Who Should Select New Employees, the Head Office or the Unit Manager?

Consequences of Centralizing Hiring at a Retail Chain

Carolyn Deller and Tatiana Sandino*

Harvard Business School

May 22, 2016

Abstract

We examine whether centralized hiring (in this study, by the head office of a US retail chain) or decentralized hiring (by store managers) leads to lower employee turnover and higher business unit (store) performance. While centralized hiring can ensure that enough resources are invested in consistently hiring people aligned with company values, it can also neglect a unit manager's local informational advantage. We examine factors that may affect these tradeoffs: (1) the extent to which headquarters can better select employees aligned with company values; (2) the resources headquarters can devote to selection compared to those a business unit with busy operations can devote; and (3) the unit manager's local informational advantage. We conduct difference-in-differences analyses of the effects of centralized hiring on employee departures and store performance. We find that, on average, centralized hiring is unrelated to departures and performance. In line with our predictions, centralized hiring is associated with a lower employee departure rate for stores with busy operations. Consistent with the notion that centralization can improve employee alignment, we find that it decreases the rate of voluntary departures in stores whose customers demand consistent standards, and that it improves store sales performance in stores located further from headquarters. Furthermore, supporting the importance of a unit manager's local informational advantage, we find that centralized hiring is associated both with higher turnover and lower sales in stores whose customers are highly sensitive to service quality, and is associated with lower mystery shopper scores in stores serving repeat customers.

* Corresponding author's contact information:
Morgan Hall 367, Harvard Business School, Boston MA 02163
Phone: 617.495.0625
e-mail: tsandino@hbs.edu

Acknowledgements: We thank Ryan Buell, Dennis Campbell, Danielle Li, Timothy M. Keune, and Ananth Raman for their helpful comments, as well as participants at the 2016 Management Accounting Section Meeting. We thank Kyle Thomas for excellent research assistance compiling the data. We also thank the retail company where we conducted our study for access to data.

I. INTRODUCTION

Employee selection has long been recognized as a key management control mechanism to align employees with the company's values and goals (Jovanovic 1979; Ouchi 1979; Merchant and Van der Stede 2007). This mechanism is particularly relevant in settings—such as retail organizations emphasizing customer service and manufacturing firms committed to organizational learning—in which employees have to execute multiple tasks, some of which are difficult to measure and contract on, and in which different individuals' abilities and attitudes may result in significant differences in performance. Despite the importance of selection as a control system, it has, until recently, received little attention in the empirical management accounting and control literature. Recent studies have examined the efficacy of selection as a tool to achieve desirable employee behaviors and performance in a highly decentralized organization (Campbell 2012) and have examined whether and when firms use selection and incentive contracting as substitutive or complementary control mechanisms (Abernethy, Dekker, and Schulz 2015).

We examine the relation between a firm's allocation of hiring rights—centralized or decentralized—and the effectiveness of its selection process. We contribute to the literatures on employee selection and on delegation of decision rights, identifying circumstances under which centralized (or decentralized) hiring is likely to be most (or least) beneficial. Specifically, we examine the relation between centralized (versus decentralized) hiring and both employee turnover (overall, voluntary, and involuntary) and store performance (sales, mystery shopper scores) and test contingencies that may moderate these relations.

We use data from a US retail chain for our empirical analyses and exploit variation in its allocation of hiring decision authority. This variation arose as the organization switched, in a staggered manner, from a decentralized model of hiring to a centralized model. On the one hand, centralized hiring can ensure that enough resources and effort are invested in consistently hiring people who fit the company's values and goals. On the other hand, centralization can neglect the informational advantage a unit manager might have in determining a candidate's fit with the unit team and local environment.

From an economic standpoint, three major factors may affect these tradeoffs: (a) the company's need to align new hires to its values, a need that is greater the more the unit manager's optimal employee/unit match departs from the employee/firm match that will maximize the achievement of company goals; (b) how much time and expertise the unit has available for the hiring process versus how much the headquarters has (we conjecture that a unit's busyness reduces the relative time and expertise its manager has available for hiring), and (c) the unit manager's informational advantage relative to headquarters. We capture the need to align new hires to company values by measuring the customers' demand for company standards, captured through the correlation between company sales and compliance with mystery shopper standards, and the store's isolation from headquarters, measured as the distance between them. We use a store's sales per labor-hour to capture how busy its operations are and how much time its manager has available to select new employees. We capture the store managers' informational advantage relative to headquarters with three factors: (a) the extent to which the store serves a different type of market relative to the rest of the organization; (b) the relevance of the store managers' knowledge of local customers, measured as whether the store serves repeat customers

and/or customers sensitive to high-quality service; and (c) the store manager's knowledge of his or her team, measured as the manager's tenure with that store. Our main outcome variables of interest are employee turnover, store sales, and store mystery shopper scores.

We conduct difference-in-differences analyses using three types of regression: a hazard ratio model to examine effects on employee turnover, an OLS model to examine effects on store sales, and a tobit model to examine effects on mystery shopper scores. Our analyses show that, on average, the switch from decentralized to centralized hiring is unrelated with turnover, sales, and mystery shopper scores. However, our contingency analyses show several circumstances in which the switch does affect turnover and/or store performance. First, the switch to centralized hiring is associated with lower levels of turnover in stores with busy operations—that is, with higher sales per labor-hour—and in stores with a greater need for conformance to company values due to higher customer demand for brand standards—that is, stores with a higher correlation between compliance with mystery shopper standards and sales. Second, the switch to centralized hiring is associated with higher sales in stores far from headquarters. These results suggest that centralized hiring may help a company recruit employees more aligned with its goals, especially in busy and isolated stores or in stores whose customers demand brand standards. Third, in stores with service-sensitive customers—that is, stores in high-income communities—the switch to centralized hiring is associated with lower sales and higher turnover. Fourth, in stores serving repeat customers, centralization is associated with lower mystery shopper scores. The latter two results suggest that it is preferable to let store managers, who understand their own service-sensitive and repeat customers better

than headquarters, and who are already motivated to hire employees who know how to serve these customers, hire their own employees.[1]

Our study contributes to research suggesting that higher information asymmetries between unit managers and headquarters should generally increase delegation of decision rights (Fladmoe-Lindquist and Jacque 1995; Abernethy, Bouwens, and van Lent 2004; Campbell, Datar, and Sandino 2009). In line with Campbell et al. (2009), who found that convenience store chains are more likely to delegate decision rights to stores that serve customers with whom headquarters is unfamiliar, our study emphasizes the need to decentralize hiring rights to store managers who may know better how to serve repeat customers and customers who are very service-sensitive. But in contrast with this literature, some of our results suggest that delegating hiring rights may not be optimal when a unit's geographical isolation might undermine alignment with company goals. While prior literature has suggested that delegation of decision rights may be beneficial in geographically isolated stores (e.g., Brickley and Dark 1987), such stores may benefit from centralizing hiring rights as a mechanism to retain employees naturally aligned to and engaged with the company's goals and values. Greater alignment might, in turn, let the company decentralize other decision rights for routine operations (Van den Steen 2010).

Our results add important insights to the emerging empirical literature which recognizes the relevance of employee selection as a control mechanism to improve alignment. Our analyses take this literature a step further by shedding light on who should select new employees to achieve greater alignment and greater commitment.

[1] Our findings are mixed with respect to the effect of store manager tenure: centralized hiring is associated with higher involuntary turnover but lower voluntary turnover in stores with managers with longer tenure.

Our research also contributes to the stream of research on chain organizations (e.g., Bradach 1997; Campbell et al. 2009) examining tradeoffs between centralizing decisions to ensure uniformity and decentralizing decisions to achieve adaptation to different markets, taking advantage of managers' local information. This prior research suggests that retail and service firms may delegate decision rights to promote experimentation in some (typically, franchised) units and limit decision rights in other (typically, standardized company-owned) units where the chain aims to set common standards and regularly test their effectiveness. We extend the empirical literature by uncovering some circumstances within a company under which the gains from centralizing hiring decisions—uniformity and alignment—may outweigh the gains of decentralizing such decisions—taking advantage of local information—and some circumstances in which the latter may outweigh the former.

The rest of the paper proceeds as follows: Section II reviews the literature and develops hypotheses, Section III describes our research setting, Section IV presents our empirical analyses and results, and Section V concludes.

II. HYPOTHESIS DEVELOPMENT

A vast literature studies the design and use of incentive plans to align employees with company goals. Some of these studies suggest that, despite their prominence, incentive plans have many shortcomings and certain organizational contexts can render them inadequate or inappropriate. In such circumstances, employee selection can serve as an important complementary or substitutive control system (Campbell 2012; Abernethy et al. 2015).

