

Survival of New Firms in the Brazilian Franchising Segment: An Empirical Study

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Abstract

The paper investigates survival patterns of Brazilian franchising firms during the 1994-1999 period. First, at a more descriptive level one considered the (percentage) survival of newly created franchisors in the following years. The evidence indicated a drastic decay in survival after only a few years and contrasts with the higher survival of firms in the franchising firms in more developed economies. Survival functions were obtained by means of the Kaplan-Meier estimator for the selected sectors and indicated sharp declines in survival rates over time but with differential patterns across sectors. Finally, an econometric analysis based on Cox's proportional hazard model was considered by exploring explanatory variables pertaining size, age and support regarding legal aspects, location choice and training. The evidence indicates that those supports provided by the franchisor have a positive impact on the probability of survival of new firms whereas there is partial evidence favoring a positive role for firm size on survival.

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1. Introduction

Franchising is becoming an increasingly widespread organizational form in different countries. In fact, business-format franchising (involving independent sellers, resources transfers, including fees and royalties) contracts in the fast food segment, for example, have become iconic examples of the contemporary culture. Figures are also expressive, and it is estimated that around 13 percent of U.S GDP are associated to franchises chains (see references below). In terms of number of franchised outlets, Brazil among the the countries with most prominent segments [along with USA, Canada, France, Japan and Korea, according to Azevedo and Silva (2001b)]. The significance and expansion of franchising has given rise to a growing economic and organization literature and and naturally to vivid debates in the field. In fact, different incentives aspects related to the contractual relationships between franchisors and franchisees have been empirically investigated, for example, by Lafontaine (1992) and Lafontaine and Shaw (1999).

A comprehensive and careful overview on franchising is provided by Blair and Lafontaine (2005). The authors call our attention to some “stylized facts” about this business area, and we will select the ones that follow: (i) the sector is growing in real terms at (best at) a rate similar to of the economy as a whole; (ii) franchising is not a completely safe investment; in particular, death rates for franchisors and franchisees are comparable to failure rates in other businesses (and often larger according to the references given below); (iii) franchised chains are not necessarily large and established business units, (iv) franchisees are not necessarily small and single-unit owners; and finally (v) the success of franchisees are tied to the success of franchisors in franchising. These

questions can be qualified, and we will add the expressive figure that in 2001 the revenues of franchised chains in the United States of America attained 1.37 trillion dollars.

We believe that the above orientations will be useful to the evaluation of what will come next, but it should be emphasized that the study of dynamic aspects that are relevant for competition have been scarcely investigated in services industries. Survival studies, for example, have been mostly applied to industrial firms as exemplified by Mata and Portugal (1994), Audretsch and Mahmood (1995), McCloughan and Stone (1998), and Cantner et al (2006) and the studies by Harhoff et al (1998) and Eckert and West (2008) constitute exceptions by also addressing dynamic patterns in the services industry. When one focuses on the franchising segment, however, only a handful of papers emerge as given by Shane (1996), Lafontaine and Shaw (1998), Shane and Foo (1999), and Kosova and Lafontaine (2006).

The present paper will address empirical literature taking as reference two aspects:

- (a) The focus of the literature is essentially on developed countries and therefore the analysis of a large heterogeneous economy like the Brazilian one is warranted. The referred economy is characterized by the co-existence of traditional and modern segments and often was subject to high degrees of uncertainty in the business environment in contrast with more mature economies. Notable exceptions include the papers by Azevedo and Silva (2001a,b, 2003, 2007) that had assessed the contractual mix of franchising in Brazil, and we expect that our study will complement their efforts.

- (b) The investigation of survival patterns both in terms of descriptive and statistical survival analysis., Such an exploratory effort is motivated by the absence multisectoral descriptive evidence and econometric investigations on survival.

The paper is organized as follows. The second section will discuss theoretical arguments that constitute references for the franchising segment as a whole. The third section presents the data source and provides descriptive survival information at the aggregate and sectoral levels. The fourth section provides statistical evidence on the survival of franchising firms by considering survival functions. We will try to compare our results with the empirical evidence and theoretical propositions in this section. The fourth section summarizes and suggests directions for additional research.

