

Benito ARRUÑADA, Luis VÁZQUEZ and Giorgio ZANARONE

Institutional Constraints on Organizations: The Case of Spanish Car Dealerships*

Managerial and Decision Economics, 2009, 30(1), 15-26.

Abstract

We study the effect of organizational choice and institutions on the performance of Spanish car dealerships. Using outlet-level data from 1994, we find that vertically-integrated dealerships showed substantially lower labor productivity, higher labor costs and lower profitability than franchised ones. Despite these gaps in performance, no vertically-integrated outlet was separated until 1994, yet the few outlets that were eventually separated systematically improved their performance. We argue that the conversion of integrated outlets into franchised ones involved significant transaction costs, due to an institutional environment favoring permanent, highly-unionized employment relations. In line with this argument, we find that the observed separations occurred in distribution networks that underwent marked reductions in worker unionization rates, following the legalization of temporary labor contracts.

Keywords: Vertical integration, ownership, distribution, networks, franchising.

JEL codes: D23, L14, L22, L81

* Arruñada: Universitat Pompeu Fabra; E-mail, benito.rrunada@upf.edu. Vázquez: Universidad de Salamanca; E-mail, lvazquez@usal.es. Zanarone: Universitat Pompeu Fabra; E-mail, giorgio.zanarone@upf.edu. We thank Manuel F. Bagues, Per-Olof Bjuggren, César Camisón, Jaume García, Luis Garicano, Robert Gibbons, Manuel González-Díaz, Oliver Hart, Justus Haucap, Adriana Kugler, Joaquín Lorences, Jack Nickerson, Gustavo Nombela, Silvio Rendón, Albert Satorra, Ernesto Villanueva, Oliver E. Williamson and numerous workshop participants for their comments and suggestions. Usual disclaimers apply. The study received financial support from the Spanish Ministry of Education through grant SEJ2005-03871/ECON, and the European Commission through the Integrated Project “Reflexive Governance in the Public Interest” (CIT3-513420).

1. Introduction

Following the seminal work by Rubin (1978), a substantial part of the empirical literature on retail distribution has focused on the choice between vertical integration and franchising.¹ This approach has clarified the agency cost determinants of organizational choice, at the price of renouncing direct measurement of costs and benefits. Although some studies have tried to estimate the effect of organizational form on performance at the level of production units, their results are potentially subject to endogeneity and sample selection biases, which complicate the interpretation of the observed correlations between organizational form and performance.²

This paper uses a cross-section of 250 Spanish car distributors to assess how the choice between vertical integration and franchising affects outlet performance, and relies on the historical patterns exhibited by such organizational choice in Spain to address sample selection concerns.

The facts emerging from the Spanish automobile distribution market are as follows. Car distribution started to be organized through dealership networks in 1948, when the first (franchised) outlet was opened. Between 1952 and 1974, Seat, Peugeot, Mercedes, Renault and Citroen in that order entered the market with a mixture of franchised and vertically-integrated dealerships. However, between 1974 and 1994, only franchised dealerships were opened by both existing manufacturers and new entrants. None of the existing vertically-integrated outlets were either closed or separated (i.e. converted to franchising) in that period. Using outlet-level financial data from 1994 we find that, after controlling for several sources of covariation, these vertically-integrated dealerships had much higher labor costs,

¹ See Shelanski and Klein (1995), Lyons (1995), Lafontaine and Slade (1997) or, more recently, Boerner and Macher (2001) for excellent summaries.

² See, for instance, Shelton (1967), Krueger (1991) Beheler (1991) and Barron and Umbeck (1994). Chiappori and Salanié (2003) analyze the problem of selection bias

lower labor productivity and lower profitability than franchised ones. Despite their substantial underperformance, however, no integrated dealerships were separated until 1994, and only a few were separated between 1994 and 1997 (the last year for which data on organizational form are available).

The fact that no vertically-integrated dealerships were opened after 1974 strongly suggests, in line with the models in Brickley, Dark and Weisbach (1991), Gallini and Lutz (1992) and Scott (1995), that outlet and network characteristics did not determine organizational choice in the Spanish automobile industry between 1974 and 1994. More precisely, the data indicate that, during those 20 years, franchising was the dominant mode for governing automobile distribution. If this interpretation is correct, observed performance differentials between franchised and integrated outlets should mostly reflect the true impact of organizational choice on performance, rather than sample selection.

The choice of early entrants to operate some vertically-integrated outlets despite their underperformance and let their share decrease later on has been explained in the literature as a way of signaling brand quality to uninformed franchisees in an immature market for franchises.³ However, in our case, this signaling argument does not explain why, in spite of inferior performance, Spanish integrated outlets were not separated as the market matured and the manufacturers' reputation became consolidated.

As an explanation, we propose that the observed delay in separating inefficient outlets is due to the strongly pro-labor Spanish institutional environment which, by favoring unionization and protecting employees from termination, granted workers in integrated dealerships sufficient bargaining power to oppose separation decisions. Consistent with that, we find that the few separations observed after 1994 tended to occur when integrated

focusing on contract theory. For a related analysis in the area of business strategy, see Hamilton and Nickerson (2003).

³ Several studies document that, in accordance with the theory of vertical integration as a signaling device, franchisors that have been in the market for a long time own a lower share of outlets. See, for instance, Gallini and Lutz (1992), Lafontaine (1992), Martin (1988), Minkler and Park (1994) and Scott (1995).

dealerships increased the numbers of non-unionized, temporary workers (see Table 4), as a consequence of the legalization of temporary labor contracts in 1984.

