Difference Between Franchisers with and without Direct Retail Stores

Jin Hyung Lee*

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Abstract

The new regulation was introduced to the franchise market of South Korea in that an applicant who wants to be a franchiser must set up direct retail stores and run them for at least one year before recruiting franchisees. Considering the purpose of the regulation, it is inferred that once franchisers run their own stores, their franchisees would be better off than otherwise. Thus, this paper investigates whether franchisees would have the more likelihood to make profit in the case of that franchisers operate their own stores. The result demonstrates that this case could be true. Furthermore, the result also shows that one plausible reason is that the operation of franchiser owned stores could be helpful in reducing cost of franchisees.

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*I am responsible for all errors.

*Korea Fair Trade Mediation Agency, email: samshun76@gmail.com

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1 Introduction

It is believed that a market is highly likely to be self-corrected. However, when the market failure occurs, a competition authority sometimes intervenes to restore competition. In this respect, the Korea Fair Trade Commission, called KFTC recently announced a new regulation policy in order to correct the market failure in the franchise market of South Korea. According to the regulation policy, any new applicant who wants to be a franchiser and open up the franchise business in the future must establish at least one his own franchise stores (direct retail stores) and operate them in more than one year ahead of recruiting franchisees. In response to the regulation policy suggested by the KFTC, the National Assembly introduced it as a new subparagraph of the Article 6-3 to the Fair Transactions in the Franchise Business Act. The new subparagraph was effective on 19th, November, 2021.

The regulation was adopted in order to mitigate the market saturation in the franchise market of South Korea. According to the market analysis[1] about domestic franchise business done by Ministry of Trade, Industry and Energy of South Korea in 2018, the number of franchisers registered in South Korea was 3.5 times as many as Japan, while the population in South Korea was less than the half of the whole Japanese people. Therefore, franchisees confronting fierce competition were expected to gain nothing but negative profits due to market saturation in the franchise market of South Korea.

In spite of the severe market saturation, there have still been new entries in the franchise market of South Korea. The reasonable explanation behind this phenomenon is that a considerable portion of workforce has no choice but to run a business in the franchise market since they can not achieve new another jobs after losing jobs. More specifically, the Statistics Korea[2] demonstrates that 54 percent of the self-employed workers were employees before becoming self-employed in Korea. In other words, once workers experience unemployment, more than half of those job seekers hardly succeed to get another jobs and some of them are forced to run their own business in the franchise market. Consequently, the self-employment rate in South

[1] Please, refer to Kang (2019).
[2] Please, refer to the website as follows: https://kostat.go.kr/portal/eng/index.action

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Korea turns out to be the 7th highest of all OECD countries from 2015 to 2020 according to the investigation of OECD.[3]

Furthermore, when many jobless people are compelled to start a franchise business, they are forced to invest all their own money into initiating the franchise business since they can seldom borrow money from banks. According to a survey[4] conducted by Hana Institute of Finance in 2018, located in South Korea, it was reported that around 69 percent of respondents surveyed invested their own money into starting a franchise business. Consequently, they are highly exposed to negative external shock. For instance, when a franchiser suffers from default risk or bankruptcy, franchisees of the franchiser are also likely to be easily broke since they scarcely have financial alternatives to handle the liquidity crises of the franchiser. In spite of that, franchisees with high default risk keep coming into the franchise market. Accordingly, the competition in the franchise market is not able to self-regulate this issue.

Thus, as mentioned earlier, the new regulation was introduced to the Fair Transactions in the Franchise Business Act. Based on the regulation by the lawmakers and the KFTC, it is inferred that franchisers with their own stores (direct retail stores) are better at operating the franchise business than franchisers only recruiting franchisees. For instance, once the former operates the direct retail stores over a certain period of time, tacit knowledge could be built up to save cost in an efficient way. Therefore, the former hands down the tacit knowledge to franchisees and the likelihood to make profit also increases.

In this context, Lee (2019) demonstrates that almost 60 percent of trademarks in the franchise market of South Korea depended soley on franchisees' stores in 2016. He also points out the likelihood that risks such as the decrease in sales might be transferred to franchisees due to lack of franchisers' experience or insight about the competitiveness of their products. At this respect, the new regulation appears to be effective in alleviating the issue brought about by the market saturation in the franchise market of South Korea. Particularly, the regulation is expected to refrain franchisers from imprudently recruiting franchisees and deter from new

[3]The self-employment rate in South Korea was 24.64 percent. Please, refer to the website for the OECD Data as follows: https://data.oecd.org/emp/self-employment-rate.htm

[4]Please, refer to Lee (2017).

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entries to the franchise market, reducing the problem relevant to the severe market saturation. Furthermore, franchisees would be well trained by franchisers with abundant experience to operate the franchise business. Accordingly, profits of franchisees would be enhanced and they are less likely to be in the financial difficulties. Based on this hypothesis, this paper empirically detects whether franchisers to operate their own stores are different from those without any their own stores. If they are distinctive, franchisees of the former are likely more profitable than those of the latter. Then, the regulation of the KFTC is justified by this intrinsic distinction.

Meanwhile, there are two categories of economic literatures relevant to the franchise market; territorial encroachment and franchiser-franchisee relationship. First of all, as regards territorial encroachment, Kalnins (2004) empirically proves that the territorial encroachment occurred from the Texas lodging industry in the 1990s. He concludes that a franchisee's new entry nearby incumbents cannibalizes revenues of incumbents with the same brand. His findings are the first study to detect the existence of systematic cannibalization in the franchise industry specific to the lodging industry requiring lots of initial investment. Unlike his study, this study focuses on the business sectors (such as pizza, convenient stores, coffee, and confectionery and bakery), requesting relatively small investment, compared to the lodging industry.

