

NBER WORKING PAPER SERIES

OWNERSHIP, AGENCY AND WAGES:  
AN EXAMINATION OF FRANCHISING IN THE FAST FOOD INDUSTRY

Alan B. Krueger

Working Paper No. 3334

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
April 1990

I thank David Bloom, Charlie Brown, Richard Caves, Richard Freeman, Bob Gibbons, Zvi Griliches, Larry Katz, John Pencavel, Andrei Shleifer, Bob Smith, Larry Summers, two referees, and seminar participants at the NBER, Harvard, MIT, Yale, the University of Maryland, Berkeley, Stanford, UCLA, UCSD, Princeton, the University of Rochester, and the University of Pennsylvania for helpful comments. I am also grateful to the National Institute for Work and Learning and the Bureau of National Affairs for providing me their data sets. This paper is part of NBER's research program in Labor Studies. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

NBER Working Paper #3334  
April 1990

OWNERSHIP, AGENCY AND WAGES:  
AN EXAMINATION OF FRANCHISING IN THE FAST FOOD INDUSTRY

ABSTRACT

This paper estimates the difference in compensation between company-owned and franchisee-owned fast food restaurants. The contrast is of interest because contractual arrangements give managers of company-owned outlets less of an incentive to monitor and supervise employees. Estimates based on two data sets suggest that employee compensation is slightly greater at company-owned outlets than franchisee-owned outlets. The earnings gap is 9 percent for assistant and shift managers and 2 percent for full-time crew workers. Furthermore, the tenure-earnings profile is steeper at company-owned restaurants. These findings suggest that monitoring difficulties influence the timing and generosity of compensation.

Alan B. Krueger  
NBER  
1050 Massachusetts Avenue  
Cambridge, MA 02138

A topic of controversy among economists in recent years has been whether firms adjust the level and timing of compensation to solve incentive problems. Becker and Stigler [1974], Lazear [1981], and others have argued that firms initially pay wages below the workers' alternative wage and later pay wages above the alternative wage to discourage shirking when monitoring is imperfect. Such a delayed-payment/bonding contract is efficient because it does not alter the present value of compensation from the first-best, full-information level. If legal or other constraints (e.g., the minimum wage) restrict up-front bonds, however, a related literature predicts that firms will pay efficiency wages.<sup>1</sup> An efficiency wage payment differs from a delayed-payment/bonding contract in that firms raise the present value of compensation to increase the cost of job loss and thereby discourage shirking, although compensation may also be backloaded in the efficiency wage model. Whether firms overcome monitoring deficiencies by having workers post implicit bonds or by paying efficiency wages -- or whether imperfect monitoring and shirking are indeed concerns of many firms -- are questions that can only be resolved empirically.

Unfortunately, little empirical work exists exploring how firms respond to imperfect monitoring and agency problems.<sup>2</sup> This paper examines the labor market in the fast food industry to estimate the effect of agency problems on the structure of compensation. The institutional features of the fast food industry provide unique conditions for studying wage determination. The fast food industry is competitive, homogeneous, and nonunion. But most importantly, the fact that some restaurant outlets are owned and operated by the parent company, while others are owned and operated by individual franchisees generates variability in organizational structure which allows for a test of theories of wage determination.

It is argued that existing contractual arrangements give managers of

company-owned restaurants different incentives from franchisees who typically own and manage their own restaurants. An owner/manager of a franchise has a strong incentive to expend effort supervising and monitoring his workers because he receives the residual profit generated by the enterprise, whereas a manager of a company-owned establishment is usually not paid a share of the establishment's profit and his actions are not perfectly observed by his principal, the parent company. As Caves and Murphy [1975, p. 575] and others have noted, the latter contractual arrangement poses a classic principal-agent problem that is likely to reduce the level of supervision and monitoring in company-owned units vis-a-vis franchised units. Some casual evidence is presented in the next section supporting the maintained assumption that principal-agent problems create monitoring and supervision difficulties in company-owned outlets.

Under the assumption that monitoring is less rigorous at company-owned outlets than franchisee-owned outlets, the delayed-compensation model would predict that the tenure-earnings profile of workers is steeper at company-owned outlets, but total discounted compensation is equal under either form of ownership. The efficiency wage model, on the other hand, would predict that both the slope of the tenure-earnings profile and the present value of compensation are greater at company-owned outlets. Finally, the standard neoclassical model would predict no difference in the timing or level of compensation at company-owned and franchised outlets because employee effort is assumed to be exogenously determined. Two newly available cross-sectional data sets are used to test these predictions.

The main empirical finding is that low-level managers earn 9 percent higher wages at company-owned outlets than franchised outlets, whereas crew

workers earn 1 to 2 percent more at company-owned outlets. Moreover, the earnings differences result almost entirely from comparatively steeper tenure-earnings profiles at company-owned outlets. In summary, it seems that starting pay is about the same at company-owned and franchised restaurants, but pay grows more rapidly at company-owned restaurants. These findings support a conclusion that -- especially for low-level managers -- a combination of high wages and delayed compensation are used to elicit effort from employees in establishments where monitoring is more difficult.

An alternative interpretation of these results is that they stem from another agency problem: Namely, the lack of incentive for company-owned outlets to minimize costs. If managers receive added utility by paying high wages (e.g., through reduced grievances), one would expect to find higher wage rates at company-owned outlets since there is a tenuous link between a hired managers' compensation and the profitability of his restaurant. In other words, company-outlet managers do not bear the full cost of sharing profits with workers. However, the fact that wages for employees of company-owned outlets are established by district managers rather than outlet managers may reduce the plausibility of the "expense-preference" model in this context.

The remainder of the paper is organized as follows. Section I discusses the institutional features of the fast food industry, emphasizing explanations for franchising. Section II discusses implications of implicit bonds and efficiency wage models for wages in the fast food industry. Section III describes two cross-sectional data sets that form the basis for the empirical analysis. Section IV presents estimates of the determinants of wages in the fast food industry. Section V presents estimates of the differential in fringe benefits between company-owned and franchised restaurants.

## I. Franchising in the Fast Food Industry

In a typical franchise agreement, the franchisor (parent company) grants the franchisee permission to operate a standardized restaurant with a specified technology and widely recognized trademark in exchange for a fixed fee and a monthly royalty on gross sales (typically 8 percent). In some cases the franchisee is also required to post an explicit performance bond. The franchisee must maintain a minimum level of quality and must purchase inputs and equipment directly from the franchisor or from an approved supplier. The total start-up cost of a franchised restaurant in a major chain is normally between \$400,000 and \$600,000.

The franchise agreement typically requires a commitment by the franchisee to play an active role in the day-to-day operation, management and supervision of the restaurant. Burger King, for instance, requires an "on-premises" operating owner, while McDonald's, Wendy's and Kentucky Fried Chicken do not permit "absentee" franchisees, and McDonald's will not sell a franchise to a partnership.<sup>3</sup> Franchisees usually choose their restaurant site, but the franchisor retains the right to veto certain locations. Most franchise contracts expire after a period of twenty years. When the franchise contract expires, the parent company may renew the contract, sell the franchise to another franchisee, or operate the restaurant itself.

In addition to granting franchise outlets to individual entrepreneurs, franchisors often own and operate several establishments. These so called company-owned units adhere to the same quality standards established for franchisee-owned units. About 30 percent of fast food restaurants in the franchise system are company-owned, but this fraction varies considerably across firms. For instance, 12 percent of Arby's restaurants, 15 percent of

Burger King restaurants, 18 percent of Kentucky Fried Chicken restaurants, 25 percent of McDonald's restaurants, and 35 percent of Wendy's restaurants are company-owned.