2. An overview of the theory

Franchising is also the object of intense empirical and theoretical thinking, and we will dwell on the theme just to offer the reader some motivating arguments and supporting intuitions for our results. To begin with, we should recognize that one of the most striking characteristic of the conventional franchising segment relates to the “core” contract, with the franchisor charging a franchising fee, and a royalty rate. This is not an artifact of conventional practice and Klein (1995) stresses that the “crucial economic fact that underlies franchising contracts is that the incentives of the transacting parties do not always coincide”. On the one hand, franchisors attempt to control franchisees and, on the other hand, the franchisees are prone to free ride (e.g. on quality

standards) when a common brand name is jointly used. More generally, asymmetric information is pervasive.

In the Industrial Organization literature [see Tirole (1988) and Bolton and Dewatripont (2005)] those contracts may be interpreted as *linear incentive schemes* (tariffs) that carry high powered incentives. More specifically, a chain monopolist supplier can overcome the negative externality resulting from a monopolist retailer, who has power over the final price, and usually charges a price higher than the price that would maximize profits of the supplier [a point also dealt by Klein, *op.cit.* and Blair and Lafontaine (2005)]. The monopolist supplier offers a tariff in which the fixed part – the fee – extracts the monopoly profits and the royalty rate equals the marginal cost of the supplier. The downstream monopolist is made the *residual claimant* and the receiver of any marginal profit. More generally, with the right individual rationality and incentive compatibility incentives, two-part tariffs can also be used as *menus*, inducing self-selection between *strong* buyers of quantity/quality – who choose a high fee and a low marginal price – and the *weak* buyers. This is the celebrated *revelation principle* and is an important argument of game theory and agency theory literature [see also Lafontaine (1992)].

The contract seals (the presumed long term) relationship and signals the brand name but mechanisms of coordination (more specifically, monitoring, as emphasized by Blair and Lafontaine, *op.cit.*) and the threat of termination should not be underestimated as components of the contractual relationship. More specifically, as Klein, *op.cit.*, mentions, “contract terms must create ... a future ‘premium stream` which , combined with the threat of termination produce incentive to perform”. Lafontaine and Raynaud (2002) and Blair and

Lafontaine, *op.cit.*, point out the decision to maintain company-owned outlets as one of the self-enforcement mechanisms to preserve quality standards (large number of independent outlets increase the possibility of cheating and overloads monitoring). As the chains grows through the “replication” of a set of goods, what makes them special entities, restrictions arise due to the needs of monitoring. In fact, another striking characteristic of the franchising segment pointed out by these authors is that the contractual mix reveals stability through time, after an initial period of adjustment. Therefore it is not surprising that in some studies on survival, fees and royalty rates reveal a low impact on failure [see Shane and Foo (1999), for confirmations, and Kosova and Lafontaine (2010), for qualifications].

The Oliver Williamson`s approach on (Incomplete) Contract Theory, as in Williamson (1975, 1985) [see also Tirole *op.cit.*, on The Theory of the Firm for concise arguments] is another important strand of the literature to be mentioned. Williamson offered us an elaborate analysis of the proposition that “transaction costs (especially unforeseen contingencies) is a major concern of organizational design”. More akin to our direct interest there is also the argument that the contractual mix also involves (lump sum) *idiosyncratic/specific investments* that are made by the franchisees (eg. machines adapted to the use of particular materials, site specific and human capital investments) that reveal, on the one hand, unforeseen contingencies and, on the othe hand, the adherence to a long run relationship. The literature that sprang from those referencial studies was carefully examined by of Azevedo and Silva (2001a,b), especially on the pioneering analysis on the contractual mix in the food sector in Brazil. One of their emphasis is on the literature pertaining to the achievement

of greater control over transactions on the part of franchisors. In particular, they focus is on the relevance of the franchisee's operations regarding quality standards and on consumer's sensitivity to standardization ("the ability of consumers to identify changes in product attributes"), being both important restrictions to growth. In accordance to our purposes in this study, they call the readers' attention to the role played by previous experience on the part of franchisors and franchisees, and also by the lump sum investments as well as other taxes charged by the franchisors on franchisees.

