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Controlling Product Returns in Direct Marketing

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Abstract

Many direct marketers offer price refunds to unsatisfied consumers, but as a result some consumers order products with no intention of keeping them. We show that such inappropriate returns can be controlled in a profitable way by imposing nonrefundable charges and that these charges increase with the value of the merchandise ordered. Data collected from clothing mail-order catalogs is consistent with our theory. The shipping and handling charges of these catalogs are usually nonrefundable and increase with the value of the merchandise ordered, even when the actual shipping and handling costs are constant.

1. Introduction

Mail-order shopping offers customers many conveniences. Rather than enduring the myriad inconveniences of mall shopping, customers can order products such as clothing, compact discs, and computers from catalogs within the comfort of their homes, twenty-four hours a day, all year long. Many customers find such convenience very appealing: nearly 12 billion catalogs were distributed by companies to consumers in 1993, and more than half of the U.S. adult population made at least one product purchase by phone or mail (*Consumer Reports*, 1994).

Compared to retail shoppers, however, catalog shoppers face greater uncertainty about product fit because they cannot examine and try the products prior to purchase. To reduce this risk, many catalog retailers offer price refunds on returned merchandise. There are reports that many consumers take advantage of these liberal policies by returning products for a refund (Fenvessy, 1992; Hess and Mayhew, 1996). Moreover, a few retailers feel that their products (evening dresses, bridesmaid gowns, compact discs, camcorders) are sometimes ordered by customers who have no intention of keeping them (Longo, 1995).

How can catalog companies control for such inappropriate returns? We present a model to show that a separate nonrefundable charge can be a profitable alternative and that the nonrefundable charge increases with the value of the merchandise ordered. The model is consistent with data collected from clothing mail-order catalogs. The catalogs' shipping

and handling charges are usually nonrefundable, and they typically increase with the value of the ordered products, even when the actual shipping and handling costs are constant. As an example, a nonrefundable shipping charge schedule is illustrated in Figure 1 for the Victoria's Secret catalog.

To our knowledge, the topic of setting nonrefundable charges in direct marketing has not been investigated. Related topics of research include product warranties by manufacturers to protect buyers against quality defects in manufacturing (Padmanabhan and Rao, 1993; Menezes and Currim, 1992; Welling, 1989; Mann and Wissink, 1988, 1990) and money-back guaranties in retailing to enhance good product matching between products and consumer needs (Wernerfelt, 1994; Davis, Gerstner, and Hagerty, 1995) and as a signal of product quality (Moorthy and Srinivasan, 1995). These articles do not, however, explain the role of nonrefundable charges in controlling for product returns in catalog retailing. In the next section, we present the theoretical model to address this issue.

2. Formulating the model

Consider a direct marketer who sells a product via catalog at price P. Consumers do not know with certainty whether the product will satisfy their needs. If the product is a good match, its value to the consumer is v, and if it is a bad match, its value is 0. The probability of a good match m and the probability of a bad match $1\text{-}m$ are known to both buyer and seller. We assume each consumer knows v before purchase, but this valuation varies with-

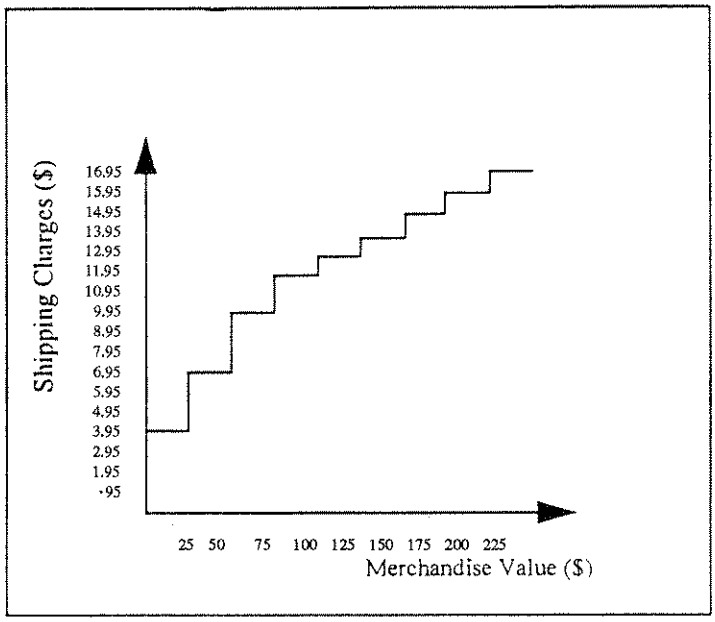

Figure 1. Shipping Charges for Victoria's Secret.