A. Agency Problems

Agency problems are likely to arise in company-owned outlets because the parent company cannot perfectly observe the hired manager's actions and information set (see Ross [1973] and Jensen and Meckling [1976]). The long-standing practice in the industry has been to pay managers of company-owned restaurants a fixed salary that does not directly depend on their performance or their restaurant's profitability. Although rapid growth in the fast food industry and accompanying opportunities for promotion may have provided an incentive for company-owned outlet managers to provide effort in the past, reports of the recent glut of fast food restaurants suggest that managers currently have limited opportunity for upward mobility within fast food chains (see Business Week [1986] and Emerson [1979]).<sup>4</sup>

Franchisees have different incentives from company-outlet managers. Franchisees receive the residual profit generated by their establishment. The effort franchisees expend managing their restaurant is reflected in their profit. Consequently, it is reasonable to expect that franchisees work longer hours and provide more effort than managers of company-owned outlets.<sup>5</sup> This aspect of franchising has been emphasized in much of the relevant Industrial Organization literature (for examples, see Caves and Murphy [1975], Rubin [1978] and Norton [1988]).

The following statement by Fred Turner, President and CEO of McDonald's, suggests that the corporate leaders of the fast food industry recognize that the different incentives that managers and franchisees face lead to a greater

outlay of managerial effort at franchised restaurants.

Running a McDonald's is a three-hundred-sixty-three-days-a-year business and an owner-operator, with his personal interests and incentives, can inherently do a better job than a chain manager. (Quoted in J. Love, pp. 292-293.)

The discussion so far has assumed that each franchisee personally manages his or her establishment. Although the restaurant chains try to select franchisees who will actively and directly manage their restaurants, in some cases franchisees own more than one restaurant. Ownership of multiple restaurants will introduce agency problems in franchised outlets since these franchisees must hire managers to help run their establishments. Unfortunately, I do not observe the number of outlets owned by franchisees in either of my data sets. As a result, possible ownership of multiple restaurants by individual franchisees will attenuate differences between company-owned and franchised restaurants.

It should also be noted that franchisors have an incentive to locate company-owned outlets in areas where the cost of monitoring managers is low to reduce agency problems (Rubin [1978]). Consistent with this view, evidence suggests that company-owned restaurants are more likely to be located near headquarters and in urban areas (Brickley and Dark [1986]). Such strategic choice over the location of restaurants also reduces the differential in monitoring between company-owned and franchised outlets. Furthermore, since geographic factors have been found to influence labor market outcomes, it is important to control for city size, population density, and geographic location in the empirical analysis that follows.

There is some empirical support for the maintained hypothesis that



employees are less closely monitored and supervised in company-owned restaurants than in franchisee-owned restaurants. Table 1 summarizes the results of a survey of fast food employees regarding their assessments of supervision at company-owned and franchised restaurants.<sup>6</sup> Forty-five percent of employees of franchised restaurants strongly agree that the manager of their restaurant provides adequate supervision to workers, whereas only 33 percent of company-owned restaurant employees strongly agree with the same statement. Furthermore, the table shows that the same pattern of self-reported lower supervision in company-owned establishments is evident when employees are questioned about their assistant manager and supervisor. From these tabulations it is clear that fast food workers report that they receive less supervision in company-owned outlets than in franchisee-owned outlets.<sup>7</sup>

In addition to the subjective opinions of employees, profit data are consistent with the view that there are substantial agency costs connected to company-ownership. For instance, Shelton [1967] examines the profitability of 22 restaurants which experienced a shift from franchisee-ownership to company-ownership, or vice versa. In 19 of the 22 cases, the restaurant was less profitable under company ownership than franchisee ownership. On average, the profit margin under franchisee ownership was 9.5 percent and under company management was only 1.8 percent. Because restaurant location and capital remain unchanged during a change in ownership, this finding suggests that agency costs substantially influence the performance of company-owned restaurants.

#### B. Interior Solution

Franchisors are clearly at an interior solution where some units are company-owned and others are franchisee-owned. Although most analyses of

Table I  
Supervision in Company-Owned and Franchised Restaurants

	<u>Proportion of employees agreeing<sup>a</sup></u>	
	Company-owned	Franchisee-owned
Manager provides adequate supervision to workers	0.326 (0.010)	0.452 (0.014)
Assistant manager provides adequate supervision to workers	0.332 (0.010)	0.405 (0.013)
Supervisor provides adequate supervision to workers	0.360 (0.011)	0.468 (0.014)
Sample size	2,043	1,346

a. Figures represent the proportion of workers who strongly agree with each statement. Standard errors are shown in parentheses.

b. Data set is the National Institute of Work and Learning's survey of fast food employees. The data set is described in Section II. Tabulations were made by the author.

franchising emphasize the agency costs associated with company-ownership, there are several potential costs to franchising and possible benefits to company-ownership that lead to the contemporaneous existence of both forms of ownership within the same franchise chain. Because the forces that generate this interior solution potentially have implications for the empirical analysis they are considered below.

First, franchisees may be forced to bear inefficient risk. If a franchisee has a substantial proportion of his wealth and income tied to the performance of a particular restaurant, his investment portfolio may be insufficiently diversified (Brickley and Dark [1986]). Furthermore, the franchise contract often places limits on the franchisee's ability to diversify risks (e.g., no partnerships). Inefficient risk bearing can lead to franchisees to have a higher required rates of return on their investment, and thus reduce the franchisor's profit.

Second, a potential disadvantage of franchising is free-riding by franchisees (Rubin [1978] and Mathewson and Winter [1985]). For example, consider a franchised restaurant located in an area where the probability of serving repeat customers is low. The franchisee does not bear the full cost of poor quality service and thus has an incentive to free-ride on the company's reputation by shirking on quality. On the other hand, company-owned units have less of an incentive to free-ride because negative externalities reduce the value of the entire franchise chain. For this reason, Klein and Staff [1985] argue that franchisors have an incentive to locate company-owned restaurants in areas where customers have a low probability of repeat patronage, such as along major highways.<sup>8</sup> The free-rider problem also distorts incentives for other activities, such as advertising, technological

Improvement, and product development.

Third, the franchise contract introduces an additional distortion because it taxes sales, not profits (Ozanne and Hunt [1971]). The first-best, full-information contract would charge a lump sum payment or levy a Marshallian profits tax. The practice of charging a royalty on sales is inefficient because it drives a wedge between marginal revenue and marginal cost.<sup>9</sup>

Finally, several observers have argued that an important explanation for franchising is franchisor capital constraints (Caves and Murphy [1975], Ozanne and Hunt [1971]). According to this hypothesis, franchisors are capital constrained in their early stages and sell franchises to raise capital. As the franchisor matures, the capital constraints are relaxed and company-ownership is possible. The pattern of growth of most fast food chains supports this view. For instance, at its inception McDonald's only sold franchise outlets, but the proportion of domestic company-owned restaurants has grown rapidly.

### C. Wage Determination

With minor deviations, most fast food companies follow the same institutional process of wage determination. Individual franchisees are autonomous in setting wages and fringe benefits. In contrast, district and area managers establish the pay rates and fringe benefits of hourly employees (including assistant managers) at company-owned outlets. Some portion of the district manager's pay usually depends on the profitability of the company, but the restaurant manager is typically paid a fixed annual salary.

