

## A Study on the Factors Affecting the Value of Used Cars in Panzhihua Region

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**Abstract.** In recent years, with the further development of the economy, the second-hand car industry in our country has developed rapidly. However, a variety of negative factors that affect the healthy development of the industry are gradually emerging. Especially in the used car evaluation system, seriously missing a unified industry standard.

Starting from the substantive, functional, economical three depreciation theory, systematic research on the influencing factors of used car value, combined with the geographical features of Panzhihua factors were screened by the used car value in Panzhihua this three city consumers pay special attention to the influence of.

### used car value evaluation method

Used car value evaluation method is to determine the value of used car means and methods. From the perspective of subject evaluation, evaluation method and evaluation method of the same equipment second-hand car, follow the general theory of asset evaluation, generally divided into replacement cost method, income method, liquidation price method and the current market value method, but these methods cannot copy, because the secondary use of the environment, for the strength, maintenance level gap, so according to the specific features of the second-hand car, the evaluation method of adjustment, optimization, finally obtains the evaluation method of fair and reasonable scientific[8].

### used car value evaluation basic method

The methods used in the evaluation of second-hand vehicles include reset cost method, income present value method, liquidation price method and current market value method, etc., and select suitable assessment methods according to specific problems.

The replacement cost method refers to the present conditions, the purchase of all the costs required for a new vehicle exactly the same, and method of assessment of the price minus the difference between reality assessments of vehicle depreciation is the evaluation of the vehicle. Its basic formula:

$$P = Q - D_1 - D_2 - D_3 \quad (1)$$

Type: P - Vehicle Evaluation value;

Q - Replacement cost;

D1 - entity devaluation;

D2 - functional devaluation;

D3 - economic devaluation.

or

$$P = Q \times E \quad (2)$$

Type: P - Vehicle Evaluation value;

Q - Replacement cost;

E -to new rate.

The three major devaluation theories of assets: economic depreciation, functional devaluation, and substantive devaluation. The entity depreciation of a vehicle is the depreciation of a vehicle due to the

material loss of the vehicle. The functional depreciation of vehicles refers to the depreciation of vehicles caused by the invisible loss of vehicles due to the development of science and technology and the improvement of productive forces. Economic depreciation refers to the depreciation of vehicles due to changes in the external environment.

Calculation of replacement cost of used cars is generally divided into two methods: first, the replacement accounting method; two is the price index law [9].

Based on the value component of the vehicle being evaluated, the method of calculating the replacement cost of the vehicle to be evaluated on the basis of the prevailing market. Depending on the purpose of the calculation, the method of calculating the replacement cost is slightly different. There are two ways:

1) The economic behavior of belongs to the transfer of ownership, the replacement cost of full price is the evaluation of vehicle current market price, the cost of everything he spent.

2) Belongs to the economic behavior of enterprises in property right, the replacement cost of full price includes not only is the evaluation of vehicle current market price, can also add to the national and local tax.

The price index act refers to the method of calculating the cost of the previously evaluated vehicle and the replacement of the cost with the current price level.

$$Q = A \times \frac{B_1}{B_2} \quad (3)$$

Type : Q - replacement cost;

A - new car prices;

B1 - the price index at the time of evaluation;

B2 - price index when buying a car.

This approach effectively fills the gap between imported used cars and second-hand assessments.

The new rate is an indicator of the old and new levels of used cars. The new rate of used cars reflects the ratio of the condition of the used car to the condition of the car's brand new condition. The new rate is an important indicator of the replacement cost method to implement, how to scientifically and accurately determine the new rate, is to assess the emphasis and difficulty of the second-hand car by the replacement cost method. The determination of new rate mainly includes service life method, component identification method, vehicle observation method and comprehensive analysis method.

(1) Life method

The service life method must be based on two hypotheses. First, in the entire use cycle of used cars, the solid depreciation of used cars decreases linearly with time; two, the value of used cars decreases, which is directly proportional to the losses of used cars. The formula for calculating the new rate of service life:

$$E = \left(1 - \frac{N_1}{N_2}\right) \times 100\% \quad (4)$$

Formula: E - new rate

N1 - useful life

N2 - specified service life

The formula has been used since life refers to the vehicle on the date to the time today. The prescribed service life refers to the time stipulated by the state for the compulsory scrapping of such cars. Vehicle depreciation and the use of time not only between different vehicle maintenance level, different vehicles use strength, vehicle insurance is different, the influence of a series of reasons to assess the gap of second-hand car, so this method can only be used to value a rough estimate of the second-hand car or low value the second-hand car.