Next, as regards franchiser-franchisee relationship, the economic literature provides perspective on principal-agent. For instance, Blair and Kaserman (1982) investigate the relative importance of entry (or franchise) fee and royalty that a franchiser imposes on a franchisee. According to their research, when a franchiser is faced with high demand uncertainty, the franchiser puts more weight on the royalty. However, the entry fee is placed more emphasis on in the case of low demand uncertainty since a franchiser likely harvests rents from a franchisee at the initial start-up period.

Besides, Mathewson and Winter (1985) research the effect of contractual elements on franchisers and franchisees. They theoretically show that the royalty fee is more standardized when the low variances of local quality that franchisees supply are observed. They also demonstrate that a franchiser imposes the standardized retail prices and store hours on franchisees since the franchiser needs to prevent franchisees from misreporting local demand as low and reducing

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efforts to keep the high level of local quality.

Additionally, Michael (2000) also holds an enquiry about the inherent problem of organizational form in franchising. His empirical findings articulate that the franchise contract gives rise to free-riding and decreases quality in the nature of franchising.

This study also deals with the franchise market. However, unlike the previous literature mentioned earlier, this study focuses on the regulation of a competition authority when there are excess entries (almost surely causing the market saturation) and fierce competition in the franchise market. The regulation of the KFTC implies that there could be distinction between franchisers with or without their direct retail stores. The former is more likely to accumulate either tangible or intangible assets to save the production cost and reduce financial risk for franchisees, compared to the latter. Thus, franchisees of the former are more likely to be profitable rather than the latter. Accordingly, in the case of that this hypothesis is valid, the regulation of the KFTC is justfiable. In this regard, the former is compared with the latter in terms of profit per franchisee.

Additionally, this study contributes to the economic literature by adding the simple method to estimate cost of a franchisee. More specifically, this study provides a simple instance to use the lump-sum (franchise) fees and operating cost per franchisee across all trademarks to estimate the average operating cost per franchisee of each trademark for each franchise business sector. This simple method is expected to be of practical use since it does not require heavy amount of data relevant to characteristics of cost.

This study is organized as follows. In Section 2, a simple model is introduced to estimate the operating cost per franchisee for each trademark of a franchiser. Then, profit is calculated from the estimated operating cost per franchisee and the sales amount per franchisee for each trademark. Finally, the distributions of the estimated profit are derived according to two groups, franchisers with franchiser owned stores and without them, and it is examined if there exists the difference between the mean values of those distributions. In Section 3, it is estimated how the operation of franchiser owned stores (direct retail stores) impacts sales per franchisee through cost savings. Finally, a conclusion is made in Section 4.

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2 Analysis on Franchise Profit and Cost Structure

2.1 Theoretical Framework

A two-period model[5] is depicted as follows. In a small territory, there are two franchisers and two applicants to be franchiees. The two franchisers 1, 2 at the upstream stage occupy two different trademarks for an identical product in the market, respectively. At the downstream stage, each applicant buys a right from one franchiser in the period one and becomes a franchisee. The right indicates that the franchisee is able to produce and sell the identical product in the period two. In compensation for the right, the franchisee pays a lump-sum (franchise) fee[6] a franchiser in the period one. The lump-sum fee[7] equals F_i, $i = 1, 2$ for each franchiser.

Besides, franchisees own distinctively different preferences over trademarks. Thus, each franchisee contracts with a different franchiser. Moreover, a franchisee pays a per-unit output royalty[8] which equals R_i, $i = 1, 2$ when the franchisee produces and sells the product in the period two. Each per-unit output cost equals c_i, $i = 1, 2$, and $c_1 > c_2$.[9] c_i, $i = 1, 2$ is the common knowledge to all participants.

e^u and e^d are implicit discount factors of franchisers and franchisees, respectively. Since a franchisee is assumed to be financially more conservative than a franchiser, $1 > e^u > e^d$.[10]

In the period one, a franchiser would expect the present value of his profit as follows.

$\pi_i^u = F_i + e^u R_i Q_i(R_i)$, $i = 1, 2$[11]

[5] In order to build the theoretical framework, the model suggested by Blair and Kaserman (1982) is adopted. However, unlike their assumption of a franchiser possessing monopoly power, this study assumes that two franchisers, composing duopoly, compete against each other in the market.

[6] A franchise fee is the payment that a franchisee makes for services which the franchisee is provided with before the franchisee starts to run business.

[7] It is called franchise fee or entry fee.

[8] A royalty is the payment that a franchisee makes for services which the franchisee is provided with after the franchisee starts to run a business.

[9] Even though two franchisees belonging to two different franchsiors produce a similar good, it would be plausible that each franchisee incurs different cost. For example, if a franchiser 2 runs a large-scale distribution channel, the franchiser 2 could provide resources to its franchisee based on lower cost than the other franchiser does, which makes it possible to result in different costs between franchisees.

[10] A franchisee might be more risk-averse than a franchiser since a franchisee is highly likely to set up business entirely through personal finance in Korea. In this regard, a franchisee is utterly exposed to default risk, while a franchiser likely diverses the default risk through incorporating a franchise, which makes it possible for a franchisee to be conservative about the risk.

[11] u indicates "upstream".

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where $Q_i(R_i)$ is the output of a franchisee and the function of the output royalty, R_i.

The present value of a franchisee's profit would be expected as follows.

$\pi_i^d = e^d[P[Q_m]Q_i(R_i) - c_iQ_i(R_i) - R_iQ_i(R_i)] - F_i,\ i = 1, 2$[12]

where $c_iQ_i(R_i)$ is the total production cost for a franchisee, and $P[Q_m]$ is an inverse demand.

$Q_m = Q_1(R_1) + Q_2(R_2)$

where Q_m is the total production output in the whole market.

