Why Leaving the Consumer Alone Helps to Close the Deal– A Theoretical Approach

Wan-Ju Iris Franz*

Preliminary Draft

Abstract

This paper uses a theoretical approach to answer two questions. By being too aggressive, a salesperson could irritate customers and hurt sales performance. This raises the question why some salespeople continue being pushy. In addition, why are salespeople in certain industries (such as cars and mattresses) notoriously aggressive, while salespeople in other industries (such as luxury boutiques) are relatively customer-oriented?

Using a theoretical model, this paper demonstrates that the optimal level of aggressiveness for salespeople is determined by the frequency at which transactions are repeated, the salesperson's turnover rate, and the proportion of customers with a high willingness to pay. The analysis reveals that, other things being equal, the more frequently transactions are repeated, the lower the salesperson's turnover rate, the larger the proportion of customers with a high willingness to pay, and the lower the optimal aggressiveness level. Additionally, if the frequency at which transactions are repeated is high, and/or if the proportion of customers with a high willingness to pay is large, then the higher the commission rate, and the lower the optimal aggressiveness level.

JEL classification codes:
Keywords: D03, D11, M31

I Introduction

The steps a salesperson uses to maximize sales is captured by the "Personal Selling Process." The Personal Selling Process (PSP) can be summarized by the following seven steps: 1. prospecting

*College of Business and Economics, Houston Baptist University. 7502 Fondren Road, Houston, TX 77074. wfranz@hbu.edu

(identifying prospective customers); 2. pre-approaching (gathering the information of prospective customers); 3. approaching (gaining the interest of prospective customers); 4. sales presentation (presenting the product or service); 5. handling objections and overcoming resistance (overcoming customers' reluctance to buy by persuasion); 6. closing; and 7. post-sales follow-up (Dubinsky and Rudelius, 1980; Hite and Bellizzi, 1985; Dwyer et al. 2000). Salespeople might adopt the PSP to boost their sales; however, overemphasizing some of the PSP techniques might backfire and achieve the opposite results. In particular, a salesperson might irritate a customer at the fifth step of the PSP, "handling objections and overcoming resistance." This step occurs when a customer exhibits an unwillingness to purchase, and the salesperson tries to overcome the obstacles to close the deal. In an attempt to convince the customer to make a purchase, the salesperson could create a contentious atmosphere by disputing or ignoring the customer's objections (Dubinsky, 1980). At this step, the salesperson's persuasion could irritate the customer and, worse yet, break the deal. In fact, the empirical analysis of Dwyer et al. (2000) indicates that low-performing salespeople place a large weight on "overcoming resistance," which could hinder their chances of success.

Kirmani and Campbell's empirical study (2004) roughly separates salespeople into two types: the "helpers" and the "persuaders." Customers perceive the former salespeople as friendly, informative, and sensitive to customers' needs. The latter salespeople are seen as pushy, manipulative, and inconsiderate of customers' needs. The experiment in their study demonstrates that, while many customers are happy to accept the sales assistance of a "helper," customers are likely to guard themselves against the influence of a "persuader" by different kind of actions, such as withdrawing: an action where the customer ends the interaction with the salesperson and never returns to the store. [1]

Because customers shun an overaggressive salesperson and, as a result, might never return to the store, being too pushy could potentially inhibit the salesperson's performance. If this is true, why would any rational salesperson be irritatingly pushy to his customers?

Anecdotal evidence suggests that, in the durable goods industry, such as cars and mattresses, a typical customer will purchase one good (such as one car or one mattress) and use it for several years. The possibility that the customer will return to the same salesperson to buy another car, or another mattress, is slim, especially if the turnover rate of salespeople in that particular location is high. Therefore, a salesperson's goal in the durable goods industry is to close the deal, but not to maintain a long term relationship with the customer. In other words, the salesperson might not care about the customer's satisfaction and shopping experience, as long as the deal is closed and the salesperson earns the commission. For this reason, it might be common to observe aggressive car and mattress salespeople. By contrast, in industries that rely on repeated transactions, such as cosmetics and luxury apparel, it is not uncommon for satisfied customers to return to the same salesperson to make other purchases within a short period of time. To attract return customers, salespeople in these industries are commonly attentive to customers' needs. More specifically, a salesperson does not push customers to make purchases, because annoyed customers are less likely to return to the same salesperson to make additional purchases.

Using a theoretical model, this paper aims to show that the optimal aggressiveness level of a salesperson depends upon 1. the frequency at which repeated transactions occur; 2. the turnover rate of the salespeople at that location; and 3. the proportion of customers with high willingness

[1] Kirmani and Campbell (2004) summarize nine actions that customers might take to avoid salespeople's influence, including: forestalling, deceiving, resisting assertively, confronting, punishing, withdrawing, preparing, and enlisting a companion (p. 577).

to pay. The higher the frequency at which transactions are repeated, the lower the turnover rate of the salespeople at that location, the larger the proportion of customers with high willingness to pay, and the lower the optimal aggressiveness level. That is to say, a salesperson will be more amiable and customer-oriented if the industry relies on return customers, if the salesperson expects his job to be stable, and if a large percentage of the customers have a relatively high willingness to pay. By contrast, a salesperson will be more manipulative and pushy if customers are not expected to return, if the expected duration of the salesperson's job is relatively short, and if the market is full of customers with a relatively low willingness to pay.