, Component identification method

Component identification method refers to the basic technical personnel through certain technical means to detect the technical condition of vehicle parts on the part of the vehicle, according to the

importance and value of the weighted score method to determine the new rate in the post. Its calculation method:

$$E = \sum_{t=1}^n (E_t \times K_t) \quad (5)$$

Formula: E - new rate

$E_t$  - new rate of T parts for used cars

$K_t$  - the weight of the t part of the used car

N - Number of used car components

This method takes into account both the solid loss of used cars, and the possibility of increasing the value of the vehicle by taking care of or replacing the parts. It is closer to the actual evaluation of the vehicle and has higher reliability. However, the weight relationship of each component is complex, the weight of each part is difficult to determine, and the operation process is more difficult than the complex fees. So many times, evaluators rarely take this approach. This method is only used to evaluate vehicles with higher value.

#### *f* Vehicle observation method

The whole vehicle observation method refers to the method that the appraiser uses manual observation, then adopts some instrument detection, and then evaluates the technical condition of the vehicle to determine the rate of the new method.

The premise of using the whole vehicle observation method to accurately estimate the rate of vehicle innovation is that the evaluators must have a certain professional level, and the evaluators must have considerable experience.

The new method is not accurate in component analysis, and is generally used only in the preliminary calculation of medium and low grade used car evaluation, which is not suitable for high-end cars. But in the actual operation process, no matter what kind of second-hand car evaluation is used, the technical level and experience of the evaluation personnel have great influence on the evaluation result.

#### ④ Comprehensive analysis method

Comprehensive analysis refers to the use of life as the basic foundation of vehicle is evaluated to calculate the depreciation rate, so as to obtain the basic new rate, combined with multiple factors in consideration of the influence of the second-hand car, eventually determine a comprehensive adjustment coefficient, so as to determine the new rate. Its formula is:

$$E = \left(1 - \frac{N_1}{N_2}\right) \times e \times 100\% \quad (6)$$

Formula: E - new rate

$N_1$  - useful life

$N_2$  - specified service life

E - Comprehensive adjustment factor

The comprehensive adjustment factor can be determined in the following two ways:

(1) Second-hand car without the need for repair or replacement, the adjustment coefficient can take comprehensive adjustment coefficient, weighted comprehensive adjustment coefficient.

(2) Vehicle repairs and replacement, or need an overhaul, partial weight can be changed or overhaul of the corresponding reduction, and then determine the comprehensive adjustment coefficient.

The use of a comprehensive analysis of detailed analysis of influence factors of second-hand car value method, and the use of a comprehensive adjustment coefficient index to adjust the vehicle into a new rate, the evaluation accuracy is higher, so the assessment of second-hand car comprehensive analysis method used in the medium value

To sum up, the shortcomings of the above four methods mainly focus on the single factor, the evaluation is time-consuming and laborious, and some of the data are subjective and difficult to grasp, and do not take into account the external macro conditions [9].

### **used car value factors**

The value of the used car is mainly affected by the three major depreciation theories of assets, physical depreciation, functional depreciation, economic depreciation of the main line of research.

#### **Substantial devaluation**

1) Technical performance: parameter of vehicle technical condition. For example, the power, economy, safety and so on of the vehicle.

2) Technical status: the actual state of the vehicle, mainly refers to the body, the engine, chassis, and the technical situation of the electrical system. The technical status of the vehicle can be determined by dynamic and static checks.

3) Service life: when the owner of a new car is registered with the traffic management department, the period of time until the date of evaluation.

4) Running mileage: the data on the odometer is the total mileage of the vehicle without changing or the process table is not damaged.

5) The nature of the work: the use of the vehicle. Different uses, the use of strength is also different. For example, the private car runs 30 thousand kilometers per year, and the taxi usually travels 150 thousand kilometers a year. From this we can see that the nature of the work is different, and the intensity of the use varies greatly.

6) The working conditions of the vehicle: refers to the work environment and the driving conditions, the environment and conditions of the value of the vehicle greatly affected.

7) The accident: is there any traffic accident, and traffic accidents. This has a greater impact on vehicle value evaluation.

8) The vehicle overhaul: refers to the characterization of vehicle replacement parts, vehicle overhaul will replace many parts, prolong the service life of the vehicle to a certain extent, and improves the performance of vehicles.

