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Institutional Constraints on Organizations: The case of Spanish Car Dealerships

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Abstract

We show that organizational choice in a sample of Spanish car distributors has been subject to institutional constraints causing substantial underperformance. Even though the original choice between franchising and vertical integration was seemingly aimed to contain moral hazard for both distributors and manufacturers, it has been subject to start-up constraints [not only "institutional"] and switching costs. While the market for franchises remained underdeveloped, information asymmetries led to the opening of integrated outlets. Their subsequent conversion into franchised outlets probably involved prohibitive transaction costs. Consequently, they performed worse than would have been expected had they been independent, as confirmed by the systematic improvement observed when they were in fact converted. The timing of such conversions suggests that switching costs were prohibitive until firms developed a substantial cushion of temporary contracts, previously forbidden by regulation.

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

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1. Introduction

Since the seminal work by Rubin (1978), an extensive empirical literature on franchising has developed.[2] A substantial part of this literature focuses on the choice of organizational form. In particular, the decisions between vertically integrating an activity or contracting it outside the firm from a supplier upstream or a franchisee downstream have been extensively studied, as summarized in Shelanski and Klein (1995), Lyons (1995), Lafontaine and Slade (1997) or, more recently, Boerner and Macher (2001) and Lafontaine and Slade (2001).

Some studies have also tried to measure the effect of organizational form on performance at the level of production units. In franchising, the relation between organizational form and performance has been studied by Shelton (1967), who finds that, under company ownership, costs of outlets are higher and profits are lower than under franchising in a single chain; Krueger (1991), who finds that employees of company-owned outlets are paid slightly more than employees in franchised units; Beheler (1991), who finds that directly-owned restaurants provide lower quality service than franchised ones of the same chain; and Barron and Umbeck (1994), who, on the contrary, find that franchised gas stations are opened less hours. These studies suffer several weaknesses. Those explaining which observable factors determine organizational choice provide limited information on the cost structure driving such choices. Those estimating the effect of contract choice on performance may suffer biases because of endogeneity and sample selection, which complicate the interpretation of the observed correlations between organizational form and performance.[3]

This paper uses a cross-section of 250 Spanish car distributors to assess how the choice between vertical integration and franchising affects outlet performance. After correcting for sample selection via the "two-step" method discussed by Heckman (1979), we find that vertically integrated dealerships exhibit substantially lower profitability and productivity and higher labor costs than franchised ones. This negative effect of vertical integration on performance is indirectly confirmed by the observation that, after 1974, all the new car dealerships opened in Spain were franchised.

However, the fact that, despite these striking performance differentials, no vertically integrated dealerships were converted into franchised until 1994 seems hard to reconcile with theoretical interpretations solely based on efficiency arguments, such as agency cost minimization, control of dealers' free riding and reputational signaling. As a solution to this puzzle, 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 to workers in integrated dealership sufficient bargaining power to oppose separation decisions. Consistent with that, we find that the few separations observed after 1994 tended to occur when integrated dealerships experienced strong increments in the share of non-unionized, temporary workers (see Table 4), as a consequence of the legalization of temporary labor contracts in 1984.

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[2] See Lafontaine and Slade (1997, 2001) for excellent surveys.

[3] Chiappori and Salanié (2003) analyze this problem focusing on contract theory. For an analysis of econometric problems in the related area of business strategy, see Hamilton and Nickerson (2003).

The rest of the article is structured as follows. Section 2 describes the empirical strategy we adopt to assess the effect of organizational form on performance. Section 3 describes the data. Sections 4 presents the results obtained. Section 5 discusses the role of institutional constraints in explaining the late separation of inefficient company-owned outlets. Section 6 concludes.

2. Analytical framework

Following agency theory, we hypothesize that, under vertical integration, manufacturers pay dealership managers a flat wage and directly monitor their effort.[4] Conversely, under franchising, manufacturers indirectly motivate dealers to exert effort by granting them outlet's residual profits. In both cases, the downstream agents have imperfectly aligned effort incentives. Under integration, managers do neither earn the benefits nor bear the costs of effort decisions and, in the absence of perfect manufacturer monitoring, some shirking occurs in equilibrium. Under franchising, vertical externalities, some of which may be unobservable to the econometrician, distort the dealers' effort decisions, resulting in lower equilibrium effort than desired by the manufacturer.[5] This implies that franchising will be chosen in locations where externalities are mild, resulting in high outlet performance. Conversely, in locations where externalities are substantial, vertical integration will be chosen, which will result, because of managerial shirking, in profitability levels lower than the ones observed in franchised dealerships, although greater than they would be if integrated dealerships were franchised.

To contain this sample selection bias, which complicates the interpretation of any observed effect of organizational choice on outlet performance, we use the "two-step" model proposed by Heckman (1979). In the first step, we estimate a probit model for the choice of organizational form (vertical integration versus franchising), from which we compute the non-selection hazard variable, also known as the inverse of Mills' ratio. This ratio is expressed as $lambda = f(z)/F(z)$, where z is the estimated value from the probit selection equation and f and F are the standard normal probability density and cumulative distribution functions, respectively.