Theoretical research in economics and management has long recognized that the match between a firm and its workers can significantly influence firm performance and employee turnover (Jovanovic 1979; Ouchi 1979), yet few empirical studies have examined the effects of selection mechanisms on company outcomes. One of the first, Chatman (1991), documented a positive relation between an employee's fit with organizational values at the time of hiring and his or her tenure. More recent studies provide greater insight into the use and effects of selection mechanisms in firms. Campbell (2012) finds that referrals (relative to other selection channels) are associated with employee behaviors desired by the firm and with employee performance. Abernethy et al. (2015) examine firms' design choices with respect to employee selection and incentive contracting and find instances in which selection mechanisms are either more or less likely to be used as substitutes for incentive contracts. Finally, Hoffman, Kahn, and Li (2015) compare the extent to which reliance on job-test scores versus manager discretion produces better or worse hiring decisions. They find that managers who overrule job-test-score recommendations end up hiring workers with lower match quality (as measured by job tenure). Our purpose is to extend this line of research by examining the effects of a key choice in the design of a firm's employee selection process—whether to centralize or decentralize hiring—on employee turnover and business unit performance.

An organization's allocation of hiring rights can fall along a continuum, but for the purposes of our study, we characterize it as a choice between centralizing hiring rights to the head office and decentralizing hiring rights to unit managers. Centralizing can enable the organization to develop the necessary expertise and invest the necessary resources to consistently select workers aligned with its goals and values. Head office personnel can

create and foster standards for new hires, thus serving as "standards bearers" for the organization. They can also reinforce the organization's mission, core values, and strategic goals through their interactions with job candidates. However, a centralized hiring process can also neglect the informational advantages of unit managers and reduce or eliminate their opportunity to develop rapport with candidates and a sense of responsibility for their success once hired. Given these tradeoffs, we are unable to predict a directional effect of centralizing hiring rights on employee turnover or unit performance. Thus, we state our first hypothesis in the null form:

Hypothesis 1: All else equal, centralized hiring (compared to decentralized hiring) has no effect on employee turnover and business unit performance.

Next, we examine three circumstances that may affect the tradeoffs discussed above: (a) the need to align new hires to company values; (b) the busyness of a unit's operations (which, we claim, affects how much time the unit's manager can spend on employee selection and how much expertise in it they can develop); and (c) information asymmetries between headquarters and the unit manager.

2.1. Need to align new hires to company values

There may be instances where headquarters is in a better position than a business unit manager to identify job candidates who would best match the firm; that is, who would become most productive and committed to it. We conjecture that this will occur (a) in units whose operational effectiveness is strongly driven by company standards, and (b) in units that are isolated from headquarters.

2.1.1. Effectiveness of company standards

The more the effectiveness of a unit's operations depend on company standards, the more likely it is that headquarters is in a better position than the unit manager to select new hires. In such cases, the information at the headquarters may be as relevant as or more relevant than the unit manager's local information. Furthermore, choosing candidates who fit the profile the headquarters deems most appropriate to meet the company's standards will likely yield more effective and committed hires. We therefore hypothesize:

Hypothesis 2a: Centralized hiring will lead to lower employee turnover and better business unit performance the more business unit effectiveness is driven by company standards.

2.1.2. Isolated business units

Managers of isolated units—those further from headquarters—are likely to be less informed about corporate beliefs and values, given their (likely) limited physical exposure to top management. Van den Steen (2010a) shows analytically that weaker shared beliefs lead to less delegation of decision rights. According to his argument, it might be optimal for the head office to retain hiring decision rights rather than delegating them to managers of distant business units if those managers are less likely to understand the employee attributes required to support the company's goals and values.

Such an argument may seem at odds with empirical studies that have found greater decentralization of decision rights, in the form of franchising, among business units farther from the head office (e.g., Brickley and Dark 1987; Fladmoe-Lindquist and Jacque 1995). Decentralization of decision rights has been found to be appropriate for distant units because the cost of gathering information from them is higher. However, centralization

may be a feasible option for decisions, such as hiring, that (a) occur infrequently enough that the associated costs of gathering information may be sufficiently low and (b) have strategic benefits, such as promoting better goal alignment. We therefore hypothesize:

Hypothesis 2b: Centralized hiring will lead to lower employee turnover and better business unit performance the further the unit is from headquarters.

2.2 Demanding business unit operations

Selecting new hires best aligned with the company's goals and values requires a significant amount of time, since it involves, amongst other things, screening applications, conducting assessment tests and interviews, and comparing finalists. Centralizing that process can enable the head office to develop expertise and a comparative advantage in it, especially relative to unit managers with limited time due to busy unit operations. Although managers operating units with more demanding operations may have better knowledge of what skills and traits they need from new hires, their ability to act on this knowledge may be constrained by the need to focus attention on daily business operations and the achievement of short-term results for which they are held accountable (Prendergast 1999). We therefore hypothesize:

Hypothesis 3: Centralized hiring will lead to lower employee turnover and better business unit performance in units with more demanding operations.

2.3 Information asymmetries between unit managers and headquarters

Prior literature has described different kinds of information asymmetry, which typically lead organizations to decentralize decision rights. We examine three sources of information asymmetry that may impact the effectiveness of centralizing hiring rights: the extent to which the unit's market diverges from the company's typical market; the local

customers' sensitivity to service quality; and the unit manager's knowledge of his or her team.

2.3.1. Market divergence of the business unit

Managers of business units in unusual markets—that is, markets that are not commonly served by the organization—are likely to have an informational advantage relative to headquarters when it comes to serving those markets. Here, a decentralized hiring system could be more beneficial than a centralized one. Indeed, Campbell et al. (2009) find that convenience store chains are more likely to franchise some or all of their business units when these units are dispersed over a wide range of markets. They also show that amongst non-franchising chains, those operating in dispersed markets decentralize operations more than those operating in a narrow range of markets.

However, while on one hand managers of business units serving markets with different customer bases than those typically served by the chain have an informational advantage, on the other hand, they are less likely to be aligned fully with the company's goals and values. Given these two countervailing effects of decentralization, we hypothesize:

Hypothesis 4: Centralized hiring will affect employee turnover and business unit performance in units operating in markets that diverge more from the market served by the average business unit in the organization.

2.3.2. Customers' sensitivity to service quality

Managers of units whose success is driven by employee relationships with customers are likely to have an informational advantage over the head office regarding who can best

serve their customers' needs. We examine two types of customer who may require high levels of attention: repeat customers and service-sensitive customers.

Repeat customers

Brickley and Dark (1987) and Martin (1988) suggest that managers of units serving repeat customers are more likely to drive their businesses based on customer relationships, to know what types of employee are needed to build those relationships, and to be motivated to provide high-quality service. In such cases, decentralized hiring may be more effective. We therefore hypothesize:

Hypothesis 5a: Centralized hiring will lead to higher employee turnover and worse business unit performance in units more likely to serve repeat customers.

Service-sensitive customers

Service-sensitive customers—those who require a superior experience and are most sensitive to poor service—assess a provider's quality over time, based on their own and their friends' interactions with that provider (Buell, Campbell, and Frei 2015). Unit managers interacting with such customers, like those dealing with repeat customers, are more likely to benefit from nurturing customer relationships over time and are more likely to know best the types of employee to satisfy them. This should lead such managers to invest the necessary time and effort in hiring exemplary employees. Hence, units serving service-sensitive customers should be less likely to benefit from centralized rather than decentralized hiring. We therefore hypothesize:

Hypothesis 5b: Centralized hiring will lead to higher employee turnover and worse business unit performance in units more likely to have service-sensitive customers.

2.3.3. Unit Managers' Knowledge of the Local Team

The longer a unit manager and his or her team have worked together, the better the manager may know which job candidates will best fit that team. Organizational theory suggests that teams build social norms over time and that new group members are likely to leave unless they fit and adapt to those social norms. For instance, according to Schneider's (1987) attraction-selection-attrition theory, members of a workgroup develop social norms that lead them to behave in homogeneous ways because "they were attracted by that environment, selected by it, and stayed with it" (Schneider 1987: 440). According to this theory, a unit manager who has worked with his or her team for some time will know better than headquarters what attitudes one needs to work well with the team. We therefore hypothesize:

Hypothesis 6: Centralized hiring will lead to higher employee turnover and worse business unit performance in units where the manager has greater knowledge of his or her team.

III. RESEARCH SETTING AND SAMPLE

We test our hypotheses using hiring data from a US multistate retail chain employing small teams (with fewer than 10 and sometimes fewer than five employees assigned to a shift at any given time).[2] Historically, the hiring of store employees was decentralized, with each store manager responsible for hiring decisions at his or her own store. Over a period of time, in a staggered manner, the chain switched from its decentralized hiring model to a centralized model.