II Single Transactions

II.1 The Model

One salesperson (s) attempts to sell certain homogeneous products to n customers. Each customer decides whether or not to purchase a product from the salesperson with a fixed price, p, which is exogenously determined by the company. The value (v) of the product to the customer is unknown before he makes the purchase; however, each customer knows that v is equal to 1 or 0. In particular, type i ($i = H$ or L) customers have a prior about v such that $P(v = 1) = \pi_i(e)$, and $P(v = 0) = 1 - \pi_i(e)$, where $\pi_i(e) = e^{\alpha_i}$, $e \in [0, 1]$ is the aggressiveness level (which also measures the salesperson's effort level) chosen by the salesperson, and $\alpha_i \in (0, 1)$. Without loss of generality, assume that $\alpha_H < \alpha_L$ (see Figure 1). That is, at each level of the salesperson's aggressiveness, the prior of type H is higher than that of type L. The customers are risk neutral.

Note that $\pi_i'(e) > 0$, and $\pi_i''(e) < 0 \; \forall \; i$, because the aggressiveness level $e \in [0, 1]$ and $\alpha_i \in$

$(0, 1)$. The higher the salesperson's aggressiveness level, the higher the customer's prior $\pi_i(e)$. Yet, the prior increases in a concave fashion. For instance, a customer might be almost equally convinced of the product's value whether the salesperson tries to persuade the customer for 40 minutes or for 45 minutes. However, if the aggressiveness level is too high, the customer might be annoyed, for he perceives the salesperson as being pushy. Therefore, the customer also bears an "annoyance cost," $A(e) = e^{\beta}$, where $\beta > 1$, $A'(e) > 0$, and $A''(e) > 0$ (see Figure 1). $A(e)$ captures the annoyance the customer suffers from the pushiness of the salesperson. For simplicity, assume all customers have the same annoyance cost function, $A(e)$. The salesperson knows $\pi_i(e)$ and $A(e)$, although he cannot distinguish the two types of the customers.

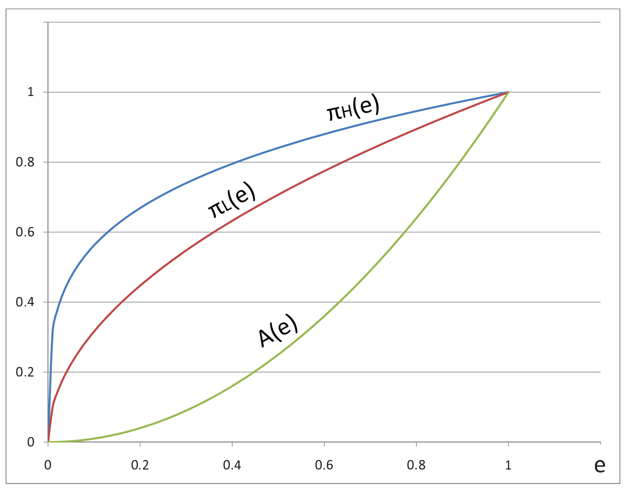


Figure 1: Prior Functions and Annoyance Function

Assumption II.1 *The salesperson cannot distinguish the two types of customers.*

The Customers For customer type i to make a purchase, the following constraint must hold:

$$U_i(e, p) = \pi_i(e) * 1 + \big(1 - \pi_i(e)\big) * 0 - A(e) - p \geq 0, \tag{1}$$

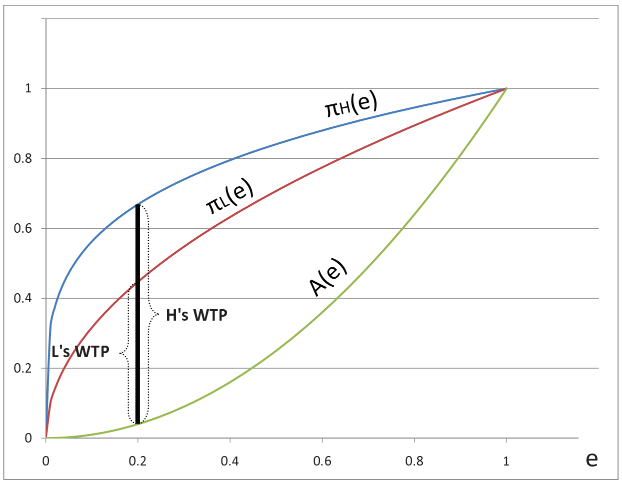
where $U_i(e,p)$ is the consumer surplus of a type i's customer, $\pi_i(e) * 1 + \big(1 - \pi_i(e)\big) * 0$ is the expected value of the product, $A(e)$ is the annoyance cost, and p is the price of the product. Rearranging, the customer will buy the product if

$$U_i(e,p) = \pi_i(e) - A(e) - p \geq 0. \tag{2}$$

Therefore, the highest price that a customer i is willing to pay is

$$WTP_i(e) = \pi_i(e) - A(e). \tag{3}$$

Graphically, $WTP_i(e)$ is the vertical distance between $\pi_i(e)$ and $A(e)$ given e (see Figure 2).



Note: $WTP_i(e)$ varies with e. The figure shows $WTP_H(0.2)$ and $WTP_L(0.2)$.

Figure 2: Willingness to Pay, $WTP_i(e)$

Claim II.2 *Given p, if the chosen aggressiveness level is such that $WTP_i(e) > p$, the salesperson can close the deals with type i customers.*

Proof: Straight forward from equations (2) and (3).