The rest of the article is structured as follows. Section 2 describes the data. Section 3 illustrates the differentials in labor productivity, labor costs and financial performance between franchised and vertically-integrated car dealerships and shows that organizational choice models based on agency theory do not account for them. Section 4 presents evidence supporting the role of the Spanish contractual and institutional environment in constraining organizational choice. Section 5 concludes.

2. The data

To study the effect of organizational design on multiple dimensions of outlet performance, we use a systematic random sample of 179 franchised dealerships and the entire population of 71 vertically-integrated dealerships operating in Spain in 1994. These data offer unique *ceteris paribus* conditions. First, there is a high degree of homogeneity amongst outlets, with respect to activities and technology, size, and even the accounting methods used. Also, all dealerships operate under the same institutional constraints—in particular, a labor force hired under the same rules, which include mandatory union representation, centralized collective bargaining and collective agreements, and high dismissal costs for permanent contracts.⁴ Finally, reliance on accounting data is less prone to biases in our case because all firms in the sample work in the same industry, outlets in each chain employ common accounting principles, and accounting differences between chains are not material.

⁴ For descriptions of the Spanish labor market at the time, see García Perea and Gómez (1993) and Malo de Molina (1983).

2.1. Dependent variables

We measure four dimensions of outlet performance: labor productivity (**VAE**), average labor costs (**LCE**), profitability (**ROI**) and commercial margin (**ROS**). The variable measuring labor productivity (**VAE**) is the ratio of added value (calculated as the sum of profits, wages, depreciation and provisions, minus financial expenses) and number of workers in each outlet. In measuring labor cost per employee, **LCE**, we include social insurance contributions, for each outlet. Return on investment (**ROI**) and return on sales (**ROS**) are defined as profits before interest and taxes over, for **ROI**, total book value of assets before depreciation and, for **ROS**, net sales of each outlet.

Information on the dependent variables comes from the dealerships' financial statements for the 1994 financial year, which are publicly available from the Register of Companies and were mostly subject to independent auditing.

2.2. Independent variables

As a predictor of performance, we use **Ownership**, a dummy that takes value one for vertically-integrated outlets and zero for franchised ones.

We also include a number of controls potentially affecting outlet performance. In particular, we control for the rate of growth experienced by car sales in the local market between 1994 and 1995 (**Market Growth**), considering each province as a local market; the average retail list price of each brand's cars in 1996 (**Average Price**); the quality level of the services provided by each network (**Service Quality**), measured as the residual of regressing the original service quality index against the average price variable;⁵ the adjusted density of the manufacturer's network in the local market of each outlet

⁵ To build this quality index, we take the average rating assigned by users of a given model to the services provided by the brand distributors and weigh it against the ratio of that model's sales over the brand total sales in Spain in 1994.

(Intrabrand Competition), measured as the residuals of regressing the number of outlets against the number of cars sold by the manufacturer in the local market; the physical **Distance** between each outlet and network headquarters in Spain; the net investment of each outlet, defined as the book value of its assets minus accumulated depreciation (**Net Assets**); finally, the variation coefficient of network sales between 1991 and 1999 (**Sales Variation**).

Sources of data and descriptive statistics for all variables are shown in Table 1 and correlations in Table A.1 (Annex).

3. Results

3.1. Productivity, labor costs and profitability of integrated versus franchised dealerships

We first estimate the effect of organizational choice on outlet labor costs and productivity by running OLS regressions of **VAE** and **LCE** on **Ownership** and the control variables described in section 2. In the **LCE** model, we include the average labor wage paid in each market, **Average Wage**, as an additional control. Similarly, in the **VAE** model, we include as a control a proxy of labor inputs, **LCE Residual**, measured as the residuals of regressing average labor costs, **LCE**, against **Average Wage**. We find, on average, that integrated dealerships have 7.83% (0.98 standard deviations) less value added per employee and a 10.58% (1.66 standard deviations) greater labor cost per employee than franchised ones.

We also estimate the effect of organizational form on outlet profitability by regressing **ROI** and **ROS** against **Ownership** and the control variables. We find that vertically-integrated dealerships, on average, have a 26.78% (1.57 standard deviations) smaller return

on investment and a 22.22% (1.05 standard deviations) smaller return on sales than franchised ones.

We now turn to possible interpretations of these striking differentials in terms of labor productivity, labor costs and profitability, and to how our data may help assess their empirical relevance. The franchising literature suggests two main explanations for the existence of performance gaps between integrated and franchised dealerships: agency costs and reputational signaling.

3.2. Agency cost interpretations

If the organizational form of each dealership were the outcome of an unconstrained optimal choice based on outlet and network characteristics, as argued by agency theory, the observed profitability gaps would not accurately measure the gains in efficiency from franchising. Instead, they might reflect either sample selection or free riding on the manufacturer's brand, depending on the factors that are assumed to determine organizational choice.

Sample selection

Under vertical integration, manufacturers pay dealership managers a flat wage and directly monitor their effort.⁶ Under franchising, manufacturers indirectly motivate dealers to exert effort by granting them the outlet's residual profits. In both cases, the downstream agents have imperfectly aligned effort incentives. Under integration, managers neither earn

⁶ For formal models in which employees of integrated units are paid a flat wage in equilibrium, see Holmstrom and Milgrom (1991, 1994). See, also, Van Den Steen (2005, 2007). The greater control enjoyed by manufacturers could be due to the fact that vertical integration expands the enforcement devices available to the manufacturer, as argued by

profits nor bear the costs of effort decisions and, in the absence of perfect manufacturer monitoring, they shirk in equilibrium. Under franchising, horizontal and vertical externalities, some of which may be unobservable to the econometrician, distort the dealers' effort decisions, resulting in a lower equilibrium effort than is desired by the manufacturer.⁷ Franchising will thus be chosen in locations where externalities are moderate, resulting in high outlet profitability (ROI and ROS). Conversely, vertical integration will be chosen in locations where externalities are substantial and, because of shirking, will result in profitability levels that are lower than those observed in franchised dealerships, but greater than they would be if integrated dealerships were franchised (selection bias).

