Erasmus
University
Rotterdam

Competition between franchisors in a heterogeneous market

The effects on the type of contract

Erasmus School of Economics

Department of Economics

MSc Economics and Business,

Economics of Management and Organizations

Supervisor: Dr. Jurjen Kamphorst

Co-reader: Dr. Dana Sisak

Name: Bram Coenen

Student Number: 414982

Contents

Abstract

In contrast to the traditional contractual franchise models which solely consider the relationship between one franchisee and one franchisor, this paper investigates an interaction between two franchisors competing for one franchisee. This study distinguishes between two types of franchise contracts - strict and flexible. The flexible contract allows entrepreneurs to adapt to the local market environment. At the same time, the strict contract allows lower costs through standardization. Given this assumption, I investigate whether it is more profitable for franchisors to offer either "strict" or "trusting" contracts to the entrepreneur. Moreover, based on several additional assumptions I explore if it beneficial to differentiate such that one franchisor offers the "strict" contract and the other one offers the "trusting" contract. Based on the outcome of my model I show that the franchisor is better off by differentiating compared to offering two identical contracts to franchisee. Consequently, if and only if the first franchisor chooses the strict contract the second franchisor will select a flexible contract and the other way around.

1. Introduction

A franchise agreement is a contract between two firms: the franchisor and the franchisee. The franchisor is the party that establishes a certain product, service or formula. The franchisee is given the right by the franchisor to exploit its concept in return for a franchise fee (Rubin, 1975). There are two main raisons for a firm to become a franchisor. Frist, franchising provides the "agent" (the franchisee) with very strong incentives to perform in the interest of the franchisor. Parts of the returns generated by the agent are appropriated by the agent himself. It is often more efficient to franchise than to have store managers who also require, next to some incentives, costly monitoring expenses. Secondly, franchise agreements are often used for strategies to grow fast with limited capital. At the same time less return can be captured as return have to be shared between two parties. In addition, such strategy requires precise growth planning (Hoffman & Preble, 1991). The incentive provision and growth strategy are two of the main reasons why the franchise business has been growing for years and continues to grow. The Information Handling Services (hereafter IHS) estimates that the Gross Domestic Product of the franchise sector in the United States will increase by 5.1% to $521 billion in 2016 (IHS Economics, 2015).

After the Great Depression franchise has started to boom and ever since an enormous amount of literature can be found related to this topic (Dicke, 1992; Mishra, 2015). Some researchers relate franchise to a growth strategy (Hoffman & Perble, 1991; Szulanski & Jensen, 2008), others investigate the role of entrepreneurship in franchise (Dant and Gundlach, 1999, Kaufmann & Dant, 1999), while some researchers scrutinize the influence of risk and capital in franchise relationships (Rubin, 1978; Roh, 2002). However, very few papers are published that describe the possible effects of competition on a franchise contract within a heterogeneous market. I will show that for franchisors it is better to differentiate the level of contractual flexibility for the local entrepreneur, when the local market is heterogeneous.

The remainder the thesis is structured as follows: In the next chapter I provide a thorough review of the existing literature on the balance between autonomy and standardization within a franchise relationship. In chapter 3 I introduce the theory and the economic model, followed by an analysis in chapter 4. Chapter 5 concludes the research and provides further discussion.

2. Literature review

2.1 Autonomy

Firms thus use franchising to growth and to provide optimal incentives to the agent. Moreover, franchising may also enable enterprises to better adapt to local environments. Franchising can be a mean to enter geographic dispersed markets. As markets are heterogeneous, adaptations to the assets, e.g. product, service, template, etc., are required to incorporate these geographic differences in their sales. Uniform templates cannot possibly provide an optimal outcome for all locations, thus an autonomous policy for franchisees may create a comparative advantage (Sorenson and Sørensen, 2001). Local entrepreneurs possess superior information on the local market and its opportunities. However, to do so the franchisee should be given some freedom to adapt to the local market conditions. Local markets differ in many aspects, such as consumer preferences for assortment, quality and services. In such franchise relationships the strength of the franchisee is to detect local preferences and to use its entrepreneurial ability to implement these adaptations. This will have a great impact on effectiveness of the franchise organization (Minkler, 1992). Therefore, in such cases a franchisor would prefer a franchise relationship that is characterized by trust and that allows some flexibility to the entrepreneur. Moreover, independence is the most important incentive for people to become a franchisee, as it is promoted as "being your own boss" (Dant and Gundlach, 1999).