Claim II.3 *Given any aggressiveness level e, a type H customer's willingness to pay is greater than or equal to that of a type L customer.*

Proof $WTP_H(e) - WTP_L(e) = \big(\pi_H(e) - A(e)\big) - \big(\pi_L(e) - A(e)\big) = \pi_H(e) - \pi_L(e) = e^{\alpha_H} - e^{\alpha_L} \geq 0$. From Figure 2, one can see clearly that the vertical distance between $\pi_H(e)$ and $A(e)$ is greater than that between $\pi_L(e)$ and $A(e)$ for all $e \in (0, 1)$. □

Claim II.4 *If the salesperson closes the deal with a type L customer, with the same aggressiveness level e, the salesperson must be able to close the deal with a type H customer.*

Proof Straight forward from Claims II.2 and II.3. □

The Salesperson The salesperson's utility can be represented by the following:

$$U_s(e) = \Sigma_{j=1}^{n}\Big(\kappa I_j[p] - \lambda e\Big) \geq 0, \tag{4}$$

where κ is the company-determined commission rate, and I_j is an index function: $I_j = 1$ if the salesperson closes the deal with customer j, and $I_j = 0$ otherwise. p is the company-determined price, and λ is a parameter that measures the marginal cost of aggressiveness to the salesperson. If the salesperson is disinclined to work, λ is large; otherwise, λ is small. e is the chosen aggressiveness level, as well as a measurement of the salesperson's effort. Inequality (4) must be greater than or equal to zero; otherwise, a rational salesperson will quit the job. The salesperson's goal is to maximize his utility by choosing the optimal aggressiveness level to close the deal(s).

II.2 One Transaction

This section will demonstrate that a rational salesperson will not be too pushy, because a high aggressiveness level e can cause a customer to leave the store. Furthermore, other things being equal, *if the transaction is not repeated*, in equilibrium, a salesperson is more aggressive if the commission rate (κ) is high, if the salesperson is hard-working (λ is low), and if it does not take much more effort to sell additional items.

Let the maximum willingness to pay of customer type i be $\overline{WTP_i}$, and the corresponding aggressiveness level be $\bar{e_i}$. (That is, $WTP_i(\bar{e_i}) = \overline{WTP_i}$.) Graphically, $\overline{WTP_i}$ is the largest vertical distance between $\pi_i(e)$ and $A(e)$ (see Figure 3). To focus on interesting results, assume that $p \leq \overline{WTP_L}$.[2]

Assumption II.5 *The price of the product, p, is less than or equal to the maximum willingness to pay of type L customers. That is, $p \leq \overline{WTP_L}$.*

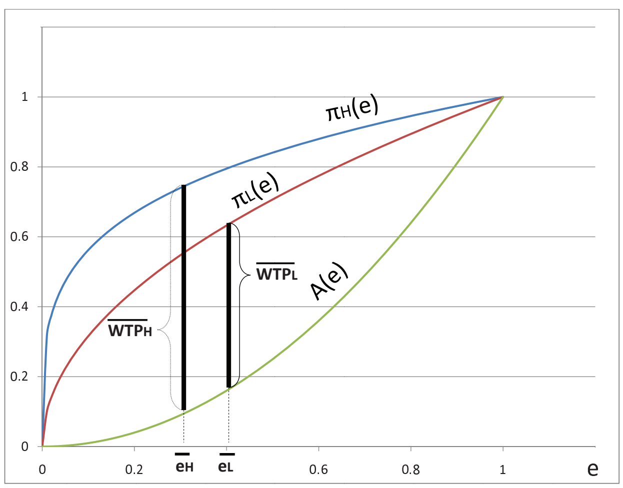


Figure 3: Maximum Willingness to Pay, $\overline{WTP_i}$, and the Corresponding Aggressiveness Level, $\bar{e_i}$

Proposition II.6 *Any aggressiveness level greater than $\bar{e_L}$ is a strictly dominated strategy for the salesperson. In other words, a rational salesperson is not too "pushy."*

Sketch a Proof: The salesperson's utility function is decreasing in aggressiveness level e (see equation(4)). It takes effort to be aggressive, so the salesperson will exert the minimal effort

[2]If $p > \overline{WTP_L}$, type L customers will leave.

required to close the deal(s). Given any $p \leq \overline{WTP_L}$, an aggressiveness level $e \leq \bar{e_L}$ such that $WTP_L(e) = \pi_L(e) - A(e) = p$ is needed to close the deals with type L customers. By claim II.4, the deal is closed with type H customers as well. Therefore, a rational salesperson will never exert an effort $e > \bar{e_L}$. $\square$

The Optimal Aggressiveness Level Proposition II.6 illustrates that a rational salesperson will not be too pushy. In addition, the salesperson can close the deals with both types of customers if the salesperson "walks away from the customers" (that is, $e \not> \bar{e_L}$). However, would it maximize the utility of the salesperson if he closes as many deals as possible, or would he be better off if he merely closes the deals with the type H customers? Let the number of type H customers be n_H, and the number of total customers (including type H and type L) be n. Then, the proportion of type H customers is $\phi = \frac{n_H}{n}$. The following analysis shows that the optimal aggressiveness level that maximizes a salesperson's utility depends upon the proportion of type H customers, ϕ, the commission rate, κ, the price, p, the degree of the salesperson's laziness, λ, and how much more effort it would require to close additional deals.

