DEVIANT RESALE BEHAVIORS TOWARDS PRICE DISCRIMINATION IN HOTEL INDUSTRY AND SCENARIO TEST TO POTENTIAL SOLUTION

by

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ABSTRACT

Efficient price discrimination is integral to hotel revenue management in the effort to maximize revenue across different segments and groups (Hayes, D. K., & Miller, A. A. 2011; Laffont, J. J., 1998). Key to its success is the integrity of the system where consumers accurately represent the segments for which prices have been differentially determined (Moira McCormick, 2016). Put differently, consumers should not be able to pay at prices they don't qualify for. An example of deviant resale behavior is an intermediary enabling a leisure traveler to pay a discounted price for a hotel that is reserved for an exclusive corporate entity. However, the combination of high price sensitivity among consumers and deviant resale behaviors by online travel intermediaries can impact the integrity of effective price discrimination and subsequently hotel revenue. The purpose of this study is to explore industry perceptions pertinent to deviant resale behaviors, summarize the main types and common characteristics of such behaviors. Discussion on the potential solution is focused on educating end consumers to reduce booking deviant prices, that is, some hotels can reject deviant reservations with strict regulations. In this instance, the consumer bears the risk of being denied service and may deter travelers from booking at the deviant rate. The relationship between price and risk follows the structure of the theory of decision making, in that, monetary decisions involving risk impact decision making. A scenario test was conducted to measure two variables' (risk and discount) interaction, giving suggestions to hotel revenue leaders to better control deviant resale behaviors.

Chapter 1

THE ENFORCEMENT FAILURE OF PRICE DISCRIMIATION

1.1 Introduction

Price discrimination is the most effective element of hotel revenue management (Phlips, 1983). Economic theory suggests that price discrimination is an important hotel revenue management mechanism where (Ivanov, S., 2012), most commonly, “the seller places consumers in groups based on certain attributes and charges each group a different price” (Moira McCormick, 2016). Efficient price discrimination requires proper identification, i.e. (Hausman, J. A., 1995), the hotel assessing its consumers’ willingness to pay (WTP) so that optimal room prices could be set for each segment. A typical WTP oriented segmentation is shown in Table 1 (Veit Meier, 2017).

The reason we apply price discrimination is that consumers have different willingness to pay (WTP) for even the same product (Noone, B. M., 2009), and a fixed or flat pricing can’t meet that different willingness thus can’t support hotels to optimize revenue. Assume your hotel has (only) two consumers A and B, A is willing to pay $100 to book a room in your hotel and B is willing to pay $90. If your hotel only offers one fixed price at $90, you can receive both reservations from A and B, gain your room revenue at $180 per night. And if your hotel applies price discrimin-ation, offer two different prices at $90 and $100, your revenue gain is $190 per night.

This simple example approved the price discrimination's efficiency of economics (Phlips, L. 1983; Becker, G. S. 2010). And next, consider that if the consumer A found a (deviant) way to buy the room at $90 which the price he is ineligible to use, as we all know that consumers' high WTP would not be implemented automatically and they are also chasing on cheaper price availability, the *enforcement* of price discrimination consequently was broke by consumer A's behavior. Furthermore, the ability of revenue management practices to optimize revenue is also broken.

Table 1. An example of hotel consumer segments used for price discrimination

	Transient (Individual Travelers)
BAR	Includes non-restricted prices that are available to all customers
Corporate/negotiated	Includes restricted prices (advance purchase, length of stay, cancellation, guarantee or age restrictions, e.g) that come with a discount from the BAR level you were selling
FIT	Includes agreed and contracted Wholesaler and Tour Operator prices
	Groups
Business Groups	Usually includes bookings for more than 10 room nights and normally have a longer lead times as well as stricter cancellation policies than most other prices in the hotel, pricing-wise it's either a fixed price or a discount of BAR
Leisure Groups	For groups of 10 or more rooms. Booked by Tour Operator or Wholesaler at a negotiated price or ad-hoc quoted price

This study focuses on *enforcement* -- a required condition for an efficient price discrimination policy. *Enforcement* is the mechanism of the hotels to ensure that unqualified consumers (with higher WTP) can't book rooms at discounted prices. More specifically, hotel market segments should be kept separate to prevent demand spillover from high priced segments to low priced segments and the associated revenue loss (Zhang, M., & Bell, 2012). A proper price discrimination *enforcement* proposes practical data to which a revenue manager can look to determine market competition and optimize pricing structure (Hunter, L. 1992). The rules listed in Table 2 (Marriott Government & Military Per Diem Rate Qualification Guidelines) are an example of how hotel approach the *enforcement* task.

Table 2. An example of market segments and their rate qualifications

Marriott Government and Military Per Diem Rate Qualification Guidelines

Who is eligibel for Marriott's government rates?	U.S.Federal Government Rates	State Government Rates	Local Government Rates	Canadian Federal Government Rates
U.S. Federal Government Employees	Eligible	Not Eligibel	Not Eligibel	Not Eligibel
U.S. Military Personnel	Eligible	Not Eligibel	Not Eligibel	Not Eligibel
Cost-Reimbursable Government Contractors	Not Eligibel	Not Eligibel	Not Eligibel	Not Eligibel
Other Government Contractors	Not Eligibel	Not Eligibel	Not Eligibel	Not Eligibel
Federally Funded Research and Development Centers Employees	Eligible	Not Eligibel	Not Eligibel	Not Eligibel
Native American Tribal Government Employees	Eligible	Not Eligibel	Not Eligibel	Not Eligibel
Canadian Federal Government Employee	Eligible	Not Eligibel	Not Eligibel	Eligible
Canadian Military Personnel	Eligible	Not Eligibel	Not Eligibel	Eligible
U.S.State Government Employees	Not Eligibel	Eligible	Not Eligibel	Not Eligibel
U.S. Local/County Government Employees	Not Eligibel	Not Eligibel	Eligible	Not Eligibel
Select Canadian Provincial Government Employees	Not Eligibel	Not Eligibel	Not Eligibel	Eligible* (see note)
Retired Military Personnel	Not Eligibel	Not Eligibel	Not Eligibel	Not Eligibel
Dependents of Military Personnel	Not Eligibel	Not Eligibel	Not Eligibel	Not Eligibel

Note: Only government emloyees of the following five Canadian provinces and territories are eligible for the Candadian Federal Government rates:
Alberta, New Brunswick, Ontario, Yukon Territory, and Northwest Territories

Therefore, an *enforcement* failure could result in a substantial loss of revenues and reduced profitability. Specifically, this study is first to explore a special category of *enforcement* failure – one that involves intermediaries' deviant behaviors. Some observations from the lucrative markets of upscale hotels in China suggested that agents and unqualified consumers find ways to benefit from company contracting discounted prices, commission difference, and membership discounts/benefits that they are not supposed to have access to. It appears that when the room price discounts are deep, the percentage of commission is too high in certain OTAs, or membership benefits are rich, the incentive and the inclination to foul in order to benefit from these discounts, commissions, and benefits are high. Accordingly, study 1 explored the phenomenon of agents/ consumers' deviant behaviors and answered the following research questions:

1. What are common ways in which consumers/agents foul in order to benefit themselves;

2. What are the common factors during all deviant behaviors?

3. What are the possible systematic solutions to this strategic threat?

Those evidence from our study 1 suggest those types of deviant incidents might last for a long time in the future and not be eliminated by themselves. If true, it might be a significant strategic threat to the ability of the hotel to fully utilize its revenue management policies to increase revenues.

Meanwhile, anecdotal evidence and limited research (Xiaoli, Y. 2013) suggest that *enforcement* is failing commonly in China's rapidly expanding lodging sector. This failure can be classified as systemic and is a major concern for revenue managers because of the financial implications due to lost revenue. Study 2 proceeded by reviewing the notable cases of deviant behavior in hospitality distribution and discusses the occurrence of *enforcement* failure. Specifically, it explored a widespread semi-established practice, where unqualified consumers purchase discount prices from third party legitimate online travel agent (OTA) sites. Industry practical experience suggests that if the hotel performs strict identity verification, that is, consumers who do not meet the discounted price qualification will be denied service, which can effectively help the hotel to control the deviant reselling behavior. The hotel's denial means that for guests, there is a risk that they can’t get a room when arriving upon a hotel if they chose to buy those unqualified discounted prices. Those OTAs, as intermediaries, arise because of the informational asymmetries between hotels and potential consumers (Calveras, A., & Orfila, F. 2014), the asymmetry in our example, that is, OTAs do not communicate hidden risk information to consumers. Chen (2008) argued that potential consumers use online reviews as one way to reduce risk and uncertainty in the purchase situation. The study empirically tested if quantified risk assessments shared with the consumer could reduce the consumers’ propensity to book these unqualified discounted prices, that is, whether risk information can reduce consumers’ deviant behavior.

1.2 Literature review

1.2.1 Existing research on consumer’s online purchasing behaviors

Price is a stimulus that for most consumers has a high impact on the online purchase (Reibstein 2002). Consumers have the proclivity to undertake a search for better prices (price search) (Chen, C. C., Schwartz, Z., 2011), and the online medium increase the price search (Shankar, V., Rangaswamy, A., & Pusateri, M. 1999). The fact that some consumers cunningly search for and book lower prices is obvious (Gehrels, S., & Blanar, O. 2013). The way consumers reacted to price discrimination may allow us to predict the spread and intensification of price discrimination that the internet facilitates (Odlyzko, A. 2003). Since consumers are chasing better prices online once a distribution channel displays a lower price, it has important power to attract flow (Ireland, P. N. 1998) and lead purchases through the internet.

1.2.2 Price discrimination be set and enforced successfully / effectively in ideal situation

Hotels implement rate parity which is to consistently maintain the same prices across distribution channels (Green, C. E. 2006). If a hotel decides to offer reduced prices to the public, all consumers can get these reduced prices regardless of which channel they use to make their reservation (Kimes, S., & Anderson, C. K. 2011). The importance of rate parity not only impact the consumers' perceived fairness of a firm's pricing practices, but it can also have a detrimental impact on the brand's image (Choi & Kimes, 2002). So any break the rate parity leads to price structure damage which is critical to revenue optimization. As products and service manufacturers, if hotels can impose resale price maintenance, discount niches cannot emerge (Deneckere, R., Marvel, H. P., & Peck, J. 1996).