In the second step, we estimate regressions of performance on a set of outlet and network characteristics after augmenting them with the *lambdas* obtained in the first step, in order to correct for sample selection. The Heckman model thus estimates an additional parameter for the variable representing the non-selection hazard, whose significance—or lack of—shows the importance of the corrected selection bias.

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

[5] 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 (2007b).

2.1. Determinants of organizational choice

In the first step, we focus on variables identifying environmental changes, both technological and institutional, that are likely to affect organizational choice in Spanish automobile distribution.

Technological change

Part of the literature has argued that 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.[6] Following this signaling argument, we hypothesize that franchising should be more frequently chosen as an organizational form in more mature markets for franchises and in networks where the manufacturer enjoys greater reputation.

Institutional change

In the mid-seventies, the death of Spain's fourty-years dictator Francisco Franco generated expectations of social policies less favorable to large companies and more favorable to organized labor. In a pro-labor institutional environment, franchised dealers are in a better position than car manufacturers to contrast the bargaining power of outlet workers, since they face tighter budget constraints. Therefore, we hypothesize that outlets opened after the end of Franco's regime should be more frequently franchised.

2.2. Determinants of organizational choice and performance

Agency theory argues that, since franchising is associated with high-powered incentives, it will be preferred to vertical integration when downstream effort (that is, effort exerted at the outlet level) is important. This also leads us to hypothesize that the observed performance of franchised outlets relative to company-owned ones increases in the importance of downstream effort.

On the other hand, high-powered incentives induce franchisees to free ride on the manufacturer's brand and undersupply services that benefit the whole network, requiring direct manufacturer control via vertical integration. Since free riding allows franchisees to save the cost of supplying services, we hypothesize that the observed performance of company-owned outlets relative to franchised ones decreases in the intensity of dealers' free riding.

Under vertical integration, manufacturers directly monitor the outlet managers, suggesting that company-owned outlets will be observed where monitoring costs are low. The intense

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[6] See, for instance, Lafontaine (1992, 1993), Gallini and Lutz (1992) and Scott (1995).

monitoring required to benefit from vertical integration also leads us to hypothesize that the performance of company-owned outlets relative to franchised ones decreases in the size of monitoring costs.

Finally, several authors have assumed that franchisees are more risk-averse than manufacturers and, since franchisees are rewarded with residual profits, franchising should be observed where downstream risk is milder. This also leads us to hypothesize that, *ceteris paribus*, the observed performance of company-owned outlets relative to franchised ones decreases in the size of downstream risk, because higher risk requires that a higher risk-premium is paid to franchisees.

3. Data

Our sample contains a set of 179 independent car dealerships, selected by systematic random sampling, and the full population of 71 company-owned outlets.

The sample offers unique *ceteris paribus* conditions for studying the effect of organizational design on performance. First, there is a high degree of homogeneity amongst outlets, with respect to activities and technology, size, and even the accounting methods used. All of them also work under the same institutional constraints—in particular, they hire their labor force under the same rules, which include mandatory union representation, centralized collective bargaining and collective agreements, and high dismissal costs for permanent contracts.[7] Also, reliance on accounting numbers 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 differences across chains are not material.

3.1. Dependent variables

In the organizational choice model estimated in the first step regression, the dependent variable is **Ownership**, a dummy that takes the value one for outlets that are owned by manufacturers and zero for those which are independent.

In the second step regressions, we use as dependent variables 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.

[7] For descriptions of the Spanish labor market, see García Perea and Gómez (1993) and Malo de Molina (1983).

Information on outlet performance 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.

3.2. Independent variables

3.2.1. Determinants of organizational choice

As measures of manufacturers' reputation and market maturity, we take, respectively, the number of years the brand has been present in Spain when each outlet opens (**Network Age**) and the age of the market when each outlet was opened (**Market Age**), considering that the market started in 1948, when the first car dealerships were opened in Spain, and matured 26 years later, when the last opening of an owned outlet took place.

As a proxy for the institutional change due to the end of Franco's regime, we use a time dummy variable (**After 1973**) to identify outlets opened after 1973. We choose 1973 as the cutoff year instead of 1975 (the year when Franco actually died) because it is the assassination, in 1973, of Prime Minister Mr Carrero Blanco that drastically changed expectations about political and social policies in Spain. The reason is that, by 1973, Franco was severely sick and Carrero Blanco, who was widely thought to play a future role as his "testamentary executor", was *de facto* in charge of government and of the continuity of the authoritarian regime. His assassination by ETA terrorists was perceived as inevitably leading to a change in political regime.

As a non-environmental instrument, we also include **Advertising effort**, measured as the percentage of sales spent on advertising by each manufacturer.