Proposition II.7 *Suppose transactions are not repeated. If the commission rate, κ, is relatively high, the price, p, is relatively high, the salesperson is hardworking (λ is low), and the additional effort required to close deals with type L customers is not too high, then the salesperson tends to exert a relatively high aggressiveness level to close as many deals as possible.*

Proof Because $p \leq \overline{WTP_L}$, the salesperson can choose an aggressiveness level $e^{**} < \bar{e_L}$ that is just large enough to close the deals with type L customers, where $p = WTP_L(e^{**}) = \pi_L(e^{**}) - A(e^{**})$. According to Claim II.4, with $e = e^{**}$, the salesperson can also close the deals with type

H customers. The utility of the salesperson will be

$$U_s(e^{**}) = n\kappa p - n\lambda e^{**}, \tag{5}$$

where n is the number of customers, including type H and type L. Alternatively, the salesperson may choose a smaller aggressiveness level $e < e^{**}$ that only type H customers will buy the products. Suppose the salesperson chooses an aggressiveness level e^* where $p = WTP_1(e^*) = \pi_1(e^*) - A(e^*)$ (that is, e^* is just large enough to close the deal with type H customers). With $e = e^*$, type L customers will not purchase the product.[3] The salesperson's utility level will be the following:

$$U_s(e^*) = (\phi n)\kappa p - n\lambda e^*. \tag{6}$$

where ϕ is the proportion of type H customers. Note that although type L customers leave the store, the aggressiveness effort exerted is a sunk cost. The salesperson will choose to exert an aggressiveness level e^{**} if $U_s(e^{**}) > U_s(e^*)$, that is if

$$n\kappa p - n\lambda e^{**} > (\phi n)\kappa p - n\lambda e^*.$$

Rearranging,

$$\kappa p(1 - \phi) > \lambda(e^{**} - e^*). \tag{7}$$

Inequality (7) holds if the proportion of type L customers is relatively high (a small ϕ), if the commission rate κ is relatively large, if the price p is high, if the salesperson is diligent (a low λ), and if it does not require much more effort to close additional deals with type L customers (that is, if $e^{**} - e^*$ is small). □

[3]Because $\pi_L(e^*) < \pi_H(e^*)$ and $p = \pi_H(e^*) - A(e^*)$, it is clear that $p > \pi_L(e^*) - A(e^*)$. Hence, type L customers will not purchase the product.

Discussion In general, inequality (7) holds for the sales of cars and mattresses. Anecdotal evidence suggests that car salespeople's rewards are characterized by a low base salary a and high commission rate; hence, κ is high. Additionally, cars and mattresses in general have relative high prices; so p is high. Albeit their high prices, cars and mattresses are not considered "luxury" goods that are enjoyed exclusively by the rich. A median income American will most likely purchase a car and/or a mattress at least once in his lifetime. Hence, the proportion of type L customers is relatively high. This might explain why car and mattress salespeople are notoriously aggressive. By contrast, cosmetics are characterized by a low p. Although κ might not be low, $e^{**} - e^{*}$ is high. That is, it takes more effort for a salesperson to close an additional deal. For instance, customers might try make-up on their face before making a purchase. Anecdotal evidence suggests that customers could end up with a purchase of only one or two items (say, a lip stick and a blush) after a salesperson takes the time to put a whole set of trial make-up on the customer's face.[4] This high marginal effort required for an additional sale (high $e^{**} - e^{*}$) explains why cosmetics salespeople are relatively less pushy and more sensitive to customers' needs.

One might wonder why salespeople in luxury boutiques (such as Chanel and Fendi) and jewelry stores (such as Tiffany & Co.) are not so aggressive. These stores carry luxury goods. Luxury goods are characterized by high prices, and the salespeople in most of these stores work on commission (see empirical work in Appendix **??**). However, the salespeople in these stores are not typically as pushy as car and mattress salespeople. One explanation is that the proportion of type H customers, ϕ, is relatively large for luxury goods. If ϕ is sufficiently large, inequality

[4] A complete set of make-up includes, but is not limited to: concealer, foundation, eye-shadow, eye-liner, mascara, bronzer, blush, an eye brow pencil, and lipstick.

(7) will hold. When inequality (7) holds, the salesperson is better off if he focuses on type H customers and not on type L customers. This is the case as the marginal cost of the extra effort exerted for type L customers exceeds the marginal benefit of closing the deals with them.

The proportion of type H customers, however, is not the only explanation why luxury goods salespeople are relatively less pushy and more customer-oriented. A key for different degrees of aggressiveness is return customers: while a satisfied customer is likely to return to the same salesperson to buy another expensive purse, a typical customer usually settles with one mattress or one car for several years. The possibility that a customer goes back to the same salesperson to buy another mattress or another car in a short period of time is slim, especially if the turnover rate of salespeople in that location is high. The following section reveals how repeated transactions and the dependence on return customers cause salespeople to be more customer-oriented and less aggressive.

III Repeated Transactions

This section demonstrates that salespeople in industries that rely on return customers tend to be more customer-oriented and less aggressive. For example, the optimal aggressiveness level is lower in the luxury goods industry that relies on return customers than that of the durable goods industry, where customers use their purchases for several years and are unlikely to repeat the transaction with the same salesperson.

Relative Consumer Surplus

Definition *Relative consumer surplus* $\gamma_i(e,p)$ is is the ratio of customer i's consumer surplus

$U_i(e,p)$ to her willingness to pay, $WTP_i(e)$. That is, $\gamma_i(e,p) = \frac{U_i(e,p)}{WTP(e)}$.

Consumer surplus $U_i(e,p)$ measures the absolute well-being of customer i, whereas relative consumer surplus $\gamma_i(e,p)$ measures her *relative* well-being. Relative consumer surplus might be a more precise measurement of a customer's well-being. For example, a \$150 (absolute) consumer surplus for a new i-Phone is relatively large; but a \$150 consumer surplus for a new BMW Z4 is relatively small. The higher the relative consumer surplus, the happier the customer is about his purchase, and the more likely the customer returns. Therefore, the following analysis assumes that relative consumer surplus determines whether or not the customers are to return.