$P[Q_m] = a - bQ_m = a - b[Q_1(R_1) + Q_2(R_2)]$

where $P[Q_m]$ is assumed to be a linear inverse demand for the product, and $a > 0$, $b > 0$.

Then, a franchisee's profit at the time of contract is written as follows.

$\pi_i^d = e^d[P[Q_m]Q_i(R_i) - c_iQ_i(R_i) - R_iQ_i(R_i)] - F_i = e^d[aQ_i - bQ_i^2 - bQ_1Q_2 - c_i - R_iQ_i] - F_i$

Since c_i is the common knowledge, franchisers determine the optimal R_i and F_i on the condition that a franchisee earns at most normal profit[13] at the time of the contract.

Thus, a franchisee would accept R_i and F_i taken as given and maximize π_i^d over Q_i.

$\frac{\partial \pi_i^d}{\partial Q_i} = a - 2bQ_i - bQ_j - c_i - R_i = 0,\ i \neq j, i = 1, 2, j = 1, 2$

Then, the optimal output of the product is designated as the following manner.

$Q_i^* = \frac{1}{3b}(a + c_j + R_j - 2c_i - 2R_i)$[14]

Finally, a franchiser's optimization problem is characterized as the following.

$Max_{F_i,\, R_i}\ \pi_i^u\ s.t.\ \pi_i^d(Q_i^*) = 0$[15]

where $\pi_i^d(Q_i^*) = 0$ implies the normal profit of a franchisee at the optimal output.

Therefore, the optimal franchise fee, F_i and output royalty, R_i are solved as follows.

$F_i = \frac{e^u}{9bH}[2R_i - R_j - a - c_j + 2c_i]^2 = \frac{e^u}{9bH}[(10e^{2u} - 6e^{u+d})a - (14e^{2u} - 6e^{u+d})c_i + 4e^{2u}c_j]^2$

$R_i = \frac{e^u - e^d}{H}[(5e^u - 3e^d)a - (7e^u - 3e^d)c_i + 2e^uc_j]$

$H = (15e^{2u} - 14e^{u+d} + 3e^{2d})$

The assumption, $c_1 > c_2$, implies that a franchisee of a franchiser 2 produces the final product

[12] d stands for "downstream".

[13] Eventually, the competition between franchisees induces the normal profit in equilibrium.

[14] $\frac{\partial Q_i^*}{\partial R_i} = -\frac{2}{3b} < 0$, which is the final-product marginal product of the per-unit output royalty.

[15] $L_i = F_i + e^uR_iQ_i(R_i) + \lambda_i[F_i - e^d[P[Q_m]Q_i(R_i) - c_iQ_i(R_i) - R_iQ_i(R_i)]]$

$\frac{\partial L_i}{\partial F_i} = 1 + \lambda_i = 0$

$\frac{\partial L_i}{\partial R_i} = e^u[Q_i + R_i\frac{\partial Q_i}{\partial R_i}] - e^d[a\frac{\partial Q_i}{\partial R_i} - 2bQ_i\frac{\partial Q_i}{\partial R_i} - bQ_j\frac{\partial Q_i}{\partial R_i} - c_i\frac{\partial Q_i}{\partial R_i} - Q_i - R_i\frac{\partial Q_i}{\partial R_i}] = 0$

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in relatively more cost-saving manner, compared to a franchisee of a franchiser 1. Thus, the franchisee of the franchiser 2 could make excess profit. In response, the franchiser 2 likely reaps the excess profit through the higher franchise fee, F_2 and output royalty R_2, which makes it only possible for the franchisee to gain normal profit.

Meanwhile, the franchise fee, F_i is rewritten as follows.

$F_i = [\beta_0 a - \beta_1 c_i + \beta_2 c_j]^2$

where $\beta_0 = (10e^{2u} - 6e^{u+d})(\frac{e^u}{9bH})^2$, $\beta_1 = (14e^{2u} - 6e^{u+d})(\frac{e^u}{9bH})^2$, $\beta_2 = 4e^{2u}(\frac{e^u}{9bH})^2$

Taking the square root of both sides, the equation is rearranged as follows.

$\sqrt{F_i} = \beta_0 a - \beta_1 c_i + \beta_2 c_j$

When $F_i > F_j$, the difference between $\sqrt{F_i}$ and $\sqrt{F_j}$ is taken as the following way.

$\sqrt{F_i} - \sqrt{F_j} = (\beta_1 + \beta_2)(c_j - c_i)$, where $F_i > F_j$ and $c_i < c_j$

Then, the equation is provided to derive the cost, c_j of a franchisee, j from the assumed relationship between two franchise fees, F_i, F_j as.;

$\frac{\sqrt{F_i} - \sqrt{F_j}}{\beta_1 + \beta_2} + c_i = c_j$

2.2 Identification Strategy on Operating Cost of a franchisee

In the equation described earlier, once $\sqrt{F_i}$, $\sqrt{F_j}$, $\beta = \beta_1 + \beta_2$, and c_i are determined, c_j is derived. In a small territory, two trademarks of franchises are supposed to be randomly drawn from the pool, $1, 2, \cdots, i, j, \cdots, k$ in the same business sector (business category). Thus, they are assumed to compete against each other between adjacent points. Furthermore, it is assumed that $c_{min} = c_1 < \cdots < c_i < c_j < \cdots < c_k$. Then, it is valid that $F_{max} = F_1 > \cdots > F_i > F_j > \cdots > F_k$ from the relationship $F_i > F_j$ and $c_i < c_j$ in the same business sector. Accordingly, $F_{max} = F_1 > \cdots > F_i > F_j > \cdots > F_k$ corresponds to $c_{min} = c_1 < \cdots < c_i < c_j < \cdots < c_k$. Moreover, if F_{max} and F_i are observed, and c_{min} and β are estimated, the corresponding c_i is finally derived. Thus, above all, the information on F_i needs to be collected .