One complementary view to these approaches is presented by Knott (2001). Her theoretical perspective is the "dual routines view" as developed by H. Simon, J. March and R. Cyert [see also Rivkin and Siggelkow (2003) and Façanha and Resende (2010) for reviews]. She distinguishes the managerial value into its administrative component – that enforces operational routine (the organizational equivalent of individual's skills) – and an entrepreneurial component that innovates the routine to keep pace with environmental change. In this perspective, the franchisor can be taken as a proxy for a hierarchical manager, and the franchisee as a proxy for a profit center within a firm. With correct incentives to the franchisors to maintain, enforce and modify the operational routine, and to the franchisees to assimilate and outgrow the regulation on the part of the franchisor, derived from profits, "the franchisor creates value in perpetuity by enforcing operational routine ... and through a metaroutine that introduces innovation into the operational routine". In later parts of the paper we will come back to this organizational perspective.

Finally, in Shane and Foo (1999) the reader also will find strong arguments, and convincing results in favor of a more institutional view on

franchising. We will not follow them here due to the more limited scope of our intentions. As we said before, we will return to conceptual issues in other parts of the paper.

On the other hand, we do have in our data base valuable information not mentioned in other studies on franchising and they have the nature of investments made by the franchisor, including monitoring efforts. The respondents inform when the franchisor supplies training support, location choice support and legal support. Training represents an investment made by the franchisor, that may foster growth, but it may also indicate complexities in services supply on the part of the franchisees, on the lines suggested by Knott, *op.cit.* The second one, location choice support, reveals a concern with the markets of franchisees and, we could reasonably add, with the possibility of “encroachment” (intense competition among intrabrand units for territory as Blair and Lafontaine, *op.cit.* chapter 8 comment). The third one reflects the juridical turbulence of the sector in Brazil (<http://www.jusbrasil.com.br>), because franchising is still a consolidating segment. There is plenty anecdotal evidence of issues about franchising legislation in Brazil and loopholes that may give rise to the mentioned turbulence, including the complexities of the tax system, labor law and risks inherent to the franchising contracts¹. Moreover, the current law (Lei nº 8955) was enacted in december/1994, therefore, near the start of our study time frame. This could have demanded some efforts of franchisors and franchisees in order to adapt to the new rules. Also, there is an ongoing debate about altering the current franchising law to give more juridical safety to the

Brazilian franchising segment, which perhaps means that the current law needs improvements (see Associação Brasileira de Franchising's website).

3. Survival in Franchising: a Descriptive Assessment

The empirical Industrial Organization literature has already made important entries in the topic of survival as was mentioned in the Introduction. Some stylized facts can be collected, as follows: (i) the probability of survival increases with the size of firms; (ii) According to Mata and Portugal (1994) "larger entrants and firms, that have entered with multiple establishments are more likely to stay in the market for more periods" [The explanation to these results rely largely on learning models of the type of Jovanovic's (1982), which predict that the probability of survival increases with size and age]; and, (iii) for any size the probability of survival is bigger for older firms. Audretsch and Mahamood (1995) found contrary evidence for the Dutch service industry, but recognize that for mature franchise sectors the above facts are pertinent. It is worth mentioning the focus on size and age factors and to smaller extent other control variables portraying the dynamism of a given sector.

One could question whether survival patterns in traditional industries possess similarities with those prevailing in services industries. In particular, locational aspects may play a more decisive role in survival as also the sales channel. Eckert and West (2008) considered the retail liquor industry and found evidence that location and whether sales happens in a shopping center or near a supermarket have important impact on the survival of liquor stores.

Finally, it is important to mention a previous study on the survival of newly created franchisors in the U.S. as provided by Shane and Foo (1999) and questions if economic explanations for failures, based on efficiency arguments,

would be sufficient. In that sense, the authors attempt to incorporate sociological aspects that would reflect institutional legitimacy as inspired in Meyer and Rowan (1977) and indicate degrees of conformity with established standards of the society. At the empirical level, the authors consider external certification as indicated by the registration with authorities at the state level. The idea is that registration would provide a relevant signal for quality that would be related to the probability of survival. The empirical analysis considered not only variables referring to size, age, contractual mix and sectoral controls but also institutional variables related to registration. The main point emphasized by the study is the significant effect of institutional aspects on survival.