However, the benefits of such contract are associated with costs: the entrepreneur has more possibilities to shirk on the franchisor. Gross sales can be modified and there also exists an increased risk of brand name loss. Likewise, the franchisee can experience moral hazard from the franchisor when, for example, marketing contributions are not fully executed or the franchisor refuses to provide commercial assistance (Bhattacharyya & Lafontaine, 1995). Nonetheless, depending on the cost of monitoring, controls are often implemented by the franchisor to alleviate these moral hazard issues.

2.2 Standardization

Another reason to limit flexibility is to take advantage of standardization. Standardization of the franchise organization may result in lower cost for the franchisor. For instance, congruence benefits, lower administrative burdens and higher bargaining power (economies of scale) may lead to significant cost reductions. Similar, costs of implementation, marketing costs and costs of monitoring the franchisees are substantially decreased by a standardized franchise model.

Secondly, standardization enables the franchisor to attract customers who seek the common consumption experience. Therefore, the franchisor should create a common image among customers across different areas such that consumers will expect the same product or service at any place (Kaufmann & Eroglu, 1999). Consequently, standardization will also cause interdependence of franchise stores as the image of one store is transferred to other stores. Moreover, a competitive advantage can be realized when the knowledge assets are leveraged, patents for instance can be used in multiple stores within the same organization. A profitable template or a proven operational routine are often used to replicate to all other franchise stores. firms (Reagans & McEvily, 2003). In addition, providing franchisees with the freedom to innovate and adapt to local circumstances may lead to a decrease of the similarity of operational routine. One adaptation to a template often results in multiple changes. Every additional adaption may cause further deviation and amplify further divergence from the original template. Consequently, the usefulness of original template for replication decreases considerably as it becomes increasingly difficult to refer to the original template for guidance and/or detection of problems (Yu & Zaheer, 2010). In other words, in some circumstances it might be beneficial for a franchise organization to have a standardized franchise model.

In reality standardization, with rigorous monitoring and abundant assistance is a common practice. In these relationships, decisions and effort of the franchisor have a greater influence on the result than decisions or contributions of the franchisees. The better all franchisees are aligned the more cost reductions can be accrued and the easier it is to safeguard the reputation of the franchise brand. This type of franchise (in Dutch business environment: Hard franchise) is characterized by restricted and detailed agreements with little room for input or ideas of the franchisee. The franchisor is in charge for issues such as assortment, the concept of the store, procurement, marketing for all franchise stores, etc.

Nonetheless, standardization may require a high cost of monitoring and not all revenues are accrued to the franchisor. Therefore, it may be less costly to own the store then to franchise it with a very standardized model.

2.3 Finding the right mix

Many franchisors are often convinced by the superiority of their knowledge asset (product/service/template/etc…) and no or very few adaptations are allowed in order to fit new geographical markets (de Azevedo, 2009). The observation that franchise organizations do not always adapt to local markets has been criticized by many papers. The fundamental question

for franchise organizations is to what extent they need to implement adaptations in order to fit local preferences without losing the essential benefits of replication and standardization. Uniformity brings standardization and positive congruence effects, but narrows the possibilities for local adaptations. These local adaptions may be necessary to bind a consumer to your products/services.

Besides, if entrepreneurs are given the autonomy to adapt, they will also seek to maximize their own returns. Therefore, franchisors should impose organizational solutions that prevent franchisees to deviate from a certain template/formula. Only few restrictive adaptations should be allowed that affect certain areas of the business such as the product-mix, choice of suppliers, pricing, the marketing and labor recruitment. In addition, enforced conformity can be demanded by the franchisor if the franchisee would distort the main components of the template (Cox & Mason, 2007).

Finding the right mix between adaptation and standardization is also to the interest of both the franchisor and the entrepreneur. First of all, it will decrease the amount of conflicts and tensions between them. Secondly, because it will likely increase combined profits. Consequently, it is crucial for the franchisor to find this optimal mix. Lucky, many studies acknowledge the importance of local adaptation and/or having a standardized model with a core template. However, from the previous literature it is not clear on what is optimal. Some advocate for more adaptation (Sorenson and Sørensen, 2001) or more standardization (Winter et all, 2011), while other claim for a combination of two of them (Cochet, O., Dormann, J., & Ehrmann, 2008).