in the population. Specifically, v is uniformly distributed from zero to V. For simplicity, the market size is normalized to one. The product can be returned by the consumer at a mailing cost M that is assumed to be known prior to purchase. In addition to its catalog price, the seller can ask for a *nonrefundable charge* C that must be paid by all customers that order the product (see the conclusion for a discussion of restocking fees that are avoidable). We deliberately assume that actual shipping and handling costs are zero and refer to C only as a nonrefundable charge.

If the product is returned by a consumer, the direct marketer obtains a salvage value S that reflects the per unit profit from selling the product in a secondary market. For merchandise returns to be economically efficient, we assume that the salvage value exceeds the cost of remailing—$S > M$. Production costs are irrelevant for the analysis and are assumed for simplicity to be zero.

A consumer who orders a product tries it for a period of time. During this product trial, a proportion t of its value is consumed. The trial gives the consumer a value tv if the product is a good match and zero value if it is a bad match. The consumption value remaining after product trial is therefore $(1 - t)v$ for a good match and zero for a poor match. When $t = 0$, the trial period is too short for the consumer to gain any utility from use during the trial period, and when $t = 1$, the consumer can obtain full utility from the product during the trial period. An example of a product with a low t would be a golf club, since one often uses a golf club for a long period and there is a considerable period needed to break in a new set of golf clubs. On the other hand, a bridesmaid's gown may have a high t, since it is used for a once-in-a-lifetime occasion.

We assume that the usage rate of the product during trial is sufficiently high such that there will be consumers who are tempted to use the product during the trial period and return it for a refund, thus creating a moral hazard problem for the buyer. When the usage rate during trial is so small that there is no moral hazard problem, we will show that there is no need for independent nonrefundable charges (if there were actual shipping and handling costs, the direct marketers would incorporate them into price rather than charge separately for shipping). Therefore, we restrict our initial analysis to the interesting case where there exist opportunistic returns, where a refund is requested even though there is a good match.

3. Optimal prices and nonrefundable charges

One can envision the sequence of customer decisions within the framework of a three-stage game (see Figure 2). First, the seller sets both purchase price and the nonrefundable charge by taking into account predicted (subsequent) customer behavior. Second, customers decide whether to order the product. Third, after receiving and inspecting the product, customers decide whether to keep or return it for a price refund. We will start the analysis by studying the return decisions and ordering decisions that occur in the third and second stages of the game. The seller takes these decisions into account as he selects its profit-maximizing price and nonrefundable charge in the first stage.

At the third stage of the game consumers can be partitioned *a priori* into three categories (see Figure 3): those that do not order the product, those that buy and return it only if there

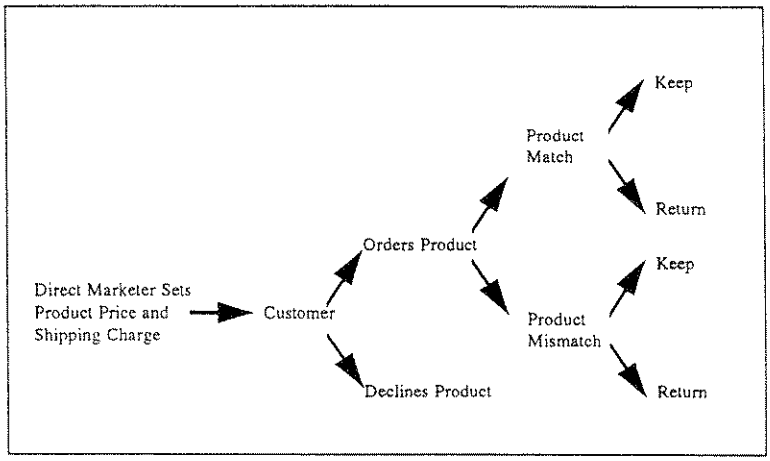

Figure 2. Sequence of Decisions.

is no match, and those that return opportunistically (that is, they return the product even if it is a good match). Note that the seller controls the size of the segments by adjusting the price and nonrefundable charge. We will show that a nonrefundable charge allows the seller to earn a positive margin even from opportunistic consumers because the nonrefundable charge is like a rental fee for product trial.