Economic theory recommends that the highest revenue potential is achieved when price discrimination is practiced (Varian, H. R., 1995) because the hotel can capture more consumer surplus, that is, the difference between the room price, and how much the consumer is willing to pay for that room. In other words, the hotel's revenue-optimizing price-discrimination policies aim to sell all available rooms at the highest possible price given the distribution of its consumers' willingness to pay. Efficient price discrimination requires proper identification of its consumers' willingness to pay (WTP) (Monroe, 2003), so that optimal room prices can be set for each segment. Once these prices are identified, revenue management requires proper *enforcement* to ensure that only consumers that are eligible for specific prices can obtain them. This requires a set of revenue management policies and procedures designed to prevent high WTP consumers from having access to discounted room prices (that target the lower WTP consumers).

1.2.3 Decision under risk

Risky decision-making is significantly affected by homeostatic states associated with different prior risk experiences (Xue, G., 2010). Prior experience with risk will change dictate the future perception of risk, that is, the greater the "impact" of previous experiences, the greater the "concern" about the related risks (Barnett, J., 2001). The impact direction is that, when perceived risk is high, it impacts online purchase intention negatively (Al Kailani, M., & Kumar, R. 2011). The effect of perceived risk is believed to have a greater effect on the consumer for buying processes for services than for goods (Cunningham, L. F., 2005). Meanwhile, the risk experience may also be shared with other people, thus becoming important to the way in which a category or group defines itself, also has an effect (Barnett, J., 2001). On the other hand, the perception of risk may lead to consumers seeking more information to ascertain the level of risk, mitigate the perception of risk, or manage the perceived risk (Manning, 1995). Rational decision-making requires a clear and quantitative way of expressing risk so that it can be properly assessed, along with all other costs and benefits, in the decision process (Kaplan, S., & Garrick, B. J. 1981). Therefore, letting consumers experience risks or knowing that there are risks behind their decision will significantly affect their purchase intention.

1.3 Background

Study 1 identified that deep discounts, commission rules, and loyalty membership benefits challenge hotels' price discrimination *enforcement*. More specifically, three common types of deviant resale behavior were identified, which includes:

1) Resell of contracted discount prices to ineligible consumers. That is, corporate employees have access to lower contracted room prices. These employees book rooms and then, resell to ineligible consumers publicly at a price level between the discounted and regular public rate.

2) High commission OTAs resell on low commission channels. That is, some global OTAs (online travel agents) get a higher percentage of commissions from hotels compared to domestic OTA competitors. Those high commissions are intended to sell a room directly to consumers that domestic markets can't access, However, those global OTAs resell rooms to domestic OTAs and not actual consumers, at a lower price to generate a profit as their high commission covers the (discount gap) cost.

3) Resell of membership benefits to ineligible consumers. This type of reselling behavior is derived from loyalty members who hold premium benefits such as upgrades or membership points and book a room without money. Then these members resell their benefits online to other ineligible consumers.

Deep discounts, that is, a large price differential between consumer segments appear to be a major driver of deviant behavior. In other words, when the price discount (off the BAR) is large, consumers are more likely to seek ways to benefit from the lower prices, even though they may not be necessarily eligible for these prices and had a higher willingness to pay. An example of deviant behavior is provided in Figure 1: The BAR is $200, there is also a discounted contract price between the hotel and its corporate consumers, which is $150. People (intermediaries) who have access to this $150, resell it publicly (online), giving consumers who are ineligible to use this price and have a willingness to pay $200 a chance to book the room at a lower price. Ultimately, intermediaries pay $150 to the hotel, and the hotel loses $50 revenue from this consumer. Assuming a deviant resale price for $180, intermediaries captured $30 in consumer surplus for their reward. In this instance, an *enforcement* failure of price discrimination has occurred. The difference in the rate, of $30 ($180-$150) is the general motivation of this deviant resale behavior, while it also represents potential consumer surplus that was lost to the firm. The latter, however, lost $50 ($200-$150) in gains from this single reservation.

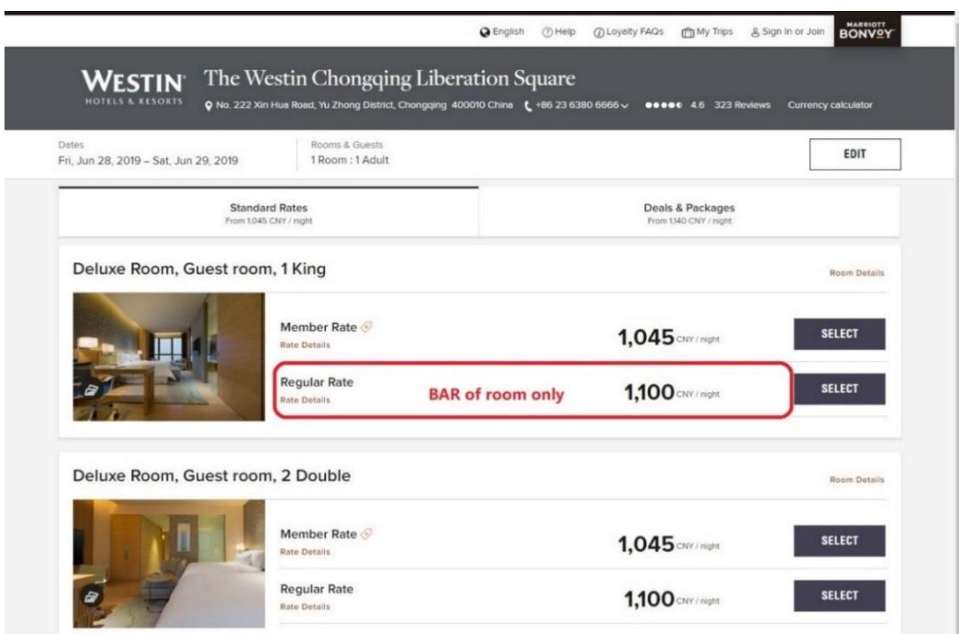
Figure 1. An example of deviant resale behaviors

BAR Best Available Rate	$ 200
Discounted contract rate Available only for eligible customers, does not open to public	$ 150
Deviant resale rate Intermediaries who have access to discounted contract rate, which is $150, to resell it to ineligible customers publicly	$ 180

Figures 2 and 3 depict the deviant resale practices using a real hotel in China. The prices on the hotel's official website and Ctrip.com, one of its domestic OTA partners are displayed. In Figure 2, from Hotel brand.com, the BAR shows a specific date (Jun 28th, 2019) is CNY1,100 without tax, for comparison purposes, the final price, including tax, with China's unified national tax rate of 16.6% is CNY1,283.

Figure 3 shows room the prices of the subject hotel on Ctrip.com, with the same type of room on the specific date. Prices listed on this website already have tax included. When we compare final prices, including tax, between both websites, we can see that except for the CNY1,283 room only, there are other lower prices available to reserve the room on Ctrip.com, such as CNY1,034, CNY1,114, These prices are provided by third party agents and marked "代理".

Figure 2. An example of legitimate prices on hotel official website



If consumers choose those agent prices, their reservation requests won't be sent to the hotel by this website (Ctrip) directly but will be handled by resellers. Those reservation requests usually take a longer time to transfer and complete a transaction instead of receiving an automatic and immediate response from the hotel.

The existence of prices from third-party agents on Ctrip.com is shown with the occurrence of intermediaries (resellers) between hotels and OTAs. The motivating characteristics for consumers to choose those deviant cheaper prices are as follows:

1) Consumers' search time is uninterrupted as deviant cheaper prices are listed together with regular prices. This makes finding deviant prices very convenient;

2) OTAs rank cheaper deviant prices above the regular price;

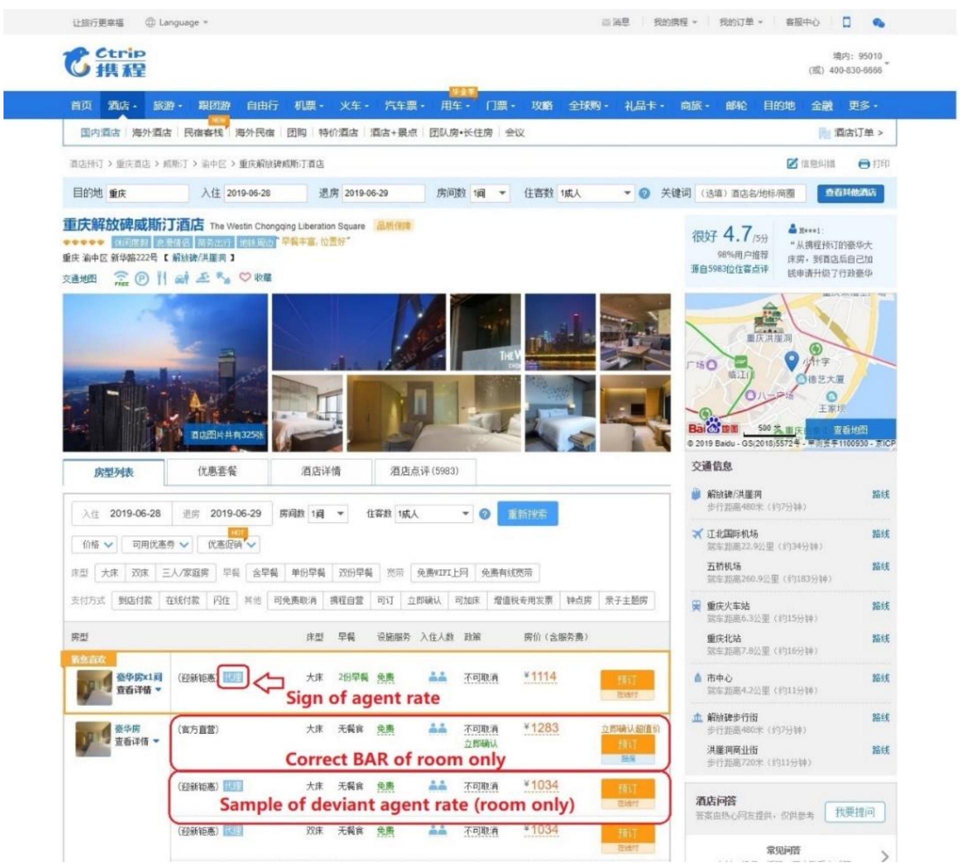
3) Deviant prices display just as ordinarily as the hotel's regular price, and the only notable difference is the price

Revenue management leaders from our preliminary investigation believe that effective regulation could reduce this deviant resale behavior. Hotels can implement strict regulations by indicating that unqualified discounted reservations will be denied service. The possibility of denied service indicates to the consumer that there is uncertainty (risk) associated with getting the room upon arrival to the hotel. In other words, the possibility of denied service makes such an unqualified reservation risky.