Fortunately, the information on each F_i is available from the Franchise Disclosure Document managed by the Korea Fair Trade Mediation Agency, called KOFAIR. The KOFAIR announces the Franchise Disclosure Document every year. More specifically, either a current franchiser or

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any applicant who wants to be a franchiser and start the franchise business fills out the Franchise Disclosure Document and submits it to the KOFAIR. The Franchise Disclosure Document contains various information on trademarks, the number of franchisees's stores per trademark, sales amount per franchisee for each trademark, and franchise fee (entry fee, F_i) per franchisee for each trademark, etc.

Once the information on F_i is available, a few more steps to estimate c_{min} and β are taken as follows. In order to do this, F_{max} and F_{median} are taken, where the subscript, 'median' means the median value of $F_1, \cdots, F_i, F_j, \cdots, F_k$. Then, F_{median} corresponds to c_{median} since it is assumed that $F_{max} = F_1 > \cdots > F_i > F_j > \cdots > F_k$ corresponds to $c_{min} = c_1 < \cdots < c_i < c_j < \cdots < c_k$.

However, c_{median} is not directly available from the Franchise Disclosure Document in each business sector. Instead, the information about the operating cost per franchisee for each business sector is available from the Korean Statistical Information Service. Thus, c_{median} is assumed to be the operating cost per franchisee[16] across all trademarks for a business sector.

Once F_{max}, F_{median} and c_{median} are collected, c_{min} and β are estimated as the follows.

At first, let $(\beta_1 + \beta_2) = \beta$, where $\beta > 0$.

Then, it is kept that $\frac{\sqrt{F}_{max} - \sqrt{F}_{median}}{\beta_1 + \beta_2 (= \beta)} + c_{min} = c_{median}$.

$\sqrt{F}_{max} - \sqrt{F}_{median} = \beta^0 (c_{median} - c^0_{min})$

c_{min} is initialized at a value, c^0_{min}.

β^0 is estimated in the way through the regression of $\sqrt{F}_{max} - \sqrt{F}_{median}$ on $c_{median} - c^0_{min}$, given F_{max}, F_{median}, c_{median}, and c^0_{min}.

Next, c^1_{min} is calculated, given F_{max}, F_{median}, c_{median}, and β^0.

Then, β^1 is calculated, based on F_{max}, F_{median}, c_{median}, and c^1_{min}.

In the same way, β^0, $\beta^1 \cdots \beta^n$ are estimated until β^n converges to β.[17]

Once c_{min} and β are estimated, $\sqrt{F}_{median}$ and c_{median} are replaced by $\sqrt{F}_i$ and c_i, which results in the equation, $\frac{\sqrt{F}_{max} - \sqrt{F}_i}{\beta} + c_{min} = c_i$. Now, since $\sqrt{F}_{max}$, c_{min}, β and $\sqrt{F}_i$ are known, c_i is derived.

[16] It implies that one franchisee is assumed to run one store.

[17] To be accurate, $\frac{|\beta^{n-1} - \beta^n|}{\beta^{n-1}} \rightarrow 0$.

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Some business categories (business sectors) are selected for the application of the algorithm mentioned above, considering the similarity of the product. In other words, if the similarity of the product seems to be high within a business category selected, which is suitable for the assumption about the identical product, the business category is chonsen for the application of the algorithm. Then, the business categories chosen are articulated in Table 1. As indicated in Table 1, the total number of franchisees runing convenient stores was 35,224 in 2016 and 40,170 in 2017. At the same time, 29 trademarks for covenient stores competed against each other in 2016 and 31 trademarks existed in 2017.

[Table 1: The number of trademarks and franchisees by the category of business]

As mentioned earlier, the Korean Statistical Information Service provides the information about the operating cost per franchisee according to each business category. However, the problem is that the information is given only in 2018, where the relevant information is articulated in Table 2. Since the information used about F_i comes from 2016 and 2017, the operating cost per franchisee in 2018 is adjusted by the rate of rise about the producer price index (called PPI) in order to transform the cost from 2018 to 2016 and 2017. The result is also indicated in Table 2.[18] For instance, if "A" trademark is median within "Chicken" franchise in terms of the franchise fee, F_i in 2016, the operating cost per franchisee of the "Chicken" franchise in 2018 is adjusted through PPI and is assigned to the operating cost per franchisee of the "A" trademark in 2016. That is, c_{median}, which is assumed to be the operating cost per franchisee of the "A" trademark, is replaced by the adjusted operating cost per franchisee of the "Chicken" franchise in 2018. Additionally, all estimated costs are not economic costs but accounting costs. Therefore, there might be unobserved other factors that could affect either cost or sales, which is not measured by the accounting.

[Table 2: c_{median}, median operating cost per franchisee]

[18]The data collected from the Franchise Disclosure Document is different from that of Korean Statistical Information Service as follows. The former is provided by each franchiser, reporting the total number of franchisees, and average sales per franchisee according to each trademark, etc. In contrast, the latter is collected through the survey of franchisees sampled. Furthermore, the latter does not give any clue on trademarks, and various information can not be sorted by trademark. Thus, the latter is not appropriate for this study. The website for the latter is as follows; https://kosis.kr/eng/

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[Table 3: Description of $\sqrt{F}_{max} - \sqrt{F}_{median}$, and c_{median}]

Since the 6 business categories (business sectors) are chosen in 2016 and 2017, the 12 data about c_{median} corresponding to the 6 categories are generated, as shown in Table 3. Thus, those 12 data are used to estimate β and c_{min}. According to the application of the algorithm earlier, the result is shown in Table 4 and 5.

