

MOTOR VEHICLE VALUATION

BY

ENGR. BATTAH YAGA NDIRPAYA

MNSE, ASval, ASCostE, AEEcons.

BEING A PAPER PRESENED AT INSTITUTE OF
APPRAISERS AND COST ENGINEERS' 2011
NATIONAL CONFERENCE

SEPTEMBER 2011, ABUJA.

INTRODUCTION.

- **You cannot talk of transportation of persons, goods and services without talking about motor vehicles.**
- **Motor vehicles transports over 60% of persons, goods and services in Nigeria.**
- **Motor vehicle is one of the assets that abound everywhere in the world, second only to real estates.**
- **Therefore valuation of motor vehicle is so important that a valuer should know, because there is hardly any valuation assignment that motor vehicle is not involved.**
- **It is therefore expedient for a valuer to know the principles of motor vehicle valuation.**

In this paper, we are going to discuss:

- **What is motor vehicle valuation;**
- **The purposes for which motor vehicle valuation can be carried out;**
- **The factors affecting the value of motor vehicles;**
- **The principles of motor vehicle valuation; and**
- **The modern ways of computer aided motor vehicle valuation.**

A. WHAT IS MOTOR VEHICLE VALUATION?

Motor vehicle valuation can be defined as:

- The process of estimating the worth of a motor vehicle.**
- The act of estimating or setting the value of motor vehicle.**
- Engineering valuation/appraisal of motor vehicle is an art of estimating the value of motor vehicle where professional engineering knowledge and judgments are used.**

B. PURPOSES OF MOTOR VEHICLE VALUATION

Valuation of motor vehicle can be done for the following purposes:

- Sales/buying of second hand vehicles**
- Trade-in transactions**
- Taxation**
- Insurance**
- Sales and lease back transactions**
- Merger/Acquisition**

C. FACTORS AFFECTING THE VALUE OF MOTOR VEHICLES

The factors/conditions that can affect the value of motor vehicles are:

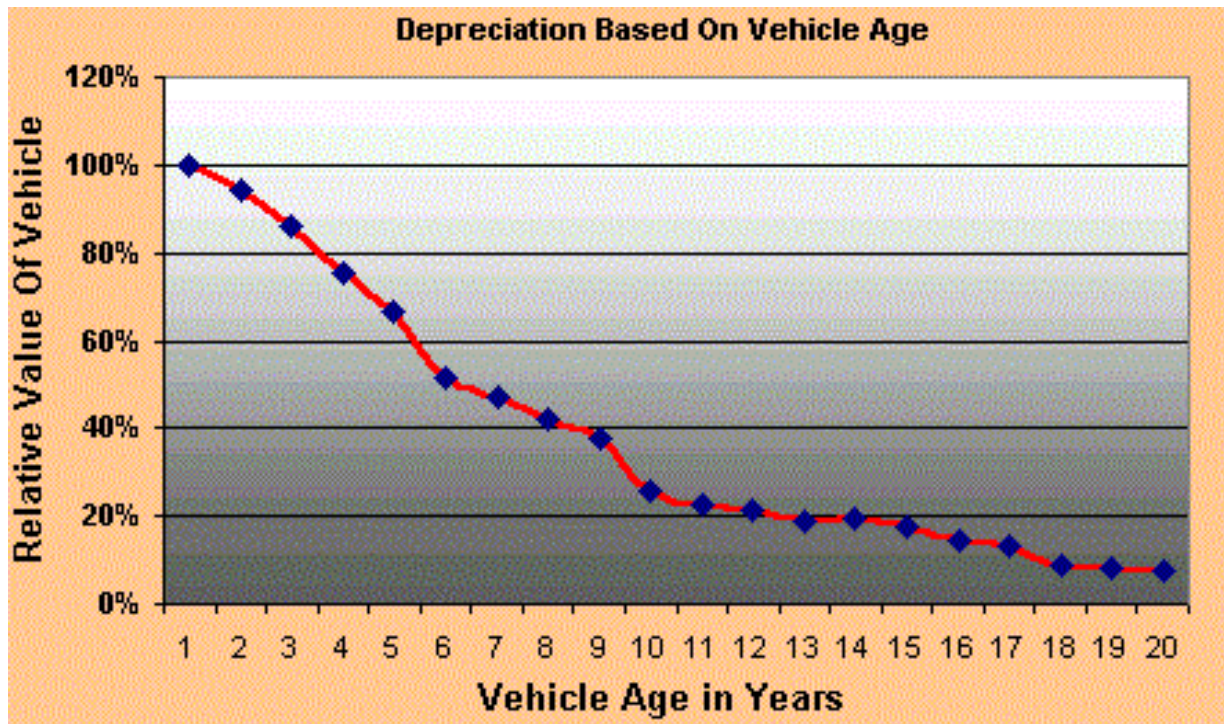
- Age/length of usage**
- Mileage/extent of usage**
- Condition of engine/transmission train**
- Body condition**
- Tire condition**
- Maintenance History**
- Functionality of accessories**

I. AGE/USEFUL LIFE OF A VEHICLE

- **The useful life of a vehicle depends on many factors. It differs from country to country and the use of the vehicle.**
- **The average vehicle life for a commercial vehicle in the US is 15 years, that of sales man is 10 years and that for private use is 20 years.**

The table below shows the average useful life of vehicles in different countries.

