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# What affects customer success when bargaining for a new car? Some empirical evidence☆

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ABSTRACT

Data about 233 new car models were collected, and a measure of customer success in bargaining for a new car (alpha) was created by computing the ratio between the discount received on the manufacturer's suggested retail price (MSRP) and the negotiable range (MSRP – dealer's car cost). One hypothesis was that customers who purchase more expensive cars succeed less in bargaining because of their higher time value. A second hypothesis was that a positive correlation between the negotiable range and alpha should exist, because of either customer incentives to bargain or dealer's bargaining strategy. Both hypotheses were supported by the data.



## 1. Introduction

In many situations involving two or more players, outcomes are determined by negotiations and bargaining among the involved parties. This happens not just in economic and business situations, but also in social, political, and diplomatic situations. The importance of negotiations and bargaining in these various situations has led to a large literature in various fields, including economics, psychology, and conflict management. Much of this literature uses theoretical models (e.g., Rubinstein, 1982), lab experiments (e.g., Moran and Ritov, 2002; Gneezy et al., 2003), or field experiments (e.g., List, 2004).

One market in which most transactions are conducted after a bargaining process is the US market for new cars. This is an interesting market to explore in order to obtain empirical evidence about bargaining outcomes for several reasons: first, the amounts of money involved are large, so customers and dealers have large incentives to bargain and negotiate optimally; the effect of doing so can be savings (or extra profits) of hundreds and even thousands of dollars. Consequently, people indeed take bargaining for a new car seriously, and various websites and even books give advice on how to negotiate effectively for a new car (e.g., Lyle, 1999; Bragg, 2004; Ford, 2005; Reed, 2005).

Second, bargaining for a new car is a process that can take many hours and even days,[1] so also on the effort part choosing how and how much to negotiate has significant implications. In addition, many cars are sold each year, various data about the cars and the transactions are available, the same good is sold to many different people (as opposed to some other markets involving large transactions such as the real estate market), and the good's value is not very subjective (as in the market for art, for example). Because of these attractive characteristics of the car market, various studies have used this market to explore different issues. Ayres and Siegelman (1995) and Goldberg (1996), for example, examine the issue of discrimination in the car market. Goff et al. (1997) study how salesperson behavior affects customer satisfaction with the

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[1] Some of the effort associated with car purchase bargaining is to elicit offers from competing dealerships, and eliciting several offers when each might require a few hours to get to the dealership and negotiate can easily take several days.

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salesperson, dealer, product and manufacturer in a sample of new car buyers. Busse et al. (2006) examine to what extent promotions offered by auto-manufacturers reduce the net price paid by customers. Verhoef et al. (2007) study brand and dealer retention in the new car market.

This article examines the relationship between the outcome of the bargaining (between the customer and the dealer) and the characteristics of the car purchased, such as the car's MSRP (manufacturer's suggested retail price) and the dealer's cost of the car. Of particular interest is the question what affects the success of the customer in the bargaining process. The analysis supports the hypothesis that higher time value of the customer leads to less success in bargaining. The analysis also shows that when the negotiable price range is higher, the customer secures a larger relative portion of it, suggesting that customers make more bargaining effort when they have more to gain from bargaining. However, another potential explanation for the positive correlation between the negotiable price range and the customer's success is also suggested. The rest of the article is organized as follows: Section 2 discusses the data collected, Section 3 presents two hypotheses to be tested using the data, Section 4 presents the results of the data analysis, and the last section concludes.

## 2. The data

The data were collected in 2003 by recording from the website http://www.Edmunds.com various characteristics about new cars. For each car that appeared in their database, only one trim level was chosen (since various trim levels of the same car may be very similar to each other), and various data about the car were recorded. The data collected included the car's MSRP, the invoice price (the price that the dealer pays the manufacturer for the car), the dealer holdback (a sum of money that the manufacturer pays the dealer back on the car), and the National True Market Value (the average price that consumers pay for this car, computed by http://www.Edmunds.com based on actual transactions data, henceforth NTMV). In some cases the available data about a car were insufficient, for example because http://www.Edmunds.com did not have information about the invoice price. In total, useable data were obtained about 233 different models.