The fast food industry is almost entirely non-union. Only one fast food restaurant in the United States, a Detroit Burger King, is currently under a union contract (BNA [1984]). In addition, few organizing drives are currently

underway or planned. As a result, wages in the fast food industry are largely unaffected by collective bargaining or the threat of unionization.

#### D. Employee Performance

Although fast food employees' jobs are highly routinized and capital intensive, there remains some scope for employee shirking and malfeasance. Absenteeism, high turnover, theft, poor service, waste, and neglect of equipment are examples of detrimental employee behavior that have a significant effect on profitability. Greenberger and Steinberg [1986] find that 62 percent of first-time workers in Orange county gave away goods, falsely claimed to be sick, stole, damaged property, or worked while intoxicated during their first nine months of employment. Furthermore, estimates of the turnover rate of nonmanagement fast food employees run as high as 300 percent per year, and 81 percent of all establishments in the industry reported vacancies in the first quarter of 1985 (BNA [1985]).

In comparison to other industries, however, the cost of shirking in the fast food industry is probably quite low, and the probability of detecting substandard performance is probably quite high. A popular book on franchising claims that, "With all the mechanization, the [fast food] employee has little opportunity to ruin his product. A bored, half-asleep teenager can perform most tasks" (Luxenberg [1985]). To the extent that monitoring is nearly perfect in the fast food industry regardless of the amount of effort provided by restaurant managers, the distinction between company-owned and franchised restaurants will have little effect on employee performance.

However, one might expect shirking to be more difficult to detect and to have more costly consequences in relatively skilled restaurant jobs, such as assistant and shift managers. As a result, compensation is more likely to be

structured to overcome agency problems for these workers.

## II. A Sketch of Relevant Models of Wage Determination

The foregoing discussion suggests that company-owned stores have greater difficulty monitoring employees relative to stores that are owned and operated by franchisees. Employee shirking is therefore more difficult to detect in company-owned stores. Shirking can take many forms, although the theoretical literature typically models shirking as unauthorized on-the-job leisure. More generally, any employee action that reduces output can be thought of as shirking (e.g., theft or quitting). I begin by sketching models where employees are homogeneous and wages are set to encourage effort, and then extend the discussion to consider models in which employees have heterogeneous abilities and characteristics and wages are set to facilitate selection.

The delayed-payment/bonding model predicts that company-owned stores will shift relatively more compensation to the end of the employment contract to discourage shirking. Figure 1A illustrates a hypothetical tenure-earnings profile assuming that company-owned stores utilize a delayed-payment arrangement to deter shirking, and that franchisee-owned stores pay employees according to their contemporaneous marginal product. When the employee is first hired, earnings are lower at company-owned stores than at franchisee-owned stores. However, an employee's wage rate rises more quickly over time at company-owned stores than at the franchisee-owned stores. The delayed-payment/bonding model predicts that the present value of compensation would be equal at company-owned and franchisee-owned stores. In essence, at the beginning of employment, workers at company-owned firms contribute towards a bond, and the bond is returned to them if they are not dismissed for shirking.

Figure 1A  
Hypothetical Tenure-Earnings Profile:  
Delayed-Payment Model

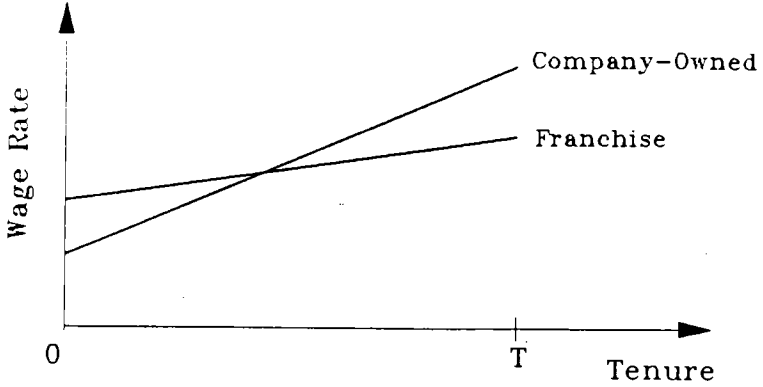
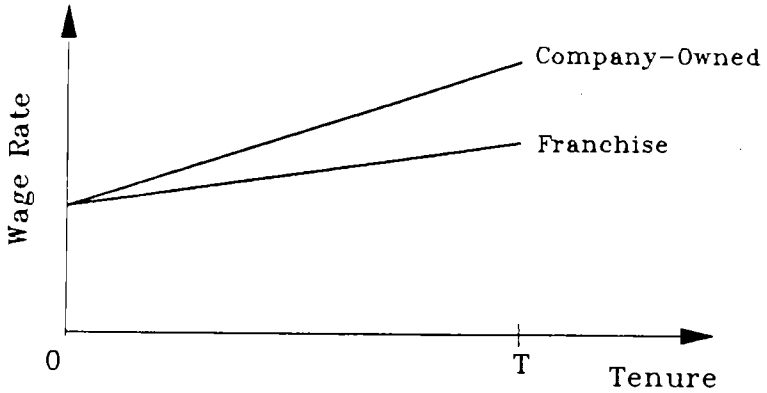


Figure 1B  
Hypothetical Tenure-Earnings Profile:  
Efficiency Wage Model



This contract provides an incentive against shirking; such an incentive is not necessary at a franchised store because close supervision by the franchise owner deters shirking.

If company-owned stores are unable to sufficiently backload compensation to deter shirking (i.e., collect a big enough bond), the efficiency wage model predicts they will offer workers a wage that exceeds their alternative wage. This may be particularly likely in the fast food industry because the minimum wage may prevent firms from offering a sufficiently low starting wage.<sup>10</sup> In this situation, it will be profit maximizing for company-owned restaurants to backload compensation to some extent, as well as to offer a higher present value of compensation over the employee's expected job duration. Figure 1B illustrates such a contract. As in the delayed-payment/bonding model, the tenure-earnings profile is steeper at company-owned stores, but in the efficiency wage model the present value of compensation is greater at company-owned stores. This is clear in Figure 1B because wages are always higher at company-owned stores. (Of course, in the efficiency wage model it might be the case that compensation is initially lower at company-owned stores.) The key prediction that distinguishes the two models is that in the efficiency wage model the expected discounted value of compensation is greater at company-owned stores than at franchisee-owned stores, whereas in the delayed-payment/bonding model the discounted value of compensation is equal at company-owned and franchisee-owned stores.

The discussion thus far has focused on efficiency wage and delayed-payment/bonding models in which employees are homogeneous and have some discretion over their work effort. In another class of models which also may be relevant in the fast food industry, firms may structure compensation to



facilitate the selection of high-productivity employees. In particular, it is probably the case that managers of company-owned stores have less of an incentive to carefully recruit and screen job applicants compared to franchise owners. If workers are heterogeneous in terms of their productive abilities and propensity to quit, franchisees will more effectively screen applicants to identify those who are most productive. Models by Guasch and Weiss [1981], Weiss [1980], and others, predict that in this situation company-owned stores will offer a relatively high wage to improve the pool of job applicants. Thus, another reason for company-owned stores to pay higher wages than franchisee-owned stores might be to improve the pool of applicants.