[2] A nondisclosure agreement with the company prevents us from disclosing information which would identify it. Hence, we keep the chain's name and store locations confidential.

This switch was meant to serve a broader company objective, undertaken by the CEO, to create a highly committed, culture-focused organization. In addition to centralizing hiring, the initiative included increasing the percentage of full-time employees and adopting a new set of company values which were more memorable and actionable than the previous ones. Other goals stated by executives in charge of the centralized hiring initiative were to make the hiring process more efficient and to ensure compliance with legal and ethical practices, especially those related to preventing discrimination.

In the traditional decentralized hiring model, the store managers assumed full responsibility for hiring team members (though the relevant area sales managers, each of whom oversaw a small number of stores, would conduct second-round interviews with candidates). In the centralized hiring model, headquarters assumed all administrative responsibility for the hiring process: it conducted the first round of interviews and recommended the final candidate for hire, although the store manager had the final say via a second-round interview. The senior HR executive highlighted to us that the hiring personnel were particularly interested in the extent to which company values resonated with a candidate.

We obtained access to the company's hiring data from January 1, 2013 to September 30, 2015 (the last recorded exit date pertaining to these hires was December 14, 2015). During this period, stores in three states near each other (including the state where the head office was) were transitioned from a decentralized to a centralized hiring model ("treatment" stores). We used data from 175 treatment stores and 100 control stores (stores that remained decentralized throughout the period) in those three states. A number of stores in the selected states that had already switched prior to our sample period were

excluded from the analyses. Company executives indicated that they did not follow any particular strategy in selecting the order in which stores adopted the centralized hiring model, except for occasional opportunism (for example, they started with areas where they had recruiters) and a desire to help certain stores that were being converted into a new format and required more personnel. Because the roll-out was implemented at different times in different states, some states had a higher proportion of centralized stores during our sample period. To ensure that the stores transitioning to centralized hiring (our treatment stores) were comparable to those not transitioning (our control stores) and to assign a "post" period to the controls, we used a propensity score matching model based on store conditions at the beginning of our sample period (we used data corresponding to the time of the first hiring in each store). We used a probit model to obtain propensity scores capturing each store's probability of being selected for centralized hiring. We included the main variables that, according to our hypotheses, would play a role in the effectiveness of the centralized hiring program, as well as any other identifiable variables that could simultaneously explain a store's employee turnover and the company's decision to centralize that store's hiring. The probit model we used is:

$$\begin{aligned} Pr(\text{Centralized Hiring}) = {} & \beta_0 + \beta_1 \text{ Busy Operations } + \beta_2 \text{ Demand for Brand Standards} + \beta_3 \\ & \text{Distance to Headquarters} + \beta_4 \text{ Market Divergence} + \\ & \beta_5 \text{ Store Manager Knows Team} + \beta_6 \text{ Repeat Customers} + \\ & \beta_7 \text{ Service-sensitive Customers} + \beta_8 \text{ Unemployment Rate} + \beta_9 \text{ New Format Store} + \\ & \beta_{10} \text{ Team Size} + \beta_{11} \text{ Monthly Store Sales} + \beta_{12} \text{ Promotion Opportunities} + \\ & \beta_{13} \text{ \% Full-time Employees} + \beta_{14} \text{ Store Size} + \beta_{15} \text{ Store Age} + \\ & \beta_n \text{ (State Fixed Effects)} + \varepsilon. \end{aligned} \tag{1}$$

We include in Equation (1) the variables that we later examine as possible moderators of the effect of centralized hiring. *Busy Operations* is calculated as monthly

store sales divided by monthly labor-hours and is a proxy for how demanding the store's operations are on its personnel. *Demand for Brand Standards* is measured as the correlation between the store's monthly sales and its mystery shopper scores over the sample period. *Distance to Headquarters* is the number of miles between the store and the company headquarters. *Market Divergence* captures the extent to which the demographic characteristics of the location where a store operates (population density, income, age, ethnicity, and household size) differ from the average demographic characteristics of the chain's store locations.[3] *Store Manager Knows Team* is a dummy variable indicating that, at the time of the hire, the store manager had been at the store for at least 16 months. *Repeat Customers* and *Service-sensitive Customers* are dummy variables capturing characteristics of the customers in the store's location. Following prior literature (Brickley and Dark 1987; Martin 1988), we assume a higher proportion of repeat customers in areas that have low population density and are away from highway exits. *Repeat Customers* indicates that the store is in a Census block with less than 1,000 people per square mile and is not within two miles of an interstate or US highway exit. Because service sensitivity has been assumed to be higher among wealthier customers (Sutton 1986), S*ervice-sensitive Customers* indicates

[3] We measure market divergence following two steps as in Campbell et al. (2009). First, we estimate "normalized divergences" for each demographic location characteristic between the store and the average store at the chain by subtracting the value of each of the demographic variables for the store by its mean across all stores and then dividing this difference by the standard deviation of the variable across all stores. The mean values and standard deviations were calculated using stores in the entire chain (not only our sample stores) at the start of our sample period. The values of the demographic variables are obtained from ESRI Demographics data (which draws on the US Census and other data sources) at the Census block group level (the smallest geographical unit for which the US Census publishes sample data, generally defined to contain between 600 and 3,000 people) and include population density (number of inhabitants per square mile), per capita income (in dollars), inhabitants' median age (in years), ethnicity (percentage of white individuals in the population), and average household size (number of persons). Second, we aggregate the normalized divergences of the five demographic variables for each store by adding them up.

that the store is in a block group with an average per capita income at or above the 90th percentile for stores in the chain.[4]

Our next variables are used to control for the hiring store's conditions and team characteristics. We include the yearly unemployment rate for the Census block group in which the store is located (*Unemployment Rate*); a dummy variable indicating whether the hiring store was a new format store[5] (*New Format Store*); the store's monthly sales (*Monthly Store Sales*); *Store Size* in square feet, and *Store Age* in months. We further control for the number of non-managerial employees working at the store as of the last day of the month (*Team Size*), the percentage of employees in the store's ZIP code area that were hired in the same year and subsequently promoted during our sample period (*Promotion Opportunities*), and the percentage of store employees who are full-time (*% Full-time Employees*). (See the Appendix for an explanation of how we calculated these variables.) Lastly, we used fixed effects to control for the state in which the hiring store is located.

The probit results reported in Table 1 show that the main drivers explaining whether or not a store was selected to be centralized were related to its location and team characteristics. Stores that were further from headquarters or that operated in divergent markets, in ZIP codes offering greater promotion opportunities, or located in certain states were more likely to be selected, as were stores with a lower percentage of full-time employees or a smaller team. We matched each treatment store with the nearest control store that (a) had a propensity score within a distance (or caliper) of 0.30 [6] and (b) hired

[4] The percentile values were calculated using the stores in the entire chain (not only our sample stores) at the start of our sample period.
[5] Typically a larger and more visually appealing store offering more products and services to customers
[6] This caliper is equal to 0.1 of the standard deviation of the logit of the propensity scores. We use a smaller, more conservative caliper than that suggested by Austin (2011) (0.2 of the standard deviation of the logit of the propensity scores) to ensure comparability across matched stores.

employees both before and after the treatment store switched to centralized hiring. Our final sample comprises 1,497 individual hires from 49 treatment and 49 control stores. Table 2 presents a covariate balance analysis using t-tests and chi-squared tests to compare differences in means and differences in proportions respectively between key variables describing the treatment and control stores. The results of these tests suggest no significant differences in the means of our moderator variables and no significant differences in the means or proportion of other control variables. With respect to our outcomes of interest, Table 2 shows that store performance was similar for our treatment and control samples at the beginning of the period. However, control stores had higher annual employee turnover (we address this difference between our treatment and control sample by using each store as its own control in our difference-in-differences analyses).

Our research site provided a suitable setting to test the effects of centralized hiring on employee retention and store performance, and moderators of this effect. First, we were able to obtain 33 months of hiring data for a homogeneous set of employees (entry-level employees) and performance data for the set of stores where these employees worked, during a period when the stores switched from decentralized to centralized hiring. This enabled us to perform difference-in-differences analyses to study the effect of centralized hiring. For each employee hired during the sample period, we obtained the hire date, exit date (if applicable), and store number. For every store we obtained performance data based on store sales and mystery shopper scores.

Second, we were able to obtain each store's address, team characteristics, and operating conditions. A store's address allowed us to determine its longitude and latitude, enabling us to obtain data about local market characteristics from ESRI databases. The

store characteristics and turnover data enabled us to test moderators of the effect of centralized hiring on employee retention and store performance.

Third, the company's switch to centralized hiring was part of a concentrated effort to create a high-commitment, culture-oriented organization, which increased the importance of the selection of employees fitting the organization's values and culture and employee retention.