In theory, selection bias may also explain the existence of productivity (VAE) and labor cost (LCE) gaps. However, one would have to assume that franchise externalities distort dealers' incentives to devote efforts to tasks affecting VAE and LCE, such as worker supervision and salary negotiation, making it necessary for manufacturers to carry out direct control via vertical integration in outlets where externalities are more intense. This assumption is intuitively unappealing in the case of LCE, because franchised dealers bear all the outlet operation costs—including LCE—and thus have well-aligned incentives to devote effort to negotiating salaries and benefits with workers.

However, we do not have data to verify this argument econometrically so, in order to address the remaining concerns related to the potential role of sample selection in the ROI,

Masten (1988) and Williamson (1991), or could emerge as an equilibrium result, as argued in Van den Steen (2007).

⁷ On franchise externalities in general, see Klein and Murphy (1988) and Klein (1995). For a discussion of the role of franchise externalities in automobile distribution, see Arruñada, Garicano and Vázquez (2001) and Zanarone (2007). These works also discuss the importance of contractual solutions to franchise externalities, such as discounts upon achievement of sales and service targets, territorial protection clauses and manufacturer-enforced service standards. Note that, when contractual solutions work well, vertical integration is less likely to be used to control car dealers, given its drawbacks in terms of low-powered effort incentives. This further expands the set of assumptions necessary for sample selection to matter, casting some doubts on its empirical relevance.

ROS and VAE gaps, we have corrected for sample selection using the “two-step” Heckman model. We find that, even if there is some statistically significant selection bias having an impact on some parameters, this does not alter the fixed effects of vertical integration on outlet productivity, labor costs and financial performance revealed by the OLS regressions.⁸

Free riding

According to the free riding argument, integration serves to provide manufacturers with greater control over local decisions, such as advertising expenditure and outlet layout standards, which increase the long-term value of the brand but decrease the short-term profitability of individual dealerships.⁹ This comes at the cost of muting the dealers’ incentives to devote effort to other tasks increasing outlet profitability, such as sales or service effort. As a result, franchised dealers may earn greater profits because of both their superior effort incentives and their cost savings from free riding. Any gap observed in financial performance between vertically-integrated and franchised outlets would therefore overestimate the true cost of integration (or, equivalently, the true benefit of franchising). Note, however, that, even if the free riding argument were correct, it would not affect the interpretations of the VAE and LCE gaps as costs of vertical integration, since local decisions that are subject to dealers’ free riding do not typically affect labor productivity and cost per employee.

To take the free riding effect into account, in the regressions of financial performance measures (**ROI** and **ROS**) on **Ownership**, we control for **Intrabrand competition**, a variable frequently used in the literature to measure the extent of dealers’ free riding. The **Ownership** coefficients indicate that, even after controlling for **Intrabrand competition**, vertical integration has a substantial negative impact on outlet profitability.

⁸ See the working paper version of this article for details and data (Arruñada, Vázquez and Zanarone, 2007). On the two-step model, see Heckman (1979).

Irrespective of econometrics, the observed patterns of organizational choice in Spanish automobile distribution are hard to reconcile with either the sample selection or the free riding arguments. In fact, both these arguments imply that, in locations and distribution networks with similar extents of dealer moral hazard and free riding, similar patterns of organizational choice should be observed. However, vertically-integrated dealerships were opened in Spain by only five manufacturers, at an early stage of market development (between 1952 and 1974), and in locations where all later entrants chose, instead, to open franchised dealerships.

3.3. The reputational signaling interpretation

Part of the literature has also argued that, even when outlets are more profitable under franchising than under vertical integration, franchisors enjoying limited reputation or entering a non-mature market may find it convenient to open some integrated dealerships to signal their commitment to quality to uninformed prospective franchisees.¹⁰ This signaling argument suggests that, as the market matures or the reputation of entering franchisors increases, the share of vertically-integrated outlets will shrink until it disappears altogether.

While the fact that vertically-integrated dealerships were only opened by manufacturers who entered the Spanish market at an early stage ties in with this signaling argument, the long time (twenty years) it took to separate poorly-performing dealerships does not, given that the Spanish market for dealerships, which started in 1948, was already quite mature in 1994.

⁹ See Brickley, Dark and Weisbach (1991), Klein (1995) and Lafontaine and Shaw (2005) for similar formulations of the free riding argument.

¹⁰ See, for instance, Lafontaine (1992, 1993), Gallini and Lutz (1992) and Scott (1995).

4. The role of institutional constraints

Our econometric results indicate that Spanish, vertically-integrated dealerships found it difficult to make efficient use of the labor input, resulting in lower productivity and higher labor costs than in franchised outlets and, consequently, poorer financial performance, as measured by substantial **ROI** and **ROS** differentials. Since traditional efficiency arguments do not seem to provide a convincing rationale for why the observed performance gaps did not cause the separation of vertically-integrated outlets until 1994, we explore an institutional explanation, based on the history of Spanish labor relations.

We argue that the lack of separations of underperforming integrated dealerships between 1974 and 1994 is due to the pro-labor institutional environment that developed after the end of Francisco Franco's dictatorship in 1975. The legal protection enjoyed by workers in integrated dealerships gave them sufficient power to prevent separations, which they opposed because they feared the manufacturer, a counterpart sensitive to union requests, would be replaced by a more financially-constrained and, therefore, tougher counterpart, independent franchisors. As workers' bargaining power gradually decreased after temporary labor contracts were legalized in 1984, the institutional environment became more favorable to separations, a few of which actually took place between 1994 and 1997.