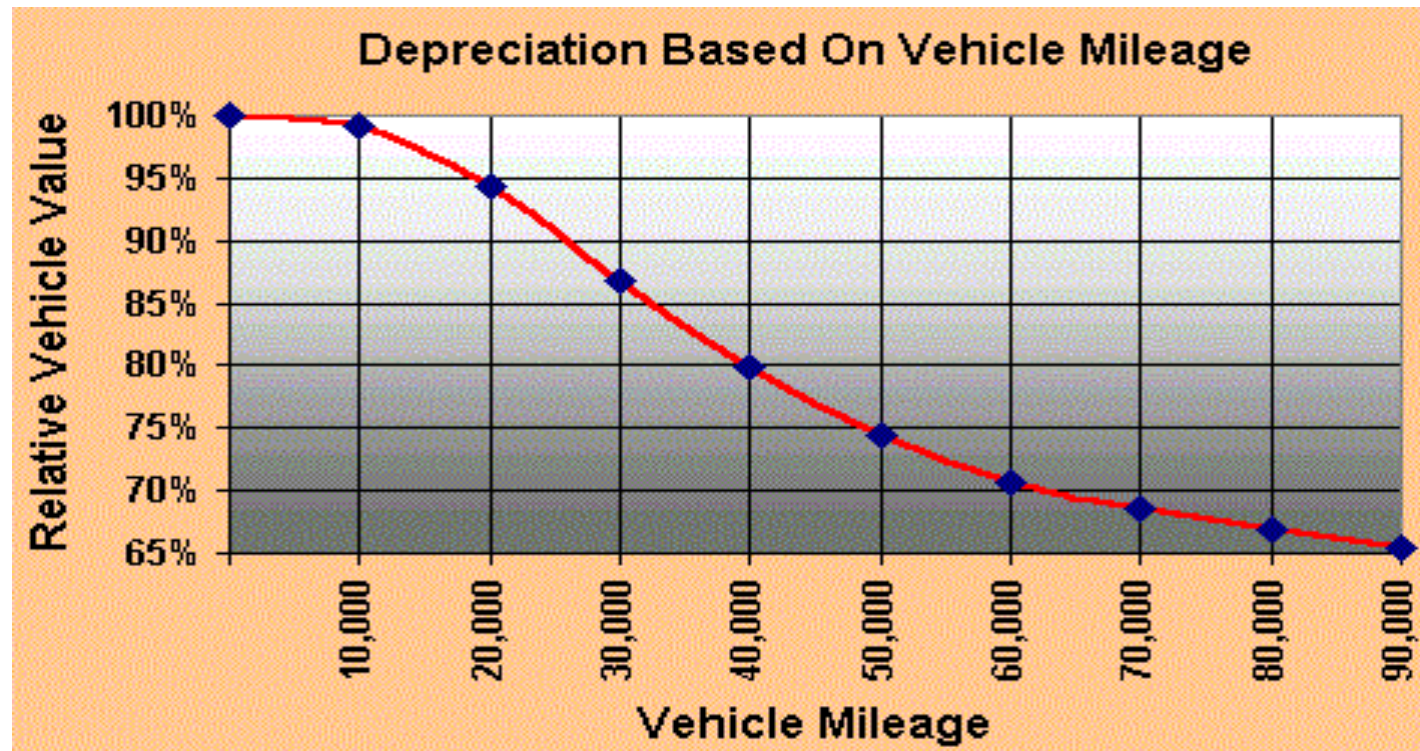
COUNTRY	USEFUL LIGE
• United state	10-15 years
• Europe	14 years
• Europe Union	12-15 years
• France	13 years
• Austria	12-15 years
• UK	13.95years
• Netherlands	7.2 years
• Germany	9-10 years
• India	20 years
• China	10 years
• Canada	225,000 km
• Australia	15 years
• Colombia	12-15 years
• Moroko	17 years
• Phillippines	10-15 years
• Note that there is none for Nigeria, it is our duty as professionals in this field to agree on a figure based on our circumstances and standardize it with Standard organization of Nigeria.	