Assumption III.1 *Customer i makes the t-th purchase from the same salesperson ($t > 1$) only if her relative consumer surplus from the $t-1$ th purchase is large enough; that is, if $\gamma_i(e,p)_{t-1} \geq \gamma$, where $\gamma \in (0,1)$ is the minimum required relative consumer surplus for any customer to return.*

To further simplify the analysis, I make the following assumption about the price:

Assumption III.2 *The price of the product $p = \overline{WTP_L} - \epsilon$, an amount close to, but less than, type L customers' maximum willingness to pay.*

According to Assumption III.1, for each customer i to return for another purchase, the following equation must hold:

$$\frac{U_i(e,p)}{WTP_i(e)} = \gamma_i(e,p) \geq \gamma,$$

where $\gamma \in (0,1)$ is the minimum required relative consumer surplus for any customer i to return. Substituting $WTP_i(e) - p$ for $U_i(e,p)$ and rearranging,

$$WTP_i(e)(1-\gamma) \geq p = \overline{WTP_L} - \epsilon. \tag{8}$$

For customer i to return for the next purchase, equation (8) must hold. Note that if equation (8) holds, equation (1) holds as well. However, from Assumption III.2, $p = \overline{WTP_L} - \epsilon$, where ϵ is close to zero. Because γ is strictly greater than zero, equation (8) is not satisfied for type L customers. That is, type L customers will never return and make a second purchase, even if they might make the first purchase.

Claim III.3 *If $p = \overline{WTP_L} - \epsilon$, type L customers will never return.*

Rationality A salesperson is assumed to be rational; that is, *in the long run,* the following equation must hold:

$$\kappa p - \lambda e \geq 0. \tag{9}$$

The left hand side of the equation represents the marginal benefit of the deal: κ is the commission rate and p is the exogenously determined price. The right hand side of the equation is the marginal cost of the deal: λ is the marginal cost of aggressiveness, and e is the aggressiveness level. The equation must hold in the long run; otherwise, the salesperson would quit the job.

The Optimal Aggressiveness Level

Claim III.4 *If the required relative consumer surplus to return, γ, is relatively large, no customer will return. If the required relative consumer surplus is moderate, type H customers might return.*

Proof: Claim III.3 suggests that type L customers will never return regardless. Appendix B shows that the relative consumer surplus of a type H customer $\gamma_H(e)$ is maximized at $e = \bar{e_H}$, where $WTP_H(\bar{e_H}) = \overline{WTP_H}$ (the maximum willingness to pay of type H customers). Hence, $\gamma_1(\bar{e_H})$ is the maximum possible relative consumer surplus for type H customers. If the required relative consumer surplus γ is relatively large that $\gamma > \gamma_H(\bar{e})$, then type H customers will not return, given any aggressiveness level e. By contrast, if γ is moderate, in particular, if $\gamma < \gamma_H(\bar{e_H})$, and if the e is such that $\gamma \leq \gamma_1(e)$, customer 1 will return for another purchase. □

The cases with no return customers have been discussed in section II. To focus on cases with return customers, the rest of the paper assumes γ to be moderate. That is, there exists an aggressiveness level e such that $\gamma \leq \gamma_H(e)$.

Assumption III.5 *The minimum required relative consumer surplus to return, γ, is moderate. With properly chosen chosen aggressiveness level e, type H customers could return for additional purchases.*

The following analysis shows the determinants of the optimal aggressiveness level.

Proposition III.6 *The optimal aggressiveness level of the salesperson is decreasing in the frequency at which the transactions are repeated, increasing in the salesperson's turnover rate, and decreasing in the proportion of high-willingness-to-pay customers.*

Proof: Let e^{**} be the minimal aggressiveness level such that $WTP_L(e^{**}) = \overline{WTP_L} - \epsilon = p$. Any aggressiveness level $e < e^{**}$ will cause type L customers to leave (see Figure 4).[5] According to Claim II.4, the salesperson can close the deal with type H customers with the same aggressiveness level e^{**}. In particular, type H customers' absolute and relative consumer surpluses will be

$$U_H(e^{**}, p) = \pi_H(e^{**}) - A(e^{**}) - p = \pi_H(e^{**}) - A(e^{**}) - (\overline{WTP_L} - \epsilon) > 0,$$

$$\gamma_H(e^{**}, p) = \frac{U_H(e^{**}, p)}{WTP_H(e^{**})}$$

[5]Recall that $WTP_i(e)$ is increasing in e for all $e < \bar{e}_i$, where $WTP_i(\bar{e}_i) = \overline{WTP_i}$, the maximum willingness to pay. Because $\overline{WTP_L} - \epsilon < \overline{WTP_L}$, $e^{**} < \bar{e_L}$, and any $e < e^{**}$ would break the deal with type L customers.