3.1. Stage 3: Buyers' decision to return the product

Consider first a mismatched consumer. The product is of no value to the consumer, and the gain from returning it is the refunded price less remailing costs (nonrefundable charges are a sunk cost). This means that a mismatched consumer will return the product if $P > M$. We show below that this is satisfied for the optimal price.

Consider next the well-matched consumer. After product trial the consumer can obtain a residual value of $(1 - t)v$ by keeping the product, compared to a gain of $P - M$ from returning it for a price refund. Therefore, the well-matched consumer will return the product if and only if $P - M \geq (1 - t)v$ or equivalently

$$v \leq \frac{P - M}{1 - t}. \tag{1}$$

Consumers whose product valuation exceeds $(P - M)/(1 - t)$ will keep the product when there is a good match, while those with valuation below this will return the product opportunistically, as seen in Figure 3. The nonrefundable charge is a sunk cost for the consumer at this point.

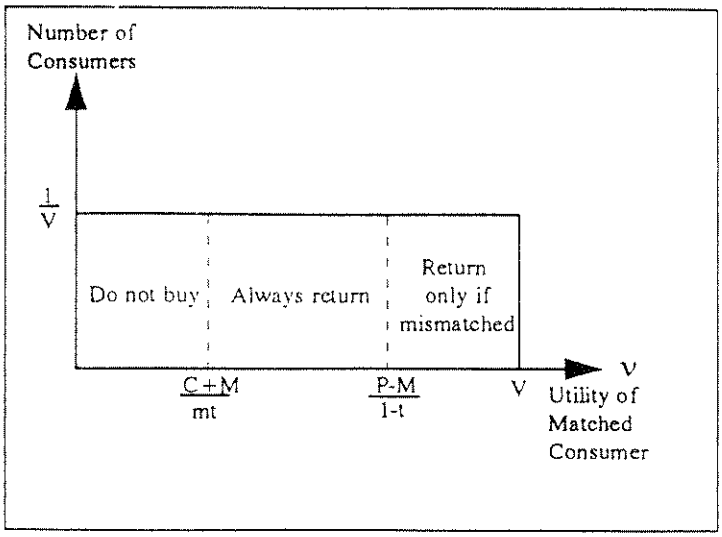

Figure 3. Partition of Consumers.

3.2. Stage 2: The decision to buy

Now consider the consumer's order decision in Stage 2. The consumer makes the order decision based on the expected surplus (expected value from buying less all costs involved). Knowing their own valuation of the good, v, consumers know whether or not they will be opportunistic, although they have not yet learned if the opportunity exists (only the probability of a match is known).

Opportunism occurs because some consumers get a low value from the product. The person at the boundary of those that buy and those that do not buy, denoted v°, will return the product opportunistically. If not, then $(1 - t)v^\circ > P - M$; namely, the consumer prefers to keep the product for its residual value rather than ask for a refund. Any person who values the product more than this, $v > v^\circ$, will also keep the product. That is, no one who buys the product will return it when they have positive valuation of it. We will focus on the more interesting case where consumers act opportunistically.

We want to identify the boundary opportunist; this is the consumer who just barely benefits from buying the product. The expected surplus of the boundary consumer $EU[v^\circ]$ is obtained as follows. When there is good match, the opportunistic boundary person gains a value of tv° by using the product during trial, but loses the nonrefundable charge C and remailing cost M when returning it to the seller. When there is no match, the boundary person simply returns the product, incurring a cost of $C + M$. Therefore, the expected surplus of the boundary consumer is

$$EU[v^\circ] = m(tv^\circ - C - M) - (1 - m)(C + M). \tag{2}$$

Setting $EU[v^o] = 0$ and solving for v^o we get

$$v^o = \frac{C + M}{mt}. \tag{3}$$

This is the left boundary point in Figure 3.

3.3. Stage 1: Seller's price and nonrefundable charge decision

At stage 1 of the game the seller's expected profit function $E\pi$ consists of the expected contributions from the three consumer segments:

$E\pi$ = expected profit from mismatched consumers
+ expected profit from well-matched consumers who do not return the product
+ expected profit from well-matched consumers who return the product.