Besides, in the Dutch and Belgian franchise (supermarket) market, a wide range of contracts of different franchisors exist that differ in the degree of freedom. This would not have been the case if there would be an optimal. Therefore, I believe that there might be another force that drives this diversity: competition. To my knowledge there are no studies that investigate how the type of contract is affected by competition in a heterogeneous market. In addition, I consider such investigation to be relevant for the franchise industry. Firstly, because often times the degree of freedom is used in combination with other factors such as the franchise fee, the franchisees contribution of own capital and the wholesale prices to compete for potential franchisees. Secondly, because it is important for franchisors to know how competition between the different types of contracts will affect their revenues.

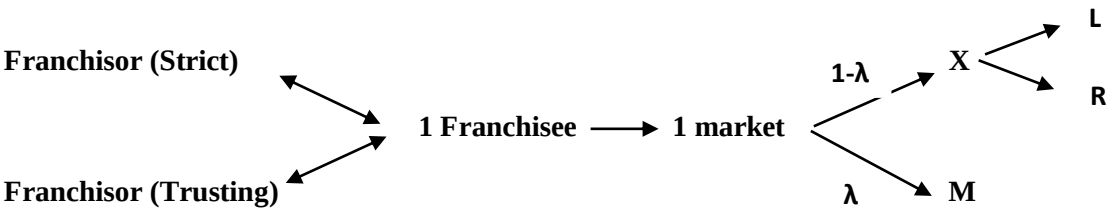
Therefore, this paper has a different perspective. I will not, as many other papers do, scrutinize the optimal mix for one particular franchisor, but rather the effects on profits in case multiple

franchisors offer different contracts. This is not only more realistic, but also offers the opportunity to compare different franchise strategies in a competitive environment. Will the existence of different local markets decrease profits of the franchisors or can it generate opportunities for the franchisors? Is it more profitable for the franchisors to only offer identical contracts or is it better to differentiate and offer different contracts? Furthermore, most papers that investigate the optimal contract have a business perspective and often rely on statistical analysis and quantitative research based on interviews. This paper however uses algebra to find optima.

In this thesis I show that if all franchisors offer a similar contract in a heterogeneous market, that competition will then force profits to zero. I introduce a model with two franchisors who compete for an entrepreneur. This entrepreneur has superior knowledge on local market conditions. I show that one franchisor will choose to offer a strict contract, if and only if the other chooses to offer a flexible contract and the other way around.

3. The model

Consider a local market with a unit mass of consumers, where franchisors compete with prices and assortment. These consumers belong to two types: standard (consumer type M) and one special type, X, where X is either Left (consumer type L) or Right (consumer type R). Types L and R could reflect consumers who prefer fair-trade, biological, halal goods or other local products. For simplicity, consumers will only buy if the assortment matches their type. The utility of the consumer thus depends on whether the assortment is adjusted to his particular preference (M, L or R). If the assortment matches with the consumer's preference, then each consumer will buy a quantity equal to $a - P$, where $a > 0$ and P is the retail price. Λ represents the share of the consumers that are of type standard (M). $(1 - \lambda)$ is the share of the consumers that are of type special (X) which can be either consumer L or R. It is assumed that λ is uniformly distributed between 0 and 1. On top, only the franchisee has the ability to learn the proportion of the market that consist of the standard M consumers (λ) and whether the rest X consists of preference L or R. In each market there is a single local entrepreneur, who wants to become a franchisee and two franchisors. Both the franchisor and the franchisee try to maximize profit.



The entrepreneur can choose between two franchisors: a franchisor of standardization (strict contract) and a franchisor of freedom (trusting contract). The franchisors do not know λ. They only know that λ is normally distributed between 0 and 1. Both franchisors first choose sequentially whether to be a strict or a trusting franchisor. If the franchisor is strict (S), then he has low marginal costs: cL, but can only cater to the standard consumers (M). A franchisor who is trusting allows the franchisee to choose himself whether to supply consumers of type M, L or R. However, this flexibility comes at the cost of higher marginal costs, cH to the franchisor: $a > cH > cL$. Also, it is assumed that there is no difference between variable and fixed cost for market L or R. Based on these restrictions one can notice that a franchisee will never choose for a trusting contract when it decides to serve the M market. This because of the higher cost for serving the M market with a trusting contract and the franchisee would have been better off with the strict market.

