



Organizational Form and Performance: Evidence from the Hotel Industry

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Organization of this Talk

- Organizational Form and Performance
- The Data
- Methodology and Results
- Concluding Comments



Organizational Form and Performance

- Empirical studies of the effect of organizational form on performance are rare
- But we care about how firms choose to organize their transactions largely BECAUSE it affects what they do and how well they perform (e.g. “Do Firm Boundaries Matter?” Mullainathan and Scharfstein, AER, 2001)
- Also companies (franchisors) care a lot



Franchising vs. Company Operation

- Many reasons to expect differences in outcomes - prices, costs, and revenues - in franchised and company units of same chain
- Direction of differences not clear though from theory
- E.g. agency theory suggests that everything else the same, the higher powered incentives of franchisees should lead to higher effort and higher revenues
- But also franchisees might free ride on the brand, i.e. provide lower quality such that revenues may in fact be lower



Franchising vs. Company Operation

- So effects can differ depending on whether we focus on the effort incentive that residual claims resolve (agency problem) or on the incentive problems that arise once a manager becomes a franchisee (free-riding)
- On the other hand, one might expect no differences at all, otherwise the franchisor would make different choices
- => empirical issue



Franchising vs. Company Operation

- A few authors have looked at this
- Shelton (1967) found higher costs, same revenues, and so lower profit under company ownership
- Studies of divorcement (Barron and Umbeck, 1984; Vita, 2000 and Blass and Carlton, 2001 all on gasoline, and Slade 1998, on beer) have found higher prices (and in gasoline retailing, higher costs as well) under divorcement



Organizational Form and Performance

- But all above look at cases where organizational form is constrained, not what would have been chosen
- Because of fundamental identification issue, few studies have looked at whether we see differences when organizational form is chosen
- And results from these are contradictory (e.g. Shepard, 1993 vs. Hastings, 2004, on gasoline prices; or Bradach, 1998 vs. Michael, 2000 and Leslie and Jin, 2005 on quality in fast-food)



Organizational Form and Performance

- The problem is that the effects of organizational form or contractual decisions are difficult to identify empirically in contexts where firms are unconstrained
- This is because these choices are not random: parties choose options based on what they expect will give the best outcome in a given situation
- This is exactly what the literature on incidence relies upon and tries to capture
- But it also raises important endogeneity issues when it comes to assessing the **effects of** organizational form or contractual practices on firm behavior or performance



Organizational Form and Performance

- This paper uses a unique data set on all hotels of a particular franchisor in its home market
- These data are particularly suited to analyses of performance effects
- Advantage is that we have detailed descriptive data on market and hotel
- Also we have a panel, so we can include “hotel fixed effects”
- Finally, we have what we argue is a valid instrument for organization, namely distance to franchisor headquarter – theory suggests distant units should be franchised, and empirical literature supports this too



The Data

- From a single large hotel company
- Operates several chains, internationally
- Focus on hotels in its home market:
 - Monthly data, 34 months (Jan 2001-Oct 2003)
 - Government data on local markets: population (in 1999), median household income (in 2000), unemployment (in 1999), and tourism intensity (monthly, 0-4 index, in 1998).



The Data

- For each hotel, we know
 - Company owned or franchised (who owns)
 - Monthly revenues
 - Monthly occupancy rate
 - RevPar (= occupancy rate * price)
 - Average price per room
 - Several hotel characteristics: number of rooms, age of hotel, location (=>distance to company headquarters), presence of restaurant, of fitness facility, air conditioning, and a few others
 - Unfortunately, no cost data

TABLE 1: DESCRIPTIVE STATISTICS, BY HOTEL

	Mean	Standard Deviation	Minimum	Maximum
Price (Room Rate)	53.67	31.45	20.38	292.54
Revpar	37.23	21.73	10.51	196.79
Occupancy Rate (%)	70.43	10.94	32.25	101.39
Revenues/Month (000's)	172.31	251.47	20.15	3118.99
Number of Rooms	91.24	67.35	29.94	782
Hotel Age	13.41	8.37	1	73.94
Distance from Headquarters	300.55	221.32	0	917.18
Number of Hotels in Market ^a	22.19	33.19	0	266
Tourism intensity	1.71	1.08	0	4
Population	193383	498502.6	192	2125851
Income	9993.03	2110.97	4161.71	23021.63
Franchised	0.34	0.47	0	1
Restaurant on Site	0.44	0.50	0	1
Outdoor Cafe	0.27	0.44	0	1
Air Conditioning	0.47	0.50	0	1
Fitness Facility	0.05	0.23	0	1

^aThis information is only available for 1015 of the 1194 hotels in our data. The other hotels operate in very large cities, and the government data do not contain this type of variable for very large markets.

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Number of Hotels	33	119	236	331	193	284
% Franchised	9.98	16.81	50.47	51.69	45.45	2.8
Price	158.97	82.36	77.39	54.10	32.91	23.40
RevPar	105.12	53.64	49.47	39.65	24.89	17.82
% Occupancy	64.55	63.97	62.23	72.02	74.95	75.55
Rev/Month 000's	904.91	371.71	233.24	153.93	67.37	46.51
Number of Rooms	187.09	127.52	96.63	88.53	75.96	74.17
Hotel Age	19.60	22.42	13.10	14.93	5.7	12.67
Distance from HQ	337.93	291.87	311.63	300.02	295.99	294.23
Hotels in Market	59.24	26.26	34.54	25.68	16.78	8.68
Tourism Intensity	2.24	1.74	1.91	1.86	1.74	1.25

