

Survival with savings

Monthly Expense

```
Rent= 1600;  
Utilities = 200;  
Groceries = 500;  
Transportation = 300;  
Vacation = 0;  
Shopping = 200;  
Hospital = 0;  
  
Expense = Rent + Utilities + Groceries + Transportation + Vacation + Shopping + Hospital;  
  
disp(['Monthly Expense = ',num2str(Expense),' USD']);
```

```
Monthly Expense = 2800 USD
```

Monthly Expense in a cheaper town

```
Expense2 = 2800;
```

Rates

```
Tax = 28; %  
Capital_Gains_Tax = 15;%  
Inflation = 2.46;%  
Savings_Return_Rate =10 ;%
```

Initial Savings

```
Initial_Savings = 132000;  
parentsHome = 0;
```

Yearly Income

```
Income = 110000;  
Income_Increment_Rate = 3;
```

Calculation

```
Stop_Work_Year = 5;  
  
iSavings(1)= Initial_Savings;  
for i = 1:1:100  
    if i<=Stop_Work_Year  
        iIncome(i) = Income*(1+(i-1)*Income_Increment_Rate/100);  
        iExp(i) = 12*Expense*(1+(i-1)*Inflation/100) + (Tax/100)*iIncome(i);
```

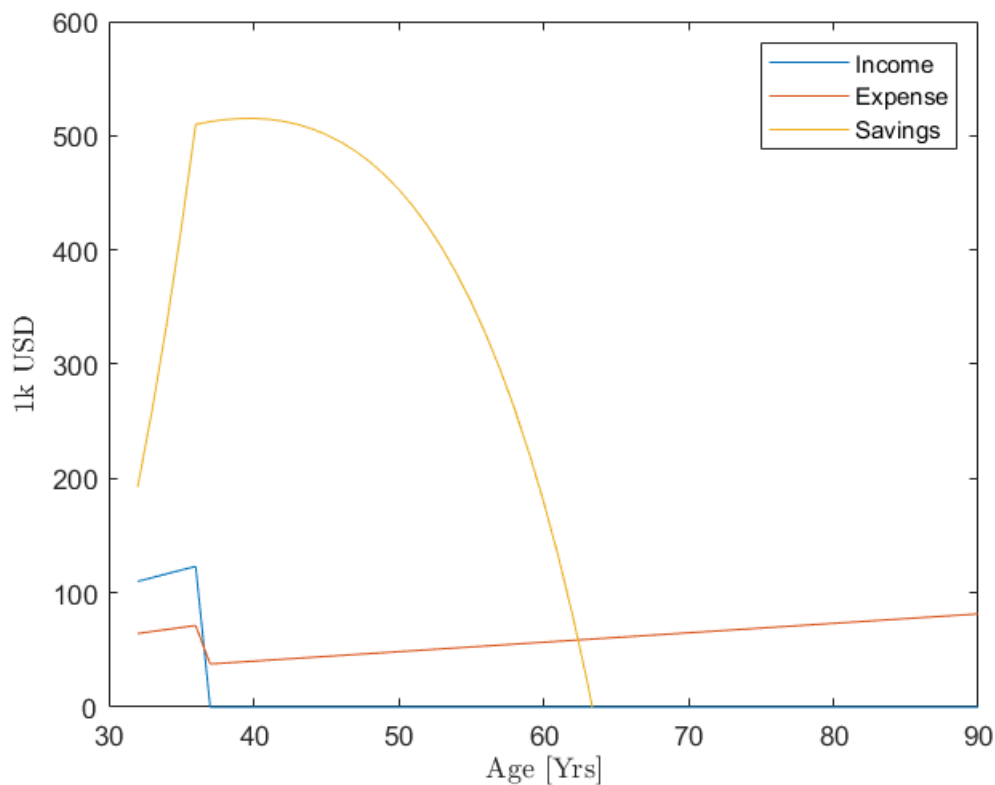
```

else
    iIncome(i)=0;
    iExp(i) = 12*Expense2*(1+(i-1)*Inflation/100);
end

if i==1
    iSavings(i) = iSavings(i) + iIncome(i) - iExp(i);
else
    iSavings(i) = iSavings(i-1)+iIncome(i) - iExp(i);
end
iSavings_Interest(i) = ((iSavings(i))*Savings_Return_Rate/100)*(1-Capital_Gains_Tax/100);
iSavings(i) = iSavings(i) + iSavings_Interest(i);
if(i==30)
    iSavings(i) = iSavings(i) + parentsHome*(1+30*Inflation/100);
end
end

figure;
years = 1:1:100;
plot(years+31,iIncome/1000);
hold on;
plot(years+31,iExp/1000);
hold on;
plot(years+31,iSavings/1000);
xlim([30,90]);
ylim([0,600]);
ylabel('1k USD');
xlabel('Age [Yrs]');
legend('Income','Expense','Savings');