[Table 4: The estimation of β]

[Table 5: The estimation of the lowest operating cost, c_{min}]

2.3 Differences Between Franchisees of Franchisers with or without Direct Retail Stores

Meanwhile, sales per franchisee, $s_1, \cdots, s_i, s_j, \cdots, s_k$ corresponding to $F_1, \cdots, F_i, F_j, \cdots, F_k$ are also observed from the Franchise Disclosure Document. Thus, the estimated profit per franchisee can be derived since s_i is observed, and c_i is estimated. Before the derivation of profits, the relevant data about the sales are excluded in the case of that the sales per franchisee is recorded as either zero or a missing value. Thus, the number of trademarks in Table 6 shrinks for each business category, compared to Table 1. Then, the result is shown in Table 6 below.

[Table 6: The reduced number of trademarks through removing missing values in sales]

Finally, the estimated profit per franchisee[19] according to $F_1, \cdots, F_i, F_j, \cdots, F_k$ is also derived, where each $F_1, \cdots, F_i, F_j, \cdots, F_k$ responds to franchise fees of different trademarks within the same business sector. As indicated in Table 7, the estimated profit per franchisee for each trademark in the business categories such as coffee, convenient store, and pizza would be negative on average[20] in both years. The mean value of the estimated profit per franchisee corresponding to fast food is observed to be from positive in 2016 to negative in 2017. The mean values responding to both chicken and confectionery and bakery are estimated to be positive in both years. On the whole, the performances of stores would not be in good situation.

[19]The profit per franchisee equals "the sales amount per franchisee minus the operating cost per franchisee".
[20]"average" implies the simple mean of the estimated profit per franchisee for each trademark..

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[Table 7: Summary of estimated profit by category of business]

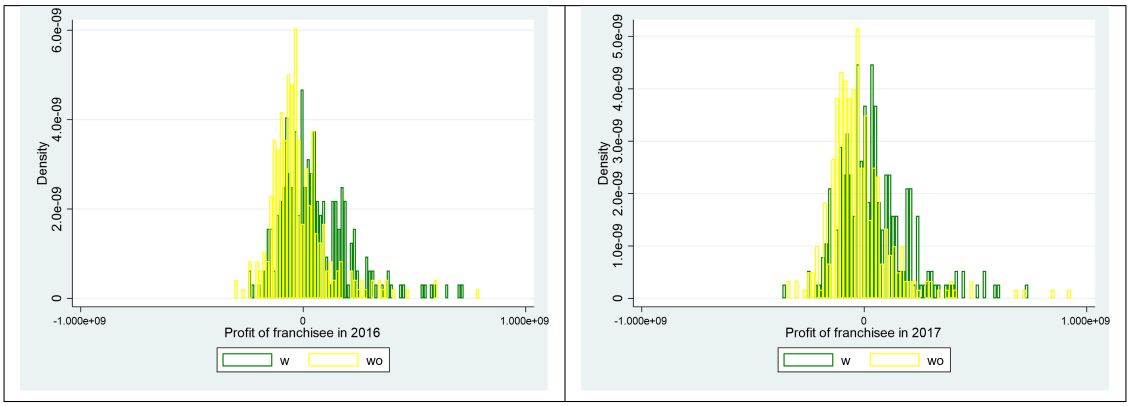

Figure 1: Distributions of estimated profits for franchisees in all the business sectors, 2016 and 2017

Figure 1 shows the distributions of the estimated profit per franchisee in all the business sectors according to 2016 and 2017. The "w" stands for "with" in the meaning of that franchisers run their own franchise stores, and the "wo" indicates "without" in the sense that franchisers do not operate their own franchise stores at all, only recruiting franchiees. As indicated in Figure 1, the distributions of "wo", colored in yellow, tend to be more left-skewed, which implies that franchisees in the group of "wo" are less likely to make profit, compared to those in the group of "w" in both years.

[Table 8: Profit distributions of franchisees in 2016 and 2017]

The observation is confirmed again through using t-test to check the mean differences of the two groups for each year. As mentioned in Table 9, the mean differences between the two groups, "w" and "wo" are statistically significant in terms of the estimated profit per franchisee.

[Table 9: T-test for the estimated profit per franchisee]

Besides, since the profit consists of both sales and cost, the profit distribution is decomposed into two distributions, cost distribution and sales distribution. As shown in Table 10, the t-test implies that the mean differences of the two groups, "w" and "wo" are not statistically significant in terms of the operating cost per franchisee.

[Table 10: T-test for the estimated operating cost per franchisee]

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Accordingly, this result indicates that the mean differences in the profit distributions of two groups are caused by the mean differences in terms of the sales distributions, as confirmed in Table 11.[21]

[Table 11: T-test for the sales amount per franchisee]

As mentioned earlier, the estimated operating cost per franchisee is considered to be the accounting cost. Thus, there might be hardly difference between the two groups "w" and "wo" in terms of the accounting cost. However, since there exists difference with respect to the sales amount, the results in Table 10 and 11 establish the possibility that there might be unobserved characteristics of the group "w" to cause the increase in sales and the reduction in economic cost not measured by the accounting. For instance, a franchiser is able to accumulate either tangible or intangible assets such as business mangement. Such assets might play an important role in boosting sales and reducing economic costs of franchisees. Then, such cost-efficient franchisees likely make more products in demand, which is linked to the increased sales. Therefore, the next section investigates if there exists this mechanism that unobserved characteristics of a franchiser either increase sales or decrease cost of a franchisee.

