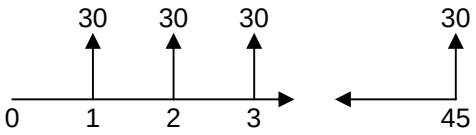
Human Capital Exercise
Notes on Solution

Note: all amounts are in thousands of dollars.

1 PV of income without grad school

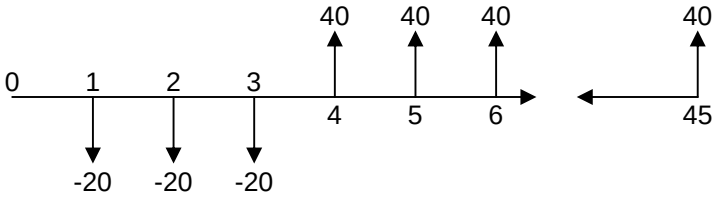
Assuming payments begin in one year:



PV in year 0 if the payments went on forever:	600.0
PV in year 0 of the payments after year 45	66.8
PV in year 0 of the payments between 0 and 45:	533.2

2 Value of going to law school

Gross value of going to law school:



Value of the income stream:

PV in year 3 if the 40K payments went on forever:	800.0	
PV in year 3 of the payments after year 45	103.1	<-- 800/(1.05)^42
PV in year 3 of the payments between 4 and 45:	696.9	<-- 800-103
PV in year 0 of payments between 4 and 45:	602.0	<-- 697/(1.05)^3

Value of tuition:

year	pmt	PV
1	20	19.0
2	20	18.1
3	20	17.3
sum		54.5

Overall value of going to law school:

PV of income	602.0
PV of tuition	-54.5
Total	547.6

Gross value of law school is $548 thousand

3 Decision

Would be a good idea to go to law school. The gross value of law school is $548 thousand while the value of going to work right away is $533 thousand.

If the interest rate were a lot higher, the decision would tip away from law because the increased salary doesn't show up right away. Here are a couple of calculations of the NET value of going to law school (eg, the value of each year's costs or benefits from law school less the income that could be earned without law school):

	5%	7%	10%
Change in annual income	10.0	10.0	10.0
PV of an infinite stream of changes	200.0	142.9	100.0
PV at 0 of years 4-42	150.5	109.8	73.8
PV of foregone income plus tuition payments			
1	-47.6	-46.7	-45.5
2	-45.4	-43.7	-41.3
3	-43.2	-40.8	-37.6
Total PV	14.3	-21.4	-50.6

The key is that the PV at 0 of the extra income drops very rapidly as the interest rate rises. It gets to be easier and easier to obtain the same increase in income by putting money in the bank.