

Estimating Relative Age and Useful Lives

Assets bought in the middle of the year

| Years old | 1 | 2 | 3 | 4 | Total | |
|--------------------------|-------|-------|-------|-------|-------|--------------|
| Cost of new asset | 600 | 600 | 600 | 600 | 1,800 | |
| Straight line | 0.167 | 0.333 | 0.333 | 0.167 | | |
| Depreciation expense | 100 | 200 | 200 | 100 | 600 | |
| Accumulated depreciation | 100 | 300 | 500 | 600 | 900 | Only first 3 |

$$\text{Average age} = \frac{\text{Accumulated Depreciation}}{\text{Depreciation Expense}} = \frac{900}{600} = 1.50$$

$$\text{Average depreciable life} = \frac{\text{Ending Gross Investment}}{\text{Depreciation Expense}} = \frac{1,800}{600} = 3.00$$

$$\text{Average age \%} = \frac{\text{Accumulated Depreciation}}{\text{Ending Gross Investment}} = \frac{900}{1,800} = 0.50$$

Sum of Years Digits

| | | | |
|----------|-------|-------|-------|
| Schedule | 0.500 | 0.333 | 0.167 |
|----------|-------|-------|-------|

| Years old | 1 | 2 | 3 | 4 | Total | |
|----------------------------|-------|-------|-------|-------|-------|-------------|
| Cost of new asset | 600 | 600 | 600 | 600 | 1,800 | |
| Sum of Years Digits | 0.250 | 0.417 | 0.250 | 0.083 | | |
| Depreciation expense | 150 | 250 | 150 | 50 | 600 | |
| Accumulated depreciation | 150 | 400 | 550 | 600 | 1,100 | Only last 3 |

$$\text{Average age} = 1,100 / 600 = 1.83$$

$$\text{Average depreciable life} = 1,800 / 600 = 3.00$$

$$\text{Average age \%} = 1,100 / 1,800 = 0.61$$

Effects of Inflation

Rate 10%

| Years old | 1 | 2 | 3 | 4 | Total | |
|--------------------------|-------|-------|-------|-------|-------|----------------------|
| Cost of new asset | 799 | 726 | 660 | 600 | 2,185 | Only last 3 1,986 |
| Straight line | 0.167 | 0.333 | 0.333 | 0.167 | | |
| Depreciation expense | 133 | 242 | 220 | 100 | 695 | |
| Accumulated depreciation | 133 | 363 | 550 | 600 | 1,046 | |
| Ending book value | 666 | 363 | 110 | | 1,139 | |

$$\text{Average age} = 1,046 / 695 = 1.50$$

$$\text{Average depreciable life} = 2,185 / 695 = 3.14$$

$$\text{using averages} = 2,085 / 695 = 3.00$$

$$\text{Average age \%} = 1,046 / 2,185 = 0.48$$