	Franchised (34%)	Corporate (66%)	Sign. Diff.
Price (Room Rate)	56.35	52.29	**
RevPar	38.60	36.52	
Occupancy (%)	68.31	71.52	***
Rev./Month (000's)	126.89	195.71	***
Number of Rooms	74.24	100	***
Hotel Age	10.25	15.04	***
Distance from HQ	322.06	289.47	**
Hotels in Market	23.77	21.36	
Tourism Intensity	1.92	1.60	***

Methodology and Results

- We first estimate

$$Y = f(F_{it}, X_{it}, Z_i, e_{it})$$

where: i and t index hotel and months (1 to 34)

Y_{it} is the (log) of occupancy rate, RevPar or Price

F_{it} describes organizational form, either franchised ($F_{it} = 1$) or company operated ($F_{it} = 0$),

X_{it} represents time-varying hotel and market characteristics

Z_i stands for time-invariant hotel and market characteristics

Methodology and Results

- We take $e_{it} = \mu_i + u_{it}$ to be a composite error term, where μ_i represents hotel-level unobserved heterogeneity that is uncorrelated with observed characteristics
- We control for it either by correcting standard errors for hotel-level clusters, or using random effects (RE) estimation
- In additional specifications, we also allow for correlated unobserved heterogeneity, i.e. we use Mundlak's (1978) methodology to control for hotel fixed effects
- u_{it} represents an idiosyncratic error term

Log (RevPar)

		<i>controlling for hotel FE</i>	
	OLS(cluster)	OLS(cluster)	RE
Franchised	-0.046***	-0.039**	-0.042***
	[0.017]	[0.017]	[0.016]
Number of Rooms	-0.015	-0.268***	-0.266***
	[0.024]	[0.069]	[0.048]
Hotel Age	0.081***	0.240***	0.222***
	[0.011]	[0.022]	[0.016]
Air Conditioning...	0.103***	0.100***	0.087***
	[0.020]	[0.020]	[0.021]
Observations	39226	39226	39226
# of Hotels	1194	1194	1194
R2	0.74	0.75	0.85

Log Price (or Average Room Rate)

		<i>controlling for hotel FE</i>	
	OLS(cluster)	OLS(cluster)	RE
Franchised	-0.022**	-0.018*	-0.013*
	[0.011]	[0.011]	[0.007]
Lagged	0.142***	0.044***	0.043***
Occupancy	[0.013]	[0.005]	[0.003]
Number	0.024	0.002	0.0001
of Rooms	[0.015]	[0.028]	[0.015]
Hotel Age	0.004	-0.022***	-0.005
	[0.007]	[0.008]	[0.005]
Air Cond....	0.067***	0.064***	0.067***
Observations	37936	37936	37936
# of Hotels	1194	1194	1194
R2	0.93	0.93	0.93

Log (Occupancy Rate)

		<i>controlling for hotel FE</i>	
	OLS(cluster)	OLS(cluster)	RE
Franchised	-0.013	-0.007	-0.013
	[0.009]	[0.009]	[0.010]
Lagged	0.306***	0.218***	0.206***
Price	[0.029]	[0.022]	[0.015]
Number	-0.039***	-0.268***	-0.266***
of Rooms	[0.012]	[0.041]	[0.030]
Hotel Age	0.057***	0.193***	0.168***
	[0.007]	[0.019]	[0.013]
Observations	37936	37936	37936
# of Hotels	1194	1194	1194
R2	0.42	0.44	0.48



Methodology and Results

- Above treats franchise v. corporately operated status as exogenous, or affected only by those variables we control for in our regressions
- Exists other potential sources of correlation between the idiosyncratic shock (u_{it}) and organizational form
- Thus we endogenize organizational form and estimate the performance equation using IV methodology



Methodology and Results

- We rely on distance to franchisor headquarters as the instrument for organizational form
- Agency theory in particular suggests that hotels further away from franchisor headquarters should be more likely to be franchised
- Statistically we find this instrument is valid for our data
- Note: since our endogenous variable is binary, we use a linear probability model for the first-stage regression (see notably Heckman (1978, 1990) and Wooldridge (2002, p. 622))

IV estimation (with fixed effects)

	RevPar		Price		Occupancy Rate	
	(cluster)	RE	(cluster)	RE	(cluster)	RE
Franchised	-2.352	-2.276	-1.774	-0.923	0.313	0.707
	[2.567]	[2.276]	[2.140]	[0.621]	[0.909]	[1.338]
Lagged			0.039***	0.041***		
Occupancy			[0.009]	[0.003]		
Lagged					0.223***	0.208***
Price					[0.026]	[0.012]
Number of	-0.293***	-0.292***	-0.373	-0.029	-0.264***	-0.257***
Rooms	[0.076]	[0.044]	[0.492]	[0.026]	[0.043]	[0.034]
Hotel Age	0.199***	0.219***	-0.038	-0.005	0.200***	0.168***
	[0.062]	[0.012]	[0.035]	[0.005]	[0.029]	[0.010]



Conclusion

- Comparing the means of our outcome and performance measures between the two organizational forms suggested franchised hotels had
 - higher prices
 - and lower occupancy rates
- This is the kind of data managers rely on
- Once we control for hotel and market characteristics, we still find performance differences, but now franchised have:
 - lower prices,
 - lower revenues per unit of capacity (RevPar)
 - but not significantly lower occupancy rates
- and other effects are much larger



Conclusion

- Finally all these differences become statistically insignificant when we endogenize the selection of organizational form along with our performance equations
- We conclude that this firm chooses which hotels to franchise and operate in a way that achieves consistent results between the two sets of hotels – the incentives in its choices compensate for the different markets where we see franchises and corporate hotels
- We have yet to explore if perhaps franchising interacts with characteristics of hotels or markets in a way that may yield significant “costs of choosing the wrong form”