In summary, our research setting enabled us to examine the results of a company that made significant efforts to improve its hiring process via centralization, with the intent to recruit better fitting employees and improve the effectiveness of its hiring process. We were able to obtain data to test the effects on employee turnover and store performance that a set of treatment stores experienced after switching from a decentralized to a centralized hiring system relative to a set of control stores experiencing similar initial conditions.

IV. EMPIRICAL ANALYSES AND RESULTS

4.1 Research Design

To test the overall effect of centralized hiring, we use on the following regression model:

$$\begin{aligned} Outcome = {} & \beta_0 + \beta_1\, Treated + \beta_2\, Treated \times Post + \beta_3\, Busy\ Operations\ + \\ & \beta_4\, Demand\ for\ Brand\ Standards + \beta_5\, Distance\ to\ Headquarters\ + \\ & \beta_6\, Market\ Divergence + \beta_7\, Store\ Manager\ Knows\ Team + \beta_8\, Repeat\ Customers\ + \\ & \beta_9\, Service\text{-}sensitive\ Customers + \beta_m\, (Control\ Variables) + \beta_n\, (Month\text{-}Year\ Fixed \\ & Effects) + \beta_o\, (State\ Fixed\ Effects) + \varepsilon \end{aligned} \tag{2}$$

We use different statistical models to analyze the effects of centralized hiring on employee departure and store performance. To examine the impact on the rate of employee departure, we use a hazard rate model and measure *Outcome* as either, *Time to Employee Departure, Time to Voluntary Departure*, or *Time to Involuntary Departure. Time to Employee Departure* was measured as the number of days between the employee's hire date and the employee's exit date (or, if the employee was still employed when our sample period ended, the latest exit date of any employee in our sample—the observations described in this parenthesis were considered censored). *Time to Voluntary Departure* was measured as the number of days between the employee's hire date and the date when he or she voluntarily left the company (or, in cases where it was applicable, the date when he or she was fired, or, if he or she was still employed when the sample period ended, the latest exit date of any employee in our sample—these two types of cases were defined as censored). Similarly, *Time to Involuntary Departure* was measured as the number of days between the employee's hire date and the date when he or she was fired (or, in the cases where it applied, the date when he or she departed voluntarily, or, if the employee did not leave the company, the latest exit date of any employee in our sample—these two latter cases were considered censored).

To examine the effect of centralized hiring on store performance we use two different statistical models. We use OLS regressions and measure our *Outcome* as the natural logarithm of the store's monthly sales (*Ln(Monthly Sales)*) to capture the effects on financial performance. We also use Tobit regressions and measure our *Outcome* as the store's *Mystery Shopper Score* (with values from 0 to 1, higher numbers representing higher

compliance with company standards).[7] In all of the models described above, we use robust standard errors, clustering observations by areas supervised by a particular area sales manager.

Regarding our explanatory variables, *Treated* is a dummy indicating that the store at which the employee was hired switched from decentralized to centralized hiring during our sample period, and *Post* is a dummy specifying that the hire occurred after the relevant treatment store had switched to centralized hiring.[8] Our coefficient of interest in Equation (2) is β_2. We include as control variables those that we later examine as possible moderators of the effect of centralized hiring: *Busy Operations, Demand for Brand Standards, Distance to Headquarters, Market Divergence, Store Manager Knows Team, Repeat Customers,* and *Service-sensitive Customers* (all defined as in Section III). Our next variables are used to control for the store's environmental conditions, performance, and team characteristics. In all our regressions we control for whether the store was operating under a new format (*New Format Store*), the store's *Team Size*, the percentage of full-time employees (*% Full-time Employees*), and state and time (month-year) fixed effects. In our regressions analyzing employee departures, we add controls for the local unemployment rate (*Unemployment Rate*) and local opportunities for promotion (*Promotion Opportunities*). In our store performance regressions we add controls for *Store Age, Store Size*, and *Competition*. All of the variables included in the regressions are defined in the Appendix.

[7] We used an upper bound of 1 in our Tobit regressions, since a large number of stores received a mystery shopper score of 1, but we did not use a lower bound of 0 since none of the stores received that score.
[8] Since each control store is matched to a treatment store, the post period for the control store is defined as the post period for the matching treatment store.

We then conduct tests to examine whether the factors considered in our predictions moderate the effect of centralized hiring on employee retention and store performance. We use the following regression specification:

$$
\begin{aligned}
\textit{Outcome} = {} & \beta_0 + \beta_1\ \textit{Treated} + \beta_2\ \textit{Post} \times \textit{Treated} + \\
& \beta_3\ \textit{Busy Operations} + \beta_4\ \textit{Demand for Brand Standards} + \\
& \beta_5\ \textit{Distance to Headquarters} + \beta_6\ \textit{Market Divergence} + \beta_7\ \textit{Store Manager Knows} \\
& \textit{Team} + \beta_8\ \textit{Repeat Customers} + \beta_9\ \textit{Service-sensitive Customers} + \\
& \beta_{10}\ \textit{Treated} \times \textit{Busy Operations} + \beta_{11}\ \textit{Treated} \times \textit{Demand for Brand Standards} + \\
& \beta_{12}\ \textit{Treated} \times \textit{Distance to Headquarters} + \beta_{13}\ \textit{Treated} \times \textit{Market Divergence} + \\
& \beta_{14}\ \textit{Treated} \times \textit{Store Manager Knows Team} + \beta_{15}\ \textit{Treated} \times \textit{Repeat Customers} + \\
& \beta_{16}\ \textit{Treated} \times \textit{Service-sensitive Customers} + \\
& \beta_{17}\ \textit{Post} \times \textit{Busy Operations} + \beta_{18}\ \textit{Post} \times \textit{Demand for Brand Standards} + \\
& \beta_{19}\ \textit{Post} \times \textit{Distance to Headquarters} + \beta_{20}\ \textit{Post} \times \textit{Market Divergence} + \\
& \beta_{21}\ \textit{Post} \times \textit{Store Manager Knows Team} + \beta_{22}\ \textit{Post} \times \textit{Repeat Customers} + \\
& \beta_{23}\ \textit{Post} \times \textit{Service-sensitive Customers} + \\
& \beta_{24}\ \textit{Treated} \times \textit{Post} \times \textit{Busy Operations} + \\
& \beta_{25}\ \textit{Treated} \times \textit{Post} \times \textit{Demand for Brand Standards} + \\
& \beta_{26}\ \textit{Treated} \times \textit{Post} \times \textit{Distance to Headquarters} + \\
& \beta_{27}\ \textit{Treated} \times \textit{Post} \times \textit{Market Divergence} + \\
& \beta_{28}\ \textit{Treated} \times \textit{Post} \times \textit{Store Manager Knows Team} + \\
& \beta_{29}\ \textit{Treated} \times \textit{Post} \times \textit{Repeat Customers} + \\
& \beta_{30}\ \textit{Treated} \times \textit{Post} \times \textit{Service-sensitive Customers} + \\
& \beta_m\ (\textit{Control Variables}) + \beta_n\ (\textit{Month-Year Fixed Effects}) + \\
& \beta_o\ (\textit{State Fixed Effects}) + \varepsilon \qquad (3)
\end{aligned}
$$

The variables and the statistical models used to analyze them are defined as they were for Equation (2). Our coefficients of interest in Equation (3) are β_{24} through β_{30}; that is, the triple interaction terms between *Treatment*, *Post*, and each moderating variable of interest.

4.2 Results

4.2.1 Effects of Centralized Hiring on Employee Departures

Table 3 presents the results of the hazard rate models used to assess the main effect of centralized hiring on employee departures, voluntary departures, and involuntary departures and reports both the hazard ratio and the coefficient for each variable. A hazard ratio greater than 1 (or a positive coefficient) indicates that the variable is associated with shorter time to employee turnover, whereas a hazard ratio less than 1 (or a negative coefficient) suggests the variable is associated with longer time to employee turnover. The hazard ratios (coefficients) on our interactions of *Treated* and *Post* are insignificant in Table 3, suggesting no main effect of centralized hiring on employee departures, whether voluntary or involuntary (Hypothesis 1).