Since consumers' valuations of the product are distributed from zero to V, the expected contribution from each segment can be obtained as follows.

All mismatched consumers will legitimately return the product and contribute the salvage value plus the nonrefundable charge $S + C$. Since the probability of a mismatch is $1 - m$, the expected segment size is $(1 - m)[V - (C + M)/mt]/V$ (see Figure 3), and the contribution of this segment is this expression times the contribution per person $S + C$.

Well-matched consumers who do not return the product contribute the price plus the nonrefundable charge—$P + C$. Since the probability of a match is m, the expected segment size is $m[V - (P - M)/(1 - t)]/V$, so the contribution of this segment is obtained by multiplying the expected segment size by the contribution person $P + C$.

Finally, well-matched consumers who opportunistically return will contribute the salvage value plus the nonrefundable charge $S + C$. The expected segment size is $m[(P - M)/(1 - t) - (C + M)/mt]/V$, so the contribution of this segment is expressed in the third term of the expected profit expression:

$$\begin{aligned} E\pi(P, C) = {} & (S + C)(1 - m)[V - (C + M)/mt]/V \\ & + (P + C)m[V - (P - M)/(1 - t)]/V \\ & + (S + C)m[(P - M)/(1 - t) - (C + M)/mt]/V. \end{aligned} \tag{4}$$

The seller chooses the price P and nonrefundable charge C to maximize the expected profit function (4). Straightforward calculus results in the interior solution,

$$P^* = [(1 - t)V + M + S]/2, \tag{5}$$

$$C^* = (mtV - M - S)/2. \tag{6}$$

Notice that $P^* > M$ if $S > M$, which implies that mismatched consumers will indeed return the product. This formula for nonrefundable charge leads to the following predictions.

4. Theoretical predictions

The income generated by a sale must cover a wide variety of costs of direct marketing (including handling costs).[1] A common way of transferring these costs to the consumer is through a single price. In the above model of direct marketing, there are situations when it is desirable to quote two components of price, a refundable P and a nonrefundable C. While it is not always the case that a nonrefundable charge is desirable, by examining the nonrefundable charge we may derive the following circumstances when it is optimal.

Result 1. *The seller has an incentive to set a nonrefundable charge when*

$$mtV - M > S. \tag{7}$$

This is obtained by requiring that expression (6) be positive. Opportunistic returns are more likely to occur when the consumer expects a bigger gain from product trial net of remailing cost (the left side of (7)). Such a gain could result from a greater probability of a match m, a longer trial t, or a more valuable product V. If the product's salvage value is small, the incentives are even greater (right side of (7)). The seller will try to prevent opportunistic behavior by refusing to refund the entire sale. This intuition corresponds directly to the comparative static analysis of Table 1, which is derived by differentiating (6) and (7) with respect to the parameters.

More valuable products have higher prices. The observed price P^* reflects the well-matched consumers' latent valuation of the product V. Solve equation (5) for V in terms of P^*, and then substitute this as a proxy for V into the equation (6) for nonrefundable charge C^*:

$$C^* = \frac{mt}{1 - t}P^* - \frac{1 - t + mt}{2(1 - t)}(M + S). \tag{8}$$

Focusing on this implicit relationship between price and nonrefundable charge gives the following:

Table 1. Comparative static analysis.

	Probability Match m	Trial Period t	Salvage Value S	Remailing Costs M	Product Value V
Incentive for nonrefundable charge $mtV - M - S$	+	+	−	−	+
Optimal nonrefundable charge C^*	+	+	−	−	+

Result 2. *Products with higher prices will have higher nonrefundable charges.*

According to Result 2, a catalog seller is likely to increase the nonrefundable charge when the price of the product ordered is larger, even when the actual shipping costs do not change. Why? When the product value increases, the trial value to consumers also increases, so opportunistic returns increase. A larger nonrefundable charge moderates returns, so the seller's profit increases. In the next section we present observations from mail-order clothing catalogs that are consistent with Results 1 and 2.