4.1. Labor regulation, institutional change and separation decisions

After the end of Franco's authoritarian regime in 1975, trade unions were legalized in Spain and a *corpus* of pro-labor legislation developed, substantially increasing the bargaining power of workers. First, new collective labor contracts were adopted, whose terms were negotiated by trade unions in the name of both unionized and non-unionized workers and mandatorily applied to all the firms in an industry. Second, layoff costs, which were already high under Franco's paternalistic rule in order to prevent social conflict, were

further increased by a legal rise in the maximum severance payable to workers in case of termination. The effect of legal termination protection was magnified by a pro-labor turnaround in the attitude of courts, which, in litigation on layoff decisions, started to increasingly rule in favor of workers. As a result of the stronger bargaining power enjoyed by workers and unions, labor contracts typically contained higher minimum wages and less flexible working hours, rest times and compensation schemes.¹¹

While legal constraints such as termination laws protected all automobile workers irrespective of the nature of their employer, the extent to which they affected the terms of labor contracts in favor of workers was arguably greater in vertically-integrated dealerships than in franchised ones. Franchisees, lacking the “deep pockets” of large firms and being less concerned about the reputational loss caused by labor unrest, were in a better position than car manufacturers to avoid the appropriation of quasi-rents by workers. The prospect of less favorable contract terms induced unionized employees in vertically-integrated dealerships to oppose outlet separations, and this may explain why, despite their lower profitability, integrated dealerships had not yet been franchised by 1994.

The bargaining power accumulated by unions was dramatically reduced by the introduction, in 1984, of new forms of temporary labor contracts, which could be adopted without providing an objective justification and allowed employers to freely terminate contracts, paying little or no compensation. The threat of termination, combined with high unemployment rates, gave considerable leverage to employers, resulting in a gradual but steady increase in the proportion of temporary workers, which peaked in 1995, and in a parallel decrease in unionization rates.

We argue that the introduction of temporary labor contracts, whose effect became material at the beginning of the 1990s, reduced the ability of workers in integrated dealerships to oppose separations and also created a dual internal labor market in which

¹¹ For a more detailed discussion of Spanish labor regulations and how they negatively affected firm size in other industries, such as construction and trucking, see González-Díaz, Arruñada and Fernández (1998), Fernández, Arruñada and González-Díaz (2000) and Arruñada, Fernández and González-Díaz (2004).

separations were less threatening to employees who had been hired before 1984, under more favorable permanent contracts. These two effects helped create a more favorable environment for the conversion of inefficient integrated dealerships into franchised ones, leading to the first separations after 1994.

4.2. Predictions and evidence

If it is true that workers have stronger bargaining power in integrated dealerships than in franchised ones, we would expect employees in the former to be paid higher wages. Also, if it is true that workers' bargaining power can effectively block the conversion of integrated dealerships into franchised ones, we would expect separations to occur in networks with a higher proportion of temporary labor contracts and a sharper drop in unionization rates.

The available evidence is consistent with both hypotheses. First, as discussed in section 3, vertically-integrated dealerships had significantly higher labor costs than independent ones, suggesting that workers in the former had greater bargaining power than their franchised counterparts.

The relevance of this result is confirmed by the observed performance of the few units that were finally separated after 1994, suggesting the franchising of company-owned outlets positively affected outlet performance. The model used for this analysis resembles the "event studies" popular in financial economics. We regressed the performance of each outlet relative to that of its network (built by dividing outlet performance by the average performance of its network) against five timing dummy variables that identify the observation year relative to the year each outlet was separated (Table 3).¹² The parameters estimated show that separated outlets constantly reduced their labor cost per worker, practically catching up with their peers in five years. In line with the evidence presented in

¹² See Fama *et al.* (1969).

section 3, separated outlets also improved their productivity, measured by the **VAE** index, and increased their profitability, measured by the **ROI** and **ROS** indexes, which indicates that the effect of separations was not merely redistributive.

Regarding the second hypothesis, the data we obtained from two of the networks with integrated outlets confirm the positive association between incidence of temporary contracts, unionization rates and outlet separations. We find that, in these networks, between 1988 and 1999, the percentage of workers under temporary contracts increased, respectively, from 6 to 22% and from 8 to 31%, while the rate of unionized workers decreased from 84% to 62%. We also run probit, ordered probit and OLS regressions of a separation dummy (1 if separation occurs in a given year, 0 otherwise) against the percentage of temporary workers per network and year, and we find that temporary labor contracts had a high power in explaining the timing of separations.¹³The coefficients obtained from these regressions are reported in Table 4.

5. Concluding remarks

The evidence presented in this paper shows that Spanish, vertically-integrated car dealerships had substantially higher labor costs, lower productivity and lower financial performance than franchised ones, and that these gaps mainly reflected the cost of choosing vertical integration as an organizational form. The evidence also shows that manufacturers only started to separate inefficient integrated dealerships after 1994, when deregulation legalizing temporary labor contracts resulted in lower unionization rates, decreasing workers' ability to successfully oppose separations.

¹³ Not surprisingly, given the high correlation between unionization and temporary employment, basically the same results obtain if the unionization rate is used as an independent variable.

Our results suggest that the organizational choices we observe are the outcome of a constrained optimization process, where the dominant constraints are likely to be institutional in nature. This suggests, at least in some institutional environments, that conventional agency models may be disregarding an important factor in organizational and governance decisions: the influence of the contractual and institutional environment.