Risk propensity refers to an individual's "willingness to take risks" (MacCrimmon & Wehrung,1990). Brockhaus (1980) and Sitkin, S. B., & Weingart, L. R. (1995) hypothesized and found to the notion that the higher the decision maker's risk propensity, the riskier his actual decision-making behavior. Also, different levels of outcome history have a significant influence on the risk propensity of decision-makers (Taylor III, 1996). Specifically, the more successful the outcome history of a risky decision, the greater the willingness of subjects to take risks (Chen, Y. Q., 2015). Accordingly, this study hypothesizes that, if consumers' perception about the risk level associated with the booking is low then customers are likely to engage in that risky behavior, booking an unqualified discounted price. This leads to our first hypothesis:

Hypothesis 1: The smaller the perceived risk level of being denied by the hotel, the greater the likelihood that consumers would book an unqualified discounted price.

Figure 3. An example of legitimate and deviant discount prices are listed side by side

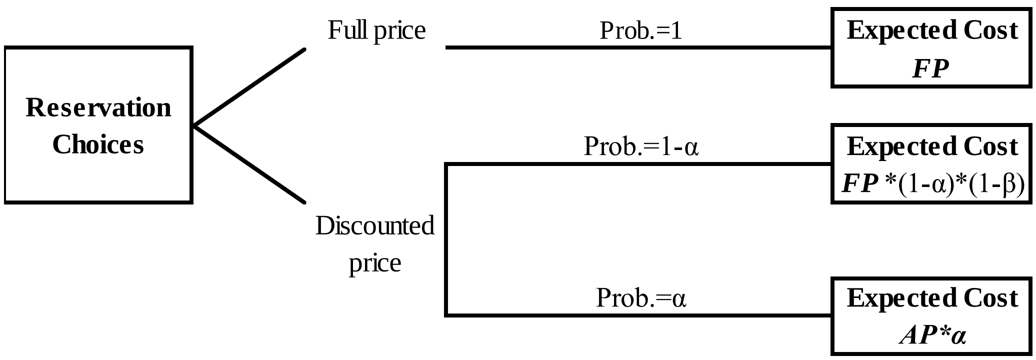


The choice to book an unqualified discounted price under such uncertainty (risk of denying) makes the decision similar to gambling ---- where the utility of the prize (in this study that is the cost-saving or discount from a hotel room booking) is an important variable that impacts decision (Coombs, C. H., & Beardslee, D. 1954). As pointed out in most decision theories—both the normative, expected value/utility and the descriptive prospect theory (D Kahneman, A Tversky, 1979) —the decision to undertake risky action depends not only how people perceive risks, but also on the nature of potential benefits, i.e., cost saving in our contest, (Jochemczyk, 2017). That is, as potential benefits get larger, people are more willing to take a risk (Åstebro, T., 2015). Accordingly, this study hypothesizes the following:

Hypothesis 2: The greater the price discount (cost-saving) of the unqualified rate, the more likely it is to be booked.

According to Grampp, (1948), people choose from among scarce alternative resources -------those which are best suited to produce certain accepted ends. Rational decision-makers have transitive preferences and that they choose in such a way as to maximize utility or expected utility (Edwards, 1954). In this study, these concepts of "best-suited choice" and "expected utility" refer to the consumer's "expected cost" of booking a hotel room. In their domain-specific risk-taking framework, Weber, Blais, and Betz (2002) employed the decomposition of risk-taking as a tradeoff between perceived risks and perceived benefits (expected cost saving in this study) of risky choice options. Figure 4 depicts the options consumers face with a decision tree, the qualified regular price is ***FP***, α refers to the risk level (percentage) of service denying and β indicates the unqualified discount level (percentage). An alternative price ***AP*** describes that consumers need to re-book the same hotel or book another hotel after rejection at the current price.

Figure 4. Reservation choices with expected cost



The above "*expected cost*", according to figure 4, is determined by the unqualified percentage of discount level β and risk α that the percentage to be denied by the hotel. When ***FP*** >***FP****(1-α) *(1-β) +***AP****α, the unqualified discounted price has greater (smaller) expected utility (cost) than regular price to attract consumers to book. Therefore, adjust α and β is an effective way to change the expected cost of booking an unqualified discounted price. In a sense, β is not within the direct control of the hotel, as rates are negotiated ahead of time. In summary, here is our 3rd hypothesis:

Hypothesis 3: The higher the discount level the smaller the impact of risk perception at the consumers' decision to book an unqualified discounted rate.

Chapter 2 -- Study 1

A QUALITATIVE STUDY OF DEVIANT RESALE BEHAVIORS

2.1 Methodology

This study is the first attempt to conduct a detailed investigation of the deviant reselling phenomenon. Primary sources of industry leaders who have direct experience with this phenomenon were needed. We decided to collect qualitative data using the semi-structured, in-depth interview. A total of 17 revenue leaders from different branded hotels in China were interviewed individually. This open-ended question based, discovery-oriented method facilitated a deeper exploration of this topic and is more likely to generate useful insights during this early phase exploration (Guion, Diehl, and McDonald, 2001). With the effect of this methodology, we can identify common issues from the different interview transcripts, to modify and expand the awareness of the phenomenon from different feedbacks, so as to reach a consensus on this phenomenon.

We focus on revenue leaders because they are more likely to be familiar with the specifics of deviant reselling behavior (Cross, R. G., Higbie, J. A., & Cross, D. Q. 2009), with related technical complications associated with the issue, and they are well-positioned and qualified to suggest solutions that are both practical and in line with the principals of revenue management practices and revenue optimization. The revenue leader participants were selected by one of the researchers who know many of them through work. Apart from their demographic information, participants were asked to share their experience on a range of topics related to the practice of revenue management, price discriminations and incidents of cheating behavior. Specifically, we assessed the respondents level of understanding of the fundamental principles of price discrimination, their approach to WTP based market segmentation and price restrictions, the mechanisms they used for identification in their practices, the spread between qualified and unqualified prices, their knowledge of how deviant practices are used to game the system, their assessment of the problem severity, their understanding of the importance of *enforcement* as a crucial component of price discrimination and best practices which could solve the problem.

Interview transcripts were collated and analyzed using Atlas.ti, a text analysis software used to identify broad themes and insights (Muhr, 1991). Atlas.ti analysis is predicated on the researcher’s ability to organize the data effectively, can uncover and systematically analyze complex phenomena hidden in unstructured text.

2.2 Findings

2.2.1 Common types and current solutions of deviant behaviors:

Type one, unqualified to buy hotel room at company contracting discounted prices: There are three main deviant behaviors under this type. First, a certain company’s employees who are eligible to access the discounted prices for contractors resell it online through trade platforms, APPs, social media, etc., at a special price between contracting prices and regular public prices for the hotel with a sales condition that needs to be fully prepaid. End-users can search this special rate, send a reservation inquiry, and easily complete the payment online. Company employees then make a reservation at the hotel at the contracting price through eligible methods and state that the reservation will be paid or prepaid by them but not the end-users. Normally, eligible methods include company email address, appointed booking accounts, company fax with letterhead, etc. Externally, the entire processes happen on a specific website or APP, and end-users do not know who the price providers are; sometimes they are "kindly" reminded that they cannot reveal their booking channels to the hotel. But internally, in the hotel PMS, reservations are paid directly from contracted company employees. The difference between the special price and the contracting price is the profit margin for those who are engaging in this deviant reselling behavior. Regarding the relevant transaction protections supplied by websites and APPs, if deviant resellers fail to make reservations at the contracting price with the hotel, they are willing to refund the prepaid money, so end-users are rarely exposed to risks.

Second, sometimes the deviant resellers are not internal company employees, but outside individuals who know that certain companies have contracting prices with hotels. These people then create their own "eligible" methods. For instance, the authentic company email address for Siemens is xyz@siemens.com, but someone can create obfuscated ones like xyz@siemens-travel.com; or the real abc@ge.com be disguised as abc@ge-global.com. A fax with letterhead is even easier to forge. Within these faked methods, someone can copy company processes and then gain their own interest.

Third, some people find a company to resell hotel rooms. They pretend their companies have high demand and use that to negotiate with a hotel to sign a discounted contracting rate. Sometimes hotel employees are persuaded by sales director/revenue leaders to approve the contracts. Then, as in cases 1 and 2, they publish special prices online, receive payment from end-users, make the reservations, and pay the hotel-contracting price for the end-user.

Hotels' responses and solutions: Revenue leaders check prices daily to ferret out those abnormal special prices and then track down the price source through a test booking. A test booking shows when an end-user makes a reservation through channels that have abnormal prices published, or when they use personal or hotel finance department credit card / petty cash to prepay. Later when the reservation department receives the relevant booking inquiry, the price source is made clear. Then the hotel will state to the channels that this is a test booking and ask for a refund of the prepaid payment.