3 One Cause of Differences Between Franchisees

The profit of franchiser-owned store is directly linked to that of a franchiser. However, the profit of a franchisee may not be directly connected to that of a franchiser. Thus, the franchiser might not be interested in the profit of a franchiser. Recruiting more franchisees implies more revenues to a franchiser with respect to the collection of franchise fee, while total royalty revenue might be constant in the case that total demand for products of a franchiser does not change much and the royalty is based on the per-unit output. Thus, franchisers are likely to focus on recruiting franchisees regardless of that franchisees possibly make profit. As indicated in Table 12, total entries exceed total exits in each business category. It implies that franchisers

[21] This result is consistent with that of Lee (2019). He shows the negative correlation between sales and the number of franchisees' stores, and positive correlation between the sales and the number of franchisers' stores.

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are mainly interested in keeping recruiting franchisees instead of that franchisers self-regulate the total number of franchisees according to each trademark. Therefore, new entries are highly likely to keep occurring in the franchise market, giving rise to the systematic problem.

[Table 12: Total entries and exits from 2016 to 2017]

Thus, the KFTC executes the regulation to request a franchiser to run his own stores (direct retail stores) before recruiting franchisees. It is believed that this regulation might stop franchisers from indiscreetly recruiting franchisees, and tangible or intangible assets of franchisers to run their own stores are likely to help franchisees improve their sales since they are useful in reducing unobserved cost factors and enhancing productivity of franchisees. Therefore, I would like to demonstrate if this assertion is valid in this section as follows.

3.1 Empirical Specification

$$ln(avgsa)_{it} = \alpha_0 + \alpha_1 log(optco) + \alpha_2 log(numra)_{it} + \alpha_3 dum_{it} + \alpha_4 log(optco)_{it} \times dum_{it} + u_i + e_{it}$$

The subscript, i indicates a trademark, and the t implies year, 2016, and 2017. The data applied to Table 6 is used to esimate the whole equation. That is, it is ruled out that the sales per franchisee according to each trademark is observed to be either zero or missing values. The dependent variable, *avgsa* indicates the sales per franchisee for each trademark. One of independent variables, *optco* states the estimated operating cost per franchisee by each trademark of a franchiser. *numra* implies the number of rival franchise stores, which is derived from the method to subtract the number of franchisees and franchiser owned stores by trademark from all franchise stores[22] summed across trademarks within the same category of business. For instance, suppose that there are three trademarks A, B, and C in the case of Pizza, and there are only franchisees' stores, 10 for A, 20 for B, 30 for C, respectively. Then, the number of rival franchise stores is 50[23] for A, 40 for B, and 30 for C.

Meanwhile, dum_{it} is the dummy variable to equal one if franchiser owned stores (direct retail stores) for each trademark exist and zero, otherwise. Lastly, $log(optco) \times dum_{it}$ implies the

[22] They include franchisees and franchiser-owned stores (direct retail stores).
[23] 10+20+30-10=50.

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interaction between the estimated operating cost per a franchisee and the dummy variable. This variable is the main interest of this study since it measures the effect of a franchiser's tangible or intangible assets on a franchisee's sales amount through the operating cost. Finally, the log transformation of some variables is taken.

Table 13 shows the descriptive statistics about some variables employed in the fixed model. As indicated in Table 13, while a franchiser owns and directly operates about 5~6 stores for each trademark on average, the average number of stores operated by franchisees is around 145~165 for each trademark. Therefore, it shows that franchise chains (franchisees) are more heavily concentrated on than franchiser-owned stores from the perspective of the organizational form.

[Table 13: Descriptive statistics]

Meanwhile, α_1 is expected to be negative since more cost-efficient franchisees are plausibly more productive. α_2 is also likely expected to be negative since the increase in any new rival stores highly likely occupies the market share. However, the number of rival franchisee stores is the aggregate data. Therefore, the number of rivals directly and negatively impacts the total sales and stores of a franchise competing with the rivals, if those franchises are competing against each other in the mature market hardly expected to grow. Since the dependent variable, sales per franchisee is an average value, the relative growth rates of the total sales and total stores determine the direction and magnitude of α_2. Accordingly, it is admitted that α_2 does not necessarily need to be negative and statistically significant due to the complex causal relationship.

Any direct retail stores (franchiser owned stores) directly vie with stores of franchisees, if consumers are not disturbed to get access to either direct retail store or franchise chain at the same time. In this context, it is possible that the former directly and negatively influences the latter. Therefore, it is expected that $\alpha_3 < 0$. However, as mentioned earlier, either tangible or intangible assets of a franchiser with direct retail stores might induce cost savings of franchisees. At this respect, any direct retail stores might indirectly and positively affect franchise chains. Thus, the interaction might lead to cost savings of a franchisee and the improved cost-efficient also expects the more productive, increasing the sales of a franchisee. Therefore, α_4 is expected

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to be positive.

Lastly. the fixed effect model is employed in order to control unobserved characteristic, u_i of each trademark. The result of the fixed effect model is compared to that of the regression model to show that the former model is addressing the endogeneity issue.

3.2 Result

Table 14 indicates the estimation result. The regression model seems to show the endogeneity issue. In the regression model, any coefficient is not statistically significant and the estimate result of a coefficient is counter-intuitive. In this case, unobserved characteristics about the trademark is considered to be controlled. Thus, the fixed effect model is employed.

In the fixed effect model, 1 percent increase in operating cost per franchisee leads to 1.195 percent decrease in sales per franchisee. That is, the estimated operating cost per franchisee has negative effect on the sales per franchisee. As regards the estimated operating cost per franchiee, as more cost efficient is a franchisee, the franchisee would be more productive, as mentioned earlier.

However, the coefficient of the number of rival franchise stores is not statistically significant. Furthermore, the existence of direct retail stores leads to the 6.124 percent decrease in sales per franchisee. It implies that the prevailing possibility that franchiser owned stores directly and negatively affect franchise chains.