- ✓ Age of a vehicle has been established to have great influence on the value of motor vehicle.
- ✓ The value of a vehicle drops rapidly during the first 10 years.
- ✓ At the end of 10 years, the vehicle is worth only 20% of its original value and at the end of 20 years it is worth only 10% of this original value.

II. MILEAGE/EXTENT OF USAGE

- **Most vehicles can be driven about 250,000 km before major repairs have to be made.**
- **As a vehicle is driven, mechanical parts of the car slowly wear out.**
- **The most expensive mechanical parts of a vehicle are the engine and the transmission train. The combine average life of these components is 250,000 km.**
- **Mileage also depreciates the vehicles' monetary value, thus making its resale value decrease with every kilometer you drive.**



➤ Vehicle depreciates a small amount during the first 10,000 Miles and then drops rapidly during the next 50,000 Miles to about 75% value of original cost. This is because the rate at which car depreciates is not same from year to year.

➤ It has been established that mileage never takes the value of a vehicle below 50% of its original value.

III. ENGINE AND TRANSMISSION CONDITION

- **As earlier said engine and transmission train are major factors in determining the value of a vehicle.**
- **The engine condition can be:
cracked or broken engine block, knocked, resurfaced crank shaft to 02 or 04, smoking exhaust, leaking engine oil, malfunction of gear box, malfunction of brake systems, etc**

IV. BODY CONDITION

- **The body condition of a vehicle have great effect on the monetary value of the vehicle.**
- **The body condition could be:
faded paint, body having scratches,
accidentated body at the boot, body or bonnet,
rusted body, roof or floor etc.**

V. STATE OF TIRES

- **Tires, even though they can easily be changed, its state at the time of valuation will be a factor and can also tell a story.**
- **Tires are usually classified either as new, fair or worn out.**

VI MAINTENANCE HISTORY

- **If a vehicle is maintained according to the manufacturer's specification, it will prolong its life and enhance its value, if not it will shorten its useful life.**

VII. FUNCTIONALITIES OF ACCESSORIES

- **The functionalities of the accessories in a vehicle is an indication of its age and an indication of how well it is maintained too.**
- **The value of vehicle is enhanced if the accessories are functioning well.**

D. COMPUTATION OF VALUATION FACTOR USING WEIGHT METHOD

- **The principles work on seven weighted headings with total weight of 50 units.**
- **Each heading is graded into 1 to 10. The best situation is graded 10 units, while the worst situation is graded 1 unit.**
- **The product of the weigh and the grade obtained is then summed up and divided by 500 being the product of the weigh and the best grade for each heading.**
- **The result of the above is the valuation factor which is a fraction of a unit.**
- **The product of the valuation factor and current market price give the value of the motor vehicle.**

E. TABLE OF WEIGHT

S/N	DESCRIPTION	WEIGHT
1	Condition of engine and transmission train	25
2	Age/length of usage	7
3	Mileage/Extent of use	5
4	The condition of the body	5
5	Functionality of facilities in the vehicle	5
6	Maintenance history	2
7	Condition of tires	1
	Total	<u>50</u>

F. GRADING OF VEHICLE COMPONENTS.

I. CONDITION OF ENGINE

1	Cracked or broke engine block	2.5
2	Knocked engine	2.0
3	Resurfaced crank shaft to 02 or 04	1.5
4	Smoking exhausts	0.5
5	Leaking engine oil	0.5
6	Malfunction of gear box	2.0
7	Malfunction brake systems	1.0

II. AGE/LENGTH OF USAGE

- **The average useful life of a commercial vehicle is 15 years. It is graded thus;**
- **1 year has 10 units while 15years have 1 unit.**
- **Depending on the number of years of usage, the units can be calculated.**

III. MILEAGE/EXTENT OF USEAGE

- The maximum mileage expected of a vehicle is 250,000 km.**
- It is graded in such a way that 250,000 km is 1 unit and 1 km is 10 units.**
- If the current mileage is obtained, the remaining mileage will be calculated and the units obtained.**

IV. CONDITION OF THE BODY

- Faded paint 1.0**
- Scratched body 1.5**
- Accidented body at boot, body or bonnet 4.5**
- Rusted body, roof or floor 3.0**

V. STATE OF TIRES

- **When the tire is new, it is graded 10 units, but when it is completely worn out it is graded 1 unit.**
- **The tires are graded either new, fair or worn- out.**
- **Depending on the physical assessment, the applicable units will be determined.**

VI. MAINTENANCE

- If the maintenance manual is being observed religiously, it will be graded 10 units.**
- When the vehicle is not being maintained at all, it is graded 1 unit.**
- Depending on the maintenance record and history, the appropriate units will be determined.**