3.2.2. Determinants of organizational choice and performance

We use three proxies for the importance of downstream effort: 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 or "sticker" price of each brand's cars in 1996 (**Average Price**); and the quality level of the services provided by each network (**Service Quality**).[8] We assume that market growth requires additional effort and flexibility to be effectively exploited. Also, average brand price is the best indicator available of the quality and market positioning of each brand, as relative prices of different brands have not changed much over time. Quality of services focuses on after-sales services, as it is obtained from survey data. It provides a complementary measure of market positioning

[8] We build this quality index by weighting the average rating given by users for each model of a brand to the services provided by its distributors by the proportion of each model over the number of cars sold by each manufacturer in Spain in 1994.

because it is measured as the residual of regressing the original service quality index against the average price variable.

As an indicator of the importance of dealers' free riding, we use the adjusted density of the manufacturer's network in the local market of each outlet (**Intrabrand Competition**), measured as the residuals of regressing the number of outlets on the number of cars sold by the manufacturer in the local market. We measure the importance of monitoring costs by the physical **Distance** between each outlet and network headquarters in Spain.

We use two proxies of exogenous risk. For the risk of each outlet, its net investment, defined as the book value of its assets minus accumulated depreciation (**Net Assets**)[9]. As a proxy of the average outlet risk, we also test the variation coefficient of network sales between 1991 and 1999 (**Sales Variation**). The latter may also be understood, however, as an indicator of the cost of monitoring agents' behavior, assuming that monitoring costs increase in volatile environments.

Sources and descriptive statistics for all dependent and independent variables are detailed in Table 1.

4. Results

The results of the first-step organizational choice model are reported in the first column of Table 7. The results of the second-step performance model are reported in Table 2. To test in a direct manner the significance of the difference between the parameters of company-owned and franchised equations, a pooled model with a full set of interactions has also been estimated, including as independent variables the *lambdas* from the corresponding models in Table 2. These results are reported in Table 3, together with pooled models uncorrected for sample selection (columns 1, 4, 7 and 10) and with models that exclude variables with non-significant parameters (columns 3, 6, 9 and 12).[10]

4.1. Relative performance of owned versus independent outlets

Our main results, best shown by the counterfactuals presented in Table 4, indicate that integrated units face labor costs 9.83% higher than those they would incur had they been independent, even though they obtain 7.87% lower labor productivity. Notice that these

[9] According to several authors, the size of downstream investments proxies for outlet risk because the greater the investment, the greater the amount of money at risk. See, for instance, Brickley and Dark (1987), Brickley, Dark and Weisbach (1991b), Martin (1988), Norton (1988), Lafontaine (1992) and Scott (1995).

[10] We do not adjust the standard errors for the inclusion of a generated variable because the expected magnitude of the correction is small.

higher labor costs do not seem to reflect efficiency wages (as argued by Krueger (1991) also in a franchising case), given the lower labor productivity observed at integrated outlets.[11]

Also, the counterfactuals in Table 4 indicate that integrated units would have earned a 35.98% higher return on investment and a 34.08% higher return on sales had they been independent. However, independent units would earn much less if integrated: their **ROI** would fall by 25.62% and their **ROS** by 13.41%.

Despite the dominant effect of ownership in current performance, some outlet characteristics also show economically significant effects on differential performance between owned and franchised outlets. For instance, one standard deviation in service quality (0.713) is associated with a 7.43% lower return on investment in integrated outlets with respect to franchised outlets. Similarly, one standard deviation in intrabrand competition (3.282) decreases the ROI of integrated outlets by 4.28% relative to franchised outlets. A standard deviation in market growth (2.874) also decreases the commercial margin, ROS, of integrated outlets by 4.74% relative to franchised outlets; a standard deviation of intrabrand competition (3.282) puts the ROS of integrated outlets below that of franchised outlets by 4.06%; and a standard deviation of physical distance from the network's headquarters (0.320) causes a similarly negative impact of 5.63%.

Going into the details, we find that, consistent with standard agency theory, increases in the importance of downstream effort and in monitoring costs will negatively affect the performance of owned units compared to franchised units. Table 3 assesses the statistical significance of these differences through the coefficients of the interactive variables, **X*Ownership** (where **X** represents outlets' characteristics, from market growth to average wage in the local market, and takes the value of this characteristic for owned outlets; zero, otherwise).

