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Price Adjustment Policy with Partial Refunds

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Abstract

Have you ever purchased an item only to notice a short while later that its price was reduced? Many retailers offer to refund customers the full price difference as long as the discount occurred within a short period of time after the original purchase. Such policy looks attractive to consumers as it shields them from future price fluctuations. But can this policy be advantageous for the retailer?

In this paper we investigate the price difference refund policy (commonly referred to as price adjustment) and demonstrate how it can result in a higher profit even if all consumers request and receive a price adjustment.

Further, the existing literature and practice both assume that if a price adjustment policy is employed, the consumers should get the full price difference refunded. In this paper we endogenize the refund amount, allowing the retailer to determine the optimal percentage of the price difference to be returned to consumers. We fully characterize the conditions under which it is optimal to offer a partial or greater than full price adjustment to customers as well as the optimal refund percentage. Additionally, we demonstrate that the practice of limiting the price adjustment option to a short period after the purchase incident is not necessarily in the best interest of retailers.

Keywords: Price adjustment; Price discrimination; Price protection; Best-price provision; Game theory

Introduction

> "*Buy with confidence from Sears. If an item you have purchased from Sears goes on sale for a lower price within 14 days of your purchase, Sears will refund the difference*" *[Sears]*

> "*If we lower our in-store or online price during the return and exchange period [15-45 days], we will match our lower price, upon request.*" *[Best Buy]*

The above quotes represent examples of an increasingly common price adjustment policy employed by many retailers. Under such policy the retailer promises to refund all consumers the full price difference, should the product's price drop within a specified period of time after a consumer purchases it. In order to get the refund, the consumers need to actively request the price adjustment, produce a valid receipt and are limited to a single request in a short period of time after their original purchase.[1]

The abovementioned price adjustment strategy is related to the familiar price matching policy, where a retailer declares that it will "not be undersold" and promises that if consumers find the same product for a cheaper price in a competing store, they can request and get the product at the same price as offered by the competitors. Such price matching policies started gaining popularity in the early 1980 (Arbatskaya, Hviid, and Shaffer 2004; Lai, Debo, and Sycara 2010), and are common and well known to most consumers today. Many stores actively advertise their policy of matching competitors' prices (e.g., Walmart's ad campaign (2014–2015), Lowes, Best Buy, etc.). In contrast, the price adjustment policy, which is similar to the price matching policy in that the retailer promises to match prices of its future self (as opposed to matching a competitor), is a newer policy that is clearly stated but rarely advertised.

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[1] While the majority of retailers refer to this policy as "price adjustment," it is sometimes also called "price protection," "price matching," "favorite customer clause," or "best price provision."

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A similar policy, usually referred to as "price protection policy" is sometimes also offered by credit card companies, which at their own expense issue a price difference refund when the price of a recently purchased item drops. This policy is used to incentivize consumers to use a specific credit card. It is important to note that this is a completely different policy from the one we are focusing on in this paper: a credit-card-offered price protection policy does not cost the retailer anything, and the terms of such policy are not in the retailer's control. In contrast, retailer-offered price adjustment policy, which we investigate here, is a sellers' tool to improve their own profits.

Price adjustment policies can be observed in a variety of industries: ranging from fashion to sporting goods, electronics, home improvement, financial services, and even in many B2B settings.[2] A survey conducted on 162 consumers[3] between the ages of 25 and 55 has demonstrated that a full 89% of them were aware of a retailer-offered price adjustment policy, naming more than a dozen different large retailers with such policies in place.

Common wisdom suggests that some consumers will not request (and hence will not obtain) the promised price difference refund, and that this is the only driver for the profitability and common use of the price adjustment policy. Contrary to this belief, we show that optimal price adjustment policies may lead to higher profit even when the retailer guarantees automatic unsolicited price difference refunds. That is, the price adjustment policies increase the retailers' profit by changing the purchasing incentives of sophisticated forward-looking consumers rather than by preying on their forgetfulness. Thus it is important for retailers to realize that as price adjustments become easier for consumers to obtain, for example, via online interactions with a retailer and price-checking services provided by third-parties, it will not necessarily hurt their profitability.

We further show that the profitability of requiring consumers to request the price adjustment depends on whether consumers are optimistic (overestimate their likelihood of requesting the refund) or skeptical (underestimate the likelihood). Consumer optimism and forgetfulness can indeed improve retailer profits as compared to offering automatic price adjustment. Whereas if consumers underestimate their likelihood of asking for the refund, then profitability is hurt, and the automatic price adjustment policy would do better. Further, if the seller requires consumers to request the price adjustment, then it may be optimal to promise even more than 100% price difference refund.

A well-known solution to the durable goods monopoly (Coase) problem is to offer a full price adjustment in the second period to all consumers who bought the good in the first period (Tirole 1988). This solution effectively results in the monopolist not lowering the price of the product in the second period. The monopoly price is charged in both periods, all the consumers buy the product in period 1, and there are no production or sales in period 2. In this paper we generalize this result by suggesting a new potential modification of the commonly practiced price adjustment policy to improve its profitability. Specifically, we suggest a that in some situations, the retailer should advertise and offer only a partial price difference refund (i.e., refunding less than 100% of the price difference) when prices are dropped, and sometimes a higher than 100% price difference refund should be offered, as opposed to the standard full price difference refund. As a result, in our model the price can actually drop in the second period (in contrast to the Coase result), sales occur in the second period, and the price difference refund is actually given to consumers. We show that when consumers and retailers discount the future at different rates,[4] sometimes no price adjustment should be offered, and sometimes the price adjustment should be only partial (we characterize the optimal fraction of refund for this partial price adjustment policy). Further, when some consumers do not request the price adjustment, the retailer should offer a higher than 100% price difference refund to optimize the profit.

The intuition for the original Coase result is that full price adjustment is meant to discourage consumers from opportunistically waiting for a price drop in the next period. Indeed, offering full price difference refund ensures that consumers buy early. However, it also discourages the retailer from lowering the price in the future (thus serving as a price-commitment mechanism) and hence prevents profitable price discrimination.

Now consider the opposite situation: when no price adjustment is offered. In this case the retailer is able to price discriminate by charging a higher price in the first period, then lowering it in subsequent periods to sell to consumers with lower valuation. However, in this situation there is a group of consumers who value the product above the first period price but anticipate the price reduction and thus strategically wait for it. These consumers are costly to the retailer because they could have bought earlier and at a higher price.

In this paper we show that offering partial price adjustment allows the retailer to price discriminate, while at the same time mitigating the impact of strategically waiting consumers (by decreasing the number of waiting consumers and the amount of refund the buying consumers get). Thus, we argue, that considering a new suggested policy of partial price difference refund (in addition to a full price adjustment or none, which are currently observed in practice), can improve the retailer's profit even further, especially in a situation where the retailer is more patient than the consumers.

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2 For a comprehensive list see http://lifehacker.com/all-the-stores-that-will-give-you-a-refund-if-a-price-d-1661273299.

3 Full details of the survey are available from the authors upon request.

4 Fudenberg and Levine (1989) and Lehrer and Pauzner (1999) argued similarly that economic players usually discount the future differently leading to a more general and interesting sets of equilibria.