organizations are overrepresented, if anything the study overstates the level of workforce education, pay, and levels of employee participation in call centers. We have no reason to believe that the bias is greater in one sample or the other, but there is really no way to test this deficiency in the data. A second limitation is that these large-scale surveys provide only single-sourced data, and external labor market data from India are not available to compare the relative value of call center pay in that country with pay levels in the United States.

A third limitation is that we cannot determine whether differences in management and employment systems are due to differences in the complexity of work functions or differences in business strategies based on quality and cost. Complexity and quality service strategies are highly correlated, such that companies tend to adopt quality strategies for higher-value-added functions, which typically are more complex in nature. In our analysis of average differences across ownership types, we used various methods to compare centers by industry and customer segment as well as work function. In each of these analyses, we found systematic differences based on ownership type. However, sample size restrictions prevent us from determining whether these differences are due to business strategies or service complexity, or some combination of both.

In addition, the outcome measured in this study is limited. On the one hand, turnover is a useful metric to analyze because the industry has unusually high levels of workforce churn, which is widely recognized to be problematic and costly. There is also considerable empirical evidence to show that turnover is associated with lower service quality and productivity. On the other hand, future research needs to examine a much wider array of performance measures that directly capture operational quality and productivity if we are to understand the relative costs and benefits of alternative service management strategies.

Despite these limitations, the findings are consistent with other research on subcontracting relations. For example, subcontractors are more likely to have standardized processes and to use more performance monitoring and metrics, a pattern that supports Ravi Aron and Ying Liu's argument in this volume that these practices are central to reducing operational risk. Aron's finding that workforce training does not have a large effect on reducing operational risk is also consistent with our analysis. Despite the fact that offshore centers in India hire college-educated workers and offer considerable initial training, the high levels of process standardization do not let employees use their human capital in ways that can improve operational performance. This point is reiterated in the work of Vivek Agrawal (this volume), who demonstrates that the return to investment in technology in Indian call centers is far below that found in the United States. He notes that this "cookbook" approach to management reduces the incentives to innovate and constrains the ability to move up the value chain.

Our findings have several policy implications at the level of managerial strategy and broader public policy. For management, the evidence is clear that the extensive use of routinized work processes in call centers leads to high turnover, which limits options for customization and is associated with lower service quality and productivity. Moreover, to the extent that call centers hire college-educated workers, the highly constrained and monitored work system creates an inefficient use of human capital: a particularly bad fit between selection and recruitment policies on the one hand, and between selection and work design policies on the other. The underutilization of human capital represents a substantial loss for Indian subcontractors, who are paying for skills that they are not using.

Thus, to the extent that companies have complex service offerings or want to compete on the basis of service differentiation, quality, or customer loyalty, they are likely to retain customer contact interactions in-house, consistent with the transaction costs perspective and core competency argument. To date this appears to be what most U.S. corporations are doing: after two decades of rapid growth of U.S. call centers, most industry estimates are consistent with our own survey that less than 15 percent of U.S. call centers are run by third-party subcontractors, and only a tiny fraction have moved offshore.

However, for those transactions that are simple and codifiable, it is likely that companies will continue expanding their operations offshore. Our data suggest that the strategy of outsourcing operations to U.S. subcontractors is likely to be a transitory one because the modest reductions in labor costs (compared with those of subcontractors offshore) may be offset by the high costs of turnover and

low levels of employee skill. According to this scenario, the U.S. subcontracting sector, which grew dramatically in the 1990s, will be the hardest hit by Indian competition. If these findings hold across a larger and more representative sample of establishments, then the shift in customer contact employment from the United States to India is likely to be considerable but remain confined to stand-alone work functions that are relatively simple or transactional. Under this scenario, the problem for both U.S. and Indian subcontractors is that stand-alone call centers appear to be failing (see Dossani, this volume).

An alternative scenario is that Indian call centers will gain the ability to compete more fully on the basis of quality and customer service as well as price. In theory, this is possible. With an educated workforce and high relative pay for the Indian labor market, Indian centers could be poised to handle more complex and nuanced customer transactions and provide service that builds customer loyalty. However, the current work systems are not in any way geared toward that alternative, but rather contain fundamental contradictions that are reminiscent of the problems of high turnover among overqualified workers in the monotonous jobs found in U.S. manufacturing industries in the 1960s and 1970s. Current analyses of the potential for high-quality service in offshore centers give too much weight to the level of formal education among workers and too little weight to the organization of work and technology, which shape the effective use of that human capital.²⁹