Finally, the relationship between turnover and pay deserves special emphasis in an industry like the fast food industry, which has an extremely high rate of turnover. Turnover is costly to restaurants because resources are spent recruiting, screening and training workers. For reasons discussed above, turnover is likely to be more costly for company-owned stores. Therefore, company-owned stores have a greater incentive to design compensation in a way to attract workers who are less prone to quit, and to discourage current workers from quitting. If workers differ in their propensity to quit, Salop and Salop [1976] have argued that establishments that have a high cost of turnover will provide relatively steep tenure earnings profiles to discourage quit-prone employees from applying, as shown in Figure 1A. Furthermore, even if all applicants have an equal quit propensity, company-owned stores could reduce turnover by paying more generous compensation than franchisee-owned stores (see Salop [1979]).

On the basis of the estimated earnings profiles, it is not possible to distinguish among the competing explanations for why firms tilt the tenure

earnings profile or offer relatively high wages. Nonetheless, evidence of higher discounted compensation at company-owned stores would support the class of efficiency wage models, whereas evidence of steeper tenure-earnings profiles at company-owned stores but equal discounted compensation would support the delayed-payment/bonding model. And evidence of an identical wage structure in company-owned and franchised establishments would cast doubt on the importance of both types of incentive models.

### III. Data

Two cross-sectional data sets on the fast food industry are used in the empirical work. The primary data set was collected by the National Institute for Work and Learning (NIWL).<sup>11</sup> During the fall of 1982 the NIWL mailed questionnaires to 7,000 workers employed by a random sample of 273 fast food restaurants. The questionnaire contained a rich set of questions about the employees' job requirements, human capital, wages and fringe benefits. Employee responses were merged to company provided data on the form of ownership, location and size of the restaurant. Each employee was paid \$5 upon completing the questionnaire, and two follow-up questionnaires were sent to non-respondents. The overall survey response rate was 66 percent.

The samples analyzed in this paper contain either crew workers (part or full-time) or assistant and shift managers who are employed by companies that utilize both company and franchisee ownership arrangements. All workers are hourly, non-exempt employees. Four companies in the survey -- McDonald's, Kentucky Fried Chicken, Arby's and Roy Rogers -- use both types of ownership arrangements. The final samples contain 1,889 nonmanagement workers and 198 hourly assistant and shift managers from 204 restaurants.

Means and standard deviations for the sample are presented in Table II. In general, the workers at company-owned and franchised restaurants appear remarkably similar. For instance, employees of company-owned and franchised restaurants have almost an identical average number of years of schooling and high school grade point average. At least on the basis of these observable characteristics, there is little evidence of differential sorting of employees between company-owned and franchisee-owned outlets.

The means also indicate that compared to franchised outlets, company-owned outlets are located in larger cities and in cities that have slightly higher average wages. In addition, company-owned restaurants tend to employ fewer workers than franchised restaurants.<sup>12</sup> The latter finding is consistent with Norton's [1988] argument that franchising is the preferred form of ownership for larger-sized establishments because large organizations are inherently more difficult to monitor and therefore benefit more from diligent management.

On average, low-level managers earn 40 cents more per hour at company-owned outlets than at franchised outlets, while crew workers earn just 4 cents more per hour at company-owned outlets than at franchised outlets. For low-level restaurant managers, the average hourly wage rate is \$4.59 with a coefficient of variation is 22 percent, while the mean hourly wage rate for crew workers is \$3.59 with a coefficient of variation of less than 10 percent. Less than 20 percent of employees in the sample are paid the minimum wage, and 2 percent are paid less than the legal minimum.

Combining all employees, the average job tenure is about one month greater at company-owned outlets. The overall tenure differential is not statistically significant at the 5 percent level. However, low-level managers

Table II  
Means and Standard Deviations of the NIWL Data Set, by Type of Ownership

Variable	Sample		
	All	Franchisee-owned	Company-owned
Asst. and shift mgr. hourly wage	4.59 (1.03)	4.35 (.71)	4.75 (1.17)
Crew worker hourly wage	3.59 (0.35)	3.57 (0.31)	3.61 (0.38)
Years of education	11.99 (1.40)	11.95 (1.39)	12.01 (1.40)
Tenure	1.56 (1.35)	1.51 (1.25)	1.59 (1.41)
Age	20.10 (5.57)	20.13 (5.80)	20.08 (5.41)
GPA	84.59 (5.90)	84.81 (5.84)	84.43 (5.94)
Proportion part-time	0.64 (0.48)	0.67 (0.47)	0.62 (0.48)
College prep. high school	0.46 (0.50)	0.46 (0.50)	0.46 (0.50)
Proportion black	0.13 (0.33)	0.08 (0.27)	0.16 (0.36)
Proportion hispanic or other race	0.07 (0.26)	0.08 (0.27)	0.07 (0.25)
Proportion female	0.64 (0.48)	0.66 (0.47)	0.63 (0.48)
Proportion student	0.52 (0.50)	0.53 (0.50)	0.51 (0.50)
Round trip commute time	14.22 (9.45)	14.46 (9.37)	14.06 (9.50)
Establishment size	39.80 (27.10)	46.11 (38.07)	35.43 (13.97)
Log local annual wage	9.62 (0.15)	9.60 (0.15)	9.65 (0.14)
Log city size	11.69 (1.78)	11.53 (1.78)	11.80 (1.76)
Log population density	8.26 (0.76)	8.26 (0.81)	8.27 (0.73)
Sample size	2,087	852	1,235

employed by company-owned outlets have a statistically significant additional half year of job tenure than workers in equivalent jobs at franchised outlets. One would expect to observe longer job tenures at company-owned outlets if the wage differentials noted above represented true economic rents.

Bureau of National Affairs Data Set

The second data set was collected by the Bureau of National Affairs (BNA) in 1985. The BNA surveyed the managers of 108 fast food restaurants in five metropolitan areas and received responses from 47 restaurants. Restaurants in the Burger King, Kentucky Fried Chicken, McDonald's and Wendy's chains were surveyed. The survey contains questions on the starting wage rate of full and part-time nonmanagement employees, restaurant location, and restaurant size. Unlike the NIWL survey, information is not available for assistant and shift managers. Despite this limitation and its small sample size, the BNA survey has an important advantage over the NIWL survey -- it allows one to control for the city in which the restaurant is located because there are observations on several restaurants in the same cities. In the estimates below this is accomplished by including a set of city dummy variables.

IV. Empirical Results

For each occupational group the NIWL data set is used to estimate a human capital earnings function of the form:

$$(1) \ln W_{ij} = X_{ij}\beta + C_i\delta + \mu_{ij} \quad i = (1, \dots, n); \quad j = (1, \dots, m_i)$$

where  $W_{ij}$  is the hourly wage rate for worker  $j$  at restaurant  $i$ ,  $X_{ij}$  is a vector of independent variables including tenure and three dummy variables

indicating the parent company,  $C_i$  is a dummy variable indicating whether a restaurant is company-owned,  $\mu_{ij}$  is an error term, and  $\beta$  and  $\delta$  are parameters to be estimated. In some specifications the company-ownership dummy variable is also interacted with firm-specific tenure to test for the presence of delayed-payment contracts.<sup>13</sup> There are  $n$  firms in the sample and  $m_i$  workers at firm  $i$ .