The invoice price minus the dealer holdback is the net cost of the car for the dealer, and is therefore defined below as the dealer's cost. Since the dealer cannot make a profit by selling cars below their cost, the dealer's cost represents a lower bound on the negotiated price of the car. The MSRP is the price that the manufacturer suggests for a car, and it is also known as the sticker price because this is the price that is written on the car. However, customers generally know that this price is only the starting point, and that it is possible to negotiate with the dealer about the price. Therefore the MSRP can be interpreted as the upper bound to how much a customer might pay for the car. Consequently, the range between the dealer's cost and the MSRP is the range in which bargaining takes place.[2] Henceforth, let us use "Cost" for the dealer's cost, and define the term "negotiable range" by:

$$\text{Negotiable range} = \text{MSRP} - \text{Cost}.$$

[2] The dealer obviously knows both his cost and the MSRP. The customer knows the MSRP, and can easily obtain the information about the dealer's cost, since the information about the invoice price and the dealer holdback is publicly available for free in many websites, such as Edmunds.com. Even if the customer does not know the dealer's cost, the dealer's bargaining behavior might provide signals about it. In any case, none of the analysis below depends on whether the customer knows the dealer's cost or not.

We can now use the ratio between the discount that the average customer obtained on the MSRP (which is equal to MSRP − NTMV) and the total negotiable range (MSRP − Cost) as a measure of the customer's success in the bargaining process. Let us define this ratio as $\alpha$:

$$\alpha = \frac{\text{MSRP} - \text{NTMV}}{\text{MSRP} - \text{Cost}}$$

Notice that $\alpha$ is a number between 0 and 1, where a higher $\alpha$ represents more customer's success in the bargaining process.

Table 1 presents summary statistics of the data. We can see that for the average car in the sample, the negotiable range, which is also the hypothetical markup in dollars (i.e., how much above cost the dealer would sell the car if he could sell it for the price suggested by the manufacturer), is $3741, or 12.9% of the car's cost to the dealer. The actual markup (according to average real transaction data, and reflecting the outcome of the bargaining between the dealer and the customer), which is given by NTMV − Cost, is on average $1851 (or 5.7% of the car's cost); the median markup, however, is much smaller (since the average is affected by some high markups on expensive cars) – only $1172, or 4.5% of the car's cost. On average, the customer receives after the bargaining process a discount of $1890 on the MSRP, or 54.5% of the negotiable range.

## 3. Hypotheses

The most interesting aspect that the data allow to examine is the relationship between the customer's success in the bargaining ($\alpha$), the car's price, and the negotiable range. Two main hypotheses seem interesting to explore. One hypothesis is that customers with lower value of time will have more success in the bargaining process. The reason is that the bargaining process requires time, for example, staying longer in the dealership in order to keep negotiating about the car's price, spending more time eliciting offers from other dealers in order to be able to lower the negotiated price, etc. Assuming that there are diminishing marginal returns to effort in bargaining (i.e., that the first hour devoted to bargaining reduces the price by more than the fifth hour), the optimal strategy for the customer is to bargain as long as the marginal returns of additional bargaining are above the value of the customer's time, and stop bargaining once this condition no longer holds. The lower the value of the customer's time, the more bargaining is optimal, and the higher $\alpha$ should be.

The value of the customer's time is closely related to the customer's income, for two reasons. First, many people can earn more by working additional hours. By spending time doing things other than working (such as bargaining on the car and eliciting additional price quotes from other dealers), they forgo this additional earning opportunity. Consequently, the higher is the hourly income of the person, the more he forgoes by dedicating an additional hour to bargaining. Second, people with higher income are generally richer, and richer people have on average a higher willingness to pay for most things, including leisure time. Spending less time on bargaining increases the leisure time the person has for more enjoyable activities. For example, in a situation where additional two hours of bargaining effort are likely to result in saving an additional $100, it is more likely that someone with a mortgage and a credit card debt will continue bargaining than that someone with two million dollars in the bank will do the same. These two considerations imply that a higher income leads on average to a higher value of time.

In addition, a higher income also leads on average to buy more expensive cars, because the person has larger financial resources and thus can afford to spend more money on the various goods and services he consumes, including cars. Because a higher income leads on average to both a higher value of time and to buying more