However, case study evidence by Rafiq Dossani (this volume) shows that some call centers have been able to move up the value chain and expand their operations to include increasingly complex processes. Whether these examples of best practice can expand to the majority of call centers in India remains to be seen. This question turns on whether the current approach to managing vendor relations—through tight control by client firms—is considered so fundamental to limiting costs and operational risk that it will not be abandoned, or whether it is a temporary phenomenon that will give way over time to closer supplier relations built on trust. In the former case, the Indian call center sector would continue to handle relatively simple, codifiable, low-value-added transactions. In the latter case, the offshore market could expand to cover a much larger portion of the U.S. customer contact business. Even here, however, companies will need to learn much more about what kinds of tacit knowledge and contextual understandings are needed for which types of customer interactions. In service settings where “bridging to sales” is a major source of revenues, for example, tacit

29. Jaikumar (1986).

knowledge of cultural norms may still be an important source of competitive advantage, thereby favoring U.S. in-house or outsourced locations.

A third alternative could involve a combination of organizational forms, with companies using a number of in-house, outsourced, and offshore venues to manage similar types of customer interactions. In our field research, we found several instances of this emerging strategy; and Ravi Aron and Ying Liu in this volume demonstrate that this “extended” model of organization may hold the most promise for quality and productivity in the long run. This approach allows companies to create competition for cost and quality innovations among their own subsidiaries and vendors. It also allows for organizational flexibility, so that client firms can adjust volumes and vendor contracts to seasonal demand. Similarly, some U.S. multinational subcontractors are offering a variety of venues to client firms, including a combination of onshore and offshore call centers, with volumes able to fluctuate according to seasonal demand. These strategies may help U.S. subcontractors survive as client firms exert ongoing pressure to reduce costs.

These scenarios also depend on the role that public policy plays in human resource development. In India, there is evidence that demand is outstripping the supply of skilled labor, at least in the short run, in call centers in cities such as Bangalore and Chennai. Thus, there is a need for the Indian government to invest in the skills and human resource infrastructure required to respond to external demand.

In the United States, the question is whether subcontractors will be able to improve the skill base of the workforce. They may be able to do so in locations where they have access to certification programs and community college programs in customer service management. Because centers are often co-located in “call center cities”—such as Jacksonville, Tucson, San Antonio, Omaha, or Phoenix—there may be opportunities to build a skilled labor pool with access to ongoing education and opportunities for multi-employer job ladders that help stabilize employment. Our survey results suggest that public support for the industry is available, with 49 percent of outsourced call centers reporting that they use public training resources and programs. Nearly all of the managers we interviewed in the outsourced industry relied heavily on local universities, community colleges, and partnerships with welfare-to-work and public sector organizations to recruit employees. These resources offer the potential to improve the quality of the workforce. However, we found that they are often used to substitute for internal investments in employee skills and discretion rather than to support a more professional or high-commitment strategy. Thus, while these types of innovations could allow U.S. subcontractors to improve the quality of their workforce and employment practices, the limited evidence in our study suggests

that public sector resources are being used to supplant, rather than complement, private investment in human resource systems. If this represents the future among U.S. subcontractors, then they are unlikely to remain competitive with their Indian counterparts.

Appendix. Estimates of U.S. Call Center Workforce, 2004

To estimate the number of call center jobs in the United States, we used the May 2004 Occupational Employment and Wage Survey of the Bureau of Labor Statistics. We chose "office and administrative support occupations" (NAICS 43-0000). Within that category, we chose the suboccupations that were most likely to be located in call centers, based on the BLS description of work tasks and our own knowledge of call center operations. We also included telemarketers from sales occupations. Table A-1 details the employment numbers, percent of sample, and mean wages for those suboccupations.

Table A-1. Employment and Compensation in Typical Call Center Occupations, United States

<i>Call center work tasks</i>	<i>Number employed</i>	<i>U.S. workforce (percent)</i>	<i>Mean hourly wage (dollars)</i>	<i>Mean annual wage (dollars)</i>
Switchboard, answering services	206,370	0.15	10.81	22,490
Telephone operators	38,500	0.03	14.53	30,220
Bill and account collectors	445,180	0.32	13.95	29,010
Credit authorizers and checkers	66,010	0.05	15.15	31,520
New accounts clerks	96,560	0.07	13.55	28,180
Order clerks	289,830	0.21	12.85	26,730
Reservation agents, travel clerks (excludes travel agents, hotel clerks)	159,910	0.11	14.48	30,120
Insurance claims and policy processing clerks	239,250	0.17	14.70	30,580
Customer service representatives	2,021,350	1.45	14.01	29,130
Telemarketers	410,360	0.29	11.29	23,490
Total call center workers	3,973,320	2.85	13.53 ^a	28,147 ^a

