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Working Paper
Sales-discount regulation : how much bazaar do consumers want?

Marburger volkswirtschaftliche Beiträge, No. 2007,12

Provided in Cooperation with:
Faculty of Business Administration and Economics, University of Marburg

Suggested Citation: Korn, Evelyn (2007) : Sales-discount regulation : how much bazaar do consumers want?, Marburger volkswirtschaftliche Beiträge, No. 2007,12

This Version is available at:
http://hdl.handle.net/10419/29849

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Sales-discount regulation:
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No. 12-2007
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How much bazaar do consumers want?

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July 15, 2007

Abstract

In July 2001 the 70-year-old German „Rabattgesetz“ that prevented negotiations in retail business has been abolished. During the abolition process consumer- as well as retailer pressure groups claimed that significant damages for their clients were to be expected. Using game theoretic modelling this paper discusses which economic consequences could arise from the amendment. It shows that none of the above-mentioned fears were justified. In addition, it uses a revealed-preference argument based on these predictions and on data concerning the dissemination of customer cards to describe consumers’ general attitudes towards bargaining.

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1. Introduction

In July 2001 the 70-year-old German „Rabattgesetz“ has been abolished. It had been introduced in the wake of the economic crisis of the late 1920s and early 1930s. At that time the idea of “fair prices” earmarked economic policy. Consumers should be protected against retailers’ rent extracting behaviour. In addition, all consumers should be granted the same price for a certain good. For these purposes the law restricted price and quantity discounts in retail business. Price discounts where limited to 3 % of the announced price. This restriction was based on the presumption that some consumers would start to bargain over prices if higher discounts were to be expected. Anticipating such haggling retailers would announce excessive prices – which in turn would induce non-bargaining customers to pay unfairly high prices.

Some 60 years later the European Union introduced the so-called country-of-origin principle which says that all intra-European transfers are subject to the law of the retailer’s home country.¹ In consequence, German retailers had to compete with foreign rivals that could offer considerable discounts. This competitive disadvantage made some retailer pressure groups ask for an abolition of that outdated law.

Exponents of the abolition claimed that no significant change in the retail market were to be expected. For, the “modern” consumer would be sufficiently rational and mature to uncover excessive pricing and to sanction such behaviour (s. Christoph Schmelz (2002)). Yet, there have been different groups who objected to this view and expected a number of negative consequences of an abolition. To name just the most prominent arguments: Consumer groups claimed that the law’s abolition would immediately lead to the behaviour it was designed to prevent. Retailers would demand excessive prices and only those customers who were able and willing to bargain would pay a reasonable price. Some retailer groups – obviously those whose trade is rather local – claimed that customers would start bargaining over prices that had been unchanged after the law’s abolition. Therefore, parts of retailers’ profits would be bargained into customers’ purses. Yet another group used a more sophisticated and somewhat fragile argument. If customers knew that they could bargain, they would perceive prices differently and expand their demand. In consequence, a new market equilibrium would result at lower prices. The decrease in prices – which is usually not an immediate consequence of an increased demand –

was expected due to changes in industry structure that would be a result of the new quantities.

These three arguments are based on different models of the retail market. Market researchers tried to figure out which prediction would be the correct one but remained unsuccessful. Now, some years after the abolition observations concerning market structure and customer behaviour can help to gain some insights.

So, what happened? First of all, there was no significant change in prices. Thus, excessive pricing was not a general consequence. However, another change in market structure that had been addressed by some retailers’ pressure groups in the course of the abolition happened. Couponing, especially in the form of customer cards, which had been a negligible tool in German retail marketing faced a boom in 2001 and considerable growth rates in the years to follow. This steep increase in 2001 cannot be easily explained. Customer cards usually provide discounts that range between 1 and 3 % of the original price. Thus, they would have been legal under the Rabattgesetz as well (s. Christoph Cordes (2001), Harald Peters (1998), and Peter W. Heermann (2001)). In addition, all classical positive effects of a customer card that could have driven the rise had been known long before – for instance, the possibility to collect data on consumer behaviour or to achieve customer retention. Therefore, these classical objectives of introducing a customer card could explain a smooth growth but not such a steep increase as has taken place in 2001.