5. Empirical observations

Consumer Reports studied forty-five direct marketers of clothing in its October 1994 issue. We asked these companies for a catalog and twenty-seven of them responded. Those companies that responded were then asked for their policies on reimbursement of shipping charges and mailing costs for returned merchandise. The quoted product shipping charges of these twenty-seven companies are listed in Table 2. Two observations from this data are of interest.

Table 2. Shipping charges by merchandise value.

Company/order value	$25	$25.00	$50.00	$75.00	$100.00	$150.00	$175.00	$200.00	$300.00	$350.00
Victoria's Secret	$3.95	$3.95	$6.95	$9.95	$11.95	$13.95	$14.95	$15.95	$17.95	$17.95
Bloomingdales	4.95	4.95	6.95	8.95	8.95	10.95	11.95	11.95	13.95	14.95
Neiman Marcus	5.00	5.00	7.00	9.00	11.00	11.00	11.00	11.00	14.00	14.00
Brownstone Studio	6.95	6.95	6.95	7.95	9.95	9.95	9.95	10.95	10.95	12.95
J. Peterman Co.	5.90	5.90	7.90	10.90	11.90	11.90	12.90	12.90	12.90	12.90
Brooks Brothers	5.00	5.00	8.00	8.00	9.00	10.00	10.00	11.00	12.00	12.00
Cheyenne Outfitters	5.95	5.95	7.95	7.95	9.95	10.95	10.95	10.95	11.95	11.95
Talbots	6.50	6.50	7.50	8.50	8.50	9.50	10.50	10.50	11.50	11.50
Bachrach	5.50	5.50	5.50	7.25	7.25	8.25	9.50	9.50	10.50	10.50
Willow Ridges	5.75	5.75	6.80	7.90	8.50	9.50	9.95	9.95	9.95	9.95
Bedford Fair	4.95	5.75	6.80	7.90	8.50	9.50	9.95	9.95	9.95	9.95
Lerner NY	4.95	4.95	6.95	7.95	8.95	9.95	9.95	9.95	9.95	9.95
Eddie Bauer	3.95	3.95	5.95	7.95	9.95	9.95	9.95	9.95	9.95	9.95
J. Crew	4.90	4.90	6.90	6.90	7.90	8.90	8.90	9.90	9.90	9.90
Huntington Clothiers	4.95	4.95	4.95	6.75	8.00	9.50	9.50	9.50	9.50	9.50
International Male	3.50	4.50	6.50	8.50	9.50	9.50	9.50	9.50	9.50	9.50
Clifford of Willis	4.95	5.95	6.95	6.95	7.95	8.95	8.95	8.95	8.95	8.95
Norm Thompson	3.95	3.95	7.50	7.50	8.50	8.50	8.50	8.50	8.50	8.50
James River Traders	4.95	4.95	5.95	6.95	6.95	7.95	7.95	7.95	7.95	7.95
Lands' End	4.25	4.25	5.75	6.95	6.95	6.95	6.95	6.95	6.95	6.95
L'eggs Shwes of Sav.	2.99	3.99	5.99	5.99	5.99	5:99	5.99	5.99	5.99	5.99
Patagonia	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Orvis	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
LL Bean	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
JC Penney	Charges based on weight									
Road Runner Sports	Charges based on weight									
Spiegel	Charges based on weight and $1.95 handling charge									

1. Most catalogs have separate shipping charges that are nonrefundable. All twenty-seven catalogs in our sample quote shipping charges separately from merchandise price rather than incorporate these costs implicitly into product price. Table 3 gives a breakdown of catalog shipping charges by whether they refund shipping charges and/or remailing cost. Roughly 90 percent of the catalogs surveyed do not refund shipping charges, and 71 percent do not refund remailing costs. This makes the out-of-pocket expense to a customer of returning merchandise substantial. Companies with a return policy of the highest quality, one in which the seller refunds both the shipping charge and the remailing cost, constitute only 7 percent of the sample (see upper left cell of Table 3). In this case, the customer's monetary expense of returning an item is zero. Most return policies are not that generous: more than two-thirds of the sellers refund neither shipping charges nor remailing costs.

These observations raises some intriguing questions. First, if shipping charges represent part of the costs of doing business, why not incorporate them into the quoted price as are other costs such as merchandise, inventory, facilities, advertising, and catalog distribution? Second, why do most sellers refund the purchase price for returns but not the shipping charges? Result 1 presented above provides answers to these questions.