Test booking is effective but time-consuming, besides it, our interviews identified 7 potential ways to mitigate this type of deviant reselling behavior.:

1. Improve contract terms and conditions to restrict resale;

2. Identify consumers who use company contract price upon check-in at the front desk. Ask them to present a work permit, business card, incumbency certification, etc., as identification;

3. Randomly ask consumers' booking channel;

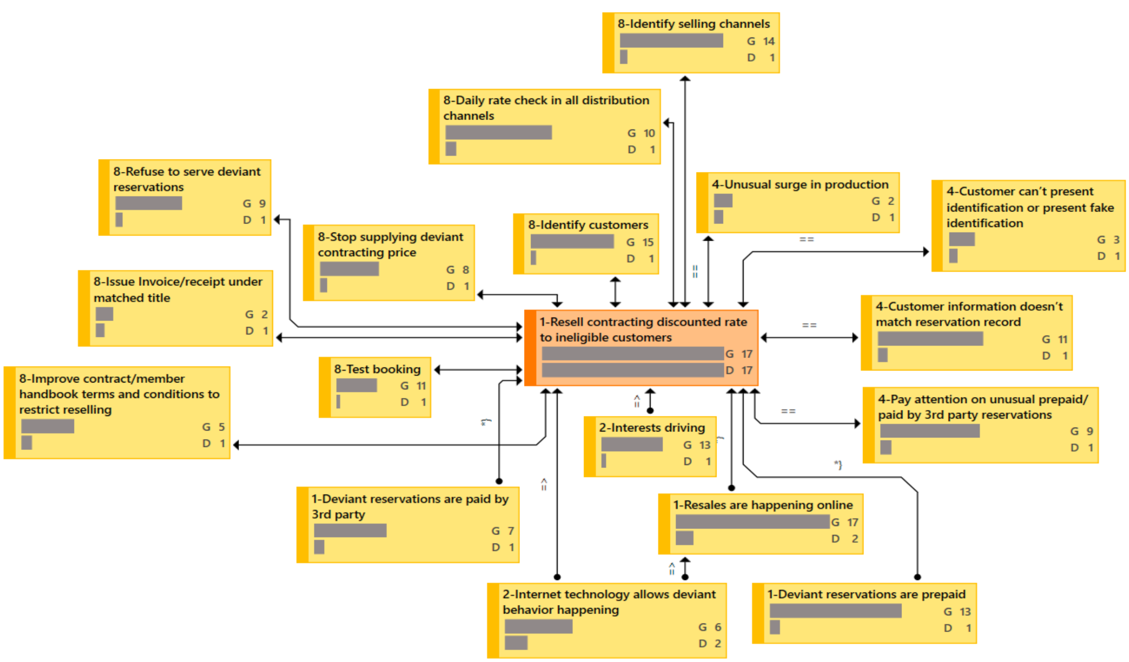
4. According to consumer's behavior, most businesses insist that people who use a company contract price pay the hotel directly by themselves. If certain companies have lots of reservations that are prepaid or paid by 3rd parties, it's worth further inspection;

5. Pay attention to certain companies that have an unusual surge in production;

6. Refuse to serve deviant reservations and stop supplying the deviant contracting rate;

7. Issue hotel invoice/receipt only under matched company title to filter consumers who need their invoice under a specific title.

Table 3. Atlas.ti Analysis of research findings – type one



Type two, high commission OTAs resell on low commission channels: Certain OTAs (online travel agents) are eligible to get a higher percentage of commissions from hotels compared to other OTA competitors. The higher-commission ones are often global OTAs, and their commission rates are decided by chain hotels but not individual hotels. Those high-commission OTAs then present themselves as price providers to resell hotels on OTAs that charge lower commissions.

The latter isn't pure an OTA but more like a platform that is authorized by hotels to sell official prices and, on the other hand, also allow 3rd parties to release their prices to sell, and usually charges a 10-12% commission to both of them.

For example, XYZ hotel gives a 20% commission to OTA A and a 10% commission to OTA B, assuming a normal hotel price on a certain day is $100. Then, A releases a special price on B at $95 and uses that $5 discount to attract consumers. When consumer William browses at B and decides to book that $95 rate, William pays $95 to B, B charges the normal 10% commission to A, A receives 95-9.5=$85.5 from this booking. Next, A sends this reservation inquiry to the hotel at a normal price of $100, deducts A's 20% commission which is $20, and A pays 100-20=$80 to hotel. The 85.5-80=$5.5 profit margin of A for this booking.

If A sells this room on its website at $95, A could receive 95*20%=$19 commission as profit instead of $5.5, but the problem is that $95 is an abnormal price which is not allowed for public sale according to price parity terms. If $95 appears on A's website, A's rule-breaking operations are on the table and it's easy to be caught by the hotel; it is a risk that the hotel could prevent A for future selling. But if they put

$95 on OTA B, it is more difficult for the hotel to manage because test booking is a time-consuming job, and it is easier for A to hide their deviant behaviors. The last but most important series of questions are: How can A be sure to sell the same room to William at $100 at its website? Can A approach consumers like Williams without the mediation of B?

From revenue leaders' prospective, hotels cooperate with different OTAs assuming that they can help to reach different markets even if there is overlap. It's possible that William books the same room at $100 on A directly and the hotel pays the $20 commission, which is the normal way. But it also could be that William prefers to use B or doesn't even know about A; he then makes his $100 reservation on B, and the hotel pays the $10 commission to receive the same reservation. The reselling behavior of A eliminates the $10 commission option. B brings William in and makes the deal happen, but in the hotel PMS this business came from A. A seizes B's market penetration with an abnormal price of $95, brings itself additional production and profit margin, forces the hotel to pay a higher commission, and limits hotel revenue optimization.

Hotels' responses and solutions: Since higher commission agreements are not authorized by hotels, revenue leaders can't control them on their own; they can only complain to those responsible for negotiation. They are looking for a top-down solution to reduce the difference in commission. Besides asking for support from headquarters, the following concepts should be considered:

1. More likely to happen during all types of deviant behaviors;

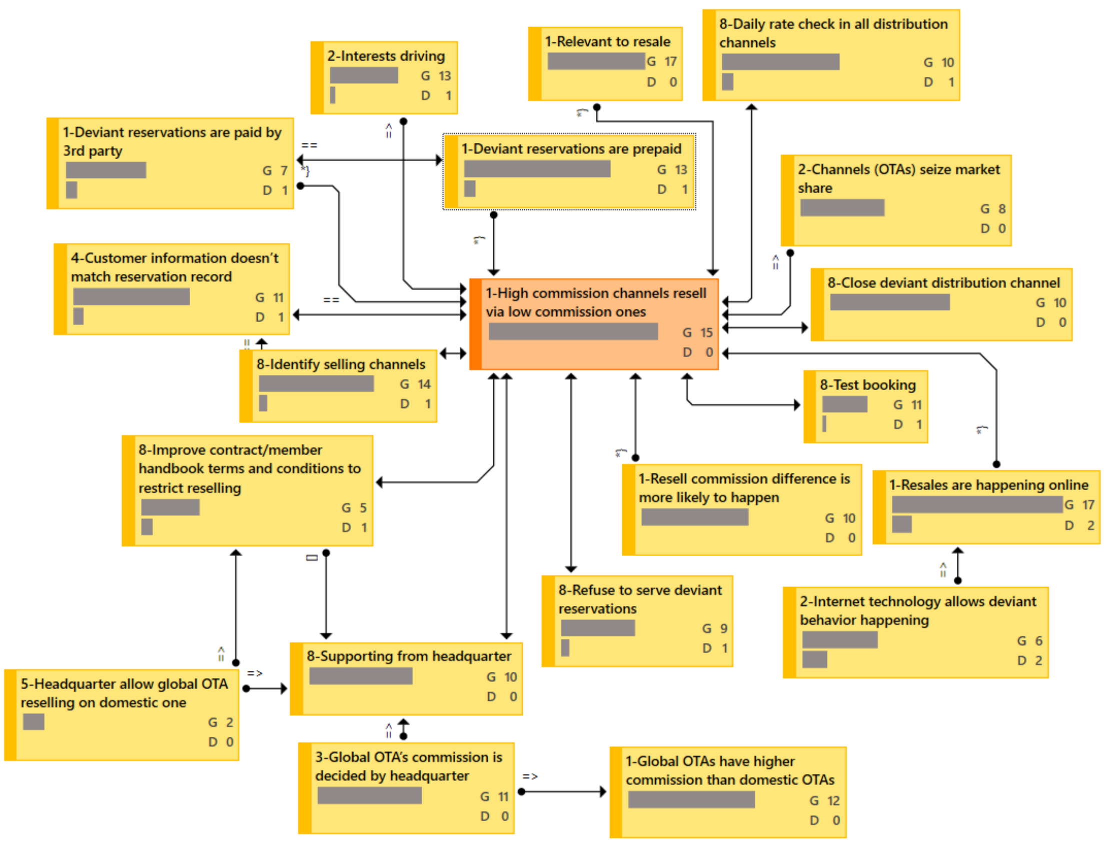
2. End-users prepay their rooms to OTAs, then OTAs deduct their commission and pay the hotel;

3. Daily price check and test booking to identify deviant reselling channels;

4. Close deviant reselling channels;

5. Randomly ask consumers' booking channels.

Table 4. Atlas.ti Analysis of research findings – type two



Type three, resell membership benefits to other ineligible consumers: Hotels' loyalty program members, especially senior members, regularly have significant benefits such as free room upgrades or membership points to book rooms without money. Some members are not members at all but steal memberships to resell those benefits for personal interests.

“Both couples are our platinum members and have the benefit to a free upgrade to a suite,” one revenue leader shared during her interview, “but one day I found they checked-in two rooms and shared them with other persons. I started paying attention to them.” After a period of observation, this revenue leader found the couple was selling the privilege of the upgraded suite to other consumers. The price difference between the suite and standard room, for example, is $100 per room night in this certain hotel, and this couple sold it online for $50 or $60. Then they waited in the hotel lobby, accompanied their “consumers” to check-in, and used their membership to free upgrade room to a suite. That $50 or $60 is their profit, without any cost. “We collected enough evidence of their deviant reselling behavior and asked headquarters to delete their membership accounts.”

“I met many cases of stealing and reselling membership benefits in my previous hotel,” shared another revenue leader. She described people who stole memberships and sold hotels online, booking hotel rooms with stolen points. “The system says that real membership holders are foreigners, but actually only Chinese consumers checked in. The loopholes on membership management and consumers’ identification at the front desk allowed those things to happen… When I joined that hotel, in the beginning, the highest monthly record was 800 room nights booked by member points, then I set the restriction that only a maximum of 3-5 rooms could be booked with points each day, which controlled the total monthly volume to 100.”