```



```
[Stop_Work_Year,Years_To_Live]=calculate_retirement_possibilities(Initial_Savings,Income,Income
Inflation
```

```
Inflation = 2.4600
```

```
Tax
```

```
Tax = 28
```

```
Capital_Gains_Tax
```

```
Capital_Gains_Tax = 15
```

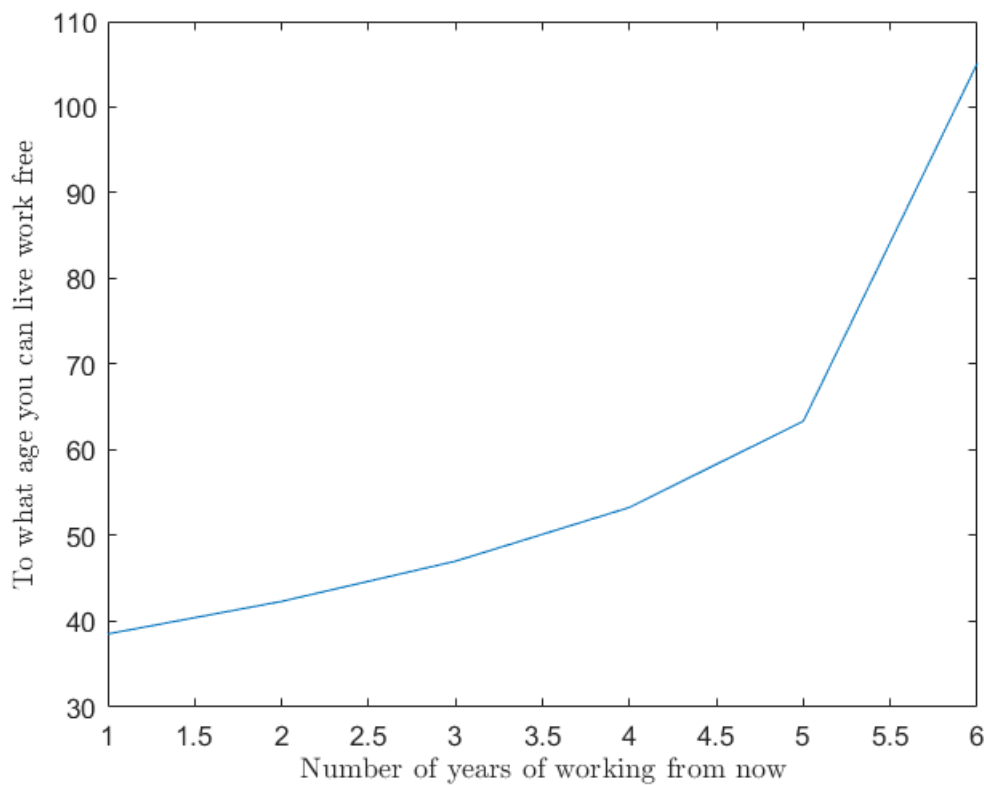
```
Savings_Return_Rate
```

```
Savings_Return_Rate = 10
```

```
disp(['Monthly Expense in Retirement City ',num2str(Expense2),' $'])
```

```
Monthly Expense in Retirement City 2800 $
```

```
figure;
plot(Stop_Work_Year,31+Years_To_Live);
xlabel('Number of years of working from now');
ylabel('To what age you can live work free');
```



```
disp(['No of Years to Work = ', num2str(interp1(Years_To_Live(~isnan(Years_To_Live)), Stop_Work_Y
```

```
No of Years to Work = 5.518
```

Function

```
function [Stop_Work_Year, Years_To_Live] = calculate_retirement_possibilities(Initial_Savings, Income_Increment_Rate, Expense_Inflation, Tax, Expense2)
Stop_Work_Year = 1:1:50;
years = 1:1:200;
for k = Stop_Work_Year
    iSavings(1) = Initial_Savings;
    for i = years
        if i <= k
            iIncome(i) = Income * (1 + (i-1) * Income_Increment_Rate / 100);
            iExp(i) = 12 * Expense * (1 + (i-1) * Inflation / 100) + (Tax / 100) * iIncome(i);
        else
            iIncome(i) = 0;
            iExp(i) = 12 * Expense2 * (1 + (i-1) * Inflation / 100);
        end

        if i == 1
            iSavings(i) = iSavings(i) + iIncome(i) - iExp(i);
        else
            iSavings(i) = iSavings(i-1) + iIncome(i) - iExp(i);
        end
    end
end
```

```

    iSavings_Interest(i) = ((iSavings(i))*Savings_Return_Rate/100)*(1-Capital_Gains_Tax/100);
    iSavings(i) = iSavings(i) + iSavings_Interest(i);
    if(i==30)
        iSavings(i) = iSavings(i) + parentsHome*(1+30*Inflation/100);
    end
end

Years_To_Live(k)=interp1(iSavings,years,0);
end
end

```