9) Maintenance: refers to the characterization of vehicle maintenance parameters, maintenance level has a great influence on the aging speed of vehicle.

#### **Functional devaluation**

Car ownership: refers to the quantity of a vehicle in a certain area, generally refers to households in the local vehicle registration. The higher the ownership, the higher the hedge rate of the used car, the lower the value of the car.

1) Content: compared with the same type of used car, there is no increase or decrease in some systems and components, the increase or decrease of the systems and components in the current market price is technical content. The higher the technical content, the higher the value, the lower the other.

2) The price of a new car, used car prices will break new price fluctuations, the higher the corresponding new car price is also higher, but if the new configuration is high, the used car high configuration with years of price increase and low with no what two.

3) After service: used car after-sales service is good, the quality of used cars can be guaranteed, customer service can buy, rest assured, even if the price is more expensive, you can understand.

4) Engine displacement: the product of the volume of the engine and the number of cylinders. From the current domestic situation, fancy cars are the mainstream of used car trading; small displacement cars are more and more popular with consumers. Because of small displacement, low fuel consumption, power is sufficient, and maintains a large quantity.

5) The car body color: no longer just for travel, or an entertainment tool. Everyone who buys a car first looks at the appearance, the first color is the appearance. According to the data show that the current car black, white, gray retains high, and its high rate of protection.

6) The automobile brand: different brands of the same configuration value may have great difference. A higher rate of car ownership, such as German cars, the rate of inflation is quite high.

### **Economic devaluation**

1) Supply and demand: supply and demand for used car prices greater impact. If the market is in oversupply, the transaction price will be relatively low, and if the market is under supply, the transaction price will be relatively high.

2) Price index: in a certain period of time, the higher the price level, the higher the price index, the higher the price.

3) Tax policy: a change in the tax policy on vehicle purchases will change the purchase cost of used cars.

4) Environmental policy: the higher the environmental requirements, the higher the demand for automotive engines, affecting the price of used cars. Some places require high environmental protection, low environmental protection of second-hand cars on the market limits.

To sum up, the factors that influence the value of used cars .

### **used car value influencing factors screening**

This is the used car market in Panzhihua city were studied. The factors for the used car more than a series of effects of some factors on the emphasis, some consumers desire to purchase is not affected, delete influence factors on small, selected the more important factors.

Panzhihua is a mountainous city with complex terrains and basins and valleys. The roads in the city are complex and diverse, with many ramps. The surrounding areas, as well as other towns and villages, are very complex. Basically, the roads are built around the mountains, so the demand for vehicles is high. The most direct demand may be the power, braking and so on. Panzhihua has a high altitude, the air is thin, and the requirements for the engine are relatively high. There is the average temperature in Panzhihua is not high, but in summer, the outdoor temperature is relatively high, and so the engine needs to have a high temperature resistance.

Panzhihua as one of the three line of the city while GDP relative to other city of Sichuan province is higher, but the gap between the rich and the poor is more serious, a lot of people's income level is relatively low, many people will choose to buy used car economic strength is not very strong, and the price factor is one of the factors must be considered by buyers.

A large part of the population of Panzhihua city is composed of floating population, they came to the city to work or work, whether business or work is to have a good economic benefits, so many in the car when will choose a cost-effective vehicle for him.

According to Panzhihua's geographical characteristics, environmental policy, engine maintenance, mileage is seldom considered, and the influence factors as consumers a maintenance level is very difficult to know, in order to let the car to sell more, this factor can indirectly know the maintenance condition of the car through the technical performance of the car so, no need to repeat the consideration. And because the engine displacement directly affects the economy of the vehicle, the technical performance of the car will be considered, so there is no need to consider it repeatedly. And because environmental protection policies are used, the car dealers have already lined up this factor (the car that does not satisfy the environmental protection policy cannot be traded), so there is no need to consider it. And because of the thickness of the film and the accident situation repeated. Mileage can be adjusted, and if the mileage is too long, a used car dealer is likely to change the odometer, so that taking mileage doesn't make any sense.

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Panzhuhua City, according to the geographical characteristics of the car body color, brand, customer service, the price of a new car, technical content, tax policy, price index, the relationship between supply and demand, vehicle maintenance, accident, working conditions, the nature of the work, the use of the influence factors on life, technical conditions, technical performance, ownership of Panzhuhua used car value.

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