After the franchisors have chosen whether they want to be strict or trusting, each franchisor draws up his contract consisting of a wholesale price (wi) and franchise fee (Fi). Then the entrepreneur decides which contract to accept, which assortment to select (if chosen for the trusting contract) and which retail price to ask. The franchise fee is known to the entrepreneurs before accepting or rejecting the contract. The profit functions of the franchisees consist of the part of the market that accounts for M (λ), a constant a, the franchise fee (Fi), the wholesale price (wi) and consumer price (P). The franchisor receives income via 2 channels: the franchise fee and wholesale price of the goods sold to the franchisee. The profit functions will look like as follows:

The profit function of the entrepreneur if catering to M and accepting the contract of firm i:

$$\pi\,(P) \;=\; \lambda\,(a - P)(P - w_i) - F_i$$

The profit function of the entrepreneur if catering to X and accepting the contract of firm i:

$$\pi\,(P) = \;(1-\lambda)(a - P)(P - w_i) - F_i.$$

The profit function of a franchisor i whose contract has been accepted and the entrepreneur caters to M

$$\pi(w_i, F_i) = \lambda(a - P)(w - c_i) + F_i$$

where $ci = cH$ if the franchisor is trusting and cL otherwise.

The profit function of a franchisor whose trusting contract has been accepted and the entrepreneur caters to X, regardless the choice between R and L.

$$\pi_{tf}(w_t, F_t) = (1 - \lambda)(a - P)(w_t - cH) + F_t$$

In order to serve the L or R market, the entrepreneur has no other possibility then to select the thrusting franchisor.

In the market there are two types of franchisors between which the entrepreneur has choose: strict and trusting. If the entrepreneur chooses for trusting contract, it will have the possibility to change its assortment according to local needs. With the strict contract the franchisee can only provide an assortment for market M. Before choosing which contract to accept, the entrepreneur receives a signal S on λ and signal K on X. For simplicity I assume that these signals are known to be correct. The entrepreneur can only adapt its assortment to one type of consumer.

The timing of the process is as follows:

1. First, nature draws λ and the proportion L/R of market X.
2. Franchisor 1 chooses whether he is trusting or strict.
3. Franchisor 1 chooses whether he is trusting or strict.
4. The franchisors choose the contract that they want to offer and determine the wholesale price and franchise fee.
5. Subsequently, the entrepreneur receives signals S on λ and K on X.
6. Then, the entrepreneur chooses whose contract to accept.
7. Next, the entrepreneur determines its assortment (L, M, or R), if he accepted the strict contract his assortment is M and retail price P.
8. Profits are realized.

4. Analyses

I first analyse the optimal retail and wholesale prices. Then I consider the case where both franchisors choose to be strict, or both choose to be flexible. I show that then neither franchisor makes a profit. Finally, in 4.2 I will consider the case where the second franchisor chooses to offer a different type of contract than the first. There, I will demonstrate that both franchisors make an expected profit. Here below all abbreviation of the formulas can be found:

s=strict	*t*=trusting
sf= strict and franchisor	*tf*= trusting and franchisor
se=strict and entrepreneur	*te*=strict and entrepreneur
w=wholesale price	*F*=fixed fee paid by the entrepreneur to the franchisor
c=marginal cost	*V*=fixed costs.

R=$\left(\frac{a-c}{2}\right)^2$=revenue of entrepreneur

First the entrepreneur determines the monopolistic price and quantity on the market.

Inverse demand function: $P = a - Q$

Regardless of the contract, the entrepreneur will set prices and quantities to:

$$Q^* = \left(\frac{a - w_{s/t}}{2}\right)$$

$$P^* = \left(\frac{a + w_{s/t}}{2}\right)$$

The wholesale price is set such that combined profit (profit entrepreneur and profit franchisor) of the particular contract is highest. Consequently, the maximum surplus is realized for the franchise organization and the consumer surplus is minimized. Thereafter the franchise fee will function as the tool to distribute the income between them. In addition, incentives are aligned, as they have a common objective such that also conflicts are reduced. Taking the derivative of the combined profit function will in both cases result in the following price:

$$\pi(w_i, F_i, P)_s = \ \lambda(a - P)(w - c_L) + \ F_i + \lambda\ (a - \ P)(P - \ w_i) - \ F_i$$

$$\pi(w_i, F_i, P)_t = = (\ 1 - \lambda)(a - P)(w - c_H) + \ F_i + (1 - \lambda)\ (a - \ P)(P - \ w_i) - \ F_i$$

$$P^* = \left(\frac{a + c_{H/L}}{2}\right)$$

As it is optimal for combined profits to set prices equal to $(a + c)/2$, each franchisor will demand a wholesale price that is equal to its marginal cost. The entrepreneur will namely impose a price to its consumers that equals $(a + w)/2$.