Table 4 examines the effect of centralized hiring on employee departures, this time allowing for the possibility that there was an effect only after several employees had been hired under the new scheme. Our results suggest that centralized hiring did not decrease overall, voluntary, or involuntary departures at a store until at least 20 employees had been hired under the new scheme. For smaller stores, this was equivalent to replacing the entire store team. The results in Columns 7 and 8 of Table 4, Panel A suggest that the effect of centralized hiring on stores with 20 or more employees hired through the centralized regime was a statistically significant decrease of 24.9 percent in the rate of employee departures (chi-square = 2.7, p-value = 0.1).[9] Similarly, Panels B and C report that the effect of centralized hiring on stores with 20 or more employees hired through the centralized regime was a statistically significant decrease of 21.5 percent in the rate of voluntary

[9] We estimate the net effect of centralized hiring in stores with more than 20 employees hired under this scheme using the following calculation based on the coefficients in Column 8 of Table 4, Panel A: $e^{(0.138-0.425)}-1$.

departures (chi-square = 3.7, p-value = 0.05) and a statistically insignificant decrease of 42.5 percent in the rate of involuntary departures (chi-square = 0.8, p-value = 0.35).

Table 5 presents the results of Equation (3), as assessed by the employee departure measures. Our findings suggest that centralized hiring may reduce departures in various circumstances. We find statistically significant hazard ratios less than 1 (negative coefficients) on our interactions of *Treated* and *Post* with *Busy Operations (Hypothesis 3)* and, in the case of voluntary turnover, with *Demand for Brand Standards (*consistent with *Hypothesis 2a)*. These results suggest that centralized hiring improves employee retention in stores whose managers may not have enough time to put into hiring or whose customers value compliance with company standards. Notice that at the same time, the rate of involuntary departures unexpectedly increased after the implementation of centralized hiring in areas where customers demand company standards (perhaps because managers became more demanding as they felt they could rely on headquarters to send better replacements).

We also find factors that may favor decentralized over centralized hiring. We find a statistically significant hazard ratio greater than 1 (positive coefficient) on our interaction of *Treatment* and *Post* with *Service-sensitive Customers* (Hypothesis 5b) and, in the case of involuntary departures, with *Store Manage Knows Team* (Hypothesis 6). These results support the notion that a company may be better off delegating hiring rights to store managers serving demanding customers whom they know well, and to tenured managers who better understand their team's dynamics, who may resent losing the ability to build their teams on their own. However, contrary to expectations, centralized hiring is

associated with a decrease in the rate of voluntary departures in stores with tenured managers.

Finally, we find no significant results for our interactions of *Treated* and *Post* with our proxies for location (distance to headquarters and market divergence) and for repeat customers (rural, non-transient locations). Thus, our findings fail to support Hypotheses 2b, 4 and 5a.

In summary, our analyses suggest that the wisdom of centralizing versus decentralizing hiring rights depends on each store's circumstances. Allowing a store manager to select his or her team members seems most beneficial for stores serving more demanding customers. Yet, centralizing recruitment can reduce employee departures when stores are busier, and can reduce voluntary departures in stores whose customers demand service aligned with brand standards.

4.2.2 Effects of Centralized Hiring on Store Performance

Table 6 presents the results of the main effects of centralized hiring on logged monthly sales (OLS regression) and mystery shopper scores (tobit regression). The coefficients on our interactions of *Treated* and *Post* are insignificant in Table 6, suggesting no main effect of centralized hiring on store performance, measured as either monthly sales or monthly mystery shopper scores (Hypothesis 1).

Table 7 presents the results of Equation (3), as assessed by the store performance measures. We find a statistically significant positive coefficient on our interaction of *Treated* and *Post* with *Distance to Headquarters* (Hypothesis 2b) in the case of monthly sales, suggesting that for distant stores, headquarters may be better at hiring employees who are aligned with the company's goals and values and who are therefore better able to

drive store performance. We also find statistically significant negative coefficients on our interaction of *Treated* and *Post* with *Repeat Customers* (Hypothesis 5a) and with *Service-sensitive Customers* (Hypothesis 5b) for mystery shopper scores and monthly sales, respectively. These findings suggest that for stores whose managers are likely to invest heavily in building customer relationships, centralized hiring may undermine performance by failing to take advantage of the manager's informational advantage concerning the types of employee best suited to serve the store's customers.

We find no significant results for our interactions of *Treated* and *Post* with our proxies for store busyness, demand for brand standards, market divergence, and the manager's knowledge of the team. Our findings thus fail to support Hypotheses 2a, 3, 4, and 6.

V. CONCLUSIONS

For the many retail organizations that rely on their employees to provide superior customer service, employee selection is a critical management control mechanism. Recruiting employees who are naturally aligned with the organization's goals and values can foster both productivity and customer loyalty.

In this study, we examine whether a company's decision to centralize versus decentralize hiring can improve employee retention and store performance. Our results suggest that the effect of centralizing hiring rights is contingent on headquarters' ability to better select employees aligned with company values, on the busyness of a given store's operations, and on information asymmetries between headquarters and the stores. In contrast to prior studies, we find that information asymmetry does not always call for the decentralization of decision rights. In our study, centralizing hiring rights increased

employee turnover and decreased store performance in some circumstances where the information asymmetry pertained to service-sensitive customers or repeat customers.

We did, however, find that centralizing hiring rights reduced turnover for stores with busy operations and for stores whose customers demand consistent standards. It also boosted performance for stores farther from headquarters. These positive effects might suggest that centralized hiring enables headquarters to devote more resources to employee selection than the stores themselves can and that it leads to a more cohesive labor force that is better aligned with—and therefore more loyal to—the organization.

Our results, being based on a single retail company, should be interpreted with caution and may not be generalizable to all settings. However, working with one large, multi-unit organization allowed us to isolate the effects of centralized and decentralized hiring for two reasons. First, the company gradually transitioned to centralized hiring, naturally generating treatment and control samples. Second, using data from a single firm let us control for unobservable firm characteristics that might explain centralization or decentralization decisions across firms.

Appendix: Variable Definitions

Dependent variable:	
Time to Employee Departure	Number of days between the employee's hire date and exit date (censored on the final sample period exit date for employees who were still active when our sample period ends).
Time to Voluntary Departure	Number of days between the employee's hire date and the date when the employee voluntarily left the company (censored on either the date when an employee was fired or the final sample period exit date if the employee was still at the company at the end of our sample period).
Time to Involuntary Departure	Number of days between the employee's hire date and the date when the employee was fired (censored on either the date when an employee departed voluntarily or the final sample period exit date if the employee was still at the company at the end of our sample period).
Ln(Store Sales)	Natural logarithm of monthly store sales.
Mystery Shopper Score	Monthly mystery shopper score for the store taking values from 0 to 1. Higher scores represent higher compliance with company standards.
Variables of interest:	
Treated (Dummy)	Dummy equal to 1 if the hiring store switched from decentralized hiring to centralized hiring during the sample period.
Post (Dummy)	Dummy equal to 1 if the employee was hired in the period after all "treated stores" had made the switch from decentralized hiring to centralized hiring.
Busy Operations	Monthly store sales divided by monthly labor hours.
Demand for Brand Standards	Correlation between the stores' monthly sales and mystery shopper ratings over the sample period.
Distance to Headquarters	Distance from the hiring store to company headquarters in miles.
Market Divergence	Market-type divergence measured as the sum of the absolute values of normalized differences on each location characteristic (population, income, age, ethnicity, household size) between the hiring store and the average value of the location characteristic for the chain.
Store Manager Knows Team (Dummy)	Dummy equal to 1 if the store manager has been at the hiring store for at least 16 months.
Repeat Customers (Dummy)	Dummy equal to 1 if the hiring store is located in a Census block with a population of less than 1000 people per square mile and is not located within 2 miles of an Interstate Highway exit or U.S. Highway exit.
Service-sensitive Customers (Dummy)	Dummy equal to 1 if hiring store is located in a block group with average per capita income at or above the 90th percentile compared to other stores in the chain.

Appendix: Variable Definitions (Continuation)

Control variables:	
Unemployment Rate	Yearly unemployment rate for the block group in which the hiring store is located.
New Format Store (Dummy)	Dummy equal to 1 if the hiring store is a new format store at the end of our sample period.
Team Size	Number of month-end non-managerial employees working at the hiring store at the time of hire.
Promotion Opportunities	The percentage of employees hired in the same store's zip code area and year that were promoted during our sample period. This percentage excludes the employee analyzed in our hazard rate regressions.
% Full-time Employees	% of month-end non-managerial employees that are working full-time at the hiring store at the time of hire.
Size (Sqft)	Store size in square feet.
Store Age	Store age in months.
Competition	Number of direct competitors in the same zip code as the store

* Note that for the market divergence and high-income location variables, the relevant chain level characteristics were calculated using the chain's stores existing at the time our sample period begins.

REFERENCES

ABERNETHY, M. A., J. BOUWENS, AND L. VAN LENT. 2004. "Determinants of Control System Design in Divisionalized Firms." *The Accounting Review* 79 (3): 545-570.