While illuminating the importance of institutional constraints, our data do not identify the type of optimal organizational choice to which these constraints apply. In particular, it would be interesting to understand whether pro-labor institutions (1) simply delayed the separation of underperforming, integrated outlets, for which integration had been rendered unnecessary by the maturation of the market for independent dealerships, as implied by the signaling argument; or (2) also prevented manufacturers from opening new integrated dealerships between 1974 and 1994. This latter effect would be consistent with the argument proposed by Lafontaine and Shaw (2005), according to which, in order to control dealers' free riding and, possibly, provide themselves with effort incentives, manufacturers target an optimal share of vertically-integrated outlets and keep it stable once they reach it.

To test these hypotheses, more recent data on organizational choices for both new and existing outlets would be necessary. While such data were not available to the present study, collecting and analyzing them is a goal we aim to pursue in further empirical research on this topic.

6. References

- ANDERSON E, SCHMITTLEIN D. 1984. Integration of the Sales Force: An Empirical Examination. *Rand Journal of Economics* **15**: 385-395.
- ARRUÑADA B, GARICANO L, VÁZQUEZ L. 2001. Contractual Allocation of Decision Rights and Incentives: The Case of Automobile Distribution. *Journal of Law, Economics, and Organization* **17**: 256-283.
- ARRUÑADA B, GONZÁLEZ-DÍAZ M, FERNÁNDEZ A. 2004. Determinants of Organizational Form: Transaction Costs and Institutions in the European Trucking Industry. *Industrial and Corporate Change* **13**: 867-882.
- ARRUÑADA B, VÁZQUEZ L, ZANARONE G. 2007. Institutional Constraints on Organizational Performance. Universitat Pompeu Fabra, *Economics and Business Working Paper Series* 348.
- BARRON JM, UMBECK JR. 1984. The Effects of Different Contractual Arrangements: The Case of Retail Gasoline. *Journal of Law and Economics* **27**: 313-328.
- BEHELER RL. 1991. Control in Various Organizational Forms: An Empirical Study of Company-Owned and Franchisee-Owned Units' Health Inspections. In Nevin JR (ed.), *Franchising: Embracing the Future*, Fifth Annual Proceedings of the Society of Franchising, University of St-Thomas.
- BRADACH JL. 1998. *Franchise Organizations*. Harvard Business School Press: Boston.
- BRICKLEY JA, and DARK FH. 1987. The Choice of Organizational Form: The Case of Franchising. *Journal of Financial Economics* **18**: 401-420.
- BRICKLEY JA, DARK FH, WEISBACH MS. 1991a. The Economic Effects of Franchise Termination Laws. *Journal of Law and Economics* **34**: 101-132.
- BRICKLEY JA, DARK FH, WEISBACH MS. 1991b. An Agency Perspective on Franchising. *Financial Management* **20**: 27-35.
- CARNEY M, GEDAJLOVIC E. 1991. Vertical Integration in Franchise Systems: Agency Theory and Resource Explanations. *Strategic Management Journal* **12**: 607-629.
- CAVANAUGH JK. 1998. Asset-Specific Investment and Unionized Labor. *Industrial Relations*, **37**: 35-50.
- CHIAPPORI PA, SALANIÉ B. 2003. Testing Contract Theory: A Survey of Some Recent Work. In Dewatripont M, Hansen LP, Turnovsky SJ. (eds.), *Advances in Economics and Econometrics: Theory and Applications*, vol. 1, Cambridge University Press: Cambridge; 115-149.

- FAMA E, FISHER L, JENSEN M, ROLL R. 1969. The Adjustment of Stock Prices to New Information. *International Economic Review* **10**: 1-21.
- FERNÁNDEZ A, ARRUÑADA B, GONZÁLEZ-DÍAZ M. 2000. Quasi-Integration in Less-than-Truckload Trucking. In Ménard C. (ed.), *Institutions, Contracts, Organizations: Perspectives from New Institutional Economics*, Edward Elgar: Cheltenham and Northampton; 293-312.
- GALLINI NT, LUTZ NA. 1992. Dual Distribution and Royalty Fees in Franchising. *Journal of Law, Economics and Organization* **8**: 471-501.
- GARCÍA PEREA P, GÓMEZ R. 1993. Aspectos institucionales del mercado de trabajo español en comparación con otros países comunitarios. *Boletín Económico del Banco de España*, September: 29-47.
- GONZÁLEZ M, ARRUÑADA B, FERNÁNDEZ A. 1998. Regulation as a Cause of Firm Fragmentation: The Case of the Spanish Construction Industry. *International Review of Law and Economics* **18**: 433-450.
- HAMILTON BH, NICKERSON JA. 2003. Correcting for Endogeneity in Strategic Management Research. *Strategic Organization* **1**: 53-80.
- HECKMAN J. 1979. Sample Selection Bias as a Specification Error. *Econometrica* **47**: 153-161.
- HOLMSTROM B, MILGROM P. 1991. Multitask Principal-Agent Analysis: Incentive Contracts, Asset Ownership and Job Design. *Journal of Law, Economics and Organization* **7**: 24-52.
- HOLMSTROM B, MILGROM P. 1994. The Firm as an Incentive System. *American Economic Review* **84**: 972-991.
- INE. 1995. *Encuesta de salarios de la industria y los servicios*, Instituto Nacional de Estadística: Madrid.
- KEHOE MR. 1996. Franchising, Agency Problems, and the Cost of Capital. *Applied Economics*, **28**: 1485-1493.
- KLEIN B. 1995. The Economics of Franchise Contracts. *Journal of Corporate Finance* **2**: 9-38.
- KLEIN B, MURPHY KM. 1988. Vertical Restraints as Contract Enforcement Mechanisms. *Journal of Law and Economics* **31**: 265-297.
- KRUEGER AB. 1991. Ownership, Agency and Wages: An Examination of Franchising in the Fast Food Industry. *Quarterly Journal of Economics* **106**: 75-101.
- LAFONTAINE F. 1992. Agency Theory and Franchising: Some Empirical Results. *Rand Journal Economics* **23**: 263-283.
- LAFONTAINE F. 1993. Contractual Arrangements as Signaling Devices: Evidence from Franchising. *Journal of Law, Economics, and Organization* **9**: 256-289.