This paper connects the consequences of the abolition of the Rabattgesetz with the highly increased dissemination of customer cards. In that it aims at explaining two issues: First, which additional purpose could be served by customer cards after the law’s abolition – given that they had been legal before? Second, what conclusions can be drawn on German consumers’ attitudes towards bargaining?

To that end the paper employs a three-stage game of the retail process that allows for an analysis of the effect of legal institutions on bargaining. I assume that at stage

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2 The boom to be expected has been discussed in a number of German econ magazines, for instance by Claus Gorg (2001) and Knut Wiesner (2001). According to a study from CIA Mediahaus from 2001 (available upon request) in 2000 3 % of all consumers owned at least one customer card compared to 23% at the end of 2001 (http://www.loyaltypartner.com/de/download/SternTrendprofil_Kundenkarten.pdf) and 39 % in 2005 (http://www.loyaltypartner.com/de/press/release_050722_2.php). A major disadvantage of all studies cited is that they have been performed by order of “loyalty” partner, the issuer of Germany’s biggest customer-card program called “payback”. Yet, to the best of my knowledge no study exists that has another background.
1 of the game a monopolistic seller announces a price for his good to all customers. At stage 2 the seller enters into bilateral negotiations with single customers if they demand for it. The extent of these negotiations is limited by legal institutions. If seller and customer agree upon the final price, exchange takes place at stage 3. The equilibrium of this game depends – besides the general factors cost structure and form of the demand function – on two market features. First, which discounts are considered legal? This feature determines the maximal bargaining power for consumers. Second, how are different types of “bargainers” distributed among customers?

Legal institutions impact the acceptable discounts in an obvious way. I assume that institutions have an additional effect on consumers: If discounts are restricted to 3% of the announced price – as has been the case under the Rabattgesetz – they transmit a social norm saying that bargaining is undesirable. Therefore, those consumers that are interested in keeping up with social norms will not or only to a small extent enter into negotiations. If the restricting law is abolished, the social rule changes to “bargain if you like”. Therefore, more individuals will decide to negotiate and some of those who have already started haggling under the old rule will demand higher discounts.

In the analysis to follow I will incorporate both effects of an institutional change into the bargaining game. Equilibrium outcomes induced by new institutions are then discussed in the light of the questions on customer cards and attitudes.

2. Market analysis

As mentioned above the process of price determination is a three-stage game that consists of seller’s price declaration, a negotiation stage, and trade. Market structure can be described by a classical monopoly model. The seller produces an amount $x$ of an homogeneous good at a cost of $c(x) = c \cdot x$. Consumers’ demand is given by the function $x(p) = a - bp$ where $p$ is the price they actually have to pay, i.e., the price after negotiations. Under a strict enforcement of a no-bargaining rule, consumers would always pay the announced price, which in equilibrium would be $p^* = \frac{a + bc}{2b}$.

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3 I restrict attention to price discounts. The effects of quantity discounts are thoroughly discussed in Rajeev Kohli and Heungsoo Park (1989).
4 The seller is modelled as a monopolist to exclude other aspects of strategic pricing.
To assess the effect of different legal institutions on negotiations we need to describe the bargaining process as well as possible consumer behaviour. First, consider the amount of money that is subject to negotiations. On the one hand, the originally announced price \( p \) is certainly an upper bound for the final price. On the other hand, the seller will not be willing to trade at a price below marginal cost. Therefore, the difference \( p - c \) is the rent to be dissipated. The size of the share the seller can claim to himself depends on the distribution of bargaining power between seller and consumer.\(^5\) I assume that there are different types of consumers who will receive different shares \( (1 - \alpha_i) \) of \( p - c \), where the subscript \( i \) denotes a type of consumer. Thus, if the seller announces a price \( p \) and meets a consumer of type \( i \), he will finally receive

\[
p_i = \alpha_i p + (1 - \alpha_i) c.
\]