Besides, as regards the coefficient of the interaction, it is also statistically significant and positive as expected, which is consistent with the results relevant to t-test.

[Table 14: The estimation result]

The variable, interaction, implies the impact of either tangible or intagible assets of a franchiser on the sales per franchisee through the operating cost. Accordingly, there might be a linked structure that those assets likely have impact on the estimated operating cost per franchisee which affects the sales in a cost-saving manner for a franchisee. The coefficient of the interaction captures the magnitude of this indirect impact.

In summary, the fixed effect model shows that franchisers to run his own stores are more likely

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to help franchisees operate their stores in a cost-efficient manner. Therefore, the estimation result could suggest that the intervention of the KFTC into the franchise market would be justfiable.

4 Concluding Remarks

The constant new entries likely give rise to the market saturation in the franchise market of South Korea. The severe market saturation induces fierce competition which possibly results in the cannibalization. Moreover, since many franchisees hardly borrow money from banks to set up the franchise business, they are likely to be extremely fragile to any economic shocks. In order to deal with the issue, the KFTC introduced the new regulation that any applicant who wants to start franchise business must operate their own stores (direct retail store) for more than one year before recruiting franchisees. Thus, franchisers are expected to prudently recruit franchisees due to this regulation and they can build up abundant tangible or intangible assets to operate franchise business ahead of recruiting franchisees.

In order for the regulation to be justifiable, franchisers with their own stores should be expected to be different from those without them. That is, franchisees of the former need to be better off than the latter. Thus, this paper investigates whether this hypothesis is valid. Finally, the results show that franchisees of the former is more profitable, compared to those of the latter. One plausible reason is that tangible or intangible assets of the former franchisers likely have positive impact on profits of the franchisees through the reduction in cost. Therefore, it is concluded that the regulation of the KFTC is reasonable and valid.

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Appendices

Category of business	2016	2017	2016	2017
	number of trademarks		number of franchisees	
Confectionery and bakery	214	177	7,453	8,174
Chicken	382	407	24,646	24,582
Coffee	336	344	12,871	13,931
Fast food	88	80	3,771	4,022
Convenient Store	29	31	35,224	40,170
Pizza	113	120	6,207	6,429

Table 1: The number of trademarks and franchisees by the category of business

Category of business	Average operating cost per franchisee (unit: KRW)		
	2018	2017 (adj)	2016 (adj)
Confectionery and bakery	74,289,755	72,904,569	70,439,197
Chicken	169,121,385	165,967,994	160,355,550
Coffee	193,500,198	189,892,246	183,470,769
Fast food	281,085,089	275,844,053	266,515,993
Convenient store	510,059,309	500,548,881	483,622,107
Pizza	281,085,089	275,844,053	266,515,993

operating cost= yearly labor cost+yearly rent fee+other costs
"adj" means that the operating cost in 2018 is adjusted by the rise of rate about producer price index in 2016 and 2017.

Table 2: c_{median}, median operating cost per franchisee

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Category of business	Year	#trademarks	$\sqrt{F}_{max} - \sqrt{F}_{median}$	c_{median}(unit: KRW)
Confectionery and bakery	2016	214	13,408	70,439,197
	2017	177	13,047	72,904,569
Chicken	2016	382	8,001	160,355,550
	2017	407	7,959	165,967,994
Coffee	2016	336	11,694	183,470,769
	2017	344	14,257	189,892,246
Fast food	2016	88	42,483	266,515,993
	2017	80	25,158	275,844,052
Convenient store	2016	29	5,839	483,622,107
	2017	31	6,115	500,548,881
Pizza	2016	113	13,094	266,515,993
	2017	120	13,263	275,844,053

#trademarks: number of trademarks
$\sqrt{F}_{max}$: square root of maximum value of the franchise fee, F within the same category of business
$\sqrt{F}_{median}$: square root of median value of the franchise fee, F within the same category of business
c_{median}: median value of operating cost per franchisee within the same category of business

Table 3: Description of $\sqrt{F}_{max} - \sqrt{F}_{median}$, and c_{median}

	Coef
$ln\beta$	-4.682***
	(6.55×10^{-9})

Number of obs: 12,
* p<0.1; ** p<0.05; *** p<0.01; ( ) standard error

Table 4: The estimation of β

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Category of business	Year	$\sqrt{F}_{max} - \sqrt{F}_{median}$	c_{median} (unit: KRW)	c_{min}(unit: KRW)
Confectionary and bakery	2016	13,408	70,439,197	68,991,043
	2017	13,047	72,904,569	71,495,402
Chicken	2016	8,001	160,355,550	159,491,401
	2017	7,959	165,967,994	165,108,375
Coffee	2016	11,694	183,470,769	182,207,745
	2017	14,257	189,892,246	188,352,450
Fast food	2016	42,483	266,515,993	261,927,716
	2017	25,158	273,126,856	273,126,856
Convenient store	2016	5,839	483,622,107	482,991,509
	2017	6,115	500,548,881	499,888,480
Pizza	2016	13,094	266,515,993	265,101,751
	2017	13,263	275,844,053	274,411,627

$\sqrt{F}_{max}$: square root of maximum value of the franchise fee, F within the same category of business
$\sqrt{F}_{median}$: square root of median value of the franchise fee, F within the same category of business
c_{median}: median value of operating cost per franchisee within the same category of business
c_{min}: minimum value (the lowest value) of operating cost within the same category of business

Table 5: The estimation of the lowest operating cost, c_{min}

Category of business	#trademarks	
	2016	2017
Confectionery and bakery	69	77
Chicken	217	226
Coffee	140	155
Fast food	34	31
Convenient Store	17	21
Pizza	61	60
Total	538	570