Hotels' responses and solutions: Let's summarize the two revenue leaders' experience along with other solutions to prevent this type of deviant behavior:

1. Pay attention to unusual member reservations and give necessary inspection;

2. Collect evidence of deviant behavior and apply for membership deletion from headquarters;

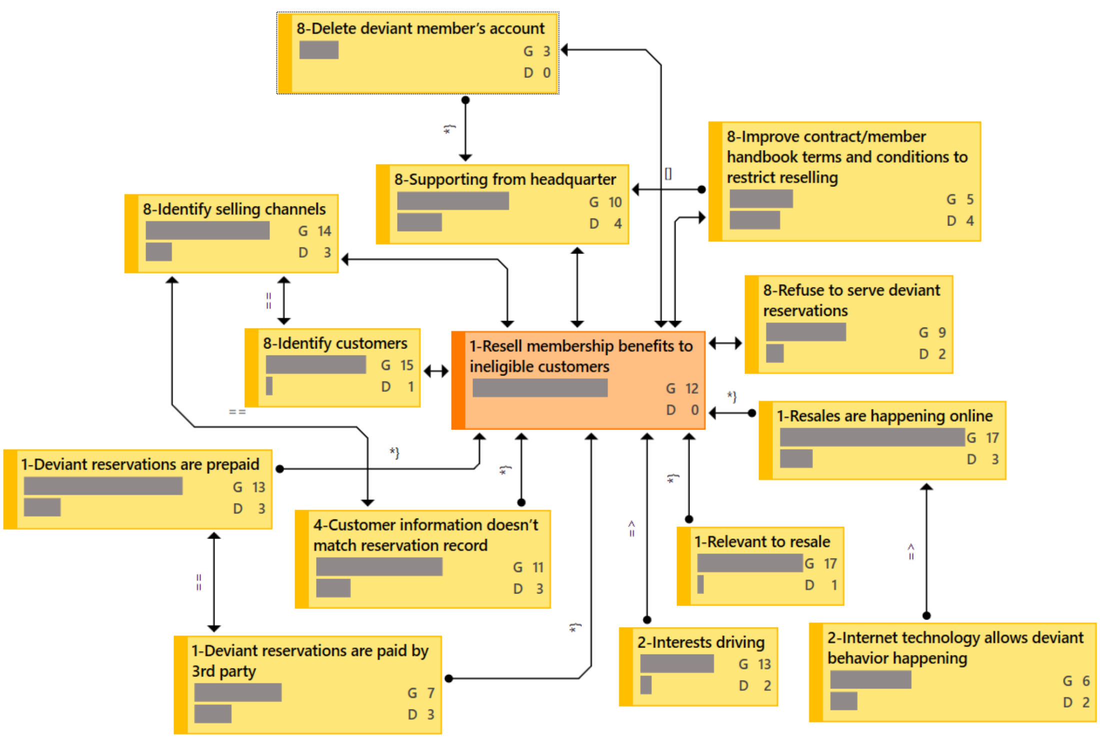
3. Refuse to serve deviant reservations;

4. Enforce consumer identification in front desk; if consumers' information doesn't match reservation record, do more step to clarify qualification;

5. Set allotment restrictions to member points reservations;

6. Ask headquarters to improve member handbook terms and conditions to control reselling.

Table 5. Atlas.ti Analysis of research findings – type three



2.2.2 Common factors of three types of deviant behaviors:

All behaviors are relevant to resale. Company contracting prices, high commission offers, and loyal members' benefits are all designed to sell to the end-user but not directly not for resale. Reselling hurts revenue management because "*the fact that a buyer is willing to pay a higher price does not mean they will be willing to do so if they can secure a lower price for the same item*" (Hayes, D. K., & Miller, A. A. 2011). This means that once there's a lower price published, it shifts consumers from other channels, giving an opportunity to consumers who have a high willingness to pay to purchase hotel products at a lower price. Or, indirectly, it forces the hotel to pay more commissions or receive payment with member points, not cash. At this point, the *enforcement* of price discrimination has failed, and hotel revenue has been damaged.

All deviant resales are happening online. Technology allows deviant sellers to release abnormal prices online. They can reach their "consumers" through internet platforms, and electronic payment systems allow those deviant deals to happen.

There are two motivations for these deviant behaviors: 1. Interest driving; 2. seize market penetration (OTAs).

Current situation and future prediction of deviant behaviors:

Difficult to manage and count revenue damage: Deviant reselling is easy to operate without any obvious risk. Since it's difficult to uncover all deviant behaviors, it's hard for hotels to count their exact revenue damage. If a hotel is under bad business practices, it is unclear who can decide to refuse deviant resellers; how to calculate business displacement would be another concern.

Deviant behaviors will not be eliminated by themselves. Individual hotels can partly manage and control deviant behaviors with previous solutions, but much is out of their control, such as commission agreements with global OTAs. There is no law in China to restrict those deviant behaviors, profit can be earned without punishment, and self-interests will motivate people to continue these practices. As such, these behaviors will likely persist.

2.2.3 Challenges of internal operations

When asking front desk employees to check consumer's ID or refuse serving consumers because of their deviant reservations, it's a face-to-face communication process in a public area. If consumers refuse to cooperate for inspection or complain, it impacts the hotel's service performance. It also places more pressure on front desk employees. The front desk is an operational department, and employees are trained to put "consumers' satisfaction" as their KPI. But this job priority isn't in line with the priority of the revenue management team. How efficient front desk employees implement this job of identifying deviant consumer behavior will be another issue that needs to be considered.

Consumers' ID files are easily counterfeited. Business cards can be found online and downloaded with a logo, and they are easily printed at home. Work permits are similar but slightly more difficult. And how about resigned employees for certain companies? They can keep their "authentic" business card and work permits, but actually, they are no longer eligible to use the company's contract rate. When hotel employees have no experience to recognize fake IDs, the identifying method turns out to be meaningless. One experienced author has something of value to share for this situation. One certain company's headquarters officially announces to hotels that all room reservations from this company can only be booked through one certain OTA, and employees' work permits are directly connected to this OTA's account and can only book rooms for themselves. After the employee resigns, the work permit will be permanently deleted. An account sample will be sent to hotels to support identification. Then, if the company's employee resells hotel rooms online, it's easy to find the perpetrator and the company will cooperate to implement punishment. Under this condition, it is an effective way to restrain the problem. This avoids loopholes for reselling, but not every company has enough demand to request an OTA to build its own channel, and contracted hotels need to pay a specific annual fee to get access to this technology network in order to receive booking requests. The more companies do this, the more expenses hotels will incur. So, who should pay this added cost? Is it the company's responsibility to restrain employees' behaviors, or is it the hotels' responsibility because they want to protect their revenue?

The revenue management team can use the test booking method to identify deviant distribution channels. We already know that those deviant resellers need to be prepaid, so who should repay this money? Some revenue leaders said they have to pay with personal credit cards. After test booking, it's time-consuming to negotiate with channels to get their money back, and before the money can be fully refunded, revenue leaders personally take the risk of losing money, which is unfair to them.

Besides, using the same personal card to do test booking is easy to spot by channels and can lead to the failure of the test. Along with this added pressure and risk, this test booking solution may be turned from a useful tool to a useless one. We suggest that the hotel finance department recognize this issue and assign an amount of cash to the revenue management team to do test-booking specifically.

Another hidden risk is that hotel employees might get involved in the deviant behaviors described above. Among internal hotel departments, some employees have the authorization to sign company contracts, to decide contract prices, to check-in and receive payment from consumers (some hotels regulate that employees can't receive payment from the consumer directly but this doesn't always get implemented properly), to give free upgrades on room types, to audit payments, to decide to offer discount prices, to offer complimentary rooms to certain consumers—all are instances where employees can use their positions to break the rules. Besides external solutions, internal work permissions should be mutually supervised, and occupational ethics education and work behaviors auditing should be implemented continually.

2.2.4 Challenges of external supporting

Many of the interviewees mentioned that they tried to ask headquarters why it was mandatory to sign such high commissions with global OTAs. Unfortunately, there was no response. The author had a chance to ask the same question to one senior manager in a chain hotel headquarters under a casual meeting, and this manager only mentioned that those global OTAs are very important to the hotel business and signing centralized contracts is more beneficial. But there was no explanation of the benefit details. One point needs to be stressed that 17 interviewees are from different branded hotels that belong to different chains, and16 of them signed higher commissions with global OTAs intensively.

Within the undefined benefits above, individual hotels are having revenue damaged by the reselling being done by higher commission channels. It's true that global OTAs as huge organizations with power in the worldwide hotel market, but the power isn't equal to each country or district. China, with its enormous demand, has its own domestic OTAs that always capture a great majority of production. Chinese hotels' dependency on those global OTAs is limited (if global OTAs want to increase their market share, it's their own battle, not the hotels'). This is also why some interviewees mentioned that once they found global OTAs reselling hotel rooms online, they chose to close the channel immediately without hesitation. Facing the above realities, we suggest that:

1. Besides rate parity, percentage parity is also necessary for revenue management *enforcement*.

2. Headquarters may need to listen to real-time information from individual properties before they issue a centralized order. On the other hand, they may need to give necessary feedback to hotels' concerns. Clear communication can encourage individual revenue management leaders to implement policy and principles effectively.

3. On-site revenue management leaders are the ones directly facing specific markets, so giving appropriate authorizations to them for controlling distribution channels can help them manage their revenue margins more effectively.