2. More expensive items tend to have higher shipping charges regardless of actual shipping costs. Most catalogs increase shipping charges with the value of orders; twenty-four of the twenty-seven catalogs in Table 2 base their shipping charges on the value of an order, while the other three base shipping charges on weight. The strong positive relationship is demonstrated by a correlation coefficient of +0.58 between shipping charges and merchandise value in the pooled data of Table 2. This is significantly greater than zero at the 99 percent confidence level, as predicted by Result 2, above.

The fact that most catalog companies quote shipping charges by value rather than by weight is puzzling not only because delivery companies charge them by weight but also because the catalogs ask customers with products that weight the same to pay substantial different amounts. Consider, for example, the shipping charge schedule of Victoria's

Table 3. Refund policies.

		Is shipping charge refunded? Yes	No	
Is remailing cost refunded?	Yes	2 (7%)	6 (22%)	8 (29%)
	No	1 (4%)	18 (67%)	19 (71%)
	Total	3 (11%)	24 (89%)	27 (100%)

Secret shown in Figure 1 above. A customer who orders a $100 dress from Victoria's Secret pays three times as much in shipping charges as a customer who orders a $25 dress, even if they weigh the same.

Can the insurance cost of shipping explain this pattern? Hardly so. Most catalogs ship via UPS, which provides free insurance for the first $100 free and charges 35 cents for each addition $100. Table 2 shows that these low insurance costs cannot explain the relative large increase in shipping charge as product value increase. The insurance costs of a $100 item is zero percent larger than of a $25 item, and yet the nonrefundable shipping charge in our sample is 64 percent higher.

6. Conclusion

Direct marketers offer price refunds to unsatisfied customers, but consumers may order products with the intention of using them and then shipping them back for a refund. We presented a model that shows that separate nonrefundable charges can be used to profitably control for such returns and that, at the optimum, these charges increase with the value of the products ordered. Intuitively, the nonrefundable charges can be interpreted as a tax or a rental fee for the right to examine products. The list prices are charges for the right to keep products. Customers who return merchandise are reimbursed only for giving up the second right but not for giving up the first. Empirical observations from mail-order clothing catalogs are consistent with our empirical observations.

Our economic explanation for separating nonrefundable charges from price should be contrasted with behavioral justifications. Like traditional store retailers, mail-order marketers may attempt to hook customers by advertising low product prices (Hess and Gerstner, 1987; Gerstner and Hess, 1990). Once they have identified a product they like, customers may be less resistant to paying an additional fee for shipping (see Greenleaf, Morwitz, and Johnson, 1994, for experimental evidence). It is a well-known fact that shoppers do not always attend to prices (Dickson and Sawyer, 1990), so it should not be surprising that they may also choose to ignore shipping charges.

One objection to this behavioral theory, however, is that in the long run customers will learn to factor in catalog shipping charges when deciding to order a product. Low product prices will no longer fool them. The behavioral theory still does not explain why price is refundable while shipping charges are not. According to our theory nonrefundable shipping charges will exist even when accounted for in consumers' purchase decisions.

Price competition from other direct or traditional retailers was not addressed in this article. In fact, some direct marketers compete for business using their small shipping charge as a promotional tool. Such competition may reduce the nonrefundable charge but not eliminate it, since it also serves as a means to minimize consumer opportunism.

Finally, some sellers accept returns but refund only part of the price, referring to the nonrefunded portion as a fee for restocking the merchandise. It can be shown that a restocking fee is a substitute for a nonrefundable shipping charge in controlling for product returns. The only difference between the two is that a shipping charge is paid by all the buyers, while the restocking fee is paid only by those who return the product. Such a restocking fee is optimal, even if the actual costs of restocking are zero.

Although shipping charges and restocking fees give the retailer the same profit, casual observation suggests that shipping charges are more common. Consumers are likely to think that shipping charges are designed to cover the retailer's legitimate shipping and handling costs, while restocking fees are aimed at discouraging returns. The restocking fee may result in a double penalty: mismatched customers receive a useless item and on top of this must pay a restocking fee. A nonrefundable shipping charge is a more subtle way to achieve the objective than the more transparent restocking fee.

Acknowledgments

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Notes

1. If the seller actually had shipping and handling costs H, then $C^* = (mtV - M - S + H)/2$.

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