Because in many cases the NIWL data set contains observations on multiple employees from the same establishment ( $m_i > 1$ ), an error components structure is assumed. Specifically, I assume that  $\mu_{ij}$  consists of a firm specific component ( $\alpha_i$ ) and a worker specific component ( $\epsilon_{ij}$ ) with the following properties:

$$(2) \quad \mu_{ij} = \alpha_i + \epsilon_{ij}.$$

$$(3) \quad E(\alpha_i) = E(\epsilon_{ij}) = E(\alpha_i \epsilon_{ij}) = 0$$

$$(4) \quad \sigma_\alpha^2 = E(\alpha_i^2) \quad ; \quad \sigma_\epsilon^2 = E(\epsilon_{ij}^2) \quad \text{for all } i \text{ and } j .$$

A random effects model is estimated because ordinary least squares is inefficient and yields inconsistent standard errors under these assumptions.<sup>14</sup>

Table III reports earnings regressions for three separate samples of fast food workers -- assistant and shift managers, full-time crew workers, and part-time crew workers. Although an objection can be raised that assistant managers perform different functions at company-owned and franchised restaurants, it should be noted that the regressions control for 11 detailed job tasks. Furthermore, in both types of restaurants these low-level managers are hourly, nonexempt employees.

First, consider the results for assistant and shift managers. In column 1 the wage differential associated with company-ownership is constrained to an intercept shift. The estimated wage differential associated with working at a company-owned restaurant is 8.7 percent, with a t-ratio of 2.31.<sup>15</sup> To put the magnitude of this wage differential in perspective, note that the standard deviation in log wages among these workers is 0.19, so the company-ownership wage differential equals nearly half the inter-worker dispersion in earnings in the occupation.

Column 2 presents an estimate of the same specification adding an interaction between tenure and company-ownership. These results indicate that low-level managers' wages grow more than twice as quickly over time at company-owned outlets than franchised outlets.<sup>16</sup> Furthermore, the company-ownership dummy variable becomes statistically insignificant and close to zero when the interaction term is included, which implies that starting pay is roughly the same at company-owned and franchised outlets. In sum, the wage profile for assistant managers approximates the hypothetical profile depicted in Figure 1B.<sup>17</sup>

Next consider the estimates for nonmanagement workers. Columns 3 and 5 show a small positive wage differential associated with working at company-owned establishments. Full-time workers earn 1.7 percent greater wages at company-owned restaurants than franchisee-owned restaurants, while for part-time workers the company-ownership wage differential is just 0.5 percent. Although these coefficients are precisely estimated, they are trivial by most economic standards.

In columns 4 and 6 an interaction between job tenure and the company-ownership dummy variable is added to the independent variables. As was the

Table III

Random Effects Estimates of the Determinants of  
Wages in the Fast Food Industry(Dependent Variable: Log Hourly Wage<sup>a</sup>)

Independent Variables	Sample					
	Assistant and shift managers		Full-time crew workers		Part-time crew workers	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-.411 (1.007)	-.114 (.975)	-.115 (.298)	-.146 (.311)	.637 (.191)	.651 (.193)
Company-owned (1=yes)	.083 (.038)	.013 (.054)	.017 (.009)	-.015 (.013)	.005 (.005)	-.002 (.007)
Company-owned x tenure	---	.025 (.014)	---	.020 (.006)	---	.006 (.003)
Tenure	.042 (.007)	.025 (.012)	.032 (.003)	.020 (.005)	.028 (.002)	.024 (.002)
Education	.011 (.008)	.010 (.008)	.005 (.003)	.005 (.003)	.005 (.001)	.005 (.001)
GPA ÷ 100	.027 (.220)	.025 (.221)	.057 (.070)	.073 (.069)	.068 (.029)	.066 (.029)
College prep. high school	.017 (.024)	.012 (.025)	.003 (.009)	.006 (.009)	.003 (.003)	.003 (.003)
Student	-.053 (.029)	-.055 (.029)	-.022 (.009)	-.022 (.009)	-.006 (.004)	-.006 (.004)
Age	.004 (.002)	.006 (.002)	.001 (.001)	.002 (.001)	.0011 (.0004)	.0011 (.0004)
Married	.025 (.032)	.013 (.033)	.034 (.012)	.033 (.012)	.006 (.006)	.007 (.006)
Black	-.087 (.041)	-.081 (.041)	-.015 (.011)	-.015 (.011)	-.010 (.006)	-.011 (.006)
Hispanic and other	-.000 (.046)	.006 (.046)	-.009 (.015)	-.008 (.015)	-.003 (.006)	-.003 (.006)
Female	-.029 (.025)	-.029 (.025)	-.006 (.011)	-.006 (.011)	-.010 (.005)	-.010 (.005)

- continued -



Table III -- continued

Independent Variables	Sample					
	Assistant and shift managers		Full-time crew workers		Part-time crew workers	
	(1)	(2)	(3)	(4)	(5)	(6)
Round trip commute time $\div 100$	.378 (.104)	.353 (.105)	.071 (.040)	.076 (.040)	-.021 (.017)	-.021 (.017)
Weekly hours	.003 (.001)	.003 (.001)	.0005 (.0007)	.0007 (.0007)	.0005 (.0002)	.0005 (.0002)
Log establishment size	.009 (.038)	.019 (.038)	-.011 (.012)	.003 (.012)	.003 (.007)	.003 (.007)
Log local annual wage	.162 (.113)	.134 (.109)	.127 (.033)	.127 (.035)	.044 (.021)	.043 (.022)
Log city size	.016 (.013)	.019 (.012)	-.008 (.003)	-.009 (.004)	-.003 (.007)	-.003 (.002)
Log population density	-.057 (.030)	-.062 (.030)	.012 (.009)	.012 (.009)	.003 (.005)	.003 (.005)
Assistant manager <sup>b</sup>	.178 (.064)	.177 (.062)	---	---	---	---
Job task dummies (11) <sup>c</sup>	Yes	Yes	Yes	Yes	Yes	Yes
Parent company dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Census region dummies (8)	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma_c^2$	.012	.012	.007	.007	.003	.003
$\sigma_a^2$	.005	.004	.001	.001	.001	.001

- a. Data set is NIWL survey of fast food employees. Standard errors are shown in parentheses. Sample size is 198 for columns 1 and 2, 615 for columns 3 and 4, and 1,274 for columns 5 and 6.
- b. Dummy variable that equals 1 if the workers is an assistant managers and 0 if he is a shift managers. All assistant and shift managers are hourly, nonexempt employees.
- c. Job tasks that are performed all or most of the time are coded 1; job tasks that are performed only sometimes, seldom or never are coded 0. The eleven job tasks include cooking, preparing food (non-cooking), packing orders, taking orders, handling money, hosting dining area, suggestive selling, unloading trucks, cleaning the restaurant, cleaning equipment, and training workers.

case with low-level managers, the interaction term has a positive and statistically significant effect on wages for nonmanagement workers. This also supports the conclusion that earnings grow more rapidly at company-owned outlets than franchisee-owned outlets. In addition, this specification finds that the company-owned shift dummy variable is negative but statistically insignificant for each group of workers. Again, these tenure-earnings profiles are similar to the hypothetical efficiency wage model depicted in Figure 1B, but the difference between the two profiles for nonmanagement workers is quite small and of little practical significance.

Finally, consider the other variables in the wage regressions. The human capital variables -- education, age, grade point average, type of high school curriculum, 11 job task dummy variables, and a dummy variable indicating whether the worker is a student -- mostly have their expected signs and are usually statistically significant. These observed human capital variables, however, do not have a very sizable effect on wages in the fast food industry. Similarly, the wage differential for married workers is positive but smaller than is typically observed in other industries (see Korenman and Newmark [1987]).

The wage differentials observed for race and gender in the sample of nonmanagement fast food workers are also small when compared to other industries. Minority and female nonmanagement workers earn from one to two percent lower wages than white and male employees, all else constant. In the sample of low-level managers, however, the differentials are larger. Black assistant and shift managers earn about 8 percent lower wages than whites in similar positions, while females earn about 3 percent lower wages than males. The finding of a relatively modest wage gap for women is particularly

interesting given the historical pattern of female employment in the fast food industry -- McDonald's Corporation, for instance, officially refused to hire women until 1968, but women currently make-up 57 percent of McDonald's crew workers (see Love [1986, p. 294]).

