DISCOUNTED CASH FLOW EXAMPLE AND TABLE OF DISCOUNT FACTORS

In order to combine each year's net cash flow into a single aggregate figure, we need to convert them into equivalent terms by discounting, which converts future values into an equivalent present period value. For example, if choosing between $1000 today and $1000 next year, the best choice is $1000 today, as they can be invested in business or placed in a savings account, earning a return or interest rate. If the interest rate is 10%, $1000 will become $1,100 next year. Therefore $1000 expected next year is $1000/1.1 = $909.1 in present period terms. A general expression for calculating the net present value (NPV) is

$$\text{NPV} = \sum_{t=0}^{n} \frac{Bt - Ct}{(1+i)t}$$

where Bt and Ct are the benefits (revenues) and costs (expenditures) in each year t, i is the discount rate (rate of interest) and n is the life of the project. The calculation of NPV can be easily undertaken using discount tables.

A project is worth proceeding with if its NPV is positive

Example of discounting and calculation of Net Present Value

Suppose your intervention is expected to give benefits in year 3 and 4 of $1500 each. The costs are $1500 in year 0 and $300 annually for years 1 - 4. The discount rate is 10%.

Year	**0**	**1**	**2**	**3**	**4**
Benefits	0	0	0	1500	1500
Costs	1500	300	300	300	300
Net Benefits	-1500	-300	-300	1200	1200
Discount Factor (for 10%)	1.000	0.909	0.826	0.751	0.683
Discounted Net Present Value	-1500	-272.7	-247.8	901.2	819.6

Cumulative Net Benefits = – 1500 – 300 – 300 + 1200 + 1200 = 300

Total Net Present Value = – 1500 – 272.7 – 247.8 + 901.2 + 819.6 = – 299.7

Discount Factors

	Discount rates in %									
Year	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.980	0.976	0.971	0.966	0.962	0.957	0.952	0.948	0.943	0.939
2	0.961	0.952	0.943	0.934	0.925	0.916	0.907	0.898	0.890	0.882
3	0.942	0.929	0.915	0.902	0.889	0.876	0.864	0.852	0.840	0.828
4	0.924	0.906	0.888	0.871	0.855	0.839	0.823	0.807	0.792	0.777
5	0.906	0.884	0.863	0.842	0.822	0.802	0.784	0.765	0.747	0.730
6	0.888	0.862	0.837	0.814	0.790	0.768	0.746	0.725	0.705	0.685
7	0.871	0.841	0.813	0.786	0.760	0.735	0.711	0.687	0.665	0.644
8	0.853	0.821	0.789	0.759	0.731	0.703	0.677	0.652	0.627	0.604
9	0.837	0.801	0.766	0.734	0.703	0.673	0.645	0.618	0.592	0.567
10	0.820	0.781	0.744	0.709	0.676	0.644	0.614	0.585	0.558	0.533

11	0.804	0.762	0.722	0.685	0.650	0.616	0.585	0.555	0.527	0.500
12	0.788	0.744	0.701	0.662	0.625	0.590	0.557	0.526	0.497	0.470
13	0.773	0.725	0.681	0.639	0.601	0.564	0.530	0.499	0.469	0.441
14	0.758	0.708	0.661	0.618	0.577	0.540	0.505	0.473	0.442	0.414
15	0.743	0.690	0.642	0.597	0.555	0.517	0.481	0.448	0.417	0.389
16	0.728	0.674	0.623	0.577	0.534	0.494	0.458	0.425	0.394	0.365
17	0.714	0.657	0.605	0.557	0.513	0.473	0.436	0.402	0.371	0.343
18	0.700	0.641	0.587	0.538	0.494	0.453	0.416	0.381	0.350	0.322
19	0.686	0.626	0.570	0.520	0.475	0.433	0.396	0.362	0.331	0.302
20	0.673	0.610	0.554	0.503	0.456	0.415	0.377	0.343	0.312	0.284
21	0.660	0.595	0.538	0.486	0.439	0.397	0.359	0.325	0.294	0.266
22	0.647	0.581	0.522	0.469	0.422	0.380	0.342	0.308	0.278	0.250
23	0.634	0.567	0.507	0.453	0.406	0.363	0.326	0.292	0.262	0.235
24	0.622	0.553	0.492	0.438	0.390	0.348	0.310	0.277	0.247	0.221
25	0.610	0.539	0.478	0.423	0.375	0.333	0.295	0.262	0.233	0.207