Of the nine parameters estimated for the proxies of the differential effect of market growth, average price and service quality in the models corresponding to **ROI**, **ROS** and **VAE**, six have the predicted signs and two of them are statistically significant. This result confirms that when agents' effort is more important, franchising reduces moral hazard and provides better performance. More importantly, results on relative performance are consistent with the idea that, with more intrabrand competition, company-owned outlets will perform relatively worse because the low-powered incentives of managers and the direct control exerted by car manufacturers prevent free riding and the cost savings from brand maintenance that free riding brings about. All three parameters estimated for intrabrand competition in the models corresponding to **ROI**, **ROS** and **VAE** have the predicted negative signs and two of them are significant. Regarding monitoring costs, all six parameters estimated for the distance between each outlet and the central office of its network in Spain and for the variation coefficient of network sales (**Sales Variation**) in the models of **ROI**, **ROS** and **VAE** have the hypothesized signs, two of which are statistically significant. This is unsurprising, since manufacturers rely less on monitoring agents when monitoring is costlier. Less monitoring,

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[11] Wages paid by integrated units are less related to market conditions, as shown by the coefficients of **Average Wages** and **Average Wages*Ownership** in Table 2 and Table 3. This is consistent with the practice followed by some manufacturers of using the same labor contract nationwide. As a consequence, our proxy of quality-adjusted labor input, **LCE Residual**, may be underestimating it for integrated units. To this extent, its positive coefficient in the **VAE** (integrated) equation hints that this higher compensation self-selects better workers.

therefore, results in more moral hazard for integrated distributors and poorer outlet performance.

Partially consistent with the argument that franchising imposes a cost in terms of risk allocation, due to the fact that car manufacturers are large corporations and most franchisees are family-owned firms, all four parameters estimated for the impact of outlet size (**Net Assets**) and sales variability (**Sales Variation**) on financial performance have the predicted negative signs, although they are not significantly different from zero.

The significance of the coefficients associated with non-selection hazards (the *lambdas*) in the models presented in Table 2 and the interactive variables in Table 3 show that sample selection presents some statistical significance for **ROI** and **ROS**, but not at all for **VAE,** and slightly so for **LCE**. This makes sense because one would expect selection to be driven by overall performance, more closely measured by **ROI** and **ROS** than by **VAE** and **LCE**. The effect of ownership on performance is therefore relatively constant with outlet characteristics for **VAE** and **LCE** and varies more with some outlet characteristics (primarily, intrabrand competition, service quality and distance) for **ROI** and, mainly, for **ROS**, for which only these variable effects are significant.

It is worth noticing that, even if selection bias is statistically significant for ROI and ROS, these impacts do not reverse the negative fixed effect of ownership, which is allegedly explained, as we will argue, by the costs of switching across organizational forms. In particular, the lambda parameters are significant for both samples in **ROI** and for owned units in **ROS**, the two indicators of overall performance. Comparing, for each performance dimension, the model in the first column of Table 3, which is not corrected for sample selection, with that in the second column also gives an idea of the impact of sample selection on specific parameters.

4.2. Performance of separated outlets

Our estimations of counterfactual performance have been corroborated by the observed performance of those units which have been separated. Results for these separated outlets confirm that conversion of company-owned outlets into franchised would positively affect outlet performance.

The model used for this analysis resembles the “event studies” popular in financial economics, as we regressed the performance of each outlet relative to that of its network (built by dividing the corresponding performance of the outlet 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 6).[12] The estimated parameters show that separated outlets constantly improve their profitability and productivity, as well as reducing their labor costs per worker, and practically catch up with their peers in five years. The increase in labor productivity hints that these changes are not merely redistributional.

[12] See Fama *et al*. (1969).

5. Institutional constrains on separation decisions

Our econometric results indicate that Spanish vertically integrated dealerships encountered difficulties in making an efficient use of the labor input, resulting in lower productivity and higher labor costs than in franchised outlets, and that such difficulties translated into poorer financial performance, measured by substantial **ROI** and **ROS** differentials. However, 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. To address this issue, 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 substitution of a counterpart sensible to unions' requests, manufacturers, with 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.

5.1. 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 manadatorily 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 through a legal raise in the maximum severance payable to workers in case of termination. The effect of legal termination protections was magnified by a pro-labor turn in the attitude of courts, which, in litigations over firms' layoff decisions, started to rule in favor of workers with increasing frequency. 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, resting times and compensation schemes.[13]

While legal constraints such as termination laws protected all automobile workers independent 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. The reason is that 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.

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[13] 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 Arruñada, Fernandez and Gonzalez (1998, 2004).

The prospect of less favorable contract terms induced unionized employees of vertically integrated dealerships to oppose outlet separations, and this may explain why, despite their lower profitability, integrated dealerships had not yet been converted into franchised in 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 granted to employers discretion to terminate workers at will, with little or no indemnization. The threat of termination, combined with high unemployment rates, gave considerable leverage to employers, resulting in a gradual but steady increase in the share 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 effects became material at the beginning of the 1990s, reduced, on one hand, the ability of workers in integrated dealerships to oppose separations and, on the other, created a dual internal labor market in which separations were less threatening to the employees who had been hired before 1984, under the more favorable permanent contracts. These two effects reinforced each other in creating a more favorable environment for the conversion of inefficient integrated dealerships into franchised, leading to the first separations after 1994.