- LAFONTAINE F, SHAW KL. 2005. Targeting Managerial Control: Evidence from Franchising. *Rand Journal of Economics* **36**: 131-150.
- LAFONTAINE F, SLADE ME. 1997. Retail Contracting: Theory and Practice. *Journal of Industrial Economics* **45**: 1-25.
- LYONS BR. 1996. Empirical Relevance of Efficient Contract Theory: Inter-Firm Contracts. *Oxford Review of Economic Policy* **12**: 27-52.
- MALO DE MOLINA J. 1983. ¿Rigidez o flexibilidad del mercado de trabajo? La experiencia española durante la crisis. *Estudios Económicos del Banco de España* **34**.
- MARTIN RE. 1988. Franchising and Risk Management. *The American Economic Review* **78**: 954-968.
- MASTEN SE. 1988. A Legal Basis for the Firm. *Journal of Law, Economics and Organization* **4**: 181-198.
- MASTEN SE, MEEHAN J, SNYDER E. 1991. The Costs of Organization. *Journal of Law, Economics, and Organization* **7**: 1-25.
- MINKLER AP. 1990. An Empirical Analysis of a Firm's Decision to Franchise. *Economics Letters* **34**: 77-82.
- MINKLER AP, PARKER TA. 1994. Asset Specificity and Vertical Integration. *Review of Industrial Organization* **9**: 409-423.
- MURIS TJ, SCHEFFMAN DT, SPILLER PT. 1992. Strategy and Transaction Costs: The Organization of Distribution in the Carbonated Soft Drink Industry. *Journal of Economics & Management Strategy* **1**: 83-128.
- NORTON S. 1988. An Empirical Look at Franchising as an Organizational Form. *Journal of Business* **61**: 197-217.
- POPPO L, ZENGER T. 1998. Testing Alternative Theories of the Firm: Transaction Cost, Knowledge-Based, and Measurement Explanations for Make-or-Buy Decisions in Information Services. *Strategic Management Journal* **19**: 853-877.
- PRENDERGAST C. 2000. What Trade-off of Risk and Incentives?. *AEA papers and Proceedings* **90**: 421-425.
- RUBIN PH. 1978. The Theory of the Firm and the Structure of the Franchise Contract. *Journal of Law and Economics* **21**: 223-233.
- SAINT-PAUL G. 1996. *Dual Labor Markets: A Macroeconomic Perspective*. The MIT Press: Cambridge, MA.
- SCOTT FA. 1995. Franchising vs. Company Ownership as a Decision Variable of the Firm. *Review of Industrial Organization* **10**: 69-81.
- SHELANSKI HA, KLEIN PG. 1995. Empirical Research in Transaction Cost Economics. *Journal of Law, Economics, and Organization* **11**: 335-361.

- SHELTON J. 1967. Allocative Efficiency vs. X-Efficiency: Comment. *American Economic Review* **57**: 1252-1258.
- SHEPARD A. 1993. Contractual Form, Retail Price, and Asset Characteristics in Gasoline Retailing. *Rand Journal of Economics* **24**: 58-77.
- SLADE ME. 1996. Multitask Agency and Contract Choice: An Empirical Assessment. *International Economic Review* **37**: 465-486.
- SLADE ME. 1998. Beer and the Tie: Did Divestiture of Brewer-Owned Public Houses Lead to Higher Beer Prices?. *Economic Journal* **108**: 565-602.
- TELSER L. 1960. Why Should Manufacturers Want Fair Trade?. *Journal of Law and Economics* **3**: 86-105.
- VAN DEN STEEN E. 2007. Interpersonal Authority in a Theory of the Firm. MIT Sloan School of Management, Unpublished manuscript.
<http://web.mit.edu/evds/www/research/researchindex.html> [3 June 2007].
- VAN DEN STEEN E. 2005. Too Motivated? MIT Sloan School of Management, *Working Paper* 4547-05.
- WILLIAMS DL. 1999. Why Do Entrepreneurs Become Franchisees? An Empirical Analysis of Organizational Choice. *Journal of Business Venturing* **14**: 103-114.
- WILLIAMSON O. 1991. Comparative Economic Organization: The Analysis of Discrete Structural Alternatives. *Administrative Science Quarterly* **36**: 269-296.
- ZANARONE G. 2007. Vertical Restraints as Incentive Alignment Mechanisms in Long-Term Relationships. Universitat Pompeu Fabra. Unpublished manuscript.

Table 1. Description of the variables used in the empirical analysis and descriptive statistics of the sample