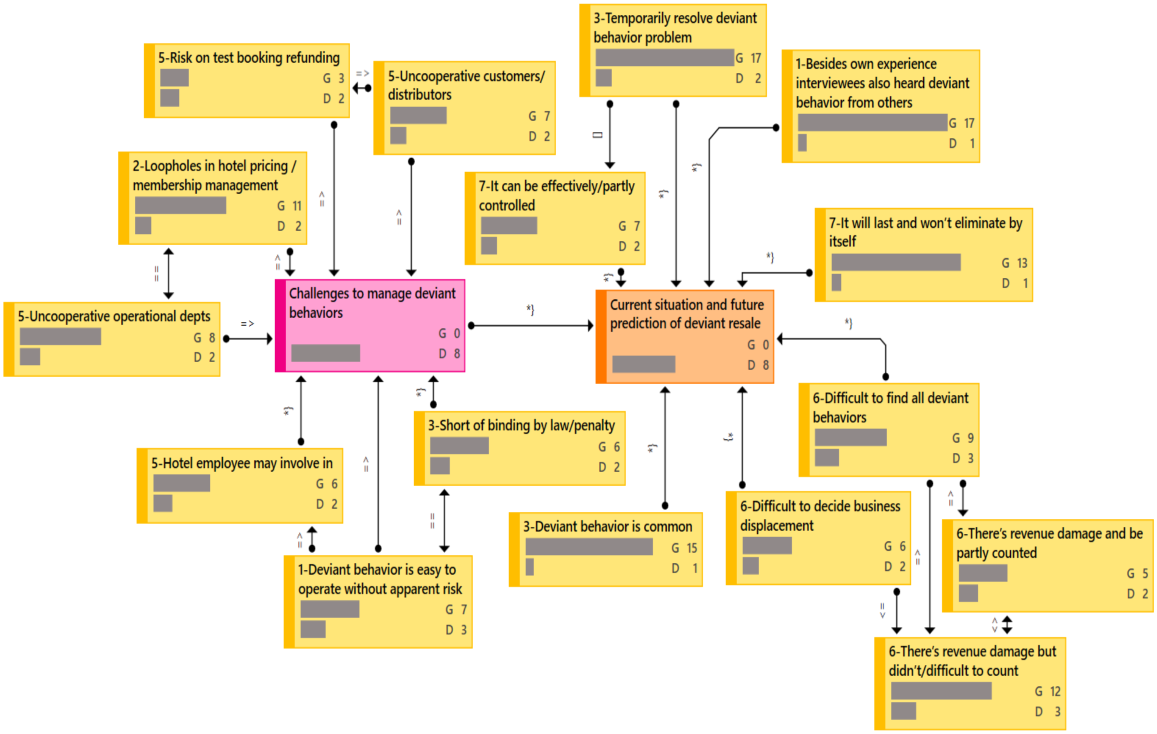
4. Change the terms of a commission payment. For prepaid reservations, consumers or OTAs must pay the full amount to the hotel first, and the hotel finance department makes the commission settlement with OTAs later. Being clear on the exact amount consumers paid is beneficial for hotels to manage distribution channels.

Atlas.ti structure and other two simplified forms in Table 6 represent more details of the current & future situation, challenges to such deviant reselling behaviors.

Table 6. Atlas.ti analysis of research discussion

Challenges to manage deviant behaviors (In descending order of number of mentions by interviewees):	
1	Loopholes in hotel pricing/membership management;
2	Uncooperative operational depts
3	Deviant behavior is easy to operate without apparent risk
4	Uncooperative customers/distributors
5	Short of binding by law/penalty
6	Hotel employee may involve in
7	Risk on test booking refunding

Current situation and future perdiction of deviant resale (In descending order of number of mentions by interviewees):	
1	Temporarily but not permanently resolve deviant behavior problem, it can be effectively but partly controlled
2	Besides own experience, interviewees also heard deviant behavior from others
3	Deviant bahavior is common
4	It will last and won't eliminate by itself
5	There's revenue damage but didn't/difficult to count or be partly counted because it's hard to find all deviant behaviors
6	It's difficult to decide business displacement



5-Risk on test booking refunding
G 3
D 2
5-Uncooperative customers/ distributors
G 7
D 2
3-Temporarily resolve deviant behavior problem
G 17
D 2
1-Besides own experience interviewees also heard deviant behavior from others
G 17
D 1
2-Loopholes in hotel pricing / membership management
G 11
D 2
7-It can be effectively/partly controlled
G 7
D 2
7-It will last and won't eliminate by itself
G 13
D 1
5-Uncooperative operational depts
G 8
D 2
Challenges to manage deviant behaviors
G 0
D 8
Current situation and future prediction of deviant resale
G 0
D 8
6-Difficult to find all deviant behaviors
G 9
D 3
3-Short of binding by law/penalty
G 6
D 2
5-Hotel employee may involve in
G 6
D 2
3-Deviant behavior is common
G 15
D 1
6-Difficult to decide business displacement
G 6
D 2
6-There's revenue damage and be partly counted
G 5
D 2
1-Deviant behavior is easy to operate without apparent risk
G 7
D 3
6-There's revenue damage but didn't/difficult to count
G 12
D 3

Chapter 3 -- Study 2

A QUANTITATIVE STUDY OF POTENTIAL SOLUTION OF DEVIANT RESALE BEHAVIORS

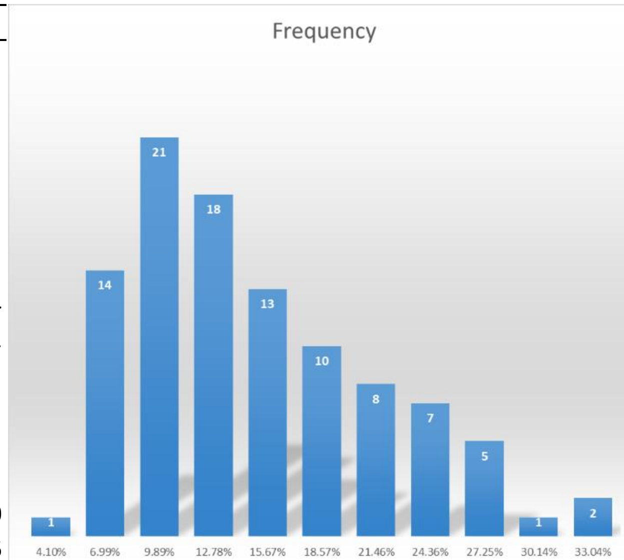
3.1 Methodology

An empirical study of risk aversion and incentive effects for lottery/gambling choices (Holt, C. A., & Laury, S. K. 2002) modeled risk aversion. Researchers classified risk aversion to 10 categories, which is when safe choices achieve 80% (means 2 of 10 choices are unsafe), it's "highly risk-averse" and when safe choices only 50% (5 of 10 are unsafe), it's "slightly risk-averse". We adopt this risk classification as follows: A low-risk level to consumers is defined as 20% of unqualified reservations are denied by the hotel while 50% of service denied denotes a high-risk level. Then the midpoint of those 2 determined our medium risk level which is 35%. We also put non-risk (0% risk) in for further comparison.

Using a random sample, this study collected price information for 100 hotels in China on the OTA where unqualified reselling discounts are sold. We then compare the differences between the discount price and the hotel's regular price. Table 7 displays the result of the comparison. The maximum discount among the 100 hotels is 33.04% off, with a mean of 14% and a mode of 10%. Combine percentile and frequency of such data set, we finally determined 8% (value of 1st quartile) and 20% (value close to quartier 3) as low and high discount options of our experiment.

Table 7. Differences between unqualified and regular price

Descriptive STAT	
Mean	13.56%
Standard Error	0.68%
Median	12.01%
Mode	10.03%
Standard Deviation	6.83%
Sample Variance	0.47%
Kurtosis	-0.144
Skewness	0.722
Range	28.94%
Minimum	4.10%
Maximum	33.04%
Sum	1356.34%
Count	100
Confidence Level(95.0%)	0.0136



Within determined none (0%)/low (20%)/medium (35%)/high (50%) risk level and low (8%)/high (20%) discount options, 4*2=8 possible combinations of discount and risk have been used to test our hypotheses.

The purpose of this study is to understand the general response of a wide range of populations under set conditions, there is no restriction on demographic information for the participants. Therefore, we have adopted a convenience sampling method, that is, the individual of the population, based on the convenience and availability, has an unequal chance to be part of the sample (Nateeprachthaveecha, W. 2009).

Before the official survey, manipulation test and pretest were designed and sent to respondents in China to determine each level of discount/risk we created for the survey are giving significant different perceptions to respondents. Then,

1. Respondents were assigned to 8 groups; the size of each group is between 100-105.

2. The target population is adults aged 20-40 years old. According to Ipsos' report of "Overseas tourism of Chinese tourists in 2018", Millennials born between 1980-1999 spent the most each day when traveling than other age groups and are more apt to book discounted accommodation.

3. Independent variable of discount level: high = 20% off from BAR, as well as the low = 8% off from BAR.

4. Independent variable of risk level: none risk=0% chance of denied service, as well as low risk=20% chance of denial, medium risk = 35% and high risk = 50%.

5. Define a hotel regular price at $70 in the scenario because this is the average price level of 4/5 star hotels in China. And this level of hotels in the place where the above-mentioned violations are concentrated.

6. A similar fictitious OTA webpage (figure 5) was created to provide direct visitations and improve research-participants' understanding of the scenarios.

7. Scenario:

1) Group 1 (and 2, 3, 4, 5, 6): you are about to book a hotel room for your upcoming trip using a known popular OTA (online travel agency), and there is only one hotel that suits your needs. The regular price at this desired hotel is listed as $70 a night. If you book your room at this regular price, your reservation is guaranteed. There is also a discounted price of $64 (or $56) available on the same website. If you book this discounted rate, there is a risk of 20% (or 35%, 50%) that the hotel will deny your reservation when you arrive. In other words, 2 (3.5 or 5) out of 10 consumers who book this discounted price will not get room to stay in upon arrival.

As you can see in the attached screenshot, both prices are displayed on the webpage of a reliable online travel agency. What room price will you book?