5.2. 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, we would expect separations to occur in networks where temporary labor contracts penetrated more deeply and unionization rates fell more sharply.

The available evidence is consistent with both hypotheses. First, as discussed in section 4, vertically integrated dealerships had significantly higher labor costs than independent ones, suggesting that workers had greater bargaining power than their franchised homologues.

The relevance of this result is confirmed by the observed performance of the few units that were finally separated after 1994, suggesting the transformation of company-owned outlets into franchised has positively affected outlet performance. The model used for this analysis resembles the "event studies" popular in financial economics, as we regressed the performance of each outlet relative to that of its network (built by dividing the corresponding performance of the outlet 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 5).[14] The estimated parameters show that separated outlets constantly reduced their labor cost per worker, practically catching up with their peers in five years. Notice that, consistent with the evidence presented in section 4, separated outlets also improved their productivity, measured by the **VAE** index, and increased their profitability,

[14] See Fama *et al*. (1969).

measured by the **ROI** and **ROS** indexes, which indicates that the effect of separations was not merely redistributional.

Second, 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) on the percentage of temporary workers per network and year, and we find that the penetration of temporary labor contracts had a high power in explaining the timing of separations.[15]The coefficients obtained from these regressions are reported in Table 6.

6. Concluding remarks

Our results show that the performance of owned outlets is worse than would have been expected had they been independent. There are still performance differences once we control for organizational choice, contrary to what one would expect if these choices were always optimal. The evidence also shows that manufacturers only started to separate the inefficient integrated dealerships after 1994, when the deregulation legalizing temporary labor contracts resulted in lower unionization rates and, consequently, lower ability of workers to successfully oppose separations.

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 hints that, at least in some institutional environments, conventional agency models may be disregarding an important factor of organizational and governance decisions: the influence of the contractual and institutional environment.

While illuminating the importance of institutional constraints, our data do not allow identify the type of optimal organizational choice to which these constraints apply. In particular, it would be interesting to understand whether pro-labor institutions simply (1) delayed the separation of underperforming integrated outlets, whose integration had been rendered unnecessary by the maturation of the market for independent dealerships, as implied by the signaling argument; or (2) they 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.

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[15] 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.

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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*
Ownership	Takes value 1, for owned units; 0, otherwise [a]	1	0	0	0	0	0	0	0	.284	.452	1	0
ROI	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
ROS	Return on sales (%) [a]	.587	.085	.783	.156	.777	.1539	.787	.157	.728	.165	1.44	.35
VAE	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
LCE	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
Market Growth	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
Average Price	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
Service Quality	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
Intrabrand Competition	Intrabrand competition, measured as the residuals of regressing the number of outlets of the brand on 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
Distance	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
Net Assets	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
Sales Variation	Variation coefficient of network sales between 1991-1999 [e]	.175	.033	.173	.050	.1705	.0311	.174	.058	0.174	0.046	0.336	0.059
Advertising Effort	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
Network Age	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
Market Age	Market age when each outlet was opened [g]	15.408	4.406	25.581	1.476	25.106	2.128	25.858	.789	22.692	5.305	26	7
After 1973	Institutional change dummy (takes value 1 for outlets opened after 1973; 0, otherwise) [g]	.042	.203	.911	.286	.833	.376	.956	.207	.664	.473	1	0
Average Wage	Average wage in the local market (000 €) [g]	6.992	.674	6.742	.704	6.837	.596	6.687	.756	6.813	.703	8.001	4.740
LCE Residual	Labor inputs, measured as the residuals of regressing average labor costs, *LCE*, on *Average Wage*	1.574	.605	-.624	.855	-.621	.968	-.626	.787	0.000	1.270	3.481	-6.736
N	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. Comparative performance correcting for selection bias (first-stage results: the same as model 1 in Table 7)

