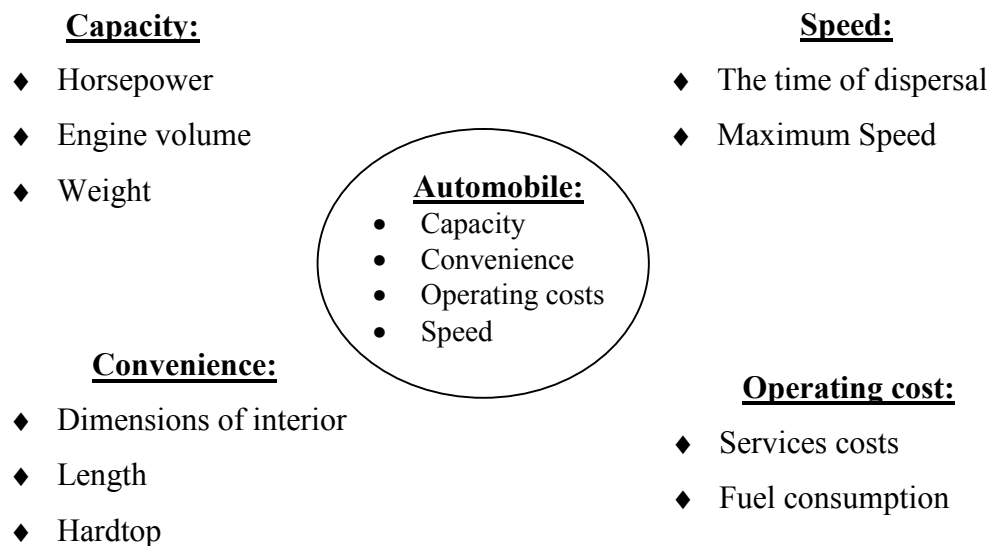


## Demand evaluation for cars

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It's not a secret that automobile industry plays an important role in the nation economy: it doesn't only refer to the huge tax payment and the job places, which they provide, but it also refers to such problems as economic growth and interdependence of economic development of these companies and the country based on high-tech innovations. Generally speaking Government is considering the automobile industry as a model which allows them to find out some specific features of technically complicated Russian companies which are trying to become more successful within global economy.

The very first step in achieving this is to find out as much as possible about the demand which firms face to reveal some more information on how producers are acting, how the industry is organized and how companies compete with each other trying to get better results, gain better profits or to maximize shareholder value. But there are some difficulties with demand evaluation, because an ordinary neoclassical analysis deals only with homogeneous products. And their results might



**Figure 1.** Automobile as a set of four major groups of characteristics.

be found unacceptable in our case. That's why we're using a model of differentiated products. The main difference between these two models is an assumption: it says that goods are valued for their utility-bearing attributes, which we've divided into four large groups: comfort, capacity,

speed and operating cost. It can be also illustrated with the following example: imagine, if you have definitely decided to buy a car and you've come to a middleman you will not be concerned with the question: "How many cars should I buy?" You'll be probably anxious with the question: "What should I buy?" or you'll be looking for a car with a suitable price and combination of attributes, which fascinate you, the most or which correspond to your status, to your life style, to your work and so on.

So the aim is to estimate the demand for a car as a set of attributes. We are using the separate relationship in the model, the first equation corresponds to price-quality relation:

$$\ln P_i = \beta_0 + \beta_1 V_{1i} + \dots + \beta_n V_{ni} \quad (1)$$

where  $P_i$  is the average list price of the  $i$ th firm's product, and  $V_{ji}$  is the level of the  $j$ th characteristic in the  $i$ th firm's product.

The second equation corresponds to price-quantity relation:

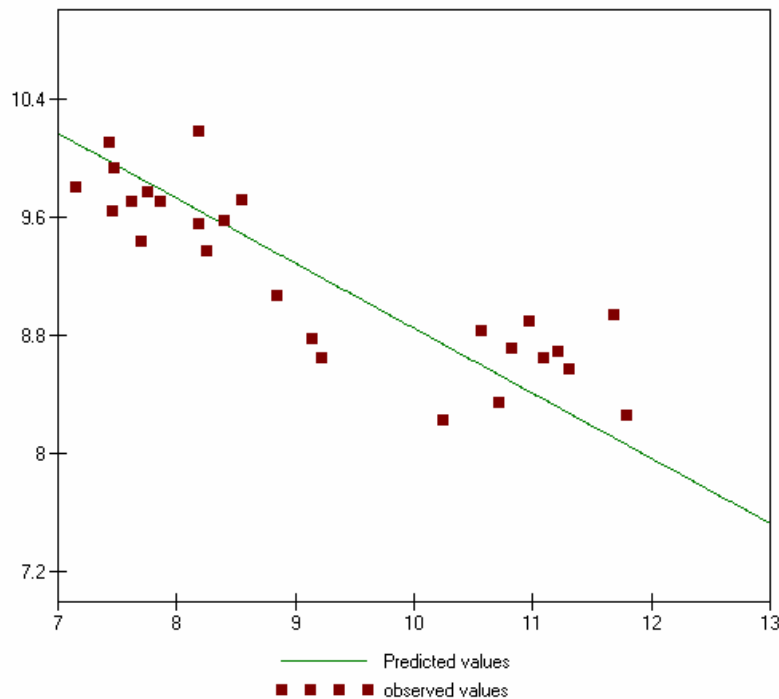
$$\ln q_i = \alpha_0 + \alpha_1 \ln P_i \quad (2)$$

where  $q_i$  is sales by the  $i$ th and  $P_i$  is the list price of the  $i$ th model.