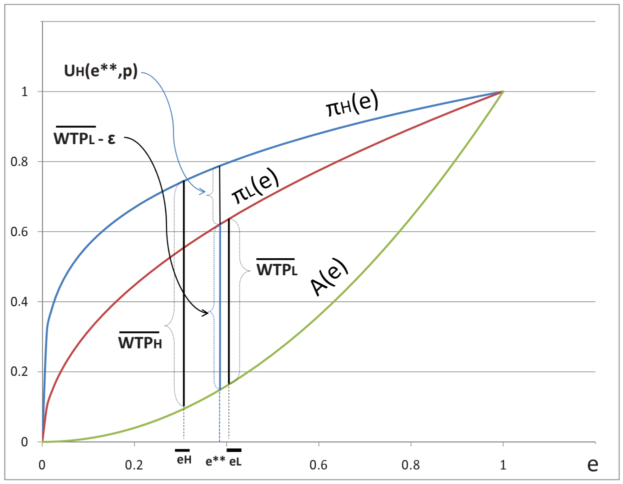


Figure 4: e^{**}

If $\gamma_H(e^{**}, p) < \gamma$, type H customers will never return. In this case, by choosing an aggressiveness level e^{**}, the salesperson can close the deals with all customers, although none of them will return. The salesperson's utility level will be

$$U_s(e^{**}) = n\kappa p - n\lambda e^{**}, \tag{10}$$

where n is the number of customers, κ is the commission rate, and λ is the marginal cost of aggressiveness.

Alternatively, the salesperson can choose a smaller aggressiveness level to increase the relative consumer surplus of type H customers, so that $\gamma_H(e, p) \geq \gamma$ and they will return for the next purchase. Recall that $\gamma_H(e, p)$ is decreasing in e for all $e > \bar{e_H}$, where $WTP_H(\bar{e_H}) = \overline{WTP_H}$. Figure 4 shows that $\bar{e_H} < e^{**}$, so reducing the aggressiveness level from e^{**} raises $\gamma_i(e, p)$. In fact, the salesperson can choose a aggressiveness level $e^* \leq \bar{e_H}$ such that

$$\gamma_i(e^*, p) = \gamma. \tag{11}$$

This way, the salesperson makes sure that type H customers will return. Assuming no discount for the future, the salesperson's utility for $\tau < \infty$ transactions will be

$$U_s(e^*) = (\phi n\kappa p - n\lambda e^*) + (\tau - 1)(\phi n\kappa p - \phi n\lambda e^*), \tag{12}$$

where ϕ is the proportion of type H customers, n is the total number of customers, κ is the commission rate, and λ is the marginal cost of sales effort. $\phi n\kappa p - n\lambda e^*$ is the net payoff from the first transactions. Type H customers make the purchases while type L customers do not, because $e^* < e^{**}$. However, the aggressiveness level e^* exerted on type L customers is a sunk cost. $(\tau - 1)(\phi n\kappa p - \phi n\lambda e^*)$ is the net payoff the salesperson enjoys from type H customers for their $\tau - 1$ repeated patronizations. Type H customers make repeated transactions because equation (11) holds. The salesperson will choose an aggressiveness level e^* rather than e^{**} if $U_s(e^*) - U_s(e^{**}) > 0$. Let $\Omega(\phi, \tau, \kappa, \lambda, p, e^*, e^{**})$ be $U_s(e^*) - U_s(e^{**})$. That is, the salesperson will choose e^* rather than e^{**} if

$$\Omega(\phi, \tau, \kappa, \lambda, p, e^*, e^{**}) = (\tau\phi - 1)\kappa p - (\tau - 1)\phi\lambda e^* + \lambda(e^{**} - e^*) > 0. \tag{13}$$

Appendix C shows that equation (13) is increasing in τ, the number of transactions. That is, the more frequently the transaction occurs, and the lower the turnover rate of the salesperson, the more likely the salesperson chooses the smaller aggressiveness level e^*. Furthermore, equation (13) is increasing in ϕ, which is the proportion of high willingness-to-pay customers, type H. Therefore, the larger the proportion of high-willingness-to-pay customers, the more likely the salesperson chooses the smaller aggressiveness level e^*. □

Proposition III.7 *If the number of transactions and/or the proportion of high-willingness-to-pay customers (type H) are large enough, then the larger the commission rate κ and/or price p, the lower the optimal aggressiveness level.*

Proof: Take the derivative of Ω with respect to κ,

$$\frac{\partial \Omega}{\partial \kappa} = (\tau\phi - 1)p.$$

If $\tau\phi > 1$, then Ω is increasing in κ. That is, if the transaction is repeated many times (a large τ), and/or if the proportion of high-willingness-to-pay customers (type H) is large (a large ϕ), then the larger the commission rate κ, the more likely $U_s(e^*) > U_s(e^{**})$, and the less the optimal aggressiveness level. Likewise,

$$\frac{\partial \Omega}{\partial p} = (\tau\phi - 1)\kappa.$$

If $\tau\phi > 1$, then then Ω is increasing in p. In other words, if the transaction is repeated many times (a large τ), and/or if the proportion of high-willingness-to-pay customers (type H) is large (a large ϕ), then the higher the price p, the more likely $U_s(e^*) > U_s(e^{**})$, and the less the optimal aggressiveness level. □

Discussion Proposition III.7 indicates that a high commission rate, κ, or a high price, p, does not necessarily induce a salesperson to become pushy. On the contrary, if the number of repeated transactions, τ, and/or the proportion of customers with high willingness to pay, ϕ, is large enough such that $\tau\phi > 1$, a high commission rate and a high price could lead the salesperson to *reduce* his aggressiveness level from e^{**} to e^*. Quite the reverse is true if $\tau\phi < 1$. In this case, the larger the commission rate and the higher the price, the higher the aggressiveness level. Anecdotal evidence suggests that luxury jewelry and apparel stores, such as Bulgari and Chanel, are primarily patronized by wealthy and loyal customers (a high ϕ and a high τ). Hence, in these industries, raising the commission rate, κ, and/or the price, p, of the good will induce the salesperson to be even more customer-oriented. This might be true because the cost of irritating the customers, and hence losing future sales, is higher when the commission rate and the price are high. Therefore, these luxury shops are characterized by informative, friendly and professional salespeople who seldom push customers to make purchases. By contrast, the car industry is characterized by low ϕ, because a car is a necessity, rather than a luxury, for most Americans. Moreover, due to the durability of a car and the high turnover rate of car salespeople, customers are unlikely to return to the same salesperson to purchase another car; hence, τ is low. Therefore, a rise in the commission rate, or the price, could aggravate the aggressiveness level of the salesperson in the car industry.