	Integrated	*Franchised*	*Integrated*	*Franchised*	*Integrated*	*Franchised*	*Integrated*	*Franchised*
	ROI	*ROI*	*ROS*	*ROS*	*VAE*	*VAE*	*LCE*	*LCE*
Market Growth	0.176 (7.76)***	0.184 (6.06)***	0.013 (6.28)***	0.025 (6.04)***	0.389 (8.98)***	0.412 (6.20)***	0.015 (0.70)	0.023 (0.90)
Average Price	0.093 (0.97)	0.019 (1.18)	0.003 (0.33)	0.002 (1.01)	-0.227 (1.24)	0.109 (3.22)***	-0.151 (1.59)	-0.003 (0.27)
Service Quality	-0.859 (2.54)**	0.252 (2.30)**	0.077 (2.51)**	0.048 (3.33)***	0.088 (0.13)	0.075 (0.31)	0.171 (0.52)	-0.055 (0.61)
Intrabrand Competition	-0.126 (5.03)***	-0.040 (1.54)	-0.011 (4.55)***	0.001 (0.25)	-0.157 (3.26)***	-0.093 (1.63)	-0.014 (0.55)	-0.013 (0.61)
Distance	-0.410 (1.21)	-0.288 (1.16)	-0.056 (1.78)*	0.085 (2.59)***	-1.690 (2.63)***	0.432 (0.81)	-0.174 (0.53)	0.114 (0.56)
Net Assets	-0.363 (1.59)	0.099 (0.89)	-0.072 (3.38)***	-0.002 (0.14)	-0.046 (0.10)	-0.087 (0.36)	-0.250 (1.14)	-0.140 (1.54)
Sales Variation	3.243 (1.19)	6.192 (3.41)***	0.248 (0.98)	0.576 (2.39)**	-8.682 (1.67)*	-3.031 (0.77)	2.352 (0.90)	-0.740 (0.49)
LCE Residual					0.584 (2.72)***	0.306 (1.56)		
Average Wage							0.431 (4.13)***	0.639 (6.81)***
Lambda	0.327 (1.96)**	0.953 (2.64)***	0.046 (3.29)***	0.011 (0.20)	-0.350 (-1.05)	-0.634 (-0.71)	-0.286 (-1.78)*	0.285 (0.84)
Constant	2.090 (1.04)	3.902 (5.77)***	0.483 (2.62)***	0.158 (1.74)*	27.432 (7.06)***	23.255 (15.76)***	23.521 (10.56)***	17.523 (21.47)***
Observations	250	250	250	250	250	250	250	250
Wald chi^2	93.92***	81.83***	121.74***	69.82***	191.15***	77.71***	43.66***	71.40***

Notes: Selection bias corrected using the "two-step" method (Heckman, 1979).
Absolute value of *z* statistics in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3. Comparative performance using different pooled models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ROI	*ROI*	*ROI*	*ROS*	*ROS*	*ROS*	*VAE*	*VAE*	*VAE*	*LCE*	*LCE*	*LCE*
Ownership	-1.147 (0.32)	-1.813 (0.51)	-2.467 (10.01)***	0.419 (0.90)	0.326 (0.69)	0.091 (0.72)	3.409 (0.44)	4.178 (0.53)	-2.586 (5.57)***	5.384 (1.53)	5.999 (1.68)*	2.299 (19.78)***
Market Growth *Ownership*	-0.012 (0.26)	-0.008 (0.17)		-0.012 (1.88)*	-0.012 (1.81)*	-0.012 (1.96)*	-0.020 (0.19)	-0.024 (0.22)		-0.005 (0.13)	-0.008 (0.19)	
Average Price *Ownership*	0.077 (0.46)	0.075 (0.45)		0.000 (0.01)	0.001 (0.04)		-0.334 (0.91)	-0.336 (0.91)		-0.139 (0.94)	-0.148 (0.99)	
Service Quality *Ownership*	-0.719 (1.43)	-1.111 (1.84)*	-0.848 (1.74)*	0.081 (1.23)	0.028 (0.35)		-0.386 (0.35)	0.013 (0.01)		-0.094 (0.22)	0.226 (0.43)	
*Intrabrand Competition*Ownership*	-0.080 (1.62)	-0.086 (1.74)*	-0.106 (2.95)***	-0.010 (1.62)	-0.011 (1.76)*	-0.009 (1.92)*	-0.069 (0.64)	-0.064 (0.59)		-0.008 (0.18)	-0.000 (0.01)	
Distance *Ownership*	0.038 (0.06)	-0.122 (0.20)		-0.117 (1.46)	-0.141 (1.71)*	-0.128 (2.00)**	-2.296 (1.74)*	-2.121 (1.54)		-0.444 (0.85)	-0.288 (0.53)	
Net Assets *Ownership*	-0.584 (1.43)	-0.463 (1.14)		-0.076 (1.42)	-0.070 (1.30)		0.148 (0.17)	0.041 (0.05)		-0.105 (0.31)	-0.109 (0.32)	
Sales Variation *Ownership*	-4.922 (1.05)	-2.949 (0.59)		-0.600 (0.98)	-0.328 (0.50)		-3.730 (0.36)	-5.651 (0.51)		4.759 (1.20)	3.092 (0.73)	
*LCE Residual * *Ownership*							0.319 (0.69)	0.278 (0.59)				
Average Wage *Ownership*										-0.209 (1.13)	-0.208 (1.12)	
Market Growth	0.186 (6.62)***	0.184 (6.64)***	0.191 (8.99)***	0.025 (6.73)***	0.025 (6.72)***	0.025 (6.84)***	0.411 (6.77)***	0.412 (6.76)***	0.420 (9.35)***	0.023 (0.97)	0.023 (0.96)	
Average Price	0.011 (0.82)	0.019 (1.32)	0.030 (2.27)**	0.002 (1.10)	0.002 (1.12)		0.113 (3.75)***	0.109 (3.52)***	0.097 (3.54)***	-0.006 (0.48)	-0.003 (0.29)	