Variable	Description and source of data	Company-owned outlets		Franchised outlets				All outlets					
				All franchised outlets		Networks with some company-owned outlets		Networks with all franchised outlets					
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Maximum	Minimum
<i>Ownership</i>	Takes value 1, for owned units; 0, otherwise ^a	1	0	0	0	0	0	0	0	.284	.452	1	0
<i>ROI</i>	Return on investment (%) ^a	6.510	.779	8.780	1.191	8.843	1.048	8.743	1.270	8.135	1.496	12.51	3.69
<i>ROS</i>	Return on sales (%) ^a	.587	.085	.783	.156	.777	.1539	.787	.157	.728	.165	1.44	.35
<i>VAE</i>	Value added per employee (000 €) ^a	30.043	1.925	31.865	2.578	31.804	2.437	31.900	2.668	31.347	2.544	40.281	22.313
<i>LCE</i>	Labor costs per employee (000 €) ^a	24.296	.616	21.891	.965	21.973	1.035	21.843	.923	22.574	1.397	26.212	15.945
<i>Market Growth</i>	Growth of each local market between 1994 and 1995 (%) ^b	19.283	3.375	18.165	2.593	18.009	2.670	18.255	2.554	18.482	2.874	26.07	14.62
<i>Average Price</i>	Average retail list price of each brand's cars, 1996 (000 €) ^c	14.023	0.921	16.207	5.596	16.110	6.845	16.264	4.750	15.586	4.858	35.646	9.905
<i>Service Quality</i>	Quality level of the services provided by each network, measured as the residual of regressing the service quality index against average price ^c	-.382	.272	.144	.776	-.0187	.608	.23899	.847	-.005	.713	1.668	-1.642
<i>Intrabrand Competition</i>	Intrabrand competition, measured as the residuals of regressing the number of outlets of the brand against the size of the local market ^d	1.462	3.276	-.553	3.113	.320	2.609	-1.062	3.277	.019	3.282	12.873	-12.518
<i>Distance</i>	Physical distance between each outlet and network headquarters in Spain (000 Km)	.392	.291	.476	.328	.447	.267	.493	.359	0.452	0.320	2.3	0
<i>Net Assets</i>	Assets' book value minus accumulated depreciation (000€) ^a	2.450	.403	1.731	.761	1.820	.742	1.679	.771	1.935	.752	4.768	.376
<i>Sales Variation</i>	Variation coefficient of network sales between 1991-1999 ^c	.175	.033	.173	.050	.1705	.0311	.174	.058	0.174	0.046	0.336	0.059
<i>Advertising Effort</i>	Percentage of sales spent on advertising by manufacturers ^f	.021	.005	.029	.025	.020	.0070	.034	.030	0.027	0.022	0.122	0.006
<i>Network Age</i>	Number of years the brand has been present in Spain when each outlet opens ^e	6.310	3.823	13.106	11.777	23.197	7.960	7.212	9.414	11.176	10.616	41	0
<i>Market Age After 1973</i>	Market age when each outlet was opened ^g Institutional change dummy (takes value 1 for outlets opened after 1973; 0, otherwise) ^g	15.408	4.406	25.581	1.476	25.106	2.128	25.858	.789	22.692	5.305	26	7
<i>Average Wage</i>	Average wage in the local market (000 €) ^h	.042	.203	.911	.286	.833	.376	.956	.207	.664	.473	1	0
<i>LCE Residual</i>	Average labor inputs, measured as the residuals of regressing average labor costs, <i>LCE</i> , against <i>Average Wage</i>	6.992	.674	6.742	.704	6.837	.596	6.687	.756	6.813	.703	8.001	4.740
		1.574	.605	-.624	.855	-.621	.968	-.626	.787	0.000	1.270	3.481	-6.736
<i>N</i>	Number of observations	71		179		66		113		250			

Sources: ^a Annual financial statements, publicly registered; ^b *Statistical Yearbook* of the Spanish General Directorate for Traffic (DGT, 1994 and 1995); ^c car magazine *Autopista* (1996) and data from the Spanish General Directorate for Traffic (DGT, 1994); ^d 23 chain directories; ^e survey of manufacturers, partly verified through public references; ^f magazine *Anuncios* (1996) and report of the manufacturers' association (ANFAC, 1995); ^g telephone survey of outlets; ^h *Survey on Wages in Industry and Services* published by the National Statistics Institute (INE, 1995)

Table 2. Estimated performance. OLS Models estimating the effect of Ownership on outlet performance

	(1)	(2)	(3)	(4)
	<i>VAE</i>	<i>LCE</i>	<i>ROI</i>	<i>ROS</i>
<i>Ownership</i>	-2.493 (4.86) ^{***}	2.315 (16.96) ^{***}	-2.351 (14.42) ^{***}	-0.174 (8.06) ^{***}
<i>Market Growth</i>	0.422 (8.91) ^{***}	0.021 (1.12)	0.173 (7.86) ^{***}	0.020 (6.87) ^{***}
<i>Average Price</i>	0.110 (3.73) ^{***}	-0.007 (0.63)	0.012 (0.91)	0.002 (0.94)
<i>Service Quality</i>	0.071 (0.35)	-0.048 (0.61)	0.199 (2.12) ^{**}	0.056 (4.48) ^{***}
<i>Intrabrand Competition</i>	-0.109 (2.58) ^{**}	-0.016 (0.97)	-0.055 (2.82) ^{***}	-0.003 (1.22)
<i>Distance</i>	0.080 (0.19)	0.088 (0.52)	-0.171 (0.85)	0.065 (2.45) ^{**}
<i>Net Assets</i>	-0.047 (0.24)	-0.118 (1.54)	0.146 (1.60)	-0.002 (0.18)
<i>Sales Variation</i>	-3.966 (1.22)	-0.046 (0.04)	5.441 (3.62) ^{***}	0.625 (3.14) ^{***}
<i>LCE Residual</i>	0.339 (2.07) ^{**}			
<i>Average Wage</i>		0.602 (8.10) ^{***}		
Constant	23.294 (20.22) ^{***}	17.741 (27.43) ^{***}	4.272 (8.02) ^{***}	0.248 (3.52) ^{***}
Observations	250	250	250	250
Adjusted <i>R</i> -squared	0.37	0.69	0.61	0.44
<i>F</i>	17.53 ^{***}	62.20 ^{***}	49.64 ^{***}	25.26 ^{***}

Notes: Absolute value of *t* statistics in parentheses.