The variable round trip commute time (measured in minutes) is included in the regressions as a working condition control. The theory of equalizing differences predicts that a job located in an area that requires a long commute to work will offer a compensating wage premium to attract workers. Furthermore, since there are systematic geographic differences between company-owned and franchised restaurants that affect travel time to work (e.g., company-owned restaurants located near highways), omission of this variable would bias the company-owned wage differential. A 30 minute increase in commuting time is associated with an 11 percent increase in the wage rate for low-level managers and a 2 percent increase for full-time crew workers.

It has been noted that franchisors have an incentive to locate company-owned units in urban areas to economize on transaction costs (Rubin [1978]). Furthermore, Fuchs [1967] and Hoch [1972] document that wages increase with city size. The log of the population of the city where the restaurant is located and the log of the population density are included as regressors to control for these locational factors.<sup>18</sup> To further control for differences in wage levels across areas, the equations include the log of the average annual salary in the county in which the restaurant is located and 8 region dummy variables. In particular, the estimates indicate that fast food restaurant workers' wages are sensitive to the local wage rate.

A large empirical literature finds that wages rise with establishment size (for examples see Lester [1967], Master [1969], Mellow [1982] and Brown

and Medoff [1988]). In the fast food industry, however, the estimated establishment size-wage effect is close to zero and statistically insignificant in each specification and sample. Moreover, this result is qualitatively unchanged when five restaurant size-class dummy variables are used as the establishment size measure to allow for flexibility in the establishment size-wage effect. The finding of an insignificant effect of restaurant size on wages in the fast food industry takes on added significance in view of the finding that on average franchised restaurants are larger than company-owned restaurants.

A. Analysis of the BNA Data Set

The wage question in the 1985 BNA survey pertains to the starting wage rate. This is a severe limitation because many restaurants were constrained to pay the legal minimum wage to newly hired workers. For nearly 75 percent of the restaurants in the sample the starting wage rate of part-time workers equals the minimum wage, while for 43 percent of the restaurants the starting wage rate of full-time workers equals the minimum wage. Since the meaningful variation in these wage data is whether the restaurant initially pays the minimum wage or more than the minimum wage, I will focus on this decision.

An examination of the unconditional means shows that franchisee-owned restaurants are more likely than company-owned restaurants to pay the minimum wage to newly hired employees. More than 90 percent of franchisee-owned restaurants start their new part-time employees at the minimum wage, while 60 percent of company-owned restaurants pay the legal minimum to new employees. For full-time workers the comparable figures are 55 percent at franchisee-operated outlets and 40 percent at company-owned outlets.

Table IV presents probit equations of the likelihood that a restaurant

pays the minimum wage to new hires. The estimates find a substantial and statistically significant difference in the probability that company-owned outlets pay the minimum wage to newly hired part-time workers, holding constant restaurant size and location. The company-owned differential for full-time workers, however, is much smaller and statistically insignificant. The coefficient on the company-ownership dummy implies that compared to franchised outlets, company-owned outlets are 45 percentage points less likely to start workers at the minimum wage.<sup>19</sup>

These results are particularly relevant in light of the delayed-payment/bonding model, which predicts that company-owned restaurants would initially pay lower wages than franchised restaurants as part of an implicit performance bond. Since it could be argued that in the fast food industry the minimum wage is often a binding constraint on starting pay, one might expect that company-owned outlets are constrained in their ability to tilt the tenure-earnings profile. An implication of this view is that company-owned outlets would lower initial compensation and backload compensation to the extent possible. In contrast, the results indicate that the minimum wage is a greater constraint on franchisee-run outlets than on company-run outlets, which suggests that company-owned outlets do not lower starting pay to the extent possible. This finding, together with the results in Table III, casts doubt on the bonding model.

#### V. Fringe Benefits

To the extent that fringe benefits augment or offset the observed company-owned wage effect, differences in total compensation will be affected. Table V examines the effect of company-ownership on several fringe benefits

Table IV

Probit Estimates of Probability of Paying the Minimum Wage

Independent Variables	Mean [SD]	Sample Coefficient (SE)	
		Full-time	Part-time
Intercept	1.00 [.00]	3.207 (2.831)	4.642 (3.296)
Company-owned restaurant	0.53 [.50]	0.183 (0.483)	-1.396 (0.586)
Log estab. size	3.71 [.64]	0.881 (0.730)	-0.694 (0.828)
City dummies (4)	--	Yes	Yes
Parent company dummies (3)	--	Yes	Yes
Log likelihood fn.		-26.44	-20.36

a. The dependent variable equals one if the starting wage equals the minimum wage, and zero if the starting wage exceeds the minimum wage. Sample size is 47. Data are from BNA survey of establishments.

b. The proportion of restaurants that pay the minimum wage to newly hired part-time workers is 0.745, and the proportion of restaurants that pay the minimum wage to newly hired full-time workers is 0.468.

for nonmanagement workers.<sup>20</sup> Unfortunately, the dollar value of fringe benefits is not available. The dependent variable equals one if the employee receives a fringe benefit and zero if he or she does not. Probit equations are estimated to control for human capital, job tasks, and demographic factors.

The results indicate that the provision of fringe benefits is more generous in company-owned establishments than franchisee-owned establishments. For instance, employees at company-owned restaurants are 43 percentage points more likely to receive free meals, 24 percentage points more likely to have a paid vacation and 7 percentage points more likely to have paid holidays than comparable employees in franchisee-owned restaurants. In addition, uniform allowances, paid sick leave, and insurance benefits are more likely to be provided in company-owned restaurants than franchisee-owned restaurants.

On average, the provision of fringe benefits is 14.8 percentage points more likely by company-owned establishments than franchisee-owned establishments.<sup>21</sup> Since voluntary fringe benefits typically make-up 15 percent of total compensation in eating and drinking establishments (National Income and Product Accounts), the fringe benefit differential increases the differential in total compensation between company-owned and franchised restaurants by an about two percentage points. Finally, it should be emphasized that -- unlike the finding for wages -- there is no significant evidence of a comparatively steeper tenure-fringe benefit profile at company-owned restaurants when an interaction term for tenure and company-ownership is added to the equations.

Table V

The Effect of Company-Ownership on Fringe Benefits for  
Nonmanagement WorkersProbit Estimates<sup>a</sup>

(1)	(2)	(3)
Fringe Benefit (Mean)	Company-owned dummy variable (Standard Error)	Proportionate differential between company- owned and franchised units <sup>b</sup>
1. Free meals (0.673)	1.312 (0.086)	0.427
2. Uniform allowance (0.114)	0.172 (0.093)	0.031
3. Paid vacation (0.467)	0.611 (0.075)	0.239
4. Paid sick leave (0.032)	0.488 (0.163)	0.024
5. Paid holidays (0.105)	0.532 (0.112)	0.071
6. Insurance benefits (0.168)	0.359 (0.089)	0.094

a. Other independent variables are age, race dummies (2), sex, education, GPA, college prep. dummy, student dummy, weekly hours, job task dummies (11), job tenure and its square, commute time, census region dummies (9), log restaurant size, log city size, parent company dummies (3), and an intercept.

b. Differentials represent the difference in the probability of receiving a fringe benefit between company-owned and franchised establishments for workers with the average value of all independent variables.

c. Sample size is 1,880.



