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Percentage rent contracts between co-stores

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ABSTRACT

High rental rates and space scarcity in popular retail areas are encouraging retailers to share available space, creating co-stores. Co-stores with complementary products enjoy a boost in foot traffic, thus higher sales. When the space is owned by one, a common practice for retailers is to engage in a revenue sharing agreement. We study the optimal design of a percentage rent contract between two co-stores, each having his/her own random sales, dependent on effort levels of both retailers. Since the effort level exerted by a retailer is often unverifiable, it results in a double moral hazard problem. We show that a linear percentage rent, which is composed of a sales share and a based rent, achieves the second-best effort levels. The landlord may also find it optimal to set a fixed rent by setting the sales share to zero. With Cobb–Douglas sales and power disutility of effort functions, we obtain closed-form expressions for the optimal contract. We show that the landlord charges a high sales share for a tenant with low demand externality and a high sales scale. The landlord is better off renting out space to a small but high revenue generating retailer, rather than one generating larger traffic, but with lower sales scale. When the landlord's externality potential is low, but he is successful in generating sales, optimal sales share is low, but the base rent is high. The percentage rent can increase the landlord's profit by up to 13% compared to the conventional fixed rent.

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1. Introduction

Relative to upstream supply chain, retailing is more sensitive to changes in economic cycles as the consumer spending generally constitutes the largest part of an economy. Moreover, retailers nowadays are looking for ways to cope with the diminishing interest of consumers in brick-and-mortar shopping, as opposed to on-line shopping. [Telegraph.co.uk](http://www.telegraph.co.uk) (2015) reports that high street sales realized a four percent fall in their March 2015 sales compared to a year ago, which is the largest monthly fall since 2011. The article also notes that although consumers are spending more due to having more disposable income with falling fuel and food prices, it was not materialized amongst high street retailers. The retail industry is continuously searching for best practices to balance its incomes and expenses. Rent, one of the largest operational expenses for retailers, is closely related to the changing demand pattern (D'Arcy, Tsolacos, & McGough, 1997). Ibanez and Pennington-Cross (2013) argue that rent in metropolitan areas with less available space for construction is both high and very sensitive to demand shifts. High traffic on-street retail locations, where people

work, live, and shop, are limited in supply. Thus, their rent is more prone to economic shocks. As a result, retailers in those locations try their best to squeeze the most out of each square foot they are utilizing. According to Useem (2007), Apple aims to locate in close proximity to its customers; Thus, it invests more than its competitors in real estate, enjoying, on the other hand, higher sales per square foot.

To counteract the lingering economic conditions, which are taking their toll on investments in real estate, a larger number of struggling retailers “are teaming up” to keep in close touch with their customers (Porter & Helm, 2008). One way is to co-locate (Sen, Shin, & Sudhir, 2011) or open a store-within-a-store (Jerath & Zhang, 2010), whereby a retailer rents out some of the available floor space to another retailer. The partnering retailers may be either totally independent, or complementary in nature, which boosts the foot traffic and sales for both parties. Co-stores or stores within stores can help save significant construction costs while providing some degree of flexibility (Misonzhnik, 2012b). Edward M. Schmults, the CEO of FAO Schwarz, the oldest toy store in the U.S., explains that “customers aren't going to want to drive to five different places looking for products”, while announcing the company's decision to locate their products into 685 Macy's stores. Sephora, a French chain of cosmetic stores, started opening stores inside JCPenney department stores in 2006, and currently

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has branches in more than 375 JCPenney stores across the U.S. (Sephora.com., 2013). According to Sorescu, Frambach, Singh, Rangaswamy, and Bridges (2011), the store-within-a-store concept creates value for the retailers by increasing customer efficiency as customers have access to products easier. In the Sephora-JCPenney partnership, while Sephora gets access to JCPenney's customers through a smaller than its regular branch space, JCPenney attracts beauty product customers without offering its own, thus providing a larger product assortment.

Recently, more partnerships among retailers to co-locate have been emerging. For example, 350 Sony shops were to open inside Best-Buy, the giant U.S. retailer, by the end of 2014 (Time.com. & McCracken, 2014). The concept was introduced at Best Buy a few years ago with both Samsung and Microsoft Windows. Currently, the giant retailer has opened 1400 Samsung and 600 Windows store-within-a-store in the U.S., offering the tech brands to buy spaces in its stores and make themselves visible at a popular destination for U.S. shoppers (NYTimes & Chen, 2013). Similarly, Starbucks has entered a number of licensing agreements to locate in areas where it did not have the ability to locate its outlets. For example, Starbucks has made arrangements to sell an exclusive coffee blend only in Nordstrom stores, operate coffee bars in Barnes and Noble bookstores, and offer coffee service at some Wells Fargo Bank locations in California (Thompson & Strickland, 2003).