4.1 Identical Contracts

Since both franchisors have chosen to offer a strict contract, they will have the same profit function. Consequently, they will try to undercut each other's franchise fee until profits equal zero in order to win the competition for the entrepreneur. The franchisor cannot get any profits the wholesale price because it is set equal to the marginal cost. As a result, the entrepreneur will claim the entire combined profit.

Profit franchisor: $\pi_r(w_i, F_i) = \lambda(a - P)(c_i - c_i) + 0 = 0$

Profit entrepreneur : $\pi_e(P) = \lambda(a - P)(P - c_i) - 0 = \lambda\left(\frac{a - c_i}{2}\right)^2 = \lambda R_i$

The same holds when the franchisors only offer a "trusting" contract. Again optimal price for combined profits will be $P = (a + w)/2$ and taking into account that the consumer price is optimal at a price $P^* = (a + c)/2$, the franchisor will set w equal to c.

Different to the case in which the franchisors only offer strict contracts is that the entrepreneur can now choose between various consumers (X or M) that he wants to cater. He will prefer M to X when profits of M are higher than of X.

$$\lambda(a - P)(P - c_H) - F_i > (1 - \lambda)(a - P)(P - c_H) - F_i$$

$$\lambda > \frac{1}{2}$$

For an entrepreneur to choose the X market, the opposite should hold meaning that λ should be smaller than a half. This holds in case demand for products/services for consumer M is equal to the demand for products/services of consumer X. The marginal cost and so the whole sale prices are the same regardless the contract, as it is the same franchisor.

The franchise fee is determined in advance and is equal to zero, as a consequence of competitions between the franchisors. In addition, the choice of the entrepreneur to cater market M or X does not affect the franchise fee.

Profit franchisor: $\pi_{tr}(w_t, F_t) = (1 - \lambda)(a - P)(cH - cH) + 0 = 0$

Profit entrepreneur : $\pi\,(P) = \,(1-\lambda)(a\,-\,P)(P-\,cH\,)-\,0 = (1-\lambda)\left(\frac{a-c_H}{2}\right)^2 = (1-\lambda)R_H$

In conclusion, one can notice that when franchisors offer identical contracts, their profits will be zero and the entrepreneur can claim all profits.

4.2 Differentiation of contracts: Strict/Trusting

Up until now I have assumed that the franchisors will offer the same contracts. However, it might be to the interest of the franchisors to offer different contracts as it may generate positive profits. I will assume that franchisor 1 offers a strict contract and that franchisor 2 offers a trusting contract. Similar to the first case, the entrepreneur determines the price based on demand, which will be $P^* = \frac{(a+w)}{2}$. They also set wholesale prices equal to marginal costs, such that the combined profit is optimized. However, compared to the first scenario with the same types of contracts, now it is less obvious what franchise fee the franchisor will demand.

The profit of the franchisor depends on the probability of the entrepreneur selecting his contract. At the same time, this probability is conditional on the franchise fee imposed to the entrepreneur via λ. Since wholesale prices are equal to the marginal cost, total profit of the franchisor consists of the imposed franchise fee times the probability of the entrepreneur selecting his contract.

As wholesale prices are determined by optimizing profits of combined profit, the franchise fee remains the only variable that the franchisor can change upfront. The income of the franchisor is therefore determined by the franchise fee and the probability of λ. As long as λ is higher or smaller than the threshold value, the franchisor can demand a higher franchise fee. The franchise fee is therefore indirectly determined λ. For the franchisor, the expected λ is any λ that lays between the 0 and 1.

Hence, the profit of the franchisor offering a strict contract looks as follows:

$$\pi_{sf}\,(w_s, F_s) = \Pr(K = s|F_1)\,(\lambda(a-P)(cL-cL) + \,F_1) = \Pr(K = s|F_1)\,F_1$$

And profit of the trusting franchisor:

$$\pi_{tf}\,(w_t, F_t) = \Pr(K = t|F_2)\,(1-\lambda)(a-P)(cH-cH) + \,F_2 = \Pr(K = t|F_2)\,F_2$$

The choice of contract (trusting/strict) is conditional on several values. First I make the assumption that the entrepreneur only wants to franchise if he makes positive profits. Consequently, λ should be such that any contract type chosen by the entrepreneur (strict or trusting), will generate positive profit, otherwise he would not start franchising in the first place.

$$\lambda > \frac{F_1}{R^S}$$

For an entrepreneur that chooses for the X market and thus for a trusting contract the following inequality should hold:

$$\lambda < 1 - \frac{F_2}{R^T}$$

In addition, the entrepreneur will only want to cater consumer M/X if profits are higher than profits from catering the other market.

