

Raj's dilemma of Buy or Rent-Time Value of Money



Introduction:

Raj is a young professional working with Wipro Technologies, Gurugram, who lives in Vasant Kunj, New Delhi and is currently deciding whether to use Uber or buy a car. He is aware of the benefits of owning a car, but he is also aware of the costs associated with it. Raj is interested in understanding the financial implications of these two options and wants to make an informed decision. Therefore, in this case study, we will use the time value of money concept to compare the cost of using Uber with the cost of owning a car in India.

Background Information:

Raj currently spends an average of Rs. 500 per day on Uber rides to commute to work, run errands, and socialize with friends. He estimates that he will use this mode of transportation for the next three years before deciding whether to buy a car or not. The average cost of a new car in his area is Rs. 10 lakhs, and he estimates that it will last him about ten years. Raj also estimates that the annual cost of maintaining a car, including fuel, insurance, and maintenance, will be about Rs. 50,000.

Analysis:

To compare the cost of using Uber with the cost of owning a car, we need to consider the time value of money. The time value of money concept states that the value of money today is worth more than the same amount of money in the future, considering the potential earning or investment opportunities of that money over time. Therefore, we need to account for the opportunity cost of Raj's money by considering the future value of his money.

Using Uber:

If Raj decides to use Uber for the next three years, he will spend Rs. 500 per day, which is Rs. 1,82,500 per year. Therefore, the total cost of using Uber for the next three years will be Rs. 5,47,500.

To account for the time value of money, we need to determine the future value of this amount. The formula for future value is:

$$FV = PV * (1 + r)^n$$

Where:

FV = Future Value

PV = Present Value

r = Annual Interest Rate

n = Number of Years

Assuming a 6% annual rate of return on his money, the future value of this amount after three years will be:

$$FV = 5,47,500 * (1 + 0.06)^3$$

$$FV = 6,42,407$$

Therefore, the total cost of using Uber for the next three years, accounting for the time value of money, is Rs. 6,42,407.

Buying a Car:

If Raj decides to buy a car, he will need to spend Rs. 10 lakhs upfront. Assuming a 6% annual rate of return on his money, the future value of this amount after ten years will be:

$$FV = 10,00,000 * (1 + 0.06)^{10}$$

$$FV = 18,23,116$$

In addition, he will need to spend Rs. 50,000 per year on maintenance, which will amount to Rs. 5 lakhs over ten years. Therefore, the total cost of owning a car for ten years will be:

$$\text{Total Cost} = 10,00,000 + 5,00,000 + (50,000 * 10)$$

$$\text{Total Cost} = 23,00,000$$

Therefore, the total cost of owning a car for ten years, accounting for the time value of money, is Rs. 23,23,116.

Conclusion:

Based on the analysis, we can see that the cost of using Uber for the next three years is Rs. 6,42,407, while the cost of owning a car for ten years is Rs. 23,23,116. Therefore, using Uber is a more cost-effective option for Raj in the short term. However, if he plans to use a car for more than ten years, owning a car may be a more financially viable option. It is essential to consider the time value of money and other financial factors before making any significant financial decision, such as buying a car or using Uber.