2.1- Data Source

The study relies on detailed data on Brazilian firms that adopted franchising. The relevant Brazilian association (Associação Brasileira de Franchising-ABF) conducts an annual survey published in the so-called *Guia das Franquias*, where detailed data from the previous year is collected with respect to different aspects of the contract (franchise fee, royalty fee, advertising fee among others), sector of activity, date of foundation and different qualitative information. In the present study, we focus on the survival patterns of the referred firms and the aforementioned data source provides a comprehensive picture of entry and exit in the Brazilian franchising segment. The analysis in this paper spans over the 1994-1999 period (available in the annual reports from 1995 until 2000). Table 1 provides average shares of the sectors in terms of the number of firms.

INSERT TABLE 1 AROUND HERE

The chosen sample period reflects the need for more homogeneous and consistent data. In fact, up to the beginning of the 90s, the referred data source included also contracts that could not be characterized as a typical franchising scheme as for example brand licensing agreements. After 2000 (annual report in 2001) the publication became less comprehensive as it started to exclude firms that were not associated to ABF. Therefore, we chose to restrict the sample period so as to obtain a more consistent data set and the analysis will necessarily focus on survival within a short range.

The focus of the paper is on the survival of new firms. For that purpose, information on new franchising firms from 1994 to 1999 was delineated by taking 1993 as the reference year. In the case of omission of information in period t when the presence of the firm prevails in period $t-1$ and $t+1$, one considered that the firm existed in the intermediate year. In the case of the econometric analysis described in section 4, the estimation will rely on a fixed covariates model with explanatory variables referring to the firms' starting year. Thus, data availability for those variables led to a sample of 803 firms to our Cox Model whereas for the descriptive survival analysis we could consider 1276 firms.

An important aspect of industry dynamics concerns entry as well as exit of firms, and the survival of newly created firms in the following years. Table 2 provides such information in the case of Brazilian franchising.

INSERT TABLE 2 AROUND HERE

The short survival pattern is evident despite the large variability of survival rates depending on the start-up year. In fact, the remaining firms rapidly drop to less than 50 % of the initially created firms in less than 5 years. This

result is suggestive since casual evidence appears to indicate that more unstable survival patterns would prevail in services industries. In fact, if we compare the previous table with analogous information for newly created Portuguese firms as provided by Mata and Portugal (1994) one observes a shorter life duration. Similarly, the evidence provided by Lafontaine and Shaw (1998) in the context of U.S. franchising corroborates the volatile pattern of Brazilian franchising segment. In the former case typical survival rates after 5 years are typically above 60%.

The aggregate evidence can, of course, mask important sectoral heterogeneities. In that sense, an additional step undertaken in the next section refers to survival analyses carried out at the sectoral level.

4. Statistical Analysis of Survival in Franchising

4.1- Basic Concepts

The statistical characterization and yet the explanation of the determinants of the survival probability of different entities has become an important applied area of study, especially in medical disciplines, and delineated what is known by survival analysis. As mentioned before, economic applications are still scarce. An important aspect of industry dynamics concerns the likelihood of firm survival that will render an entry as more effective in the long run. In fact, entry and survival are important components for competition in long run. A traditional statistical framework for assessing the survival probability was advanced by Kaplan and Meier (1958), the so-called Kaplan-Meier estimator (also known as the product limit estimator) is given by:²

² See Johnson and Johnson (1980) for an overview.

$$P[T \geq t_i] = \prod_{j=1}^i \left(1 - \frac{d_j}{n_j} \right) = \hat{R}(t) \quad (1)$$

It indicates that the probability of surviving at least until period t_i is given by the product from $j=1$ to i of the terms in parentheses, where n_j denotes the total number of existing entities 'at risk' just prior to time t_i whereas d_j refers to the number of deaths in the referred period. It is worth mentioning that a right-hand censoring problem can be relevant in the present context - given that survival can occur beyond the terminal observed date for which data is available – but the estimator is convenient since it can handle censoring. When censoring is absent, n_i is just the number of survivors just prior to time t_i , and in the case of censoring, n_i is the number of survivors less the number of losses (censored cases).