In the end, after using OLS estimation, we have got the following results, which are shown in Table 1 and in the equation (3).

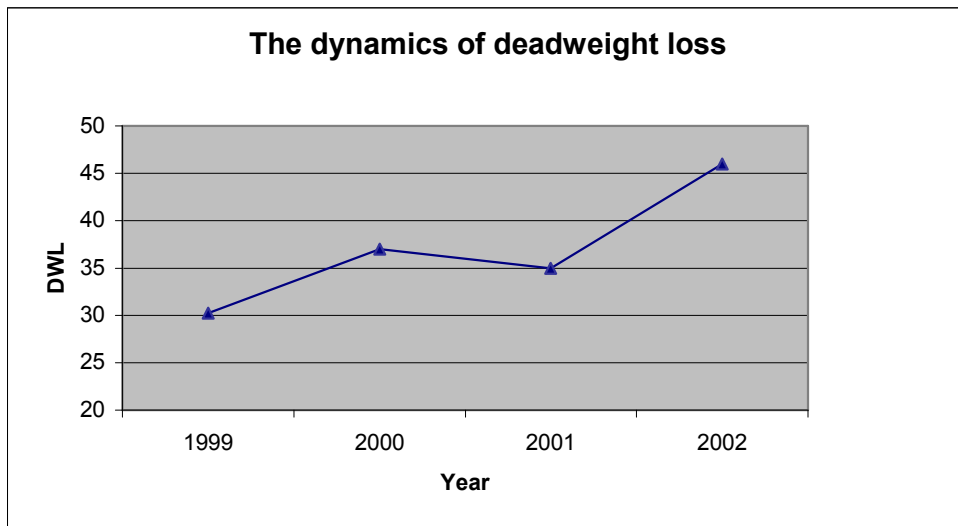
$$\ln q_i = 30,154 - 2,276 \ln P_i \quad R^2 = 0,78 \quad (3)$$

**Price-Quantity Relation in Cars 2000-02: Dependent Variable Price**

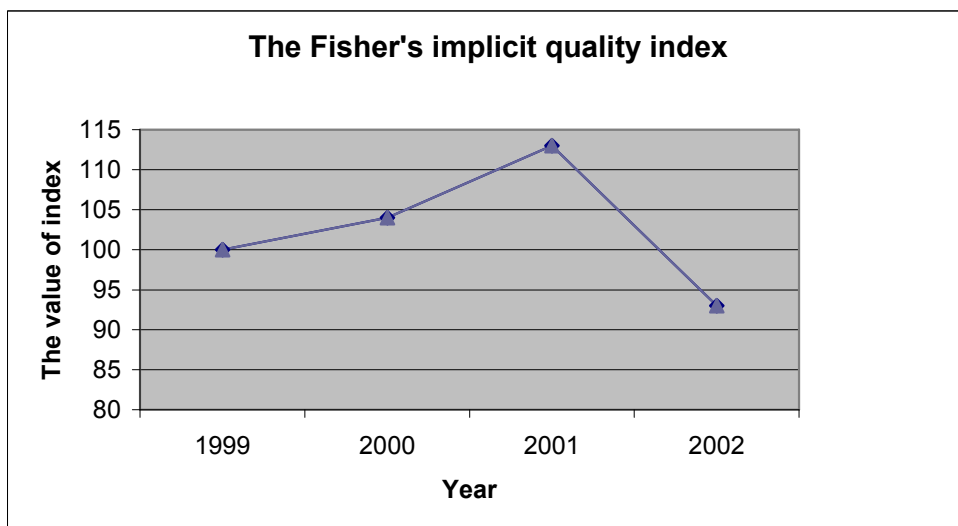


Now I'd like to present two main aspects of application. First of all, given such information will be able to evaluate the degree of monopoly in the industry by the mark-up over marginal cost – and there by make some estimate of the size of welfare loss associated with monopoly.

The second aspect of application allows us to get some estimates of the Fisher's implicit quality, which shows how much the price change within a year was correlated to the quality change. For example, if the



average price change was greater than the corresponding quality change then the value of index would be less than 100% and vice versa. Now let's have a look at the diagrams: as you can see from 2001 till 2002 there was a substantial growth of deadweight loss and significant decrease of quality index. We believe this is due to tariff barriers growth.



I've given a brief of what I consider to be a powerful way of trying to explain and predict industry development, and a way that leads to suggestions for policies on how to stimulate economic growth of the industry and the country.

Table 1

Price – quality relationship for cars, 2000-02						
Variable	2000		2001		2002	
	Coefficient	t statistics	Coefficient	t statistics	Coefficient	t statistics
Constant	5,387066697	10,19	5,49608418	13,93	6,838535016	9,47
Maximum Speed	0,009627722	2,49	0,01155812	3,71	0,008064513	1,43
Full weight	0,00198374	5,34	0,001556172	4,81	0,001131202	1,95
Fuel consumption	-0,160308908	-4,23	-0,116857062	-3,63	-0,122181475	-2,07
R <sup>2</sup>	0,88		0,90		0,63	
F statistics	67,76		86,01		15,36	

Price-Quality Relation in Cars 2000-02: Dependent Variable Maximum Speed