Claim III.8 *A high commission rate and a high price cause a salesperson to be pushier in industry with few repeated transactions, high salesperson turnover rates, and few customers with high willingness to pay. By contrast, a high commission rate and a high price induce a salesperson to be more customer-oriented in the industries with many repeated transactions, low salesperson turnover rates, and many customers with high willingness to pay.*

IV Conclusion and Remarks

This paper introduces a simple theoretical model to illustrate the determinants of the optimal aggressiveness level of a salesperson. Other things being equal, the optimal aggressiveness level is relatively high if the possibility of repeated transactions is slim, if the turnover rates of salespeople are high, and if the proportion of customers with high willingness to pay is low. Examples include cars and mattresses industries. By contrast, all else equal, the optimal aggressiveness level is relatively low if the possibility of repeated transactions is high, if the turnover rate of salespeople is low, and if the proportion of customers with high willingness to pay is low. Typical examples comprise luxury boutiques and jewelry stores, such as Chanel and Bulgari.

Appendix D provides evidence that rewards to the salespeople in most luxury boutiques depend on sales commission. However, the data are limited to luxury boutiques. Furthermore, anecdotal evidence suggests that cars and mattresses salespeople are pushier than salespeople in luxury boutiques, but it would be interesting to know how much pushier they are. Future research includes surveying car and mattress salespeople's reward scheme, and using experiments to find the perceived aggressiveness level of salespeople in different industries.

A Willingness to Pay, WTP_i

A.1 Maximized Willingness to Pay, $WTP_i(\bar{e_i})$ and the Corresponding Aggressiveness Level $\bar{e_i}$

To maximize $WTP_i(e_i)$, one can take the derivative of $WTP(e_i)$ with respect to e to find the first order condition,

$$WTP_i'(e_i) = \pi_i'(e_i) - A'(e_i) = \alpha_i e_i^{\alpha_i - 1} - \beta e_i^{\beta-1} = 0.$$

Solving the equation,

$$\bar{e_i} = (\frac{\alpha_i}{\beta})^{\frac{1}{\beta - \alpha_i}}.$$

Check the second order condition,

$$WTP_i''(e_i) = \pi_i''(e_i) - A''(e_i) = \alpha_i(\alpha_i - 1)e_i^{\alpha_i - 2} - \beta(\beta - 1)e_i^{\beta-2} < 0.$$

Therefore, $\forall\ e > \bar{e_i}$, $WTP_i'(e) = \pi_i'(e_i) - A'(e_i) < 0$; $\forall\ e < \bar{e_i}$, $WTP_i'(e) = \pi_i'(e_i) - A'(e_i) > 0$.

A.2

This section proves that $\bar{e_L} > \bar{e_H}$. To maximize $WTP_i(e_i)$, one can take the derivative of $WTP(e_i)$ with respect to e to find the first order condition,

$$WTP_i'(e_i) = \pi_i'(e_i) - A'(e_i) = \alpha_i e_i^{\alpha_i - 1} - \beta e_i^{\beta-1} = 0.$$

Solving the equation,

$$\bar{e_i} = (\frac{\alpha_i}{\beta})^{\frac{1}{\beta-\alpha_i}}.$$

Take the derivative of $\bar{e_i}$ with respect to α_i,

$$\frac{\partial}{\partial \alpha_i}\Big((\frac{\alpha_i}{\beta})^{\frac{1}{\beta-\alpha_i}}\Big) = (\frac{\alpha_i}{\beta})^{\frac{1}{\beta-\alpha_i}}\Big(\frac{1}{(\beta-\alpha_i)^2}\ln\frac{\alpha_i}{\beta} + \frac{1}{\beta-\alpha_i} * \frac{\beta}{\alpha_i}\Big) \propto \frac{1}{\beta-\alpha_i}\ln\frac{\alpha_i}{\beta} + \frac{\beta}{\alpha_i} > 0.$$

Therefore, $\bar{e_i}$ is increasing in α_i. Since $\alpha_L > \alpha_H$, it follows that $\bar{e_L} > \bar{e_H}$. □

B Relative Consumer Surplus, $\gamma_i(e, p)$

This section proves that $\gamma_i(e, p)$ is increasing in $e \; \forall \; e < \bar{e_i}$, and decreasing in $e \; \forall \; e > \bar{e_i}$.

$$\gamma_i(e) = \frac{U_i(e, p)}{WTP_i(e)} = \frac{\pi_i(e) - A(e) - p}{WTP_i(e)} = 1 - \frac{p}{WTP_i(e)}.$$

Take the derivative of $\gamma_i(e)$ with respect to e,

$$\frac{\partial \gamma_i(e)}{\partial e} = \frac{p}{\big(WTP_i(e)\big)^2}\big(\pi_i'(e) - A'(e)\big) \propto \pi_i'(e) - A'(e)$$

From section A.1, it is clear that $\gamma_i(e)$ is maximized when $e = \bar{e_i}$.