Source: Bureau of Labor Statistics, Occupational Employment Statistics, May 2004 (www.bls.gov/oes).

a. Weighted average, weighted by number employed by occupational group. By this methodology, there were an estimated 3.97 million call center workers in the United States in 2004, representing 2.85 percent of the working population. This estimate, however, undercounts some workers while overcounting others. Overcounting may occur because some of the workers in the categories provide face-to-face service. Undercounting occurs because this tabulation does not include other sales agents besides telemarketers, and many call centers define their work as primarily sales. If one subgroup of sales agents is also included ("sales representatives, services, other" [NAICS 41-3099]), then the estimated number of call center workers rises to 4.33 million, or 3.11 percent of the workforce. By these calculations, a reasonable estimate of the U.S. call center workforce in 2004 is between 2.5 and 3 percent of the U.S. workforce. This estimate is considerably higher than that found in reports by industry consultants. It may overstate the current numbers of jobs in call centers, but it includes jobs that, if not now organized into call centers, are prime targets for call centers in the future.

Comment and Discussion

Vivek Agrawal: The empirical data presented by Professor Batt confirm what many observers of the call center industry have long believed. Companies are taking a highly prescriptive approach to managing offshore call centers, a stance that risks continuing low rates of talent retention and an inability of providers to move up the value chain.

However, there is another important implication of Professor Batt's findings: prescriptive management is also stifling innovation at these centers and therefore depriving them of a significant amount of economic value. McKinsey calculations show that if companies were to innovate and optimize call center processes, especially rethinking the proportion of labor and capital costs, they could capture an additional 20–30 percent savings on top of what they are achieving today.

Reasons behind the Prescriptive Management Approach

Professor Batt notes that companies are taking the prescriptive management approach for good reason: they believe that they must take action to manage the inherent risks of operating in an unknown environment. This is generally true for all offshored services, but is particularly true of call centers. Companies are more careful when offshoring call centers because of the real-time nature of their services. In call centers, the process itself becomes the product; that is, how a call center runs its processes is precisely how its customers experience the “product.” So an understandable nervousness and anxiety exists on the part of companies procuring call center services offshore about *how* that service is performed. This is not true in other areas—manufacturing, for example. When procuring offshored manufactured goods, companies are willing to accept

improvisation in production techniques so long as the end product meets their end-product specifications. In call center services, however, companies have mandated a cookbook approach to managing procedures. Although Batt and her colleagues have studied restrictive management practices at the agent level, I would argue that restrictive management is also happening at the managerial level.

The long-term implications of the cookbook approach to managing employees go beyond just talent quality and retention. Innovation could offer companies a major competitive advantage. Those that do not encourage it could soon find that their competitors are achieving significantly higher levels of productivity and cost savings.

Achieve Savings by Innovating Processes

According to the cookbook philosophy, in offshoring centers, managers' incentives (bonuses, promotions) are tied to their ability to adhere to the cookbook. Supervisors are given incentives to do *exactly* as they are told. This is starkly different from the managerial role in manufacturing, where managers are given incentives to innovate. In fact, supervisors at offshored services centers are "punished" if found to "innovate."

However, the need for innovating process templates is significantly more important in services than in manufacturing. This is because, unlike in manufacturing, the proportion of labor to capital costs in services performed onshore is fundamentally different from that in an offshore location. On shore, 70 percent of cost is labor, 30 percent is capital. Offshore, 70 percent is capital, 30 percent is labor. Yet companies mandate that offshore centers operate exactly as they would onshore. They plug in the cheap labor and are content with the resulting savings.

Manufacturers think about these issues differently. For example, the paint shops in a BMW plant in South Africa are far less mechanized than in Munich, but achieve the same quality. As long as the end product meets the required specifications, BMW has adjusted its inputs to make the optimal labor-capital tradeoffs (see figure 1).

But flexibility in changing the proportion of capital to labor costs is generally not permitted in the offshore call centers. As a result, offshore call centers have employees being paid a fraction of onshore wages, but with infrastructure that is identical to that of onshore call centers. The offshore worker is required to use the equipment, with the equipment idling the same amount of time as in onshore environments. As a result, total factor productivity at offshore centers is far lower than its potential.

Companies in low-wage environments can make capital-labor tradeoffs in a number of ways: (1) they can reduce capital inputs by reducing automation; (2) they can use cheaper indigenously developed technology such as locally developed programs in place of branded expensive software; or (3) they can utilize capital more intensively. Capital can be used more intensively in two ways: by increasing shift utilization—that is, by running the call center round the clock, or by changing a process in order to reduce the downtime for capital equipment (see figure 2). Redesigning a task or a process to use capital more intensively bears some elaboration.

