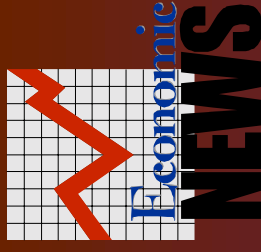




Economic Life



Economic life refers to the asset retention time(n) that yields its *lowest equivalent AW*

Example: Determine the economic life of an asset which has the costs shown below @ $i=10\%$

<u>Year</u>	<u>Cost,\$</u>	<u>Salvage value,\$</u>
0	-20,000	-
1	-5,000	10,000
2	-6,500	8,000
3	-9,000	5,000
4	-11,000	5,000
5	-15,000	3,000



Solution:

$$AW_1 = -20,000(A/P, 10\%, 1) - 5000(P/F, 10\%, 1)(A/P, 10\%, 1) + 10,000(A/F, 10\%, 1) = -\$17,000$$

$$AW_2 = -20,000(A/P, 10\%, 2) - [5000(P/F, 10\%, 1) + 6500(P/F, 10\%, 2)](A/P, 10\%, 2) + 8000(A/F, 10\%, 2) = -\$13,429$$

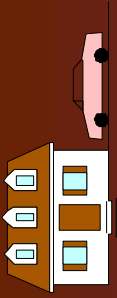
Similarly,

$$AW_3 = -\$13,239$$

$$AW_4 = -\$12,864$$

$$AW_5 = -\$13,623$$

Therefore, its economic life is 4 years



Replacement Analysis

Procedure used in evaluating an asset which is *presently owned* (known as the defender)

In calculating its AW, the P value to be used is its *current market value*

Example: An asset purchased 2 years ago for \$40,000 is harder to maintain than expected. It can be sold now for \$12,000 or kept for a maximum of 2 more years, in which case its operating cost will be \$20,000 each year, with a salvage value of \$10,000 after 1 year or \$9,000 after two. A suitable challenger will have an annual worth of -\$24,100 per year. At an interest rate of 10% per year, should the defender be replaced now, one year from now, or two years from now?

Solution:

$$\begin{aligned} AW_1 &= -12,000(A/P, 10\%, 1) - 20,000 + 10,000(A/F, 10\%, 1) \\ &= -\$23,200 \end{aligned}$$

$$\begin{aligned} AW_2 &= -12,000(A/P, 10\%, 2) - 20,000 + 9,000(A/F, 10\%, 2) \\ &= -\$22,629 \end{aligned}$$

Lowest AW = -\$22,629 Therefore, replace defender in 2 years