$$\lambda\,(a - P)(P - w_1) - F_1 <> (1 - \lambda)\,(a - P)(P - w_2) - F_2.$$

This will be the case if λ has the following value:

$$\lambda <> \frac{R^T - F_2 + F_1}{R^S + R^T}$$

This is the threshold value for which the entrepreneur is indifferent between cooperating with Franchisor 1, who offers a strict contract and Franchisor 2 who offers a trusting contract. As λ is taken from a uniform distribution between 0 and 1, the franchisors know with 100% certainty that once the entrepreneur has chosen for Franchisor 1 that λ is bigger than or equal to that threshold value.

Furthermore, if $\lambda > \frac{1}{2}$, the entrepreneur will want to cater market M, regardless of the contract selected. Even if the entrepreneur selected the trusting contract, he would still have the option to cater market M. In this case, catering market M will result in higher profits than catering market X. Consequently, in order for Franchisor 1 to be selected, the profits of contract S should be larger than profits of contract T catering the M market.

$$\lambda R^S + F_1 > \lambda R^T + F_2$$

Therefore λ should be at least

$$\lambda \geq \frac{F_1 - F_2}{R^S + R^T}$$

In conclusion, the entrepreneur is willing to franchise within a particular market (X or M) depending on the value of λ. This value should meet at least a certain minimum/maximum, that can be either the minimum value for which the entrepreneur makes profit or the value for which

it is indifferent between catering market M or X. An additional minimum has to be added for the strict contract in case λ is bigger than 0.5.

I will show that the entrepreneur's profit remains positive with a positive franchise fee even if the competitor franchisor competes with a franchise fee equal to zero. First, I will estimate the franchise fee demanded by the strict franchisor and subsequently the fee demanded by the trusting franchisor. In order to do so, I make a separation between two situations. First, I estimate the franchise fee in case λ is smaller than 0.5 and then I do the same for a λ bigger than 0.5.

Strict contract

$$\lambda \leq \frac{1}{2}$$

If λ is smaller than 0.5, the entrepreneur has to consider two conditions that determine the threshold value. The positive profit condition and the value for which it would be indifferent between the trusting contract and the strict contract. λ should be bigger than these values. Thus, the threshold value is determined by the higher value of these two conditions. Since I assume that the competitor's franchise fee (F_2) is 0, it is obvious that $\frac{F1-F_2+R^T}{R^S+R^T} > \frac{F_1}{R^S}$. Consequently, it follows that $\frac{F1+R^T}{R^S+R^T}$ is the threshold value.

$$\lambda \geq \frac{1}{2}$$

If λ is bigger than 0.5, then the entrepreneur has to take into account a third condition. In this case the entrepreneur with a trusting contract will also offer an assortment aimed for market M and consequently λ should be larger than $\frac{F_1-F_2}{R^S-R^T}$. Subsequently, the highest value of these conditions is taken as the threshold value. Again, it is assumed that the F_2 is equal to 0 and as $\frac{F_1-F_2+R^T}{R^S+R^T} > \frac{F_1}{\pi^S}$, the positive profit condition ($\frac{F_1}{R^S}$) can be neglected. Then, as the wholesale prices of the strict contract are lower than the wholesale prices of the trusting contract, revenues of the strict contract are larger than the revenues of the thrusted contract ($R^S > R^T$). As a result, it follows that $\frac{F_1-F_2}{R^S-R^T} > \frac{F_1-F_2+R^T}{R^S+R^T}$ and therefore $\frac{F_1-F_2}{R^S-R^T}$ is the threshold value for which the entrepreneur will choose a strict contract.

Then, by setting $\frac{F_1-F_2}{R^S-R^T}$ equal to $\frac{F1-F_2+R^T}{R^S+R^T}$, the value of F_1 can found in case λ is equal to 0.5.

$$\frac{F_1 - F_2}{R^S - R^T} = \frac{F1 - F_2 + R^T}{R^S + R^T}$$

$$2F_1R^T = R^T(R^S - R^T)$$

$$F_1 = \frac{R^S - R^T}{2}$$

Any λ smaller than 0.5 should therefore be followed by a franchise fee smaller than $\frac{R^S - R^T}{2}$ and a λ bigger than 0.5 should be associated with a franchise fee larger than $\frac{R^S - R^T}{2}$.