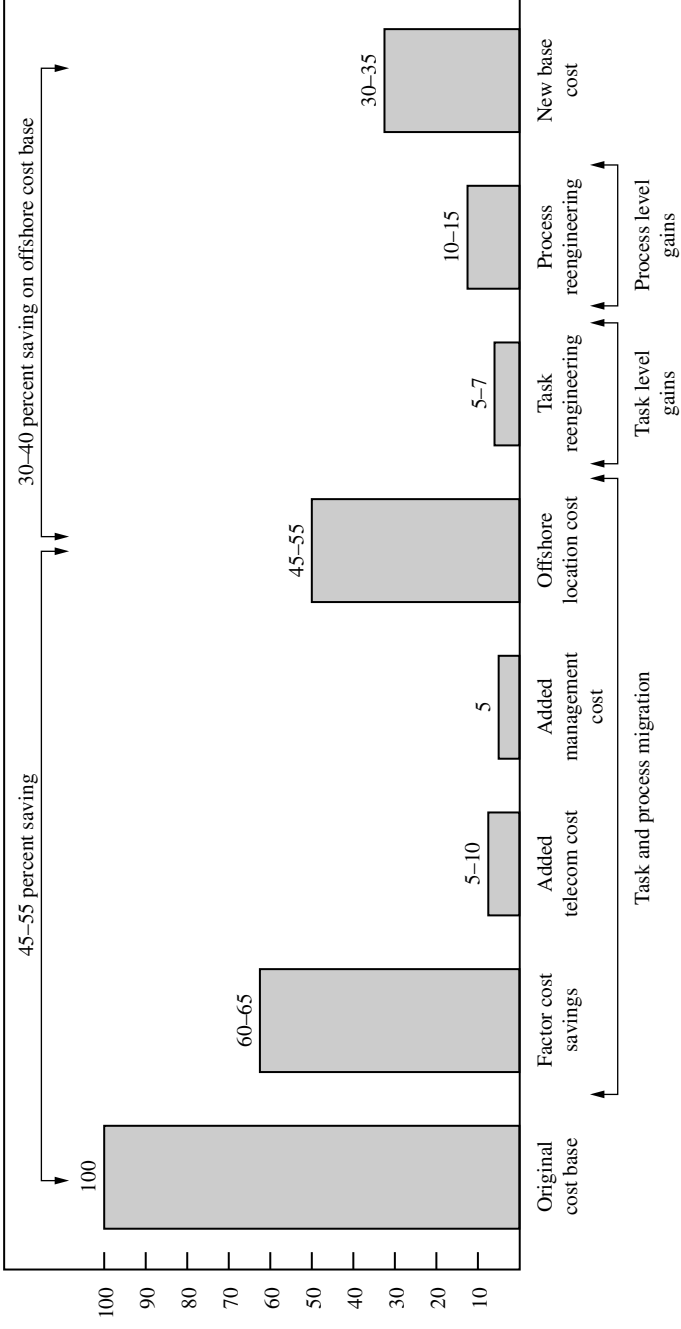
Consider the simple example of a call center agent who manages customer accounts. In a high-wage country, each customer call is routed to an agent who listens to the request, opens up a computer database, and updates the account in real time. Neither the computer nor the telephone is used efficiently, since the agent is either talking or typing, seldom doing both simultaneously. The call takes longer, tying up telecommunications time, and keeping other customers on hold longer. However, an offshore agent equipped with only a telephone could write the customer request by hand into a tracking log and move on to the next call. Telecom costs are reduced because the agent spends less time on calls and customers less time on hold. Another agent, working at a computer station used around the clock, could enter the information into the database. While the new process requires more agents to handle requests, expensive computer hardware and software and telephone lines are used more intensively. Added wages are more than offset by savings on computers, software licenses, and telephone connections. The economics of an Indian call center suggest that this simple change could actually boost current profit margins for offshoring vendors by as much as 50 percent (see figure 3).

This approach of disaggregating the value chain and reengineering processes to use capital more intensively can be used across a whole range of processes beyond call centers, even for knowledge-based services such as research and other information jobs.