* Significant at 10%; ** significant at 5%; *** significant at 1%

Table 3. Performance of formerly integrated outlets after separation

<i>Dependent variables: Performance of separated outlets relative to the average performance of all outlets in their networks</i>			
	(1)	(2)	(3)
	<i>Relative ROS</i>	<i>Relative VAE</i>	<i>Relative LCE</i>
Relative performance before separation:			
Constant	0.858 (154.48) ^{***}	0.926 (200.53) ^{***}	1.065 (311.29) ^{***}
Added relative performance after separation:			
<i>After one year</i>	0.040 (3.26) ^{***}	0.034 (6.02) ^{***}	-0.027 (4.65) ^{***}
<i>After two years</i>	0.071 (5.71) ^{***}	0.052 (9.17) ^{***}	-0.041 (7.07) ^{***}
<i>After three years</i>	0.099 (7.97) ^{***}	0.056 (9.89) ^{***}	-0.041 (7.12) ^{***}
<i>After four years</i>	0.107 (6.97) ^{***}	0.063 (8.79) ^{***}	-0.047 (6.43) ^{***}
<i>After five years</i>	0.131 (7.08) ^{***}	0.059 (6.72) ^{***}	-0.055 (6.27) ^{***}
Observations	40	40	40
Adjusted R-squared	0.77	0.96	0.98
F	27.25 ^{***}	112.4 ^{***}	243.42 ^{***}

Notes: Relative performance was obtained by dividing each outlet's performance by the average performance of its network for ROS, VAE and LCE. (Network data was unavailable for ROI). Time dummies were introduced by taking for each outlet the year of its separation as zero. Outlets' dummies, as well as three years of pre-separation data, were also included. Absolute value of *t* statistics in parentheses. *** Significant at 1%.

Table 4. Temporary employment as a facilitator of separation

Independent variable:	Dependent variable: <i>Annual Separation</i> (=1 if a separation takes place in the network during a given year; 0 otherwise)	Dependent variable: <i>Accumulated Separations</i> (accumulated number of outlets that were <i>separated</i> during the period in the relevant network)	
	(1)	(2)	(3) ^a
<i>Temporary employment as a percentage of total employment in all integrated outlets of the relevant network</i>	0.129 (1.86) [*]	0.662 (2.15) ^{**}	0.080 (7.55) ^{***}
Constant	-3.975 (2.28) ^{**}		-0.971 (4.73) ^{***}
Observations	24	24	24
Pseudo <i>R</i> -squared (^a Adjusted <i>R</i> -squared)	0.30	0.78	0.71 ^a
LR χ^2 (^a <i>F</i>)	5.51 ^{**}	31.98 ^{***}	57.06 ^{a***}

Notes: Equations are estimated by pooling the data available for the period 1988-1999 for two networks with owned outlets and separations, giving a total of 24 network-years. Estimations: (1) probit, (2) ordered probit, (3) OLS. Absolute value of $z(t)$ statistics in parentheses. ^{*} Significant at 10%; ^{**} significant at 5%; ^{***} significant at 1%.

Table A.1. Correlation coefficients

	<i>Ownership</i>	<i>ROI</i>	<i>ROS</i>	<i>VAE</i>	<i>LCE</i>	<i>Market Growth</i>	<i>Average Price</i>	<i>Service Quality</i>	<i>Intrabrand Competition</i>	<i>Distance</i>	<i>Net Assets</i>	<i>Sales Variation</i>	<i>Advertising Effort</i>	<i>Network Age</i>	<i>Market Age</i>	<i>After 1973</i>	<i>Average Wage</i>
<i>Ownership</i>	1																
<i>ROI</i>	-.686*	1															
<i>ROS</i>	-.539*	.601*	1														
<i>VAE</i>	-.323*	.427*	.304*	1													
<i>LCE</i>	.777*	-.544*	-.484*	-.086	1												
<i>Market Growth</i>	.176*	.199*	.183*	.402*	.218*	1											
<i>Average Price</i>	-.203*	.255*	.207*	.266*	-.163*	-.027	1										
<i>Service Quality</i>	-.333	.226*	.304*	.080	-.299*	-.121	.001	1									
<i>Intrabrand Competition</i>	.277*	-.294*	-.203*	-.239*	.167*	.082	-.236*	.039	1								
<i>Distance</i>	-.118	.000	.126*	-.069	-.122	-.288*	.028	-.013	-.165*	1							
<i>Net Assets</i>	.432*	-.229*	-.236*	-.085	.326*	.165*	.033	-.168*	.115	-.059	1						
<i>Sales Variation</i>	.020	.112	.123	-.023	-.013	-.045	.297*	-.295*	-.074	.200*	-.142*	1					
<i>Advertising Effort</i>	-.174*	.230*	.133*	.157*	-.072	.061	.202*	-.013	-.419*	-.005	-.210*	.230*	1				
<i>Network Age</i>	-.289*	.221*	.096	.019	-.184*	-.090	-.117	-0.091	.075	.062	-.017	.013	-.045	1			
<i>Market Age</i>	-.866*	.569*	.474*	.253*	-.706*	-.162*	.124*	.311*	-.237*	.098	-.407*	-.110	.147*	.321*	1		
<i>After 1973</i>	-.829*	.501*	.449*	.196*	-.675*	-.205*	.085	.304*	-.226*	.111	-.429*	-.037	.142*	.293*	.878*	1	
<i>Average Wage</i>	.160*	-.101	-.160*	.199*	.417*	.196*	.028	-.097	-.005	-.166*	.200*	-.135*	-.074	-.066	-.167*	-.195*	1
<i>LCE Residual</i>	.782*	-.552*	-.459*	-.186*	.909*	.150*	-.192*	-.284*	.186*	-.058*	.266*	.047	-.046	-.172*	-.701*	-.653*	-.000

Note: * Correlation statistically significant at 5% level