Our study is motivated by a real example of a specific branch of a well-known restaurant chain, renting out some of its space to a well-known coffee house chain, at a popular street location. In this context, the restaurant serves as the landlord as he (landlord) has initially reserved the location for his own use. The coffee house needs a relatively smaller floor space as she (tenant) mainly serves her customers on a to-go basis. Due to lack of space availability for the coffee house, aggravated by prohibitively high rent within the target region, the restaurant rents out part of the available space to the coffee house, resulting in a co-store arrangement. In such an arrangement, both retailers agree on a revenue-sharing contract, particularly a percentage rent contract, which entails a rent payment by the tenant to the landlord which is a function of the tenant's revenue. Thus, while the coffee house reduces its high rent to a sales ratio dependent risk, the landlord benefits from the potential high revenue gains of the coffee house. In our example, the retailers' offerings are complementary in nature. Thus, the sales efforts exerted by either party will boost the sales for both parties.

In this paper, we introduce a linear percentage rent contract, whereby the tenant pays the landlord a rent comprised of a fixed rent portion plus a linear percentage of the tenant's revenue. Our investigation of a linear contractual agreement is motivated by the fact that revenue sharing agreements are often based on simple linear rules (Bhattacharya & Lafontaine, 1995). We study the problem as a single season model, with each retailer facing a random demand, function of both the tenant's and the landlord's efforts. The demand functions of the tenant and landlord have different sales scales, which are defined as the average sales per square foot, and are indicators for the sales potential or success of each retailer. We also incorporate into our model demand externalities between retailers (Sen et al., 2011). Demand externalities are defined in Corbett, DeCroix, and Ha (2005) as the benefit that affects a party who did not choose to incur that benefit. For example, higher foot traffic generated by one of the retailers creates higher sales for the other. In addition, each retailer decides on his/her sales effort level individually, thus incurring some sales effort cost.

The resulting model is a double moral hazard problem. Moral hazard is a special case of information asymmetry, in which one party has private information about his/her actions and intentions, thus having an incentive to act inappropriately from the perspective of the party with less information (Corbett et al., 2005; Holmstrom, 1979). The double moral hazard arises when the decisions

of two parties in a system are unverifiable, thus not contractible directly. Here, we regard the sales efforts of the retailers as unobservable and unverifiable. As a result, the rent contract is based on the observable output (sales) of the tenant, which is a function of the sales efforts of both parties. When the parties are risk neutral, the first-best solution is unattainable, as shown by several earlier studies on double moral hazard problems (Bhattacharya, Gupta, & Hasija, 2014; Romano, 1994). We show that under general sales functions, a linear percentage rent contract, consisting of a sales share (a percentage of the tenant's sales) and a fixed base rent, results in second-best effort levels.

To the best of our knowledge, this paper is the first study on co-stores investigating the rent contract design problem between these two stores. Moreover, we contribute to the double moral hazard literature by considering two output functions, one for each retailer. Contrary to the previous research studies which have considered only one output function, (the tenant's), this paper considers a situation in double moral hazard in which the output (sales) function of the landlord is of direct relevance, and thus needs to be explicitly accounted for. While our result on the existence of a linear percentage rent contract with second-best effort levels is similar to that in the double moral hazard literature with one output function, the other results that we obtain differentiate our paper from the literature, resulting in completely different practical implications. Specifically, we show that the second-best sales share parameter changes with each party's sales scale, contrary to (Bhattacharya & Lafontaine, 1995) who show that the share parameter is independent of the sales scale of the single output function. This substantial result implies that designing a contract depends on the size and power of the contracting parties. From the perspective of the literature on co-stores, none of the related studies considers rent contract design. Thus, our paper is the first one in the co-storing literature to offer an extensive analysis of the contract design problem between a landlord and a tenant, offering a new research perspective and methodology to analyze co-storing arrangements.

The paper is organized as follows. The related literature is reviewed in Section 2. Section 3 introduces the landlord's rent contract design problem with general sales and cost functions. In Section 4, the sales functions of the tenant and landlord are defined to be of the Cobb-Douglas form. For the particular sales and cost of effort functions, closed-form expressions for the second-best effort levels and contract terms are obtained. In Section 5, we investigate the sensitivity of the second-best solution with respect to the sales scale parameters, externality effects, and scale and elasticity of the cost of effort functions. The performance of the linear percentage rent contract is compared to the first-best solution and the fixed-rent contract in Section 6. We present our conclusions and future research directions in Section 7. All proofs are in the supporting appendix intended for e-publication.

2. Literature review

Our research is mainly based on contract theory with information asymmetry. For a recent survey on contract theory and its applications, we refer the reader to Gibbons (2005) and van Ackere (1993). In our problem, information asymmetry is in the form of moral hazard, where the efforts of the contract parties are not verifiable after the contract is made and thus not contractible. As a result, the contract is based on some other observable/verifiable output of the system. We develop our model using the principal-agent theory subject to double moral hazard, where decisions of both parties in the system are unverifiable.

The moral hazard framework has been applied under different contexts in various disciplines. Among the earliest applications are sharecropping (Stiglitz, 1974) and franchise contracts

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