ABERNETHY, M. A., H.C. DEKKER, AND A.K.D. SCHULZ. 2015. "Are Employee Selection and Incentive Contracting Complements or Substitutes?" *Journal of Accounting Research* (forthcoming).

AUSTIN, P. C. 2011. "Optimal Caliper Widths for Propensity-score Matching When Estimating Differences in Means and Differences in Proportions in Observational Studies." *Pharmaceutical Statistics* 10: 150-161.

BEER, MICHAEL. 2009. *High Commitment, High Performance. How to Build a Resilient Organization for Sustained Advantage.* San Francisco, CA: Jossey-Bass, John Wiley & Sons, Inc.

BRADACH, J. L. 1997. "Using the plural form in the management of restaurant chains." *Administrative Science Quarterly* 42(2): 276-303.

BRICKLEY, J. A. AND F. H. DARK. 1987. "The choice of Organizational Form. The Case of Franchising." *Journal of Financial Economics* 18: 401-420.

BUELL, R. W., D. CAMPBELL AND F. X. FREI. 2015. "How do Customers Respond to Increased Service Quality Competition?." Harvard Business School Working Paper.

CAMPBELL, D., S. M. DATAR, AND T. SANDINO. 2009. "Organizational Design and Control across Multiple Markets: The Case of Franchising in the Convenience Store Industry." *The Accounting Review* 84(6): 1749-1779.

CAMPBELL , D. 2012. "Employee Selection as a Control System." *Journal of Accounting Research* 50(4): 931-966.

CHATMAN, J. A. 1991. "Matching People and Organizations: Selection and Socialization in Public Accounting Firms." *Administrative Science Quarterly* 36: 459-484.

FLADMOE-LINDQUIST, K. AND L. L. JACQUE. 1995. "Control Modes in International Service Operations: The Propensity to Franchise." *Management Science* 41(7): 1238-1249.

HOFFMAN, M., L. B. KAHN, AND D. LI. 2015. "Discretion in Hiring." Harvard Business School Working Paper.

JOVANOVIC, B. 1979. "Job Matching and the Theory of Turnover." *Journal of Political Economy* 87(5), 972-990.

MARTIN, R. E. 1988. "Franchising and Risk Management." *The American Economic Review* 78 (5): 954-968.

MERCHANT, K. A, AND W. A. VAN DER STEDE. 2007. *Management Control Systems. Performance Measurement, Evaluation and Incentives*, Second Edition. Essex, England: Prentice Hall.

OUCHI, W.G. 1979. "A Conceptual Framework for the Design of Organizational Control Mechanisms." *Management Science* 25 (9): 833-848.

PFEFFER, JEFFREY. 1998. *The Human Equation. Building Profits by Putting People First.* Boston, Massachusetts: Harvard Business School Press.

PRENDERGAST, C. 1999. "The Provision of Incentives in Firms." *Journal of Economic Literature* 37: 7-63.

SUTTON, JOHN. 1986. "Vertical Product Differentiation: Some Basic Themes." *American Economic Review* 76 (2): 393–98.

VAN DEN STEEN, E. 2010a. "Culture Clash: The Costs and Benefits of Homogeneity. *Management Science* 56 (10): 1718-1738.

VAN DEN STEEN, E. 2010b. "On the Origin of Shared Beliefs (and Corporate Culture)." *RAND Journal of Economics* 41 (4): 617-648.

Table 1: Propensity Score Matching –
Probability of Treated (Centralized Hiring)

	Pr(Treated)	
	(1)	(2)
Variables	Coefficients	Z-Statistic
Intercept	-5.172***	(-4.75)
Busy Operations	0.002	(0.37)
Demand for Brand Standards	0.154	(0.29)
Distance to Headquarters (HQ)	0.056***	(7.41)
Market Divergence	0.09*	(1.75)
Store Manager Knows Team (Dummy)	0.371	(1.44)
Repeat Customers	-0.012	(-0.05)
Service-sensitive Customers (Dummy)	-0.014	(-0.06)
Unemployment Rate	-0.001	(-0.03)
New Format Store (Dummy)	0.298	(0.97)
Team Size	-0.138**	(-2.28)
Monthly Store Sales	0.000	(0.80)
Promotion Opportunities	1.719*	(2.57)
% Full-time Employees	-1.443*	(-1.74)
Size (Sqft)	0	(0.11)
Store Age	-0.001	(-1.59)
State Fixed Effects	Yes	Yes
Pseudo R-Squared (N)	0.389	273

*, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. Variables are defined in the appendix.

Table 2: Covariate Balance at Beginning of Sample Period – Control and Treatment Stores

Variables	(1) Mean - Control	(2) Mean - Treatment	(3) Difference in Means	(4) T-Test
Busy Operations	101.88	103.65	-1.77	-0.32
Demand for Brand Standards	-0.08	-0.08	-0.001	-0.02
Distance to HQ	40.15	39.23	0.92	0.17
Market Divergence	3.58	3.33	0.25	0.53
Store Manager Knows Team (Dummy)	0.80	0.78	0.02	0.24
Repeat Customers (Dummy)	0.24	0.20	0.04	0.48
Service-sensitive Customers (Dummy)	0.37	0.27	0.10	1.10
Unemployment Rate	8.16	8.15	0.004	0.004
New Format Store (Dummy)	0.43	0.35	0.08	0.82
Team Size	9.73	9.45	0.29	0.54
Promotion Opportunities	0.10	0.11	-0.01	-0.29
% Full-time Employees	0.25	0.30	-0.05	-1.57
Size (Sqft)	2862	2867	-5	-0.03
Store Age (Months)	351.4	367.7	-16.3	-0.57
Annual Employee Turnover	72.9	56.7	16.2	1.77*
Monthly Store Sales (in $000s)	135.1	138.6	-3.5	-0.33
	% Control Stores	% Treatment Stores	Difference in Percentages	Chi-Square
State 1	22%	18%	4%	0.74
State 2	63%	61%	2%	
State 3	14%	20%	-6%	

*, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. Variables are defined in the appendix.

Table 3: Hazard Ratios and Coefficients of Cox's Proportional Hazards Model Showing the Effect of Treated (Centralized Hiring) on Time to Employee Departures

	Time to Employee Departure		Time to Voluntary Departure		Time to Involuntary Departure	
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients
Treated (Dummy)	1.029	0.029	1.048	0.046	0.958	-0.043
	(0.414)	(0.414)	(0.426)	(0.426)	(-0.182)	(-0.182)
Treated x Post (Dummy)	1.124	0.117	1.050	0.049	1.364	0.311
	(1.208)	(1.208)	(0.383)	(0.383)	(1.217)	(1.217)
Busy Operations	1.001	0.001	1.001	0.001	1.000	-0.000
	(0.250)	(0.250)	(0.362)	(0.362)	(-0.112)	(-0.112)
Demand for Brand	1.265*	0.235*	1.445***	0.368***	0.916	-0.088
Standards	(1.770)	(1.770)	(2.617)	(2.617)	(-0.242)	(-0.242)
Distance to HQ	0.995	-0.005	0.995	-0.005	0.997	-0.003
	(-1.266)	(-1.266)	(-1.474)	(-1.474)	(-0.290)	(-0.290)
Market Divergence	1.013	0.013	0.994	-0.006	1.060*	0.058*
	(1.090)	(1.090)	(-0.342)	(-0.342)	(1.728)	(1.728)
Store Manager Knows Team	0.948	-0.054	0.945	-0.057	0.956	-0.045
(Dummy)	(-0.841)	(-0.841)	(-0.754)	(-0.754)	(-0.263)	(-0.263)
Repeat Customers (Dummy)	0.970	-0.030	0.926	-0.077	1.111	0.106
	(-0.392)	(-0.392)	(-0.804)	(-0.804)	(0.552)	(0.552)
Service-sensitive Customers	1.028	0.027	1.014	0.014	1.066	0.064
(Dummy)	(0.320)	(0.320)	(0.108)	(0.108)	(0.352)	(0.352)
Unemployment Rate	1.002	0.002	0.997	-0.003	1.013	0.013
	(0.315)	(0.315)	(-0.382)	(-0.382)	(0.785)	(0.785)
New Format Store (Dummy)	0.984	-0.017	1.047	0.046	0.838	-0.176
	(-0.152)	(-0.152)	(0.455)	(0.455)	(-0.705)	(-0.705)
Team Size	0.983	-0.017	0.992	-0.008	0.959	-0.041
	(-1.402)	(-1.402)	(-0.608)	(-0.608)	(-1.418)	(-1.418)
Promotion Opportunities	1.255	0.227	1.589	0.463	0.689	-0.373
	(0.440)	(0.440)	(0.967)	(0.967)	(-0.414)	(-0.414)
% Full-time Employees	0.805	-0.217	0.565**	-0.570**	2.013	0.700
	(-0.878)	(-0.878)	(-1.997)	(-1.997)	(1.204)	(1.204)
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,497	1,497	1,497	1,497	1,497	1,497

Note: z-statistics based on robust standard errors adjusted for area sales manager region clusters in parentheses. *, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. Variables are defined in the appendix.