#trademarks: number of trademarks

Table 6: The reduced number of trademarks through removing missing values in sales

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Year	Category of business	Obs	Mean (unit:KRW)	Std. Dev	Min	Max
2016	Chicken	217	10,500,000	1.08×10^8	-1.49×10^8	6.40×10^8
2017		226	4,070,685	1.01×10^8	-1.53×10^8	4.12×10^8
2016	Coffee	140	-11,800,000	1.15×10^8	-1.77×10^8	4.58×10^8
2017		155	-25,300,000	9.95×10^7	-1.77×10^8	3.94×10^8
2016	Confectionery and bakery	69	170,000,000	1.76×10^8	-4.84×10^7	7.02×10^8
2017		77	201,000,000	1.91×10^8	-5.11×10^7	8.41×10^8
2016	Convenient store	17	-69,000,000	1.64×10^8	-3.10×10^8	1.95×10^8
2017		21	-110,000,000	1.87×10^8	-3.67×10^8	2.67×10^8
2016	Fast food	34	70,200,000	4.30×10^8	-2.43×10^8	20.20×10^8
2017		31	-5,843,753	2.81×10^8	-2.53×10^8	9.32×10^8
2016	Pizza	61	-63,600,000	1.49×10^8	-2.42×10^8	5.43×10^8
2017		60	-63,500,000	1.56×10^8	-2.51×10^8	5.43×10^8

Table 7: Summary of estimated profit by the business category

	2016			2017		
	Obs	Mean	Std.Dev.	Obs	MeanStd.Err.	Std.Dev.
Without	306	-16,700,000	137,000,000	329	-18,700,000	154,000,000
With	232	63,200,000	209,000,000	241	47,700,000	162,000,000
Combined	538	17,700,000	176,000,000	570	9,403,771	161,000,000

Without: Profit distribution of franchisees without franchisers' stores
With: Profit distribution of franchisees with franchisers' stores
Combined: Whole profit distribution

Table 8: Profit distributions of franchisees in 2016 and 2017

	2016			2017		
	Obs	Mean	Std.Err.	Obs	Mean	Std.Err.
Without	305	-1.69×10^7	7,831,266	328	-1.85×10^7	8,532,705
With	233	6.32×10^7	1.37×10^7	241	4.77×10^7	1.04×10^7
$\mu_{wo}-\mu_w$	t-value: -5.428, p-value:0.000			t-value: -4.945, p-value:0.000		

Without: Profit distribution of franchisees without franchisers' stores
With: Profit distribution of franchisees with franchisers' stores
μ_{wo}: mean of the group, "without", μ_w: mean of the group, "with"

Table 9: T-test for the estimated profit per franchisee

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	2016			2017		
	Obs	Mean	Std.Err.	Obs	Mean	Std.Err.
Without	305	1.84×10^8	3,848,368	328	1.89×10^8	4,075,663
With	233	1.83×10^8	5,787,968	241	1.91×10^8	6,024,518
$\mu_{wo}-\mu_w$	t-value: 0.100, p-value:0.920			t-value: -0.359, p-value:0.720		

Without: Profit distribution of franchisees without franchisers' stores
With: Profit distribution of franchisees with franchisers' stores
μ_{wo}: mean of the group, "without", μ_w: mean of the group, "with"

Table 10: T-test for the estimated operating cost per franchisee

	2016			2017		
	Obs	Mean	Std.Err.	Obs	Mean	Std.Err.
Without	305	1.67×10^8	7,309,362	328	-1.70×10^8	7,651,264
With	233	2.47×10^8	1.39×10^7	241	2.39×10^8	1.01×10^7
$\mu_{wo}-\mu_w$	t-value: -5.412, p-value:0.000			t-value: -5.539, p-value:0.000		

Without: Profit distribution of franchisees without franchisers' stores
With: Profit distribution of franchisees with franchisers' stores
μ_{wo}: mean of the group, "without", μ_w: mean of the group, "with"

Table 11: T-test for the sales amount per franchisee

Category of business	2016		2017	
	entry	exit	entry	exit
Chicken	3,131	750	2,869	676
Coffee	2,587	290	2,572	372
Confectionary and bakery	883	170	1,449	203
Convenient store	5,002	551	6,902	939
Fast food	568	104	557	106
Pizza	584	197	564	129

entry: open a new store
exit: terminate a franchise contract

Table 12: Total entries and exits from 2016 to 2017

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(unit: frequency, KRW)	year	Obs	Mean	Std. Dev.
sales per franchisee	2016	538	202,000,000	173,000,000
	2017	570	199,000,000	150,000,000
number of franchisees*	2016	538	145	702
	2017	570	165	861
number of franchiser owned stores	2016	538	6	26
	2017	570	5	24
operating cost per franchisee	2016	538	184,000,000	77,000,000
	2017	570	190,000,000	82,600,000
number of rival franchise stores	2016	538	15,375	7,669
	2017	570	16,517	8,332

*: number of franchisees: number of stores run by franchisees

Table 13: Descriptive statistics

dependent variable: log(sales per franchisee)	Fixed effect model	Regression model
log(operating cost per franchisee)	-1.132**	0.034
	(0.420)	(0.080)
log(number of rival franchise stores)	-0.203	-0.031
	(0.150)	(0.037)
dummy variable(existence of direct retail stores)	-6.170**	-1.071
	(3.040)	(2.000)
interaction	0.326**	0.076
	(0.160)	(0.105)
σ_u	0.847	
σ_e	0.253	
ρ	0.918	

Number of obs: 1,108,
* p<0.1; ** p<0.05; *** p<0.01; ( ) standard error
interaction: log(operating cost per franchisee)×dummy variable

Table 14: The estimation result