Question #59993, Economics, Other

Suppose going to college costs 20,000 a year. The average earnings of a highschool graduate are 20,000 a year. By going to college, suppose one can expect to earn 50,000 a year. Set up the expressions for the present value of benefits and costs, and the net present value of a college education if the interest rate is 10%.
How does this change if the interest rate is 15%? Why is the investment in college less attractive when the interest rate is high?

Answer:

Present value: $PV=FV(1+i)^{-1}$
Where FV – future value;
i – interest rate;
n – number of years.
$PV=50,000\cdot(1+0.1)^{-2}=41,500$

Net present value: $NPV= \sum \{Net\ Period\ Cash\ Flow/(1+i)^{n}\}$ - Initial Investment
$NPV_{10\%}= \sum \{50,000/(1+0.1)^{2}\} – 20,000=21,322$
$NPV_{15\%}= \sum \{50,000/(1+0.15)^{2}\} – 20,000=17,807$
Net present value of an investment into college education decreases with the growth of an interest rate. It is because the growth of an interest rate makes it more beneficial to store money in the bank instead of investing into study.