Table 4: Hazard Ratios and Coefficients of Cox's Proportional Hazards Model Showing the Effect of Treated (Centralized Hiring) on Time to Employee Departures Contingent on # of Employees Hired Centrally

Panel A	Dependent Variable: Time to Employee Departure							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables[a]	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients
Treated (Dummy)	1.029	0.029	1.031	0.030	1.032	0.032	1.038	0.038
	(0.400)	(0.400)	(0.431)	(0.431)	(0.452)	(0.452)	(0.535)	(0.535)
Treated x Post	1.110	0.104	1.148	0.138	1.141	0.132	1.148	0.138
(Dummy)	(0.770)	(0.770)	(1.549)	(1.549)	(1.545)	(1.545)	(1.519)	(1.519)
Treated x Post 5 pct	1.020	0.020						
	(0.095)	(0.095)						
Treated x Post 10 pct			0.941	-0.061				
			(-0.441)	(-0.441)				
Treated x Post 15 pct					0.897	-0.109		
					(-0.776)	(-0.776)		
Treated x Post 20 pct							0.654***	-0.425***
							(-3.800)	(-3.800)
Store Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,497	1,497	1,497	1,497	1,497	1,497	1,497	1,497

Panel B	Dependent Variable: Time to Voluntary Departure							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables[a]	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients
Treated (Dummy)	1.047	0.046	1.049	0.048	1.049	0.048	1.054	0.053
	(0.420)	(0.420)	(0.444)	(0.444)	(0.441)	(0.441)	(0.496)	(0.496)
Treated x Post	1.038	0.037	1.071	0.068	1.057	0.056	1.069	0.066
(Dummy)	(0.218)	(0.218)	(0.471)	(0.471)	(0.452)	(0.452)	(0.526)	(0.526)
Treated x Post 5 pct	1.019	0.019						
	(0.085)	(0.085)						
Treated x Post 10 pct			0.946	-0.055				
			(-0.381)	(-0.381)				
Treated x Post 15 pct					0.954	-0.047		
					(-0.337)	(-0.337)		
Treated x Post 20 pct							0.735***	-0.308***
							(-3.636)	(-3.636)
Store Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,497	1,497	1,497	1,497	1,497	1,497	1,497	1,497

Panel C	Dependent Variable: Time to Involuntary Departure							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables[a]	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients
Treated (Dummy)	0.957	-0.044	0.960	-0.041	0.966	-0.035	0.972	-0.028
	(-0.183)	(-0.183)	(-0.169)	(-0.169)	(-0.143)	(-0.143)	(-0.116)	(-0.116)
Treated x Post	1.341	0.293	1.395	0.333	1.410	0.344	1.407	0.342
(Dummy)	(0.930)	(0.930)	(1.307)	(1.307)	(1.380)	(1.380)	(1.356)	(1.356)
Treated x Post 5 pct	1.029	0.029						
	(0.080)	(0.080)						
Treated x Post 10 pct			0.929	-0.074				
			(-0.210)	(-0.210)				
Treated x Post 15 pct					0.743	-0.297		
					(-1.103)	(-1.103)		
Treated x Post 20 pct							0.409*	-0.895*
Store Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,497	1,497	1,497	1,497	1,497	1,497	1,497	1,497

Note: z-statistics based on robust standard errors adjusted for area sales manager region clusters in parentheses.
*, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. Variables are defined in the appendix.
[a] The notation # pct means that at least a "#" number of employees had been hired for the store under the centralized regime.

Table 5: Hazard Ratios and Coefficients of Cox's Proportional Hazards Model Showing the Effect of Treated (Centralized Hiring) and Moderators on Time to Employee Turnover

		Time to Employee Departure		Time to Voluntary Departure		Time to Involuntary Departure	
		(1)	(2)	(3)	(4)	(5)	(6)
Variables	Coef. Pred.	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients	Hazard Ratio	Coefficients
Treated (Dummy)		1.915**	0.650**	1.529	0.425	2.460	0.900
		(2.021)	(2.021)	(0.841)	(0.841)	(1.371)	(1.371)
Treated x Post (Dummy)	?	3.236***	1.174***	5.688***	1.738***	0.902	-0.103
		(2.798)	(2.798)	(2.588)	(2.588)	(-0.113)	(-0.113)
Busy Operations		1.005	0.005	1.008*	0.008*	0.995	-0.005
		(1.480)	(1.480)	(1.893)	(1.893)	(-1.455)	(-1.455)
Demand for Brand Standards		1.620**	0.483**	1.214	0.194	4.369**	1.475**
		(2.139)	(2.139)	(0.569)	(0.569)	(2.202)	(2.202)
Distance to HQ		0.999	-0.001	0.995	-0.005	1.009	0.009
		(-0.531)	(-0.531)	(-1.303)	(-1.303)	(1.143)	(1.143)
Market Divergence		1.051	0.050	1.028	0.028	1.110**	0.105**
		(1.555)	(1.555)	(0.986)	(0.986)	(1.964)	(1.964)
Store Manager Knows Team		0.925	-0.078	0.863	-0.148	1.120	0.113
(Dummy)		(-0.745)	(-0.745)	(-1.439)	(-1.439)	(0.285)	(0.285)
Repeat Customers (Dummy)		0.884	-0.124	1.036	0.036	0.533	-0.630
		(-0.775)	(-0.775)	(0.267)	(0.267)	(-1.632)	(-1.632)
Service-sensitive Customers		1.091	0.087	1.040	0.039	1.212	0.192
(Dummy)		(0.864)	(0.864)	(0.266)	(0.266)	(0.723)	(0.723)
Treated x Busy Operations		0.996	-0.004	0.997	-0.003	0.998	-0.002
		(-0.951)	(-0.951)	(-0.595)	(-0.595)	(-0.309)	(-0.309)
Treated x Demand for Brand		0.789	-0.237	2.341*	0.851*	0.051***	-2.986***
Standards		(-0.477)	(-0.477)	(1.710)	(1.710)	(-2.812)	(-2.812)
Treated x Distance to HQ		0.994**	-0.006**	0.994	-0.006	0.993	-0.007
		(-2.152)	(-2.152)	(-1.316)	(-1.316)	(-0.981)	(-0.981)
Treated x Market Divergence		0.962	-0.039	0.986	-0.014	0.899	-0.107
		(-1.355)	(-1.355)	(-0.548)	(-0.548)	(-1.530)	(-1.530)
Treated x Store Manager		1.259	0.230	1.521***	0.419***	0.786	-0.241
Knows Team		(1.220)	(1.220)	(2.584)	(2.584)	(-0.419)	(-0.419)
Treated x Repeat Customers		1.457*	0.376*	1.360	0.308	2.070	0.728
		(1.829)	(1.829)	(1.637)	(1.637)	(1.211)	(1.211)
Treated x Service-sensitive		0.639***	-0.447***	0.671**	-0.399**	0.625	-0.470
Customers		(-2.957)	(-2.957)	(-2.143)	(-2.143)	(-1.015)	(-1.015)
Post x Busy Operations		1.004	0.004	1.001	0.001	1.017***	0.017***
		(1.044)	(1.044)	(0.202)	(0.202)	(2.665)	(2.665)
Post x Demand for Brand Standards		0.917	-0.087	1.432	0.359	0.241	-1.425
		(-0.166)	(-0.166)	(0.629)	(0.629)	(-1.584)	(-1.584)
Post x Distance to HQ		0.995**	-0.005**	1.003	0.003	0.968***	-0.032***
		(-1.974)	(-1.974)	(1.249)	(1.249)	(-4.497)	(-4.497)
Post x Market Divergence		0.927	-0.076	0.894	-0.112	0.969	-0.032
		(-1.120)	(-1.120)	(-1.465)	(-1.465)	(-0.378)	(-0.378)
Post x Store Manager Knows		0.922	-0.081	1.104	0.099	0.551*	-0.596*