## VI. Summary and Conclusion

A core prediction of the efficiency wage model is that wages and monitoring costs are positively correlated. On the other hand, the delayed-payment/bonding model predicts that a firm will tilt its workers' tenure-earnings profile without changing the present value of wages in response to costly monitoring. The institutional arrangements of the franchise system provide a natural experiment to test these predictions because principal-agent relationships are likely to cause incentives for inferior monitoring and supervision in company-owned outlets relative to franchisee-owned outlets. Consequently, this paper uses two cross-sectional surveys of the fast food industry to test the effect of organizational structure on pay.

The main empirical results may be summarized as follows. First, employees of company-owned and franchised restaurants have very similar characteristics. Second, wages are about 9 percent higher for low-level managers, and 1 to 2 percent higher for crew workers who are employed by company-owned outlets compared to franchisee-owned outlets. Third, the tenure-earnings profile is steeper at company-owned restaurants than franchisee-owned restaurants. Assuming a 5 percent interest rate and the average level of job tenure, the point estimates imply that the present value of earnings is about \$1,250 greater for assistant and shift managers, and about \$75 greater for full-time workers at company-owned outlets relative to franchisee-owned outlets (in 1982 dollars). Moreover, accounting for fringe benefits increases the differential in compensation.

The empirical evidence on the wage structure of low-level managers in the fast food industry provides some support for the view that wages are adjusted to overcome incentive problems. Since workers earn greater compensation where

monitoring is more lax, the results are consistent with the efficiency wage model. Moreover, the finding that wages grow more rapidly over time at company-owned units suggests that to some extent compensation is backloaded to provide an incentive against shirking. For crew-workers, however, differences in wages between company-owned and franchised units are trivial, suggesting that their compensation is not noticeably affected by monitoring problems. Although the results for low-level managers provides some support for the incentive contracts literature, the estimates for crew-workers suggest that incentive contracts are not very important empirically for this group.

An alternative interpretation of the modest wage differentials found here is that differences in the level and growth of fast food workers' earnings reflects rent sharing at company-owned outlets. It could be argued that managers of company-owned outlets do not personally bear the full cost of paying higher wages since they do not have a residual claim on the restaurant's profit, while franchisees have strong incentives to minimize costs. Furthermore, one might expect that managers of company-owned outlets have a motive to pay supra-competitive wages because they like their workers, or because they find their jobs less onerous if their workers are well paid.

There are two factors, however, that weigh against this expense-preference/rent sharing interpretation of the empirical results. First, fast food workers' wages are typically set at the district level by middle-level managers instead of by restaurant managers who have daily contact with workers. Consequently, the actual wage setters probably do not benefit directly by sharing rents with restaurant workers. And second, the expense-preference model does not easily explain the steeper tenure earnings profile at company-owned outlets. Nonetheless, it is conceivable that agency problems

lead company-owned outlets to err on the side of generosity in setting wages, while enterprising franchisees diligently minimize costs.

An important question is whether the findings in this paper can be generalized to other employment settings. Several factors suggest that efficiency wages are more likely to surface as a worker discipline device in the fast food industry than in other industries. Fast food jobs have short durations with little chance of advancement through internal job ladders. Furthermore, the minimum wage may constrain delayed-payment/bonding contracts in this industry, especially for crew workers. On the other hand, the high degree of monitoring in fast food restaurants (e.g., by customers and equipment) regardless of the form of ownership reduces the need to induce effort through alternate means. As a result, a worthwhile extension of the present paper would be a study of the effect of franchise ownership on wages in industries where employee shirking is more difficult to monitor, such as the gasoline service industry or the hotel industry.

Princeton University  
National Bureau of Economic Research

## REFERENCES

- Akerlof, George, and Lawrence Katz, "Workers' Trust Funds and the Logic of Wage Profiles," Quarterly Journal of Economics, CIV (1989), 525-536.
- Altonji, Joseph, and Robert Shakotko, "Do Wages Rise with Job Seniority?" Review of Economic Studies, LIV (1987), 437-59.
- Becker, Gary and George Stigler, "Law Enforcement, Malfeasance, and the Compensation of Enforcers," Journal of Legal Studies, III (1974), 1-18.
- Brickley James and Frederick Dark, "The Choice of Organizational Form: The Case of Franchising," Journal of Financial Economics, XVIII (1986), 197-218.
- Brown, Charles and James Medoff, "The Employer Size-Wage Effect," Journal of Political Economy, IIIC (1989), 1027-1058.
- Bulow, Jeremy and Lawrence Summers, "A Theory of Dual Labor Markets with Application to Industrial Policy, Discrimination, and Keynesian Unemployment," Journal of Labor Economics, IV (1986), 376-414.
- Bureau of National Affairs, "Employee Relations in the Fast Food Industry," in Retail/Services Labor Report, BNA, June 10, 1985.
- Business Week, "McWorld?" October 13, 1987, 78-86.
- Calvo, Guillermo and Stanislaw Wellisz, "Supervision, Loss of Control, and the Optimum Size of the Firm," Journal of Political Economy, LXXXVI (1978), 943-52.
- Cappelli, Peter and Keith Chauvin, "An Inter-Plant Test of Efficiency Wage Premiums," mimeo., University of Pennsylvania, 1988.
- Caves, Richard and William Murphy, II, "Franchising: Firms, Markets, and Intangible Assets," Southern Economic Journal, XXXXII (1976), 572-86.
- Charner, Ivan and Bryna S. Fraser, Fast Food Jobs (Washington, D.C.: The National Institute for Work and Learning, 1984).

- Cheung, Steven, "Private Property Rights and Sharecropping," Journal of Political Economy, LXXVI (1968).
- Dickens, William, Lawrence Katz, Kevin Lang and Lawrence Summers, "Employee Crime and the Monitoring Puzzle," Journal of Labor Economics, VII (1989), 331-48.
- Eaton, C. and W.D. White, "Agent Compensation and the Limits of Bonding," Economic Inquiry, XX (1982), 330-43.
- Emerson, Robert, Fast Food: The Endless Shakeout (New York: Lebhar Friedman Books, 1979).
- Fuchs, Victor, "Differentials in Hourly Earnings by Region and City Size, 1959," NBER, Occasional Working Paper No. 101, 1959.
- Greenberger, Ellen, and Laurence Steinberg, When Teenagers Work: The Psychological and Sociological Costs of Adolescent Employment (New York: Basic Books, 1986).
- Groschen, Erica, and Alan Krueger, "The Structure of Pay and Supervision in Hospitals," Industrial and Labor Relations Review, XLIII (1990), 134-146.
- Guasch, J.L., and Andrew Weiss, "Self-Selection in the Labor Market," American Economic Review, LXXI (1982), 275-84.
- Hoch, Irving, "Income and City Size," Urban Studies, (1972), 299-327.
- Hutchens, Robert, "Delayed Payment Contracts and a Firm's Propensity to Hire Older Workers," Journal of Labor Economics, IV (1986), 439-57.
- Jensen, Michael and William Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," Journal of Financial Economics, III (1976), 305-60.
- Johnston, J., Econometric Methods (New York: McGraw-Hill Book Company, 1984), 396-407.