The result of the negotiation process does not only influence the final price but in addition consumers' final demand. Assume that a fraction \( A_i \) of all consumers is of type \( i \), where the fractions of all types obviously add up to one. Then, a seller who has originally announced a price \( p \) will finally face a number of different demand functions that take the form

\[
x_i(p) = A_i \left( a - b \left( \alpha_i p + (1 - \alpha_i) c \right) \right).
\]

I assume that legal institutions influence the distribution of consumer types in the following way: The Rabattgesetz had an impact on maximal bargaining power of consumers saying that price discounts were limited to 3 % of the original price. In addition, as has been explained in the introduction, it branded haggling as socially undesirable. Afterwards social costs of negotiating have fallen and discounts have been – at least from an exogenous perspective – unlimited. I incorporate this effect into the model by changing the distribution of bargaining types.

Under the restricting law when bargaining was associated with a high social cost, only a limited number of consumers were willing to negotiate. Those who did could get only a 3% discount. Thus, I assume that there are two different groups of

\(^5\) The negotiations themselves are not in the focus of this paper's interest. In principle, the assumed rent division can be seen as the result of a Nash-bargaining process (s. John Nash (1950) and Ariel Rubinstein (1982)).
consumers. The first group – that builds the majority – does not bargain at all, i. e., for that group \( \alpha_1 = 1 \). The second group that is of size \( A_2 \) demands the maximal allowed discount, i. e., for that group \( \alpha_2 < 1 \). Thus, announcement of a price \( p \) leads to two final demand functions for the seller

\[
x_1(p) = A_1(a - bp) \quad x_2(p) = A_2\left(a - b\left(\alpha_2 p + (1 - \alpha_2)c\right)\right).
\]

After the law’s abolition bargaining is unlimited and not socially unacceptable. Thus, it is to be expected that more consumers will negotiate prices and that those who bargain will demand higher discounts. Negotiations are associated with different costs to different individuals – or put differently, individuals might inhibit different preferences towards haggling that are independent from their willingness to pay for the good. Therefore, I assume that the change in bargaining behaviour is the same for consumers on different sections of the demand function. Thus, the institutional change leads to a new number of types. It is impossible to deduct from the given assumptions how many types would arise and how their bargaining powers would look like. Yet, to allow for a comparison with the situation under the law, I assume that there are three different groups of consumers after the abolition. Those who have already negotiated under the law will now demand a higher discount. Those, who have not negotiated under the law will be split up into two groups. Part of them will now negotiate prices and will demand a discount of 3% – thus, imitate those consumers who were bargainers before – and the remaining consumers will still not bargain. Therefore, the seller faces three final demand functions when announcing price \( p \):

\[
x_1(p) = A_1'(a - bp), \quad x_2(p) = A_2'(a - b\left(\alpha_2 p + (1 - \alpha_2)c\right)), \quad x_3(p) = A_2\left(a - b\left(\alpha_3 p + (1 - \alpha_3)c\right)\right)
\]

where \( \alpha_3 < \alpha_2 \).

To discuss the abolition’s effect, it is necessary to look at the optimal announced price given different consumer groups. The main difficulty from the seller’s perspective is to cope with the differences in consumers’ demands for price

\[6\] The bargaining power of that group is somewhat higher than 3% as \( \alpha_2 \) is a share of \( p - c \) and not of \( p \) which in turn was the law’s focal point.
discounts. It is not the magnitude of the price discount per se or the rise in demanded discounts that would be connected to the law’s abolition.

To see that, consider the case where all consumers are equal and demand a discount of $\nu\%$ of the original price. To maximize his profits the seller would anticipate the result of the bargaining process. Instead of announcing $p^* = \frac{a + bc}{2b}$ he would announce $\hat{p} = \frac{1}{1-\nu\%} \cdot p^*$. Consumers would start negotiations at stage 2 and demand a reduction of $\nu\%$ which would lead to a final price of $p^*$ which in turn maximizes the seller’s profit. Figure 1 illustrates this process.