VII. FUNCTIONALITY OF FACILITIES

- **If all the facilities in the car are functioning perfectly, it is graded 10 units.**
- **If all the facilities are not functioning, it is graded 1 unit.**
- **Depending on the state of the facilities in the vehicle, the appropriate units will be determined.**

G. EXAMPLE OF VALUATION

- I. Let us value a Toyota Corolla 1.8 GL vehicle of 2006 model and have a mileage of 75,000 km, assuming the current market price is N3, 500,000:00

➤ VALUATION FACTOR TABLE

S/N	DESCRIPTION	WEIGHT(W)	GRADE (G)	W X G
1	Age of vehicle	7.0	6.5	45.5
2	Mileage of vehicle	5.0	7.0	35.0
3	Engine/transmission train cond.	25.0	7.0	175.0
4	Body condition	5.0	7.5	37.5
5	Facilities conditions	5.0	7.0	35.0
6	Maintenance history	2.0	7.0	14.0
7	Tire condition	1.0	6.0	6.0
		<u>50.0</u>		<u>348.0</u>

➤ VALUATION FACTOR; $V_f = \frac{W \times G}{500} = \frac{348}{500} = 0.696$

➤ VALUE = $V_f \times$ Current market price

➤ Value = $0.696 \times 3,500,000.00 = \text{\#}2,436,000.00$

II. Assuming this car had fatal head-on collision. What will be the value?

- The valuation factor table will be as follows:

<u>S/N.</u>	<u>DESCRIPTION</u>	<u>Weight (W)</u>	<u>Grade (G)</u>	<u>W xG</u>
1	Age of vehicle	7.0	6.5	45.5
2	Mileage of vehicle	5.0	7.0	35.0
3	Engine & transmission cond.	25.0	1.0	25.0
4	Body condition	5.0	1.0	5.0
5	Facilities conditions	5.0	1.0	5.0
6	Maintenance history	2.0	10.0	20.0
7	Tire condition	1.0	1.0	1.0
	Total	50.0		136.5

- Valuation Factor

$$Vf = \frac{W \times G}{500} = \frac{136.5}{500} = 0.273$$

- Current market price = #3.5 million

- Value = Vf x Current Market Price

- Value = 0.273 x #3,500,000 = #955,500.00

III. LOWEST VALUE OF MOTOR VEHICLE

- **The value of a vehicle in its worst condition after the useful life is 10% of the initial value or the current market value of that car which ever is greater.**
- $V_f = 50/500 = 0.1 = 10\%$

G. MODERN WAYS OF COMPUTER AIDED VEHICLE VALUATION

- **There are modern computer aided motor vehicle valuation in practice which are very useful but with some limitation because they mostly used useful life and/or mileage as the only factors to determine the valuation factor, which is not practically correct.**
- **The following are examples of the computer aided motor vehicle valuations:**

I. What's your car worth?

- **What's your car worth is being hosted by Drive.**
- **The information to be provided is;**
 - **Vehicle Make;**
 - **Vehicle Model;**
 - **Year of Manufacture;**
 - **Type of body;**
 - **The series.**

II. The GLASS'S GUIDE

- **The glass's guide is being hosted by Glass.**
- **The information to be provided is;**
 - **Vehicle Make;**
 - **Vehicle Model;**
 - **Year of Manufacture;**
 - **Registration Number**
 - **Mileage.**

III. MOTOR VALUATION CALCULATOR

- **The Motor Valuation Calculator is being hosted by EIMS e-motor centre.**

- **The information to be provided is;**
 - **Vehicle Make;**
 - **Vehicle Model;**
 - **Year of Manufacture;**
 - **Region;**
 - **Engine Capacity in CC.**

IV. FREE CAR VALUATION ONLINE

- **The Free Car Valuation online is being hosted by Carpoint**

- **The information to be provided is;**
 - **Vehicle Make;**
 - **Vehicle Model;**
 - **Year of Manufacture;**
 - **Registration Number**
 - **Mileage.**

V. FREE USED CAR VALUATIONS

- **The Free Used Car Valuations is being hosted by WhatCar?**

- **The information to be provided is;**
 - **Vehicle Make;**
 - **Vehicle Model;**
 - **Vehicle Version;**
 - **Year of Manufacture;**
 - **Mileage.**

CONCLUSION.

- **We have defined Engineering Valuation of vehicles. The importance of motor vehicle valuation cannot be over emphasized when it comes to sales and/or buying of second hand vehicles, taxation, Insurance, merger/acquisition of business enterprises, etc.**
- **It is high time Institute of appraisers and cost Engineers and indeed all Engineering Valuers start promoting motor vehicle valuation because of its huge potentials.**
- **Who knows, it could be our goldmine.**

•

THANK YOU FOR LISTENING