Table continues on next page

Table 3. (Continued)

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
	ROI	*ROI*	*ROI*	*ROS*	*ROS*	*ROS*	*VAE*	*VAE*	*VAE*	*LCE*	*LCE*	*LCE*
Service Quality	0.228 (2.29)**	0.252 (2.56)**	0.211 (2.20)**	0.048 (3.70)***	0.048 (3.70)***	0.051 (4.22)***	0.091 (0.42)	0.075 (0.34)		-0.062 (0.73)	-0.055 (0.65)	
Intrabrand Competition	-0.039 (1.64)	-0.040 (1.70)*		0.001 (0.28)	0.001 (0.28)		-0.094 (1.80)*	-0.093 (1.78)*	-0.107 (2.59)**	-0.013 (0.62)	-0.013 (0.65)	
Distance	-0.271 (1.21)	-0.288 (1.29)		0.085 (2.89)***	0.085 (2.88)***	0.082 (2.84)***	0.421 (0.86)	0.432 (0.88)		0.120 (0.63)	0.114 (0.60)	
Net Assets	0.185 (1.93)*	0.099 (0.99)		-0.001 (0.08)	-0.002 (0.15)		-0.145 (0.69)	-0.087 (0.39)		-0.116 (1.42)	-0.140 (1.63)	
Sales Variation	6.242 (3.78)***	6.192 (3.79)***	5.331 (3.70)***	0.576 (2.67)***	0.576 (2.66)***	0.686 (3.79)***	-3.066 (0.86)	-3.031 (0.85)		-0.700 (0.50)	-0.740 (0.53)	
LCE Residual							0.301 (1.68)*	0.306 (1.71)*	0.328 (2.03)**			
Average Wage										0.650 (7.44)***	0.639 (7.23)***	0.595 (8.39)***
Lambda(XYZ)$_o$ Ownership*		0.327 (1.07)	0.292 (1.08)		0.046 (1.14)	0.060 (1.85)*		-0.350 (0.52)			-0.286 (1.10)	-0.239 (1.19)
Lambda(XYZ)$_I$ (1-Ownership)*		0.953 (2.54)**	1.036 (2.95)***		0.011 (0.22)			-0.634 (0.77)			0.285 (0.88)	
Constant	3.894 (6.27)***	3.902 (6.36)***	3.800 (7.60)***	0.157 (1.94)*	0.158 (1.94)*	0.172 (2.27)**	23.257 (17.24)***	23.255 (17.19)***	22.809 (24.34)***	17.447 (22.84)***	17.523 (22.79)***	17.877 (37.09)***
Observations	250	250	250	250	250	250	250	250	250	250	250	250
Adjusted *R*-squared	0.61	0.62	0.62	0.45	0.45	0.46	0.37	0.37	0.38	0.68	0.68	0.69
F	27.11***	24.94***	46.44***	14.78***	13.09***	24.63***	9.61***	8.60***	31.37***	32.61***	29.28***	186.37***

Notes: Equations (1), (4), (7) and (10) are not corrected for sample selection bias; all others are corrected. The interactive variables *X*Ownership* take the value *X* for integrated units; zero for independent units. *Lambda(XYZ$_j$)*, where *XYZ$_j$* = *ROI$_j$*, *ROS$_j$*, *VAE$_j$* and *LCE$_j$* for *j* = integrated and franchised, were obtained from the corresponding Heckman model in 0. Absolute value of *t* statistics in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Estimated counterfactual performance based on models reported in Table 7

	Obser-vations	*ROI*		*ROS*		*VAE*		*LCE*	
		Mean	*Std Dev*	*Mean*	*Std Dev*	*Mean*	*Std Dev*	*Mean*	*Std Dev*
(1) Observed performance of integrated outlets	71	6.510	.779	.587	.085	30.043	1.925	24.296	.616
(2) Predicted performance of integrated outlets if integrated (correcting for selection bias[a])	71	6.451	.578	.578	.063	30.106	1.616	24.348	.325
(3) Predicted performance of integrated outlets if independent (correcting for selection bias[a])	71	8.772	.628	.775	.0765	32.475	1.302	21.954	.427
(4) Difference between counterfactual and estimated performance = [(3) - (2)] / (2)	71	35.98%		34.08%		7.87%		-9.83%	
(5) Predicted performance of integrated outlets if integrated (without correcting for selection bias[b])	71	6.510	.558	.587	.067	30.043	1.629	24.296	.332
(6) Predicted performance of integrated outlets if independent (without correcting for selection bias[b])	71	8.933	.634	.777	.0765	32.356	1.297	22.004	.437
(7) Difference in performance without correcting for selection bias[b] = [(6)-(5)] / (5)	71	37.22%		32.37%		7.70%		-9.43%	
(8) Observed performance of independent outlets	179	8.780	1.191	.783	.156	31.865	2.578	21.891	.965
(9) Predicted performance of independent outlets if independent (correcting for selection bias[a])	179	8.713	0.626	.783	.076	31.910	1.316	21.871	.474
(10) Predicted performance of independent outlets if integrated (correcting for selection bias[a])	179	6.481	1.289	.678	.092	28.163	2.036	24.170	.897
(11) Difference between counterfactual and estimated performance = [(10)-(9)] / (9)	179	-25.62%		-13.41%		-11.74%		10.51%	
(12) Predicted performance of independent outlets if independent (without correcting for selection bias[b])	179	8.780	.626	.783	.076	31.865	1.322	21.891	.480
(13) Predicted performance of independent outlets if integrated (without correcting for selection bias[b])	179	6.756	1.038	.717	.118	27.790	2.018	23.933	.855
(14) Difference in performance without correcting for selection bias[b] = [(13)-(12)] / (12)	179	-23.05%		-8.43%		-12.79%		9.33%	