Innovation Will Soon Be a Competitive Imperative

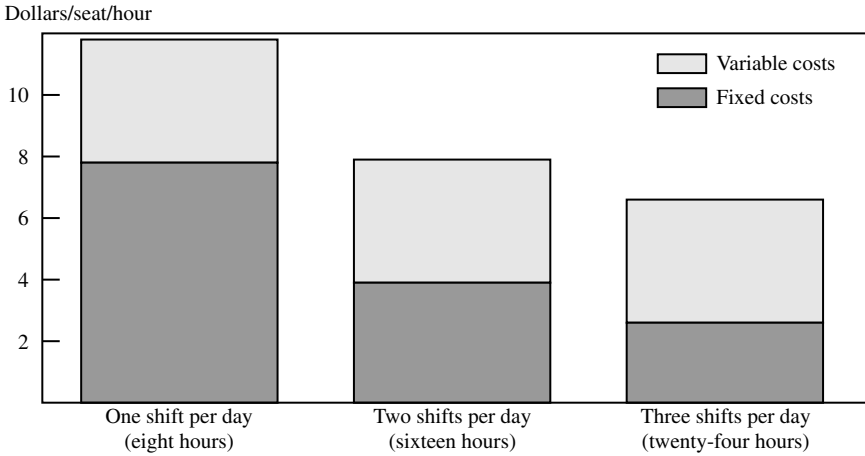
Why do companies hesitate to change established process templates, preferring to lose these gains, and how long do we expect this trend to continue? The answer lies in achieving sufficient competitive intensity in offshore locations. Today, a company that decides to go offshore is ahead of its competitors. The senior country manager who sets up an operation in India, the Philippines, or another low-wage country is given a budget and is told to produce the

Figure 1. Savings from Offshoring and Reengineering



Source: McKinsey Global Institute.

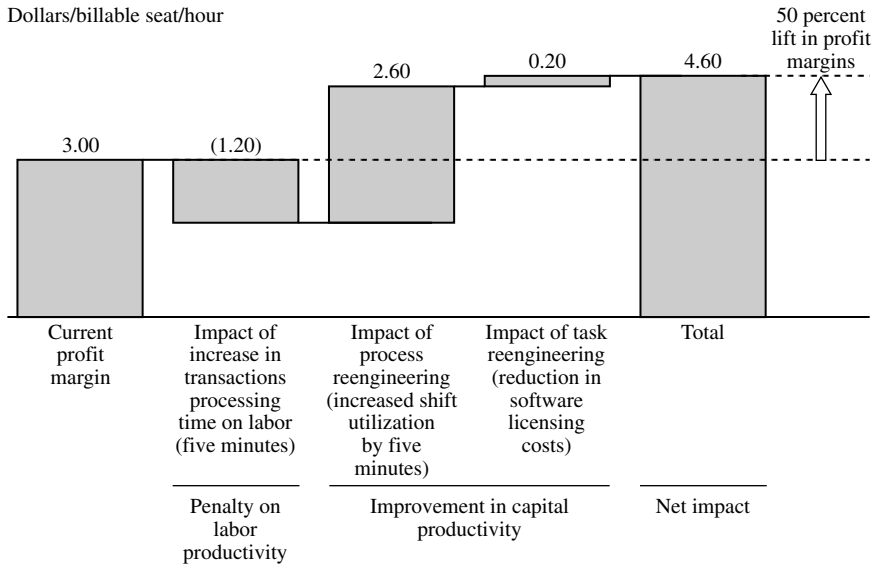
Figure 2. Call Center Operating Cost^a



Source: McKinsey Global Institute.

a. Author performed similar calculations for five other sectors (not shown). Call centers exhibited the largest potential savings.

Figure 3. Savings from Process Reengineering in Management of Customer Accounts



Source: McKinsey Global Institute.

expected 40–50 percent savings. The manager has little incentive to rock the boat by changing proven ways of doing things. For the company, 40–50 percent is significant enough savings. Seventy percent would certainly be great, but there is a risk involved in doing something completely unproven. And given that the company's competitors have typically not achieved even this level of savings, there is limited pressure to go the extra mile.

However, as providers in low-wage countries ramp up capabilities, the low-wage location advantage will become a commodity. More and more companies will come to view offshoring as less risky. To some extent this is already happening. As this trend accelerates, and the industry frontrunners can no longer take comfort in the 40–50 percent savings they are achieving today, they will be forced to innovate and capture the additional 20 percent. Qualified professionals in low-wage destinations for offshoring are bubbling with ideas to increase capital productivity. For now, though, companies are not allowing them the room to innovate and go beyond the 50 percent cost savings achieved simply by moving operations to low-wage environments. I expect this will soon change.

General Discussion: The formal presentations stimulated a wide-ranging conversation that focused especially on whether offshore call center operations might change dramatically over time to better optimize for local conditions and on whether the strikingly higher rates of attrition in offshoring relative to in-house call center operations might signal the demise of that organizational form.