Team		(-0.480)	(-0.480)	(0.687)	(0.687)	(-1.689)	(-1.689)
Post x Repeat Customers		1.036	0.035	0.872	-0.137	1.545	0.435
		(0.164)	(0.164)	(-0.567)	(-0.567)	(0.966)	(0.966)
Post x Service-sensitive		0.999	-0.001	1.140	0.131	0.691	-0.370
Customers		(-0.007)	(-0.007)	(1.088)	(1.088)	(-0.756)	(-0.756)
Treated x Post x Busy	-	0.989**	-0.011**	0.987*	-0.013*	0.989*	-0.011*
Operations		(-1.822)	(-1.822)	(-1.494)	(-1.494)	(-1.447)	(-1.447)
Treated x Post x	-	0.808	-0.213	0.287**	-1.249**	12.749§	2.545§
Demand for Brand Standards		(-0.348)	(-0.348)	(-1.910)	(-1.910)	(1.647)	(1.647)
Treated x Post x Distance to HQ	-	1.005	0.005	1.005	0.004	1.013	0.013
		(1.391)	(1.391)	(0.773)	(0.773)	(1.128)	(1.128)
Treated x Post x Market	?	0.962	-0.039	0.996	-0.004	0.916	-0.088
Divergence		(-0.438)	(-0.438)	(-0.040)	(-0.040)	(-0.602)	(-0.602)
Treated x Post x	+	0.805	-0.217	0.504§	-0.685§	2.759*	1.015*
Store Manager Knows Team		(-0.685)	(-0.685)	(-2.372)	(-2.372)	(1.577)	(1.577)
Treated x Post x Repeat	+	0.833	-0.183	0.604	-0.503	1.687	0.523
Customers		(-0.509)	(-0.509)	(-1.418)	(-1.418)	(0.600)	(0.600)
Treated x Post x Service-	+	1.810**	0.594**	1.342*	0.294*	3.719**	1.313**
Sensitive Customers		(2.513)	(2.513)	(1.444)	(1.444)	(1.702)	(1.702)
Unemployment Rate		1.000	0.000	0.998	-0.002	1.011	0.011
		(0.077)	(0.077)	(-0.349)	(-0.349)	(0.684)	(0.684)
New Format Store (Dummy)		0.955	-0.046	0.995	-0.005	0.855	-0.156
		(-0.291)	(-0.291)	(-0.034)	(-0.034)	(-0.578)	(-0.578)
Team Size		0.985	-0.015	1.001	0.001	0.951*	-0.051*
		(-0.997)	(-0.997)	(0.032)	(0.032)	(-1.880)	(-1.880)
Promotion Opportunities		1.532	0.427	2.058	0.722	0.781	-0.247
		(0.897)	(0.897)	(1.518)	(1.518)	(-0.338)	(-0.338)
% Full-time Employees		1.001	0.001	0.742	-0.298	2.402	0.876
		(0.004)	(0.004)	(-1.048)	(-1.048)	(1.548)	(1.548)
Time Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,497	1,497	1,497	1,497	1,497	1,497

Note: z-statistics based on robust standard errors adjusted for area sales manager region clusters in parentheses. *, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively (one-tailed for directional predictions and two-tailed otherwise). § denotes two-tailed significance at a 0.10 contrary to expectations for directional predictions. Variables are defined in the appendix.

Table 6: Difference in Differences Analysis Showing the Effect of Treated (Centralized Hiring) on Store Performance

	OLS	Tobit
	(1)	(2)
Variables	Ln(Monthly Sales)	Mystery Shopper Scores
Constant	9.813***	1.014***
	(134.858)	(27.831)
Treated (Dummy)	-0.015	-0.002
	(-1.048)	(-0.318)
Treated x Post (Dummy)	-0.024	-0.005
	(-1.703)	(-0.438)
Busy Operations	0.011***	-0.000*
	(24.386)	(-1.651)
Demand for Brand Standards	0.099**	-0.034**
	(2.099)	(-2.189)
Distance to HQ	0.002**	0.000
	(2.516)	(1.490)
Market Divergence	0.010***	0.001
	(3.072)	(0.862)
Store Manager Knows Team (Dummy)	-0.001	0.002
	(-0.117)	(0.263)
Repeat Customers (Dummy)	0.007	0.017***
	(0.530)	(3.446)
Service-sensitive Customers (Dummy)	-0.055**	-0.020**
	(-2.740)	(-2.291)
New Format Store (Dummy)	0.147***	-0.001
	(7.241)	(-0.086)
Team Size	0.047***	-0.001
	(18.412)	(-1.005)
% Full-time Employees	0.359***	0.009
	(12.952)	(0.418)
Store Age	-0.000	0.000
	(-1.072)	(1.130)
Size (Sqft)	0.000***	-0.000
	(4.097)	(-0.603)
Competition	0.002**	-0.001***
	(2.297)	(-2.841)
Time Fixed Effects	Yes	Yes
State Fixed Effects	Yes	Yes
R-squared	0.930	
Sigma		0.107***
		(25.137)
Observations	2,537	2,483

Note: t-statistics based on robust standard errors adjusted for area sales manager region clusters in parentheses. *, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. Variables are defined in the appendix.

Table 7: Difference in Differences Analysis Showing the Effect of Treated (Centralized Hiring) and Moderators on Store Performance

Variables	Pred.	OLS (1) Ln(Monthly Sales)	Tobit (3) Mystery Shopper
Constant		9.864***	0.983***
		(167.512)	(24.476)
Treated (Dummy)		-0.202**	0.020
		(-2.698)	(0.439)
Treated x Post (Dummy)		0.024	0.003
		(0.448)	(0.059)
Busy Operations		0.011***	-0.000
		(20.790)	(-1.334)
Demand for Brand Standards		0.209***	-0.062*
		(5.040)	(-1.892)
Distance to HQ		0.003***	0.001**
		(4.075)	(2.439)
Market Divergence		0.008*	-0.000
		(2.017)	(-0.235)
Store Manager Knows Team (Dummy)		-0.042*	0.015**
		(-2.006)	(2.465)
Repeat Customers (Dummy)		-0.023	0.001
		(-1.512)	(0.094)
Service-sensitive Customers (Dummy)		-0.069***	-0.001
		(-5.080)	(-0.047)
Treated x Busy Operations		0.001*	-0.000
		(1.904)	(-0.157)
Treated x Demand for Brand Standards		-0.159**	0.073
		(-2.419)	(1.362)
Treated x Distance to HQ		-0.002***	0.000
		(-4.354)	(1.176)
Treated x Market Divergence		0.008	-0.001
		(1.321)	(-0.366)
Treated x Store Manager Knows Team		0.046**	-0.018
		(2.139)	(-1.345)
Treated x Repeat Customers		0.043	0.042**
		(1.170)	(2.368)
Treated x Service-sensitive Customers		0.034	-0.044**
		(1.129)	(-2.033)
Post x Busy Operations		-0.001**	0.000
		(-2.416)	(0.313)
Post x Demand for Brand Standards		-0.006	0.023
		(-0.131)	(0.567)
Post x Distance to HQ		-0.001**	-0.001***
		(-2.257)	(-2.584)
Post x Market Divergence		0.010**	0.003
		(2.077)	(0.852)
Post x Store Manager Knows Team		0.031	-0.000
		(1.359)	(-0.025)

Post x Repeat Customers		0.022	0.012
		(1.457)	(1.078)
Post x Service-sensitive Customers		0.014	-0.010
		(1.347)	(-1.306)
Treated x Post x Busy Operations	+	0.000	0.000
		(0.557)	(0.065)
Treated x Post x Demand for Brand Standards	+	-0.045	-0.071
		(-0.626)	(-1.105)
Treated x Post x Distance to HQ	+	0.001**	-0.000
		(1.792)	(-0.083)
Treated x Post x Market Divergence	?	-0.018	-0.001
		(-1.620)	(-0.168)
Treated x Post x Store Manager Knows Team	-	-0.014	-0.018
		(-0.507)	(-0.964)
Treated x Post x Repeat Customers	-	0.013	-0.041**
		(0.359)	(-1.686)
Treated x Post x Service- Sensitive Customers	-	-0.076**	0.033
		(-1.921)	(1.543)
New Format Store (Dummy)		0.148***	-0.005
		(11.455)	(-0.448)
Team Size		0.045***	-0.001
		(20.172)	(-0.680)
% Full-time Employees		0.322***	0.012
		(12.169)	(0.595)
Store Age		-0.000**	0.000
		(-2.198)	(1.358)
Size (Sqft)		0.000***	-0.000
		(5.841)	(-0.512)
Competition		0.002**	-0.001**
		(2.761)	(-2.442)
Time Fixed Effects		Yes	Yes
State Fixed Effects		Yes	Yes
R-squared		0.940	
Sigma			0.106***
			(25.597)
Observations		2,537	2,483

Note: t-statistics based on robust standard errors adjusted for area sales manager region clusters in parentheses. *, **, *** denote significance at a 0.10, a 0.05 and a 0.01 level respectively (one-tailed for directional predictions and two-tailed otherwise). § denotes two-tailed significance at a 0.10 contrary to expectations for directional predictions. Variables are defined in the appendix.