A: Regular price of $70

B: Discounted price of $64 (or $56)

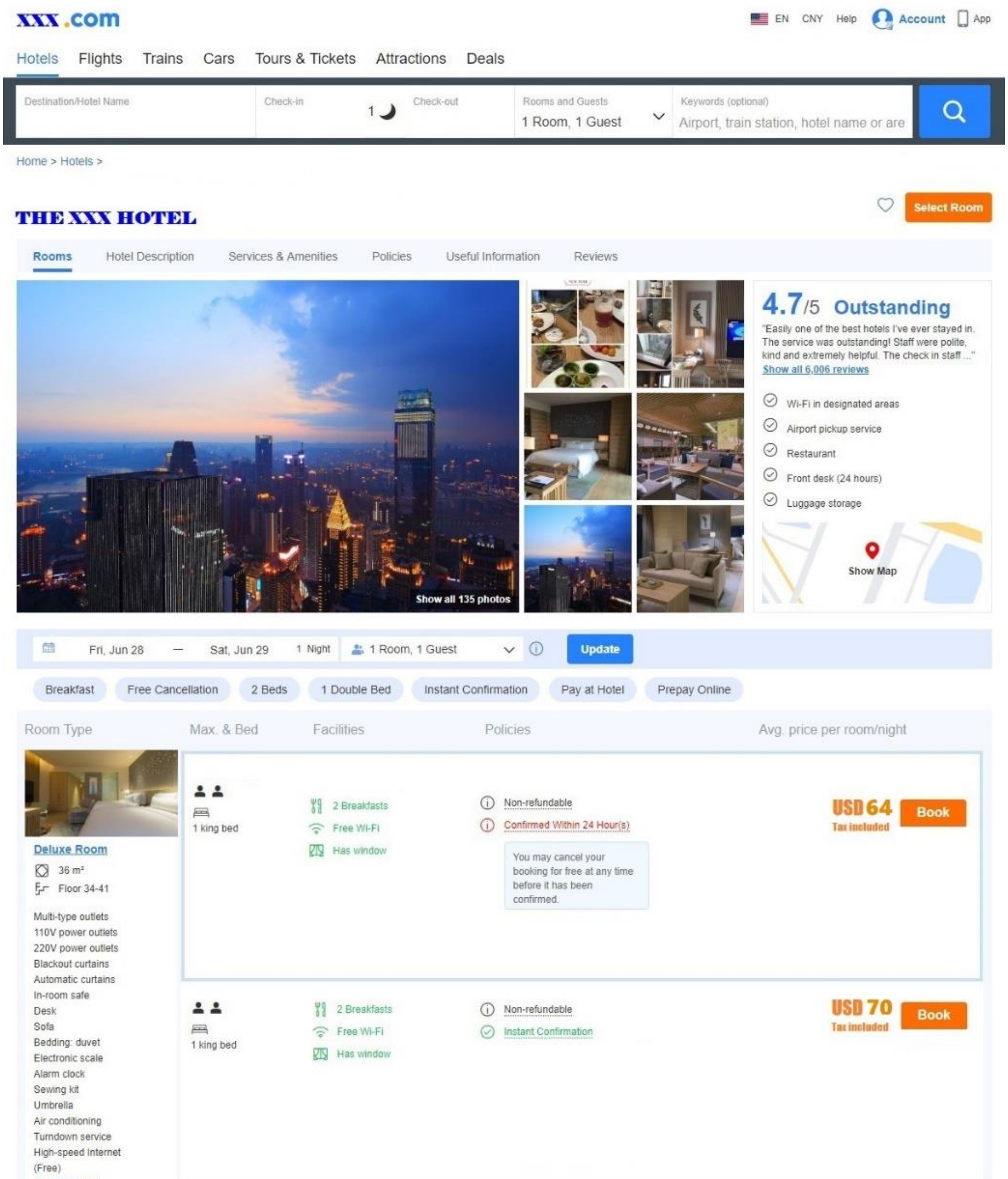
2) Group 7, 8: you are about to book a hotel room for your upcoming trip using a known popular OTA (online travel agency), and there is only one hotel that suits your needs. The regular price at this desired hotel is listed as $70 a night. There's also a discounted price for this hotel which is $64 (or $56) available on the same website. As you can see in the attached screenshot, both prices are displayed on the webpage of a reliable online travel agency. What room price will you book?

A. Regular price of $70

B. Discounted price of $64 (or $56)

For hypothesis 1 and 2, since both of them are paired difference test that compares two related samples, we quoted Wilcoxon and simple Chi-square test to measure the difference (Chan, Y. H. (2003). For hypothesis 3, because our dependent variable is to test whether customers decide to purchase deviant reselling discounts under different (risk and discount) conditions, the answer can only be yes or no, it is binary. On the other hand, our independent variables (risk and discount) do not come from repeated measurements and there's no multicollinearity between them (King, J. E. 2008; Midi, H., 2010) Within the sample size of data meets the requirements, we decided to use a logistic regression model to test hypothesis 3.

Figure 5. A fictitious OTA webpage



3.2 Findings

3.2.1 Data result

We collected 821 useable responses (100-105 per group), demographic information includes gender, age, education, and annual income, no collinearity issue was found among them. More details are provided in Table 8.

Table 8. Demographic information of dataset

Male	48%	**Female**	52%
Age	**20-25**	**26-35**	**36-45**
	62%	30%	8%
Education	**High School**	**Undergraduate**	**Graduate**
	27%	68%	5%
Annual Income	**<￥50,000**	**￥50,000 -100,000**	**>￥100,000**
	60%	32%	8%

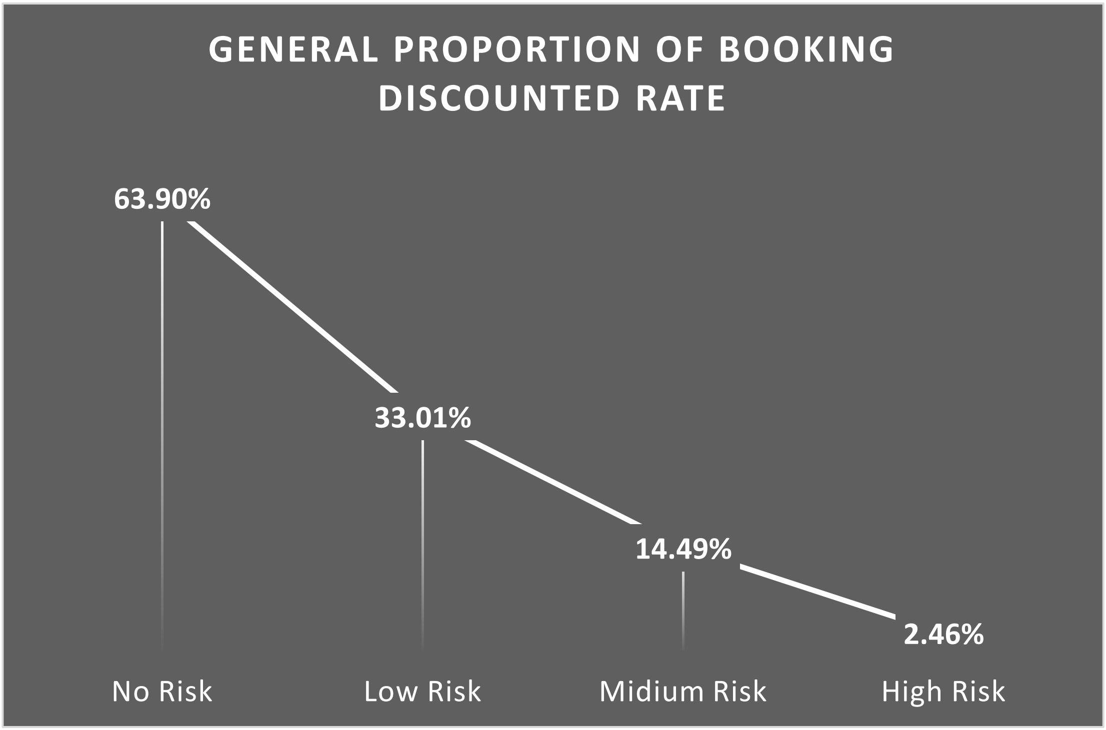
Hypothesis 1: The smaller the perceived risk level of being denied by the hotel, the greater the likelihood that consumers would book an unqualified discounted price.

Result: supported.

Description: as Table 9 shows, the proportion of booking unqualified discounted price varies as risk changes. From 63.9% with no risk dropped to 2.46% when risk is high (50% service denying). A Chi-square test supported this change is statistically significant ($p<0.001$).

Table 9. Data analysis of Hypothesis 1

General Proportion of Booking Discounted Rate			
No Risk	**Low Risk**	**Midium Risk**	**High Risk**
63.90%	33.01%	14.49%	2.46%



Hypothesis 2: The greater the price discount (cost-saving) of the unqualified rate, the more likely it is to be booked.

Result: supported!

Description: as table 10 shows, booking proportion of discount price under low discount level (8% off) is 23.53%, and change to 33.41% when the discount change to the high level (20% off). Chi-square test supported this 33.41-23.53=9.88% difference is significant ($p<0.002$).

Table 10. Data analysis of Hypothesis 2

Proportion of Booking Discounted Rate	
Low Discount	**High Discount**
23.53%	33.41%

Hypothesis 3: The higher the discount level the smaller the impact of risk perception at the consumers' decision to book an unqualified discounted rate.

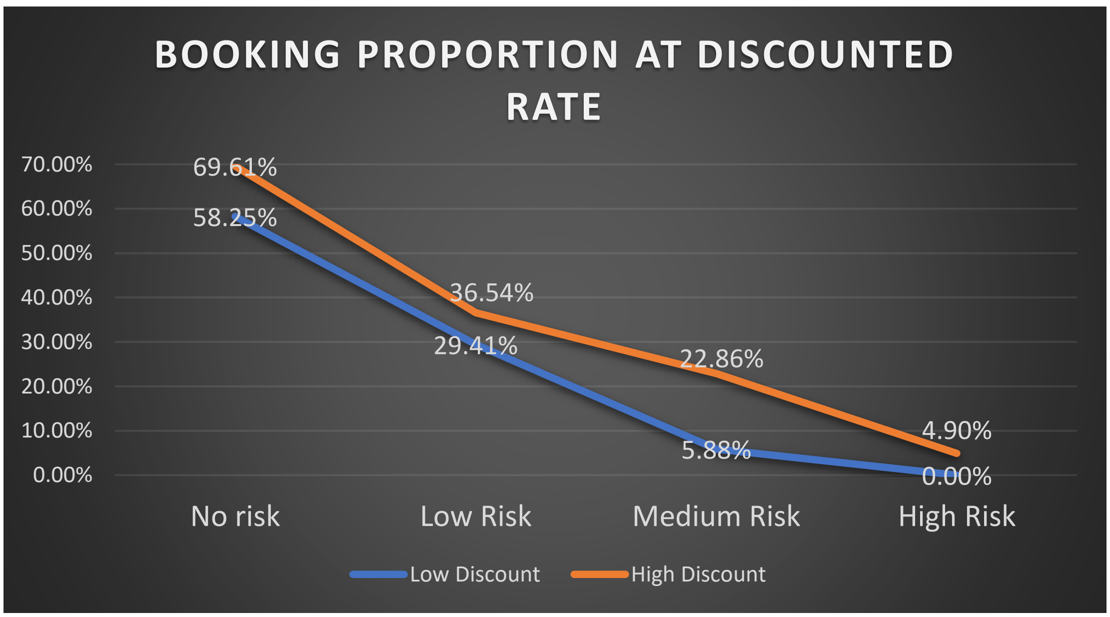
Result: supported!