Alan Deardorff was struck by the finding that the offshore call centers were using their skilled labor suboptimally. He conjectured that in India fluency in English is most likely a proxy for high education levels. Thus, the call centers might be deploying this labor suboptimally because they are hiring solely for English fluency and not optimizing over the remaining educational capabilities of their employees.

Deardorff also wondered whether there might be useful survey data on the amount of time actually consumed by individual calls, conjecturing that the lower wage levels in India might reduce employers' sensitivity to call times as a cost variable and thus loosen the time limits imposed on employees in offshore call centers. Susan Collins agreed that the information would be valuable but cautioned that it might be difficult to interpret different average call times if different classes of call centers are handling calls of different complexity.

T. N. Srinivasan argued it is premature to judge the innovation capabilities of call centers. The precise amount of risk involved with an offshoring project remains largely unknown because Indian providers are still undergoing a learning process. Although the majority of offshore call center managers currently must

follow strict procedures without much leeway to innovate independently, this practice may be a means to assess the performance and risks associated with offshoring. Once it is better understood that the risk is relatively low, it will be more likely that the benefits from giving a center more freedom to innovate will be achieved.

Srinivasan took issue with Vivek Agarwal's projection that offshore call centers were likely in the future to choose a different mix of labor and capital to take advantage of the relatively lower cost of labor in India. He cited the poor overall empirical record of "appropriate" technology—technology tailored to local conditions. However, Gary Saxonhouse cited Japan, Korea, and Taiwan as examples of emerging markets that have successfully adapted technology developed for high-wage environments to local factor prices.

Lael Brainard also focused on the potential for further cost savings from adjusting the technology to local conditions in the offshore market. She noted the striking similarity between Vivek Agarwal's conjecture that there are substantial unrealized cost savings in offshore call center operations and Ravi Aron's findings in financial services. The impetus to push costs down further in the offshore operations appears to be temporarily absent, she said, because the initial cost savings of migrating these processes offshore are so substantial and because of the perceived risk of departing from the highly codified initial model. But Brainard argued that this is likely to change and thus that the offshoring phenomenon may still be in the early stages of driving productivity increases and cost savings across a range of industries. As competition increases, the differentials will become even more dramatic.

Catherine Mann asked whether the sample could be stratified by industry, conjecturing that the comparisons between in-house versus offshore call center operations could lead to very different results depending on the industry being represented in the available data.

Rishi Daga from Reliance commented on the difficulty of accurately measuring attrition rates at offshored call centers and suggested the survey data may actually understate attrition rates. In his company's experience, attrition rates averaged between 25 and 30 percent for back office processes, about 50 percent for inbound call centers, and 70 to 75 percent for direct marketing and telemarketing. The attrition rates are disguised because many vendors in India and the Philippines retain call center employees on the company payroll for twelve to eighteen months as temporary workers. Since these workers are not regular employees, attrition on their part may not show up in the official numbers.

Rafiq Dossani noted that both presentations gave credence to the prediction that the model of the independent call center—recently hailed as the future of

the industry—might actually be failing because of unmanageably high attrition. In turn, he speculated that the call center function may be far less separable from the overall business process than is widely believed. The successful call centers were integrated into in-house operations, and the greater stability and success of the in-house call centers may be attributable to the fact that they can do other tasks as well. In contrast, outsourced offshore call center employees have much less flexibility.

Susan Collins requested that the authors add more information about how the relative importance of the different type of organizational forms had changed over time, and whether the data supported Rafiq Dossani's provocative assertion that the independent call center model had failed.

Richard Freeman noticed that unionization appeared to reduce attrition significantly and wondered whether this applied to unionization of offshore operations or only to U.S.-based operations.

Chad Bown thought it was important to compare the offshore call center attrition rates with the average turnover rate in the local market rather than only with the U.S.-based call center operations. He noted that the authors' findings might be even bigger if the outside options for call center workers in these countries have much lower turnover on average.

Douglas Kaden of Oak Hill provided support for the paper's inference that processes are more tightly controlled when they are offshored. He noted a company that selected only processes that could be tightly controlled for offshoring discovered during the migration process that only 50 percent of these highly controllable activities were actually subject to tight controls by the in-house domestic operation.

Rosemary Batt first addressed the question of how to measure complexity in this industry and how to control for it. First, she and her coauthors eliminated the business-to-business segment of call center operations because they are much more complex and more concentrated in relationship management. The statistical analysis initially controlled for industry and work function within the mass market broadly. However, since it was found to have no effect, it was taken out.