![Figure 1: Optimal mark up for a single group of consumers with bargaining power $\alpha$](image)

Now assume that there are two groups of consumers, a bargaining and a non-bargaining group, as has been assumed for the scenario where one group starts negotiations and the other does not. In this case the seller could still announce a price that would balance the negotiating group’s demand for a price discount. Yet, this price would not be optimal. For, the group of non-bargainers would now demand a much smaller quantity of the good than would be optimal for the monopolist. The reason for that is that these consumers choose their demand based on the announced price which is above the monopoly price. Therefore, if the seller reduces
his price by a marginal amount, he will face two effects: Firstly, he will loose profit from the group of bargainers because the final price will be slightly below his profit-maximizing price. Secondly, he will gain profits from the group of non-bargainers because their final price – which equals the announced price – gets closer to the profit-maximizing price.

A rational seller will reduce his price until both effects – that point into opposite directions – balance. Figure 2 illustrates these considerations.

![Figure 2: Optimal announced price for two groups of consumers](image)

Depending on the bargaining power \( \alpha_2 \) of bargaining consumers and their share \( A_2 \), the optimal price for two groups of consumers is

\[
p^*(\alpha_2, A_2) = p^* + \frac{A_2(1-\alpha_2)\alpha_2}{1 - A_2(1-\alpha_2^2)}(p^* - c).
\]  

(0.1)

Thus, the optimal price for a seller facing a faction \( A_2 \) of consumers who demand a price discount of \( \alpha_2(p - c) \) and a fraction \( 1 - A_2 \) of consumers who pay the announced price is always above the monopoly price. It can be shown (s. Evelyn Korn (2003)) that the final profit is – independent of \( \alpha_2 \) and \( A_2 \) – smaller than classical monopoly profit.

The analysis turns more complex if three groups of consumers are involved, as has been assumed for the scenario without Rabattgesetz. To break down considerations
in tractable pieces I look at each of the groups separately before I combine the different – and again opposing – effects.

The group of consumers who have already bargained under the Rabattgesetz will now demand a higher price discount. Therefore, if the seller could adapt to this demand separately, he would raise prices where the magnitude of the optimal rise depends on the price elasticity of demand. The optimal announced price for this group alone would be

$$p_{\alpha_3}^* = \frac{p^*-(1-\alpha_3)c}{\alpha_3}.$$ 

To distinguish this group of bargainers from those who will start bargaining after the law’s abolition, I call them “strong bargainers” compared to “weak” ones who join negotiations.

This group of weak bargainers originates from the fraction $1-A_2$ of all consumers who have not negotiated prices when the Rabattgesetz had been in place. These weak bargainers demand a price discount according to bargaining power $\alpha_2$.

Therefore the price the seller would want to announce to these bargainers if he could separate them is price

$$p_{\alpha_2}^* = \frac{p^*-(1-\alpha_2)c}{\alpha_2} < p_{\alpha_3}^*.$$ 

Thus, if there were these two groups of weak and strong bargainers only, the seller would announce a price that is higher than $p_{\alpha_2}^*$, but smaller than $p_{\alpha_3}^*$. As we had seen that the optimal price under the Rabattgesetz had been smaller than $p_{\alpha_2}^*$, we know that the announced price would rise if all consumers started to negotiate after the law’s abolition.

To complete the analysis, it is necessary to take the remaining number of non-bargainers into account. They take the announced price as final and reduce their demand in reaction to a raised price. Again, the seller has to compare the losses from the group of non-bargainers associated with a raised price with the gains from the groups of weak and strong bargainers. If these gains and losses are analyzed, it shows that after the abolition of the law the announced price may rise as well as fall. This result is somewhat surprising as the number of individuals who do not negotiate shrinks (or stays unchanged) whereas the price reduction demanded by the increasing group of bargainers rises.