The corresponding expression (the so-called Greenwood formula) is given by:

$$V\hat{a}r(\hat{R}(t)) = \hat{R}(t)^2 \sum_{t_i < t} \frac{d_i}{n_i(n_i - d_i)} \quad (2)$$

It is important to stress that the corresponding survival curves obtained from the Kaplan-Meier estimator provide an initial descriptive assessment of the data. However, the consideration of economic covariates would be the natural next step in any survival analysis. The next sub-section presents sectorial evidence on survival probabilities for franchisors that were new in a given initial reference year.

4.2- Descriptive Empirical Results

We can examine now the survival functions for the selected sectors considered in the more descriptive analysis

INSERT FIGURE 1 AROUND HERE

As expected, the decline of survival rates is intense irrespective of the considered sector. Nevertheless, one observes significant discrepancies across sectors. In particular some sectors experience a moderate decline in the initial years but then death becomes rampant in the following years. Even in more traditional sectors like fast food restaurants, one observes a sharp decline in survival. Less intense declines are observed for construction, beauty and health and printing. It is important to stress that substantial mortality occur both under product and service franchising.

The remaining natural exercise should consist of an explanation of the previous results. In the next section we will apply a *survival analysis/duration model* using as explanatory variables the ones that we could safely extract from our data set.

5- Econometric Analysis for Franchising

5.1- Econometric aspects

In Economics and Social Sciences some response variables come in the form of a *duration* which is the time elapsed until a certain event occurs. More specifically, we are interested in why a firm begins in an initial state and is either observed to exit the initial state or is *censored*. Wooldridge (2002) and Greene (2003) provide useful introductory accounts of that subject,

The *hazard function* allows us to capture the probability of (a firm) exiting the initial state within a short interval, an instantaneous exit given that it has

survived up to the starting time of the interval. The Kaplan-Meier estimator provides us with estimates of the hazard function but, as in economics in general, we are interested in the role played by regressors or covariates. The building block underlying hazard models is the notion of a random variable T that reflects duration of an event (in the present case survival of newly created firms in the franchising segment) and is assumed to have a probability density function $f(t)$ and cumulative distribution function $F(t)$ that readily give rise to the survival function given by:

$$S(t) = 1 - F(t) = P(T \geq t) \quad (4)$$

In a related vein, we can define the hazard rate as given by:

$$\lambda(t) = \lim_{\Delta t \rightarrow 0} \frac{P\langle t \leq T \leq t + \Delta t | T \geq t \rangle}{\Delta t} = \lim_{\Delta t \rightarrow 0} \frac{F(t + \Delta t) - F(t)}{\Delta t S(t)} = \frac{f(t)}{S(t)} \quad (5)$$

The hazard rate indicates the chances of survival for an additional infinitesimal interval conditional on having survived at least until period t and the last equality reflects the use of the conditional probability expression and the definition of a derivative. A related and influential econometric model is given by Cox's Proportional Hazards Model [Cox (1972)] and assumes the following parameterization for $\lambda(t)$:

$$\ln \lambda(t) = \ln \lambda_0(t) + X\beta \quad (6)$$

Where $\lambda_0(t)$ stands for the baseline hazard function, X is a vector of explanatory variables (covariates) and β is a vector of parameters. An interesting feature of the model that motivate its name is that the effect of a covariate operates in multiplicative fashion on $\lambda_0(t)$ so that a unit change in a covariate leads to a proportional effect on the hazard rate. The simpler implementation of the model consider covariates that are not time-varying. That

formulation typically reflects limited data availability. Mata and Portugal (1994), for example, had to rely on covariates based on the first year of the data and the same procedure will be necessary in the present application of a similar model in the context of franchising.³ Though the analysis will focus on a hazard model it can readily provide interpretations in terms of survival if one reverses the interpretation of the signs of the relevant coefficients.