The franchisor will impose an optimal franchise fee, by taking the derivative with respect to F_1. Since it is assumed that λ is normally distributed between 0 and 1, the probability of the entrepreneur selecting the strict contract equals 1 minus the threshold value, which can be either $\frac{F_1}{R_S - R_T}$ or $\frac{F_1 + R^T}{R^S + R^T}$.

If $\lambda \leq \frac{1}{2}$

$$\Pr(K = s|F_1)\, F_1 = \left(1 - \left(\frac{F_1 + R^T}{R^S + R^T}\right)\right) F_1$$

$$FOC\colon \frac{\delta \Pr(K = S|F_i)\, F_1}{\delta F_1} = R_S + R_T - 2F_1 - R_T = 0$$

$$F_1{}^* = \frac{R_S}{2}$$

If $\lambda \geq \frac{1}{2}$

$$\Pr(K = s|F_1)\, F_1 = \left(1 - \left(\frac{F_1}{R_S - R_T}\right)\right) F_1$$

$$FOC\colon \frac{\delta \Pr(K = S|F_i)\, F_1}{\delta F_1} = R_S - R_T - 2F_1 = 0$$

$$F_1{}^* = \frac{R_S - R_T}{2}$$

The results are only binding if they correspond with the inequality described earlier in case λ is smaller or bigger than 0.5. Consequently, one can notice that $F_1{}^* = \frac{R_S}{2}$ does not hold. If λ is smaller than 0.5, then the franchise fee should be smaller than $\frac{R_S - R_T}{2}$.

However, ${F_1}^* = \frac{R_S}{2} > \frac{R_S - R_T}{2}$. The other result (${F_1}^* = \frac{R_S - R_T}{2}$) does hold: ${F_1}^* = \frac{R_S - R_T}{2} \leq \frac{R_S - R_T}{2}$, which is a positive value. Consequently, demand for the strict franchisor will be positive with a positive franchise fee even if the competitors franchise fee is equal to 0.

Trusting contract

A similar analysis is performed for the trusting contracts. First I will estimate the threshold values and thereafter the franchise fees imposed by the franchisors. Again, I distinguish between a λ that is bigger than 0.5 and one that is smaller than 0.5. Also now, I assume that the competitor's franchise fee is equal to 0. Then I will try to prove that even in that case an entrepreneur will select the trusting contract.

If $\lambda \leq \frac{1}{2}$

If λ is smaller than 0.5, the entrepreneur has to consider two conditions that determine the threshold value. The positive profit condition and the value for which it would be indifferent between the trusting contract and the strict contract $(1 - \frac{F_2}{R^T})$ and $(\frac{F1 - F_2 + R^T}{R^S + R^T})$. The smaller value of two will function as the threshold value. As F_1 is equal to 0, it is clear that $\frac{F1 - F_2 + R^T}{R^S + R^T} < \frac{R^T - F_2}{R^T}$ and therefore $\frac{R^T - F_2}{R^S + R^T}$ will be the relevant threshold value.

If $\lambda > \frac{1}{2}$

Logically, it is not plausible that an entrepreneur wants to franchise with a trusting contract if $\lambda > \frac{1}{2}$. In this case the entrepreneur would like to tune its assortment to market M. Then because the marginal costs of the strict franchisor are lower than the marginal costs of the trusting franchisor, wholesale prices will also be lower for the strict contract compared to the trusting contract. Consequently, the entrepreneurs profit will be higher with a strict contract than with a trusting contract. The trusting franchisor has a weaker competitive position than the strict franchisor. Unless the trusting franchisor is willing to accept negative profits, a strict franchisor will always win the competition, as marginal costs are lower.

The franchisor's optimal franchise fee can be found by taking the derivative of his profit function with respect to F_2. Since it is assumed that λ is normally distributed between 0 and 1,

the probability of the entrepreneur selecting the strict contract equals to the threshold value $\frac{R^T - F_2}{R^S + R^T}$.

If $\lambda \leq \frac{1}{2}$

$$\Pr(K = T|F_2)\, F_2 = \left(\frac{R^T - F_2}{R^S + R^T}\right) F_2$$

$$FOC: \frac{\delta \Pr(K = T|F_2)\, F_2}{\delta F_2} = R_T - 2F_2 = 0$$

$$F_2{}^* = \frac{R_T}{2}$$

Once again, there is a positive demand with a positive franchise fee, even when the competitor's franchise fee is zero.