To illustrate this ambiguity, I restrict the effect of the law’s abolition to the simplest change possible: Assume that all consumers who have negotiated under the
Rabattgesetz expand their bargaining power to $\alpha_3$ and that all non-bargainers stay non-bargainers. In that case there are still two types of consumers such that equation (0.1) is still the correct description for the equilibrium price announcement if $\alpha_3$ is substituted for $\alpha_2$. The question if an increase of the bargainers bargaining power leads to an increase or decrease in the announced price can be answered by an analysis of the mark up with respect to $\alpha$. From (0.1) we see that this mark up is determined by

$$\frac{A_2(1-\alpha)\cdot \alpha}{1-A_2(1-\alpha^2)}$$

which is not monotone in $\alpha$. Figure 3 illustrates the run of the mark-up curve as a function of $\alpha$ for an arbitrary value of $A_2$.

![Figure 3: Optimal mark up for two groups of consumers](image)

If now $\alpha_2$ has been to the left of $\hat{\alpha} = \frac{\sqrt{1-A_2} - 1-A_2}{A_2}$ but close to it and $\alpha_3$ is considerably higher than $\hat{\alpha}$, the change in institutions will lead to a decrease in the announced price.

Thus, the effect of an institutional change on announced prices is ambiguous and depends on the distribution of bargaining power between seller and consumers. Yet,
the effect on profits is almost unambiguous: No matter what happens to prices profits will fall (for a proof see Korn (2003)). The magnitude of the loss depends on consumer heterogeneity.

This result allows for a provisional sum-up with respect to the pressure groups’ claims: First, excessive pricing could be a consequence of the institutional change but the conditions under which it would result – very low bargaining power under the law and a relatively high one without the law – are limited. Second, for those sellers who cannot open up new markets, for instance by being more present in international markets, profits are bargained at least partly away as had been claimed. Therefore, sellers have an interest to restore the old social undesirability of bargaining and limited bargaining power. A means to establish the rules in an endogenous way are customer cards as will be discussed in the next section.

3. Institutions

Customer cards are a classical tool in establishing customer loyalty and retention. In that function they have attracted attention in the economic literature (s., for instance, Mehmet Bac (2000), Craig D. Henry (2000), Paul Klemperer (1989, 1995)). Since information technology has been able to collect and manage big data sets, these cards have also helped firms to obtain information on consumer behaviour. Customer cards usually entitle customers to price discounts that amount to 1 – 3 % of the original price. Accordingly, these cards would have been legal under the Rabattgesetz. However, they have not been widespread in Germany before 2001 when their dissemination increased dramatically. The analysis above hints on why.

What has not been addressed so far is the question which retailers would use customer cards (and which would not). In addition, I have not discussed how the shares of negotiating consumers would change with a change of institutions. The former issue will be addressed in the paragraphs to follow, the latter in section “attitudes”.

To see who would want to employ customer cards, consider a retailer who has a lot of agents who sell goods for him like retail chains or bigger grocery and fashion stores. To communicate bargaining rules for the scenario without Rabattgesetz to all

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7 The only exception to this case is a situation where consumer heterogeneity is drastically reduced by the abolition – e. g., if all consumers demand the same price discount.

8 As has been mentioned in the introduction, stress of international competition had prompted the abolition process.
agents and to enforce them on an individual basis is impractical for these retailers for two reasons. Agents’ earnings in these businesses are not directly linked to profits. Thus, the profit losses associated with price discounts do not influence the agents’ earnings. Therefore, if the bargaining process is costly to the seller’s agents as well as to the customers, the agents face a credibility problem in establishing bargaining power when negotiating with customers. The retailer in turn has to be aware of a moral-hazard problem if he cannot monitor the negotiations and the agents feel closer ties to their customers – who might well be friends and acquaintances – than to the principal.

In this case customer cards are a means to provide the agents with an enforceable bargaining power: If a customer asks for a price discount, the agent can offer the use of a customer card but is not allowed to start any further negotiations. This rule can be enforced by strict and communicable sanctions and offers a commitment at least for the agents. Such a “feigned”\(^9\) commitment to curbing discounts helps to establish the old undesirability of negotiations and limits the amount of discounts given. Yet, the introduction of a customer card might still increase the total discount compared to the scenario under the Rabattgesetz. For, some of those customers who were not willing to bear the social costs of negotiations under the Rabattgesetz will now choose to use a customer card as this alternative induces no social costs.