Notes. [a] Using Heckman specifications in Table 2.[b] Using the first equations of each model in Table 3.

Table 5. Performance of formerly integrated outlets after being separated

	Dependent variables: Performance of separated outlets relative to the average performance of all outlets in their networks		
	(1)	*(2)*	*(3)*
	Relative ROS	*Relative VAE*	*Relative LCE*
Relative performance before separation:			
Constant	0.858 (154.48)***	0.926 (200.53)***	1.065 (311.29)***
Added relative performance after separation:			
After one year	0.040 (3.26)***	0.034 (6.02)***	-0.027 (4.65)***
After two years	0.071 (5.71)***	0.052 (9.17)***	-0.041 (7.07)***
After three years	0.099 (7.97)***	0.056 (9.89)***	-0.041 (7.12)***
After four years	0.107 (6.97)***	0.063 (8.79)***	-0.047 (6.43)***
After five years	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%.

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Table 6. Temporary employment as a facilitator of separation

	Dependent variable: *Annual Separation* (=1 if a separation takes place in the network during a given year; 0 otherwise)	Dependent variable: *Accumulated Separations* (accumulated number of outlets that were *separated* during the period in the relevant network)	
Independent variable:	(1)	(2)	(3)[a]
Temporary employment as a percentage of total employment in all integrated outlets of the relevant network	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 *R*-squared ([a] Adjusted *R*-squared)	0.30	0.78	0.71[a]
LR chi^2 ([a] *F*)	5.51**	31.98***	57.06[a]***

Notes: Equations are estimated 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* ([a]*t*) statistics in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7. The determinants of organizational choice
Probit estimations, using *Ownership* as the dependent variable

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Market Growth	-0.080 (1.09)		-0.078 (0.92)		-0.016 (0.34)	
Average Price	-0.176 (2.39)**	-0.144 (2.32)**	-0.201 (2.38)**	-0.169 (2.35)**	-0.181 (3.78)***	-0.165 (3.73)***
Service Quality	-1.086 (2.77)***	-0.607 (1.78)*	-1.172 (2.88)***	-0.796 (2.10)**	-1.186 (4.70)***	-1.000 (5.19)***
Intrabrand Competition	0.061 (0.72)		0.089 (0.94)		0.129 (2.61)***	0.183 (4.17)***
Distance	-1.292 (1.39)		-1.086 (1.02)		-0.856 (1.58)	
Net Assets	0.990 (2.86)***	0.758 (2.61)***	1.053 (2.78)***	0.822 (2.62)***	1.426 (6.50)***	1.342 (6.66)***
Sales Variation	-2.536 (0.49)		-5.905 (0.92)		3.043 (1.16)	
Advertising Effort	-30.250 (1.82)*	-29.831 (1.83)*	-31.707 (1.85)*	-34.032 (1.93)*	-22.695 (2.00)**	
Network Age	-0.026 (0.92)		-0.021 (0.69)		-0.087 (4.90)***	-0.088 (5.05)***
Market Age *(constant after 26 years)*	-0.250 (2.83)***	-0.375 (6.64)***				
Market Age (bis) *(constant after 20 years)*			-0.649 (1.96)**	-0.735 (2.10)**		
After 1973	-0.980 (1.39)		-1.926 (3.62)***	-1.854 (4.08)***		
Constant	9.045 (3.08)***	8.736 (4.98)***	17.012 (2.32)**	15.674 (2.10)**	0.310 (0.26)	-0.363 (0.59)
Observations	250	250	250	250	250	250
Pseudo *R*-squared	0.84	0.82	0.86	0.84	0.57	0.54
LR chi^2	251.01***	244.51***	257.501***	251.75***	168.61***	162.35***

Notes: Models (5) and (6) exclude the market age and time dummy variables. Absolute value of *z* statistics in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A.1. Correlation coefficients

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

Note: * Correlation statistically significant at 5% level.