She noted that even within the mass-market segment, however, there are varying degrees of complexity depending on the quality of the customer interaction. Furthermore, the process might be complex even if a product itself is not complex. For example, in telecommunications packaging variety and customization may require a call center operator to negotiate and interpret. Understanding those nuances and selling product features introduces complexity. She also noted that she is still struggling with issues raised in previous sessions about how difficult it is to outsource sales.

Batt noted that unionization is low for call centers overall but ranges as high as 25 to 30 percent in the telecommunications sector. Wage rates for the unionized workers are \$40,000 a year rather than the average \$30,000 for in-house call center employees. She also noted that the communications workers union recently negotiated major reductions in wages in order to keep the frontline work in-house. Finally, Batt ventured that the independent call center model may be less fragile than it appears because consumers demonstrate an apparent high tolerance for poor quality.

References

- Abraham, Katherine. 1990. "Restructuring the Employment Relationship: The Growth of Market-Mediated Work Arrangements." In *New Developments in the Labor Market*, edited by Katherine Abraham and Robert McKersie, pp. 85–118. MIT Press.
- Appelbaum, Eileen, Thomas Bailey, Peter Berg, and Arne L. Kalleberg. 2000. *Manufacturing Advantage: Why High-Performance Work Systems Pay Off*. Cornell University Press.
- Arthur, Jeffrey. 1994. "Effects of Human Resource Systems on Manufacturing Performance and Turnover." *Academy of Management Journal* 37 (3): 670–87.
- Barney, Jay B. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17 (1): 99–120.
- Batt, Rosemary. 1999. "Work Organization, Technology, and Performance in Customer Service and Sales." *Industrial and Labor Relations Review* 52 (4): 539–64.
- . 2000. "Strategic Segmentation in Front-Line Services: Matching Customers, Employees and Human Resource Systems." *International Journal of Human Resource Management* 11 (3): 540–61.
- . 2002. "Managing Customer Services: Human Resource Practices, Quit Rates, and Sales Growth." *Academy of Management Journal* 45 (3): 587–97.
- Batt, Rosemary, and Lisa M. Moynihan. 2004. "Human Resource Practices, Service Quality, and Economic Performance in Call Centers." CAHRS Working Paper 04-16. Ithaca, N.Y.: Center for Advanced Human Resource Studies, Cornell University (www.ilr.cornell.edu/cahrs/2004).
- Batt, Rosemary, Alex Colvin, and Jeffrey Keefe. 2002. "Employee Voice, Human Resource Practices, and Quit Rates: Evidence from the Telecommunications Industry." *Industrial and Labor Relations Review* 55 (4): 573–93.
- Batt, Rosemary, Virginia Doellgast, and Hyunji Kwon. 2004. "The U.S. Call Center Industry 2004: National Benchmarking Report." CAHRS Working Paper 05-06. Ithaca, N.Y.: Center for Advanced Human Resource Studies, Cornell University (www.ilr.cornell.edu/cahrs/2005).
- Carayon, Pascale. 1993. "Effect of Electronic Performance Monitoring on Job Design and Worker Stress—Review of the Literature and Conceptual Model." *Human Factors* 35 (3): 385–95.
- Datamonitor. 2001. "U.S. Customer Relationship Outsourcing to 2005." London: Datamonitor.
- . 2003. "Opportunities in North American Call Center Markets to 2007." New York: Datamonitor.
- . 2004. "The Vertical Guide to Contact Centers in North America: Tracking Sector Needs in a Mature Market." New York: Datamonitor.
- Davis-Blake, Alison, and Brian Uzzi. 1993. "Determinants of Employment Externalization: A Study of Temporary Workers and Independent Contractors." *Administrative Science Quarterly* 38 (2): 195–223.