Description: A logistic regression model as table 11 indicated that both discount and risk significantly impact consumers' booking intentions at a discounted rate. The higher the discount, the more likely consumers choose to book, while the increase of risk reduced the odds of bookings. More specifically, when the discount changes from low (8% off) to high (20% off), it increases the odds of booking discounted price by 65% while the risk of service denying increases to the next level (from 0 to 20%, 20% to 35%, 35%-50%), the odds of booking discounted price decreases by 72% (p<0.001, Nagelkerke R-square=0.362).

Table 11. Data analysis of Hypothesis 3

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Discount(1)	.501	.130	14.778	1	.000	1.651	1.279	2.132
	Risk	-1.274	.102	157.413	1	.000	.280	.229	.341
	Constant	.560	.130	18.573	1	.000	1.750		



We can see from the table 11, within two discount levels, the two trend lines of booking intention on unqualified discounted price are moving slightly in different directions as risk increases. We added interaction between discount and price into our model, added all significant demographic variables and then obtained the optimized results as table 12 (R-square=0.491). In addition to the significant factors (variables) we have found above, it tells more insights, which include:

1) Interaction between discount and risk impacts outcome significantly;

2) 2^{nd} degree polynomial term of risk is significant, indicates that our data is a curved distribution rather than a straight line;

3) As age increase, the odds of booking an unqualified discounted price decrease;

4) As education level increase, the odds of booking an unqualified discounted price increase;

5) People who have an annual income between $7,000-$15,000 are less likely to book the unqualified discounted price compares with people who have an income of less than $7,000.

Table 12. Optimal model

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Risk	-1.428	.314	20.663	1	.000	.240	.130	.444
	Risk2	-.243	.122	3.966	1	.046	.785	.618	.996
	DiscRisk	.820	.191	18.437	1	.000	2.270	1.561	3.300
	Age2635	-.797	.232	11.795	1	.001	.451	.286	.710
	Age3645	-1.091	.452	5.829	1	.016	.336	.139	.814
	Education2	1.284	.246	27.366	1	.000	3.613	2.233	5.846
	Education3	2.927	.497	34.667	1	.000	18.666	7.046	49.450
	AnnualIncome2	-.861	.238	13.094	1	.000	.423	.265	.674
	Constant	.147	.243	.368	1	.544	1.159		

a. Variable(s) entered on step 1: Risk, Risk2, DiscRisk, Age2635, Age3645, Education2, Education3, AnnualIncome2.

3.2.2 Practical Implications

Our research results show that when hotel consumers learn that they are at risk of being denied staying at a hotel, their intention to buy deviant reselling discounted prices significantly decline. Based on this, from a practical perspective, we suggest that hotels should pass the risk warning to consumers through various channels as early as possible. At the same time, make these risks happen, that is when it is found that unqualified consumers purchase deviant reselling discounted prices, strictly enforce the policy of denying their stay. To meet the above two points, the following specific measures are for reference:

1) Hotels should modify corporate/ OTA/ loyalty program contracts to emphasize service denial risk to unqualified bookings. Emphasize the "risk" in the cooperation contract and put the binding force down in black and white will not only facilitates future cooperation but also provides legal support. In the event of deviant reselling, the partners can also pursue accountability and supervision following the contract terms.

2) Inform/educate consumers about the risks (service denial) associated with unqualified resold discounted prices. Due to different interest positions, most of those OTAs and intermediaries will not remark the risk in the deviant discounted prices, so the hotel needs to inform and educate the consumers of the risks through other ways/ channels. Traditional marketing methods such as advertisements on TVs, hotel website pages, radios, newspapers, and other media, or, to share real cases of “service denial” on travelers’ forums and official tourism bureau websites should be effective.

3) Train employees to enforce regulation and deny service when appropriate. We discussed previously in study 1 that, in reality, front desk employees face difficulties and complaints caused by denying (unqualified) consumers to stay, which

hurts their work psychology and performance. Therefore, it is important to train these employees, let them understand the importance behind the “service denial” and have knowledge that hotel adopts such denial is not only to protect the overall revenue directly but is also indirectly protect the personal interests of the hotel employees (regularly, if the overall hotel revenue is compromised, employee incentives/ bonuses/ other compensations will also be cut) so that they would actively enforce the “service denial” regulations. Not only that, denied consumers are likely to blame the hotel why it implements price discrimination, to complain about why public consumers can’t use the same discount as contracted corporate consumers. Hence, employees should also receive corresponding training so that they can respond confidently and accurately when facing similar accountability from consumers, then easily handle the “service denial” regulation.

4) There is a diminishing return (of reduced undesirable booking) when increasing risk perception. From the data results, we can see that when the risk perception changes from low to high, the intention to book the deviant reselling price significantly decreases, but this correlation does not show a linear pattern. When the risk perception rises to a certain extent, the power of impact stops increasing or slows down. It should be taken into account in the budget for investment to advertise risk information.

Further, the effectiveness of risk information in reducing undesirable behavior is moderated by various discount levels, that is, when the discount increases, the more costs consumers can potentially save, the influence of risk information (service denial) is weakened. Therefore, while delivering risk information and implementing service denial policies, hotels also need to carefully consider how to manage the price difference framework. Sometimes hotels are supplying corporates discounts that are not beneficial to optimizing hotel revenue. For example, the hotel signed a low-price contract with a company, it was originally expected to increase productions from the company through this large discount, but in reality, the company did not increase enough demand for this hotel, and at the same time, the contracted price was resold by the company's employees to the network. Periodically reviewing the price framework and patching possible leakages are necessary actions to enhance the effectiveness of risk information.

This study once again demonstrates the important impact of risk factors on consumer purchasing decisions, supported that perceptions of risk are an inherent part of the decision-making process (Williams, D. J., 2007). And the conclusion of significant interaction between risk and discount also pays tribute to existing theories that individuals modulate their behavior to balance the risks and rewards/utilities (Lancaster, J. 2003).

Limitations

Generally, this study only covers organizations' and consumers' perceptions of deviant resales, no information from the resellers' point of view. If future research can obtain information from the perspective of resellers, it will give us a deeper insight into the deviant resale phenomenon. The qualitative data of study 1 only from China, may not cause enough attention globally or there're different situations outside of China. After a rough Internet search, we found that similar reselling behaviors have occurred in the United States, Japan, and European countries, if the research on this phenomenon can be extended to the global scope and the phenomenon is compared horizontally under different cultural backgrounds and consumption habits, it will bring more objective and comprehensive suggestions for protecting hotel revenue from such deviant resales.

The study 2 stated booking intentions only based on a result of the survey from convenience samples, it might be different from actual booking behavior in reality, and we used simple scenario tests, individual's response validity cannot be cross-checked. If the sample size continues to increase and other possible important factors (such as demand period, more classifications of risk level, hotel class, etc) are introduced as control variables, more detailed analysis results may be obtained.

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Appendix A

IRB EXEMPT LETTER FOR STUDY 1

UNIVERSITY OF DELAWARE

RESEARCH OFFICE

210 Hullihen Hall
University of Delaware
Newark, Delaware 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

DATE:	December 21, 2018
TO:	LING LING
FROM:	University of Delaware IRB
STUDY TITLE:	[1354125-1] Organizational perceptions of customers' deviant behaviors towards demand-based pricing in the hotel industry.
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	December 21, 2018
REVIEW CATEGORY:	Exemption category # *(2)*

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Renee Stewart at (302) 831-2137 or stewartr@udel.edu. Please include your study title and reference number in all correspondence with this office.

Appendix B

IRB EXEMPT LETTER FOR STUDY 2

UNIVERSITY OF DELAWARE

Institutional Review Board
210H Hullihen Hall
Newark, DE 19716
Phone: 302-831-2137
Fax: 302-831-2828

DATE:	September 4, 2019
TO:	LING LING
FROM:	University of Delaware IRB
STUDY TITLE:	[1477554-1] The impact of price discount and risk information on hotel customers' intention to participate in deviant resale schemes
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
EFFECTIVE DATE:	September 4, 2019
REVIEW CATEGORY:	Exemption category # *(2)*

Thank you for your New Project submission to the University of Delaware Institutional Review Board (UD IRB). According to the pertinent regulations, the UD IRB has determined this project is EXEMPT from most federal policy requirements for the protection of human subjects. The privacy of subjects and the confidentiality of participants must be safeguarded as prescribed in the reviewed protocol form.

This exempt determination is valid for the research study as described by the documents in this submission. Proposed revisions to previously approved procedures and documents that may affect this exempt determination must be reviewed and approved by this office prior to initiation. The UD amendment form must be used to request the review of changes that may substantially change the study design or data collected.

Unanticipated problems and serious adverse events involving risk to participants must be reported to this office in a timely fashion according with the UD requirements for reportable events.

A copy of this correspondence will be kept on file by our office. If you have any questions, please contact the UD IRB Office at (302) 831-2137 or via email at hsrb-research@udel.edu. Please include the study title and reference number in all correspondence with this office.

INSTITUTIONAL REVIEW BOARD

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