It is important to note that $F_1{}^*$and $F_2{}^*$ are strategic complements. If the franchise fee for the strict contract increases, then the trusting franchisor can impose a higher franchise fee for his contract. This can be shown by finding the best response of franchisor 1 to franchisor 2 and the other way around. The probability of a contract for the franchisors are equal to the binding threshold values ($\frac{F_1 - F_2}{R^S - R^T}$ and $\frac{F_1 - F_2 + R^T}{R^S + R^T}$). Therefore, the profit function of the strict and trusting contracts respectively are $\left(1 - \left(\frac{F_1 - F_2}{R^S - R^T}\right)\right) F_1$ and $\left(\frac{F_1 - F_2 + R^T}{R^S + R^T}\right) F_2$. Then by taking the derivative with respect to the franchise fee, the best responses can be found:

$$F_1^* = \frac{R^S - R^T + F_2}{2}$$

$$F_2^* = \frac{R^T + F_1}{2}$$

Consequently, the strict franchisor imposes a higher/lower franchise fee if the trusted franchisor increases/decreases its franchise fee and the trusting franchisor imposes a higher/lower franchise fee if the strict franchisor increases/decreases its franchise fee.

Therefore, it can be concluded that franchisors are better off when they differentiate by offering a different type of contract than his competitor.

5. Conclusion and discussion

In comparison to the first case where franchisors offer the same types of contracts, one can now notice that it can be desirable for the franchisors to differentiate in a market that consist of

different types of consumers with different preferences. Whereas in the first case profits for the franchisors were zero, with differentiation franchisors can make positive profits if one of the franchisors provides a strict contract and the other a trusting contract. There is zero chance that profits will be lower than in the first situation. Therefore, it can be derived from the model that differentiating the type of contract is a Pareto improvement for the franchisors.

Furthermore, to expand the research and make it more applicable, it might be interesting to investigate the effects on results when signals (S and K) are no longer fully correct/informative. Instead of receiving a fully correct signal, the entrepreneur receives a signal S of λ (the share of consumer M in a market) that is correct with some probability. That probability will depend on the competence of the entrepreneur. If the entrepreneur's competence is poor, then the signal is uninformative. The signal is informative if the competence is good. As it is difficult to estimate the exact level of competence of an entrepreneur, the competence can be reflected by a probability that he has a high ability. That probability can take any value between 0 and 1. In addition, also signal K (proportion L and R in market X) can be informative depending on a particular competence. For this signal to be correct the probability should be at least 0.5, otherwise it is considered to be an incorrect signal. In case the probability that the competence is good is less than 0.5, the signal could indicate L/R whereas in fact the actual value is to opposite value R or L.

Similar to the case without trustworthiness of signals, the franchisor has to choose the type he wants to be. The entrepreneur has to decide which contract he wants to select. However, in this case, the entrepreneur will only choose a contract with a certain probability. This probability will be conditional to the signal and its trustworthiness. The added value of such investigation is that it also takes into account the increased risk of decisions for both the franchisor and entrepreneur, as signals become uncertain. It may affect the decision for the entrepreneur regarding the contract selection as well as whether to franchise or not to franchise at all. Besides, it may affect the choice of the type the franchisor wants to be and the franchisee fees imposed.

A second interesting case for further research would be to see how results change if the order of decisions changes. What if entrepreneurs would first choose the franchisor and thereafter the market they want to cater. Initially, they might want to choose a franchisor that coincides best with their interest, experience and skills without considering the signals of the market. Besides, the entrepreneur might first want to start operation such that signals about the market become clearer. In particular, it is interesting to see whether there would be a higher preference for the trusting contract. Only the trusting contract offers the entrepreneur the option to cater all 3

markets (R/M or L). Then, the entrepreneur can still make use of its signals that can indicate the composition of the market. With a strict contract the entrepreneur can only serve the middle market and cannot switch after having signed the contract even when the signals indicate that the share of market M is rather low.

Lastly, it is also important to outline some limitation of the model. This model is based on the case with only one entrepreneur and two franchisors. Outcomes may change substantially when the amount of entrepreneurs increases such that its monopolistic position decreases. Furthermore, the model relies on the premise that a M consumer only want to buy from a M assortment. Result may change when substitution between assortment is allowed as prices differ. In addition, as this paper investigates franchising from a different perspective, factors described in the introduction are not taken into account by this model. Non-monetary incentives such as being you own boss and the effects of being monitored may decrease the willingness of the entrepreneur to franchise. On the other hand, a franchisor might be reluctant to cooperate with a particular entrepreneur because of moral hazard issues, shirking or reputation damage.

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