- Judge, George. W.E. Griffiths, R. Hill, Helmut Lutkerpohl and T. Lee, The Theory and Practice of Econometrics, (New York: John Wiley and Sons, Second Edition, 1985), 515-545.
- Klein, Benjamin and L. F. Staft, "The Law and Economics of Franchise Tying Contracts," Journal of Law and Economics, XXIIIX (1985), 345-61.
- Korenman, Sanders and David Newmark, "Does Marital Status Really Affect Wages," unpublished, Harvard University, September 1987.
- Lazear, Edward, "Agency, Earnings Profiles, Productivity and Hours Restrictions," American Economic Review, LXXI (1981), 606-20.
- Lazear, Edward and Robert Moore, "Incentives, Productivity, and Labor Contracts." Quarterly Journal of Economics IC (1984), 275-96.
- Leonard, Jonathan, "Carrots and Sticks: Pay Supervision, and Turnover," Journal of Labor Economics, V (1987), S136-S153.
- Lester, Richard, "Pay Differentials by Size of Establishment," Industrial Relations VII (1967), 57-67.
- Love, John, McDonald's: Behind the Arches (New York: Bantam Books, 1986).
- Luxenberg, Stan, Roadside Empires (New York: Penguin Books, 1985).
- Mathewson, G.F. and Winter, Ralph, "The Economics of Franchise Contracts," Journal of Law and Economics, XXVIII (1985), 503-26.
- Masters, Stanley, "An Interindustry Analysis of Wages and Plant Size," Review of Economics and Statistics, LI (1969), 341-45.
- Mellow, Wesley, "Employer Size and Wages," Review of Economics and Statistics, LXIV (1982), 495-501.
- Mincer, Jacob and Boyan Jovanovic, "Labor Mobility and Wages," in Studies in Labor Markets, Sherwin Rosen (ed.), Chicago: University of Chicago Press, 1981, 21-64.

- Norton, Seth, "An Empirical Look at Franchising as an Organizational Form," Journal of Business, LXI (1988), 197-218.
- Ozanne, Urban and Shelby Hunt, The Economic Effects of Franchising (Washington, DC: GPO, Select Committee on Small Business, United States Senate, 92 Congress, 1971).
- Ross, Stephen, "The Economic Theory of Agency: The Principal's Problem," American Economic Review, Proceedings, LXIII (1973), 134-39.
- Rubin, P.H., "The Theory of the Firm and the Structure of the Franchise Contract," Journal of Law and Economics, XXI (1978), 223-33.
- Salop, Joanne, and Steven Salop, "Self-Selection and Turnover in the Labor Market," Quarterly Journal of Economics, LXXXI (1976), 619-27.
- Salop, Steven, "A Model of the Natural Rate of Unemployment," American Economic Review, LXIX (1979), 117-125.
- Shapiro, Carl and Joseph Stiglitz, "Involuntary Unemployment as a Worker Discipline Device," American Economic Review, LXXIV (1984), 433-44.
- Shelton, J.P., "Allocative Efficiency vs 'X-Efficiency': Comment," American Economic Review, LVII (1967), 1252-58.
- Weiss, Andrew, "Job Queues and Layoffs in Labor Markets with Flexible Wages," Journal of Political Economy, LXXXVIII (1980), 529-38.

## Notes

1. Shapiro and Stiglitz [1984] and Bulow and Summers [1986] present efficiency wage models assuming that delayed payment/bonding contracts are ruled out. Eaton and White [1982] and Dickens, Katz, Lang and Summers [1989] discuss efficiency wages when there are constraints on delayed-payment/bonding contracts. If there are constraints on up-front bonds, the optimal contract will backload compensation to some extent, and pay a higher wage than the alternative wage (see also Akerlof and Katz [1989]).
2. Exceptions are Leonard [1987], Cappelli and Chauvin [1988], Lazear and Moore [1984], Hutchens [1986], and Groshen and Krueger [1990].
3. This information was ascertained from the franchise prospectus of each aforementioned company.
4. One explanation for the lack of performance-based pay for hired managers is that until recently the prospect of internal promotion offered a valuable reward for outstanding performance. The decrease in the likelihood of promotion opportunities might lead to a change the structure of compensation of managers in the future.
5. Calvo and Wellisz [1979] present a model of the firm size wage effect that is very similar to the agency model considered here. Company-owned restaurants are like large firms in that they have more hierarchical levels.
6. These survey results are based on the author's tabulations of the National Institute for Work and Learning's survey of fast food workers. The survey is described in detail in Section III.
7. These conclusions remain after controlling for individual demographic characteristics (sex, age, race, etc.) and self-reported satisfaction.



8. It should be noted, however, that Brickley and Dark [1986] find little empirical support for this proposition.
9. Cheung [1968] points out that if the royalty is flexible and determined competitively a "share" economy will be Pareto efficient.
10. As Eaton and White [1982] have stressed, workers may also be unwilling to accept jobs that backload compensation for fear that firms will dismiss them prior to the date when compensation exceeds their marginal product, or employees may be liquidity constrained so they prefer to receive compensation earlier rather than later.
11. See Charner and Fraser [1984] for a thorough description of the survey design and a copy of the questionnaire.
12. In the second data set I also find that on average franchised stores are larger than company-owned stores.
13. A Chow test of the hypothesis that it is appropriate to pool observations from company-owned and franchised restaurants allowing for an intercept change and differential return to tenure is not rejected at the 5 percent level for each occupation. Similarly, one would not reject a test of the appropriateness of pooling workers from different parent companies after allowing for separate company intercepts. Consequently, a single equation with company dummies is estimated.
14. See Judge, et al. [1985] and Johnston [1984] for a discussion of random effects estimation. The estimator used here differs slightly from the textbook case because the panel is unbalanced. The estimates and conclusions are not qualitatively different when the equations are estimated by OLS. A table containing the OLS results is available on request.
15. The percentage differential is calculated from Table III as  $(\exp(.083) - 1) \times 100$ .

16. Results are qualitatively unchanged when the square of tenure and its interaction with the company-owned dummy variable are added to the regression.

17. Interestingly, on average the returns to firm-specific tenure are about the same magnitude in the fast food industry as researchers have found for the economy as a whole, but the tenure-earnings profile is flatter for fast food workers than for a random sample of young workers. For example, Mincer and Jovanovic [1981] estimate that the return to the first year of job tenure is 6.5 percent for young men and 3 percent for all men. I also note that the estimated tenure-earnings profile for fast food workers are less prone to criticism along the lines raised by Altonji and Shakotko [1987] because jobs and firms in the industry are homogeneous, and because workers have little opportunity to sort among firms given their short experience in the labor market.

18. The average local wage, city size, and population density variables were merged to the NIWL data set by the author. Cities are identified from the restaurant's zip code and the city size and population density variables are derived from 1980 Census data reported in The County and City Data Book, 1983 (Washington, D.C.: Government Printing Office, 1983). The average annual local wage is the average wage in the county, and is drawn from U.S. Bureau of the Census, County Business Patterns 1981, Table 1E.

19. This difference was calculated as  $\beta \phi(z)$ , where  $\beta$  is the coefficient on the company-owned dummy from the probit equation,  $\phi(\cdot)$  is the standard normal density,  $z = \Phi^{-1}(p)$ ,  $\Phi^{-1}(\cdot)$  is the inverse cumulative normal distribution function, and  $p$  is the proportion of restaurants in the sample that start workers at the minimum wage.

20. Since there were not important differences between part and full-time workers as far as fringe benefits are concerned, they are combined into one sample.

21. A weighted average results in a 16 percent fringe benefit differential, assuming that free meals, paid vacations, paid holidays and insurance benefits each account for 20 percent of fringe benefits, and that uniform allowance and paid sick leave each account for 10 percent of fringe benefits.