The argument given above leads to a structural explanation why customer cards are widespread in some retail industries but do not exist in others. The reason for that difference is a difference in principal-agent relationships. Consider, for instance, car or furniture retailers. In these businesses where single sold items induce significant revenues salespeople usually receive commissions. These commissions induce a much higher degree of goal congruence in negotiations between the retailer and the salesperson than can be achieved in retail industries like groceries or clothing stores where fixed salaries are of more importance. Accordingly, agents in car or furniture retail businesses have a bargaining power that is similar to the principal’s; they do not need a commitment device like a customer card. Thus, when calculating prices the principal can use a valuable assessment of his (or his agents’) bargaining power. In

\(^9\) “Feigned”, as the retailer himself can always allow for additional discounts.
this situation, accepting negotiations and announcing excessive prices might be the best alternative.\textsuperscript{10}

The argument above considers the seller’s side of the problem only. From his perspective customer cards are a means to restore the distribution of bargaining power that had been guaranteed by the Rabattgesetz. By that he can at least curb the losses that are to be expected by the change in institutions. But customer cards are only a successful tool if consumers accept them. This aspect will be discussed in the next section.

4. Attitudes

The abolition of the Rabattgesetz has installed a situation in which bargaining is socially acceptable and can lead to considerable price discounts. Yet, bargaining still bears individual costs like opportunity costs of time or social costs that are attached to individual attitudes towards haggling. These costs have been considered in the model in an implicit way only: They determine the number of consumers who are willing to negotiate and the bargaining power of the weak bargainers that have started to negotiate after the abolition only. The actual magnitude of these variables has not been discussed so far. Yet, the question whether the fears of different pressure groups have been justified depends on the sellers’ interests (which have been analyzed before) as well as on consumers’ willingness to negotiate. Therefore, the paper concludes with a discussion of consumer preferences with respect to bargaining.

According to the above-mentioned representative survey held by the CIA Mediahaus in 2001, 31\% of all German consumers had bargained over price discounts under the Rabattgesetz already. Additional 27\% were willing to negotiate when it was legally permissible. Yet, anecdotal evidence is contradictory to that claims of consumers. For, bargaining over prices is to date not a widespread practice in German every-day retail trade. Therefore it is helpful to employ another approach to gain additional insight into consumers’ attitudes towards bargaining: revealed preferences. In figuring out if German consumers are inclined to haggle over prices the existence of customer cards can give kind of circumstantial evidence. For, if consumers have a

\textsuperscript{10} In fact, bargaining had a long tradition in the car and furniture industry despite the prohibitions of the Rabattgesetz. One reason for that is the fact that cars and furniture are quite often taylor made. Therefore, for these trades no publicly announced price exists. In consequence, regulators cannot enforce a rule that prohibits excessive pricing followed by negotiations.
strong preference for bargaining, they will not accept the limited discount customer cards offer. They will ignore the feigned commitment and ask for individual discounts.

Current studies (s. footnote 2) show a strong inclination of consumers to accept customer cards – although consumer pressure groups regularly offer adverse information. These publications argue that customer cards are a device to discourage negotiations and that they are excessively used for collecting demand profiles. Especially the last issue is widely assessed as critical.\(^{11}\)

Given that consumers know that the acceptance and use of customer cards will probably give sellers market power, it is an even stronger signal concerning their attitudes towards negotiations if they use them. Thus, from the evidence on the dissemination of customer cards we can conclude that Germans do not extract consumption utility from haggling and prefer clearly structured information on prices and possible discounts.

Therefore, neither sellers nor consumers are interested in a situation where excessive pricing and intense bargaining accompany trade. Coming back to the fears stated in the introduction we can uncover them as disproportionate activity of pressure groups. In sum, bazaar-like haggling is not to be expected as a common feature of German retail trade.

\(^{11}\)Main issue of this criticism is a lack of data privacy protection that exploits consumers’ inexperience with the far reaching possibilities of information technology. Breach of law seems to be a common feature of customer-card programs (s. http://www.computerwoche.de/nachrichten/543767/).
Literaturverzeichnis