5.2- Empirical model

The econometric analysis relied on the following explanatory variables, for which table 3 presents the related summary statistics

. SIZE: We will basically one specification in the next section. It is The first is defined by the natural log of the number of outlets [see Kosova and Lafontaine (2006,2010)].

. AGE: The franchisors reported the age of the firm since it was founded and it is interesting to note that the data include Levi`s and Lee Jeans both firms with more than 100 years old. The descriptive statistics reveal their presence in the sample, and in a first econometric exercise (with different sample restrictions) we took age as the number of years since firms were founded, regardless of being franchised or not, or being active abroad or not. We labelled this variable as Business Experience in table 3. However, it turns out that age defined as such is not a good description for age because we are dealing in this paper with newly created firms in the Brazilian market. Therefore we considered in the reported results firms' years of survival until exit as age in order to test for duration dependence.

³ Mata and Porugal (1994) provide useful technical discussion regarding estimation procedures.

. LEGAL: dummy variable that assumes value 1 if the franchisor provides legal support to the franchisee and 0 otherwise. As was mentioned in section 2, we expect legal support to have a positive effect on survival.

. LOCATION: dummy variable that assumes value 1 if the franchisor provides support to business location choice of franchisee unit and 0 otherwise. As also explained in section 2 we expect that location choice support will have a positive effect on survival.

. TRAINING: dummy variable that assumes value 1 if the franchisor provides training to the franchisee and 0 otherwise, and we will interpret the variable as an indicator of managerial complexity of the chain (see section 2).

. OWN UNITS/TOTAL UNITS: as mentioned in section 2, we will take this variable and an indicator of intensity of monitoring.

We will provide additional comments on these last variables when examining our results. It is also important to observe that we did not include investments, fees, royalty rates and other taxes due to missing and/or inconsistent informations and to preserve the number of observations in our data set. Moreover, sectorial dummies were included to capture sector-specific unobserved heterogeneities.

INSERT TABLE 3 AROUND HERE

4.3 - Empirical results

The results from the Cox proportional hazard model are reported Table 4, that follows.

INSERT TABLE 4 AROUND HERE

Bearing in mind that a positive coefficient indicates that the explanatory variable/covariate has a positive impact on failure rate our exploratory results show that the variables Size/Number of Outlets, Age, Legal support and Location choice support carry negative and significant coefficients, being therefore effective to survival. On its turn, the support trough Training contributes to exit. Finally, the relation of own outlets to total outlets carries a positive but non significant coefficient.

In the context of these results, the variable Size has a natural interpretation. The bigger the chain, the bigger the chance of survival. Also, more Age reinforce survival. As a robustness check, we also ran a Weibull especification for the baseline hazard (not reported), which relies on more restrictive distributional assumptions. The results were consistent with the Cox model and the duration parameter (0.74) obtained confirms the negative dependency (a duration parameter $p < 1$ indicates negative duration dependence).

These results regarding age are to a large extent consistent with the expected outcome based on Jovanovic's (1982) theory of firm growth in which entrepreneurs learn about their abilities over time. Based in Lafontaine and Shaw, *op.cit.*, Azevedo and Silva (2001b mention that "it is to be expected that the proportion of company owned outlets decreases intensely during the first (eight) years in franchising", according to the American market. Monitoring efforts play their role in the argument, as emphasized in section 2. However, the variable own outlets/total outlets is non significant, what can more positively be taken as an indication that the contractual mix did not attained the expected stability. But the bigger chains that survive support their franchisees in their

choice of location, “as if” avoiding the misdemeanour of franchisees with respect to quality. In a dual fashion, this variable may also be taken as a proxy of marketing efforts (see section 2 for extensions). The coefficient and sign of Legal support motivates the above view on monitoring, as well on the complexities of contractual relationship among franchisors and franchisees. As section 2 emphasized, legal arrangements are also costly to franchisees. The variable Training merits a close attention. This result evokes the argument that managerial capabilities [see Penrose (1959)] may be checking survival possibilities, and Kosova and Lafontaine, *op.cit.*, point out that “... either the *concept* is successful in the market, and the chain grows via cloning the *concept* in *different locations*, or it is not, and the chain fails”. But it is also close to the argument of the “dual routines view” (see section 2), stressing complexities in operational realm of chains. More specifically, as investments in training support are required, the chance of immediate exit grows.