- Deery, Stephen J., Roderick D. Iverson, and Janet P. Walsh. 2002. "Work Relationships in Telephone Call Centers: Understanding Emotional Exhaustion and Employee Withdrawal." *Journal of Management Studies* 39 (4): 471–97.
- Dossani, Rafiq, and Martin Kenney. 2004. "Went for Cost, Stayed for Quality? Moving the Back Office to India." Asia-Pacific Research Center, Stanford University.
- Erickcek, George A., Susan N. Houseman, and Arne L. Kalleberg. 2003. "The Effects of Temporary Services and Contracting Out on Low-Skilled Workers: Evidence from Auto Suppliers, Hospitals, and Public Schools." In *Low-Wage America: How Employers Are Reshaping Opportunity in the Workplace*, edited by Eileen Appelbaum, Annette Bernhardt, and Richard J. Murnane, pp. 368–403. New York: Russell Sage Foundation.
- Freeman, Richard B., and James L. Medoff. 1984. *What Do Unions Do?* New York: Basic Books.
- Frenkel, Steve, May Tam, Marek Korczynski, and Karen Shire. 1998. "Beyond Bureaucracy? Work Organization in Call Centres." *International Journal of Human Resource Management* 9 (6): 957–79.
- Grugulis, Irena, Steven Vincent, and Gail Hebson. 2003. "The Rise of the Network Organization and the Decline of Discretion." *Human Resource Management Journal* 13 (2): 45–59.
- Heskett, James L., Earl W. Sasser, and Leonard A. Schlesinger. 1997. *The Service Profit Chain*. New York: Free Press.
- Holman, David. 2004. "Employee Well-Being in Call Centres." In *Call Centres and Human Resource Management*, edited by Stephen Deery and Nick Kinnie, pp. 223–44. Basingstoke: Palgrave.
- Holman, David, Claire Chissick, and Peter Totterdell. 2002. "The Effects of Performance Monitoring on Emotional Labour and Well-Being in Call Centres." *Motivation and Emotion* 26 (1): 57–81.
- Huselid, Mark A. 1995. "The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance." *Academy of Management Journal* 38 (3): 635–72.
- Jaikumar, Ramchandran. 1986. "Postindustrial Manufacturing." *Harvard Business Review* 64 (6): 69–77.
- Kinnie, Nick, and Jon Parsons. 2004. "Managing Client, Employee and Customer Relations: Constrained Strategic Choice in the Management of Human Resources in a Commercial Call Centre." In *Call Centres and Human Resource Management*, edited by Stephen Deery and Nick Kinnie, pp. 102–26. Basingstoke: Palgrave.
- Lepak, David P., and Scott A. Snell. 1999. "The Human Resource Architecture: Toward a Theory of Human Capital Allocation and Development." *Academy of Management Review* 24 (1): 31–48.
- Levy, Frank, and Richard J. Murnane. 2004. *The New Division of Labor: How Computers Are Creating the Next Job Market*. Princeton University Press.
- Loveman, Gary W. 1998. "Employee Satisfaction, Customer Loyalty, and Financial Performance: An Empirical Examination of the Service Profit Chain in Retail Banking." *Journal of Service Research* 1 (1): 18–31.

- Maddala, Kamaswari. 1992. *Introduction to Econometrics*. 2nd ed. New York: Macmillan.
- Marsden, David. 1999. *A Theory of Employment Systems: Micro-Foundations of Societal Diversity*. Oxford University Press.
- McDonald, John F., and Robert Moffitt. 1980. "The Uses of Tobit Analysis." *Review of Economics and Statistics* 62 (2): 318–21.
- Pfeffer, Jeffrey, and James Baron. 1988. "Taking the Workers Back Out: Recent Trends in the Structuring of Employment." *Research in Organizational Behavior* 10: 257–303.
- Pine, B. Joseph. 1993. *Mass Customization: The New Frontier in Business Competition*. Harvard Business School Press.
- Prahalad, C. K., and Gary Hamel. 1990. "The Core Competence of the Corporation." *Harvard Business Review* 68 (3): 79–91.
- Quinn, James Brian. 1992. *Intelligent Enterprise*. New York: Free Press.
- Roncek, Dennis W. 1992. "Learning More from Tobit Coefficients: Extending a Comparative Analysis of Political Protest." *American Sociological Review* 57 (4): 503–07.
- Shaw, Jason D., John E. Delery, G. Douglas Jenkins Jr., and Nina Gupta. 1998. "An Organization-Level Analysis of Voluntary and Involuntary Turnover." *Academy of Management Journal* 41 (5): 511–25.
- Shire, Karen, Ursula Holtgrewe, and Christian Kerst. 2002. "Re-Organising Customer Service Work: An Introduction." In *Re-Organising Service Work: Call Centres in Germany and Britain*, edited by Ursula Holtgrewe, Christian Kerst, and Karen Shire, pp. 1–16. Aldershot: Ashgate.
- Singh, Jagdip. 2000. "Performance, Productivity, and Quality of Frontline Employees in Service Organizations." *Journal of Marketing* 64 (2): 15–34.
- Ventoro. 2005. "Offshore 2005 Research: Preliminary Findings and Conclusions." Hillsboro, Ore.: Ventoro.
- Williamson, Oliver E. 1981. "The Modern Corporation: Origins, Evolution, Attributes." *Journal of Economic Literature* 19 (4): 1537–68.
- . 1985. *The Economic Institutions of Capitalism*. New York: Free Press.