C Difference between $U_s(e^*)$ and $U_s(e^{**})$

This section shows that the optimal aggressiveness level depends on the number of repeated transactions, τ, the proportion of type H customers, ϕ, the price of the product, p, and the commission rate, κ. Let $\Omega(\phi, \tau, \kappa, \lambda, p, e^*, e^{**}) = U_s(e^*) - U_s(e^{**}) = (\tau\phi - 1)\kappa p - (\tau - 1)\phi\lambda e^* + \lambda(e^{**} - e^*)$

$\big($see equation (13)$\big)$. Ω is positive if $U_s(e^*) > U_s(e^{**})$. Note that $e^{**} > e^*$; that is, e^{**} represents a greater aggressiveness level than e^*.

C.1 The Number of Transactions, τ

Take the derivative of Ω with respect to τ,

$$\frac{\partial \Omega}{\partial \tau} = \phi\kappa p - \phi\lambda e^* \propto \kappa p - \lambda e^* > 0$$

Recall that according to the rationality assumption, equation (9) must hold in the long run. Therefore, the more the transaction is repeated, the more likely the salesperson is to choose aggressiveness level e^* and to forgo sales with type L customers.

C.2 The Proportion of type H customers, ϕ

Take the derivative of Ω with respect to ϕ,

$$\frac{\partial \Omega}{\partial \phi} = \kappa p + (\tau - 1)(\kappa p - \lambda e^*) > 0.$$

Therefore, the larger the proportion of type H customers, the salesperson is to choose the aggressiveness level e^* and to forgo sales with type L customers.

C.3 The commission rate κ and the Price, p

Take the derivative of Ω with respect to κ,

$$\frac{\partial \Omega}{\partial \kappa} = (\tau\phi - 1)p.$$

If $\tau\phi > 1$, then Ω is increasing in κ. That is, if the transaction is repeated many times (a large τ), and/or if the proportion of type H customers is large (a large ϕ), then the larger the commission rate κ, the more likely $U_s(e^*) > U_s(e^{**})$, and the less the optimal aggressiveness level. Likewise,

$$\frac{\partial \Omega}{\partial p} = (\tau\phi - 1)\kappa.$$

If $\tau\phi > 1$, then then Ω is increasing in p. In other words, if the transaction is repeated many times (a large τ), and/or if the proportion of type H customers is large (a large ϕ), then the higher the price p, the more likely $U_s(e^*) > U_s(e^{**})$, and the less the optimal aggressiveness level.

D Empirical Evidence on Commission

Anecdotes suggest that salespeople in most luxury boutiques work on commission. However, there is no evidence about it. To obtain more information about salespeople's reward, I visited 17 luxury boutiques to ask whether the salespeople worked on commission. I pretended to be a customer in each store.

The following describes the details of the "survey." I visited the Houston Galleria Mall on a weekday morning. I stopped at 17 luxury boutiques, pretending that I wanted to purchase a black purse. In each boutique, I looked at several black purses.[6] As the salesperson came to assist me, I conversed with the salesperson and, saying that I would like to shop around more before making a final decision. To "assure the proper credit is received by the salesperson" should I return, I asked for a business card of the salesperson, and I asked, "do you work on commission?" The answer of the salesperson is recorded in Table 1. Only Jimmy Choo refused to answer the question, so the store is not included in the table. Note that a great majority (13 out of 16, or 81.25%) of the stores reward salespeople directly by sales commission.

[6]The only exception is Tourneau, a watch dealer. The shop does not sell women's purses; hence, I pretended to be shopping for a watch in that store.

Table 1: Commission

Company	Commission-Based Reward?	Company	Commission-Based Reward?
Bally	Yes	Louis Vuitton	No
Burberry	Yes	Michael Kors	Yes
Chanel	Yes	Salvatore Ferragamo	Yes
Christine Dior	No	Stuart Weitzman	Yes
Cole Hann	Yes	Tourneau	Yes
Fendi	Yes	Valentino	Yes
Gucci	Yes	Versace	Yes
Kate Spade	No	Yves Saint Laurent	Yes

References

[1] **Cummings, Betsy.** "Do Customers Hate Salespeople?" *Sales and Marketing Management*, June 2001, Vol. 153, Issue 6, pp. 44-48, 50-51.

[2] **Dubinsky, Alan.** "A Factor Analytic Study of the Personal Selling Process." *Journal of Personal Selling & Sales Management*, Fall/Winter 1980, 26-33.

[3] **Dubinsky, Alan and Rudelius, William.** "Selling Techniques for Industrial Products and Services: Are They Diferent?" *Journal of Personal Selling & Sales Management*, Fall/Winter 1980, 65-75.

[4] **Dwyer, Sean; Hill, John and Martin, Warren.** "An Empirical Investigation of Critical Sucess Factors in the Personal Selling Process for Homogenous Goods." *Journal of Personal Selling & Sales Management*, Summer 2000, 151-59.

[5] **Hite, Robert E. and Bellizzi, Joseph A.** "Differences in the Importance of Selling Techniques Between Vonsumer and Industrial Salespeople." *Journal of Personal Selling & Sales Management*, November 1985, 19-30.

[6] **Kirmani, Amna and Campbell, Margaret, C.** "Goal Seeker and Persuasion Sentry: How

Consumer Targets Respond to Interpersonal Marketing Persuasion." *Journal of Consumer Research*, December 2004, Vol.31, pp.573-82.