Additionally, sectoral ambience were also taken into account, and the sectoral dummies were mostly significant at the 5% level. Despite the fact that sectoral dummies capture sector specific unobserved heterogeneities, it is relevant to report that in all cases they present negative coefficient. That is, maybe some common unobserved factor (the state of demand, competition and other indicators not known by the “econometrician”) is fostering survival! According to Azevedo and Silva (2007), governance mechanisms should be taken into account when one is interested in governance choice and in the set of transactions the firms are engaged in. This is one of the central arguments of the New Institutional Economics [see e.g. Klein (2005)] but unfortunately we have no information available to pursue it in the present study.

6. Final Comments

The paper investigated survival patterns in Brazilian firms that adopted the franchising organizational form. The analysis revealed a short-lived survival for newly created firms over the following years though the intensity of the process does display important differences across the different sectors. Beyond the more descriptive analysis, the statistical implementation of survival function indicated markedly distinct patterns across the various sectors.

The substantial instability of the Brazilian franchising segment warrants investigations. A natural route for statistical analysis was the study of the determinants of franchising firms' survival and the data set was very useful for this purpose. The exercise presented above indicated that sectoral (unobserved) determinants were important to survival. Our model stressed other survival determinants, as size of the chain, age/experience, legal and location choice support. Restrictions to survival were also expressive, and are related to managerial problems of training and/or routine consolidation. We hope that our efforts have contributed to a better understanding of this important sector of Brazilian economic activities.

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Table 1

Average participation of sectors in the Brazilian franchising segment -1994-1999
(%)

Sectors	1994-1999
Clothing	10.58
Computer & Electronics	4.23
Furniture & decoration	3.68
Bars & restaurants	6.03
Fast food	5.09
Ice cream, coffee shops & pastry	4.78
Beauty & health	8.23
Cosmetics & perfums	4.39
Education & training	11.91
Hotels & tourism	1.88
Food	4.31
Vehicles and related activities	6.35
Conservation & cleaning	2.66
Convenience stores & delicatessen	2.90
Personal accessories & footwear	4.23
Sports & leisure	5.33
Bookstores & jewelry	1.72
Communication	3.61
Construction	2.74
Printing	1.41
Others (special services)	3.92

Table 2

Number of franchisors that initiated activity in a given year and surviving percentage in the following years

<i>N</i>		1994	1995	1996	1997	1998	1999
193	1994	100	71.20	60.21	41.88	41.88	28.80
245	1995		100	76.34	61.83	59.14	43.01
108	1996			100	67.95	64.96	45.30
178	1997				100	80.95	61.22
88	1998					100	70.97
46	1999						100

Table 3
Summary statistics of explanatory variables in the econometric analysis

Variables	Mean	Std. dev.	Minimum	Maximum
SIZE – Total Units	27.060	230.62	1	6,100
BUS. EXPERIENCE	11.692	15.987	0	146
AGE	2.703	1.577	1	6
OWN/TOTAL UNITS	0.549	0.372	0	1
TRAINING	0.879	0.325	0	1
LOCATION	0.226	0.418	0	1

Note: None of the above statistics are in logarithms.

Table 4
Cox proportional hazard model - econometric results

VARIABLES	Coefficients
SIZE (log total units)	-0.130 (0.036)
AGE	-5.014 (<0.001)
LEGAL SUPPORT	-1.615 (0.002)
TRAINING SUPPORT	0.319 (0.026)
LOCATION SUPPORT	-1.987 (<0.001)
OWN /TOTAL UNITS	0.094 (0.535)
N	803
R ² = 0.713	
Likelihood Ratio Test = 1002, 26 df p = 0.000	
Wald = 4539, 26 df p = 0,000	

Note: p-values are indicated in parentheses and coefficients referring to sectoral dummies are not reported for conciseness, but can be provided upon request. We used the Efron method for ties.

Figure 1
Survival Functions for the Brazilian Franchising Segment-Sectoral Evidence
 (survival probability over time)







