TORONTO SCHOOL OF MANAGEMENT

LIFE EXPECTANCY

Presented by:

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Instructor :
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Area
Health Care

Objective
To analyze different attributes that influence life expectancy in countries

Findings
The most important attributes across life expectancy are Schooling, Income composition of resources, Adult Mortality and HIV/AIDS.

Methodology

DATASET: **Life Expectancy** from Kaggle
Linear Regression to find the best variables
Data exploration using SAS

No. Observations = 2938
No. Variables = 22

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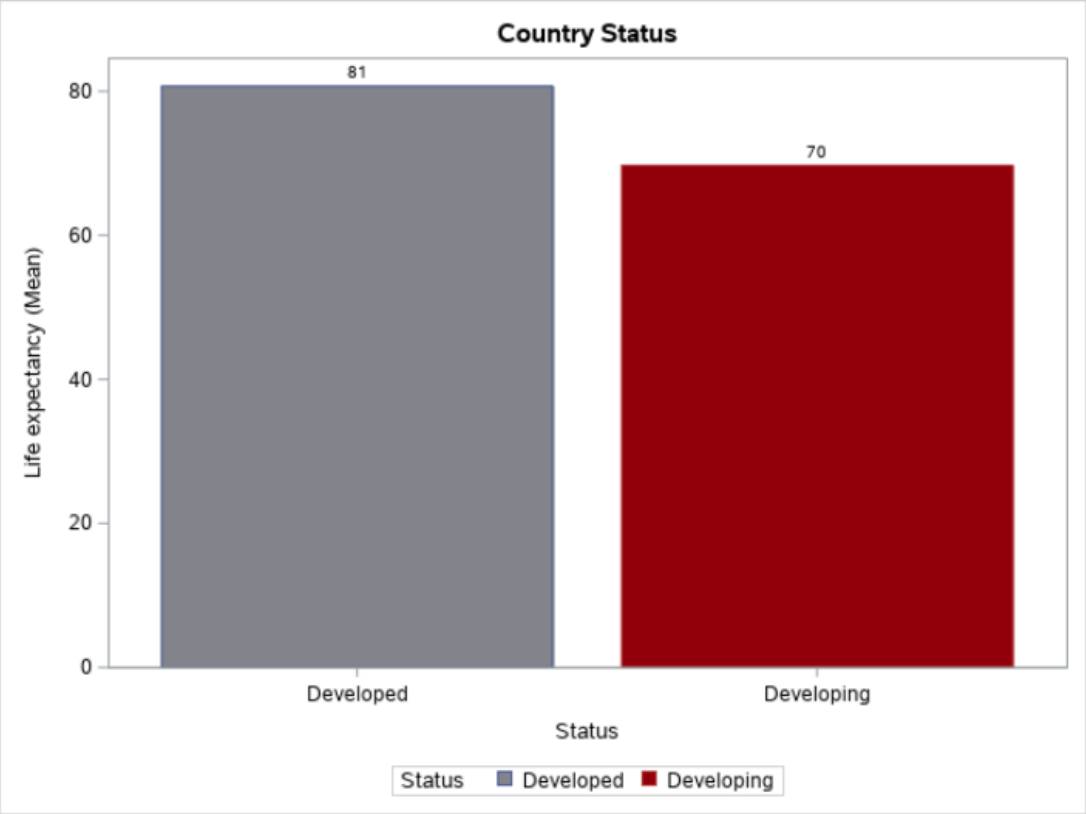
→ Year of analyze (2015)



Average of LIFE EXPECTANCY between DEVELOPED (**81 years old**) and DEVELOPING (**70 years old**) countries

Top 5 Highest Life expectancy countries

Country	Status	Life expectancy
Slovenia	Developed	88
Denmark	Developed	86
Chile	Developing	85
Cyprus	Developed	85
Japan	Developed	83.7

Top 5 Lowest life expectancy countries

Country	Status	Life expectancy
Sierra Leone	Developing	51
Angola	Developing	52.4
Central African Republic	Developing	52.5
Chad	Developing	53.1
Côte d'Ivoire	Developing	53.3

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Linear Regression to select the best variables

```
Adult.Mortality                      -2.093e-03  4.834e-04  -4.330 1.55e-05 ***
infant.deaths                         2.167e-01  1.214e-02  17.855  < 2e-16 ***
under.five.deaths                    -1.712e-01  9.495e-03 -18.028  < 2e-16 ***
Polio                                 7.291e-03  2.110e-03   3.455 0.000559 ***
HIV.AIDS                             -4.400e-01  1.229e-02 -35.795  < 2e-16 ***
Income.composition.of.resources       3.418e+00  4.081e-01   8.376  < 2e-16 ***
Schooling                             9.754e-01  3.784e-02  25.775  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.943 on 2506 degrees of freedom
Multiple R-squared:  0.9562,    Adjusted R-squared:  0.9536
F-statistic: 365.1 on 150 and 2506 DF,  p-value: < 2.2e-16
```

It was decided to work only with (Adult Mortality, HIV/AIDS, Income composition of resources and Schooling)

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Correlation Analysis

Pearson Correlation Coefficients
Prob > |r| under H0: Rho=0
Number of Observations

	Life expectancy	Adult Mortality	HIVAIDS	Income composition of resources	Schooling
Life expectancy	1.00000 2938	-0.69636 <.0001 2928	-0.50490 <.0001 2938	0.69950 <.0001 2771	0.71539 <.0001 2775
Adult Mortality	-0.69636 <.0001 2928	1.00000 2928	0.52382 <.0001 2928	-0.45763 <.0001 2768	-0.45461 <.0001 2768
HIVAIDS	-0.50490 <.0001 2938	0.52382 <.0001 2928	1.00000 2938	-0.24952 <.0001 2771	-0.22043 <.0001 2775
Income composition of resources	0.69950 <.0001 2771	-0.45763 <.0001 2768	-0.24952 <.0001 2771	1.00000 2771	0.80009 <.0001 2771
Schooling	0.71539 <.0001 2775	-0.45461 <.0001 2768	-0.22043 <.0001 2775	0.80009 <.0001 2771	1.00000 2775

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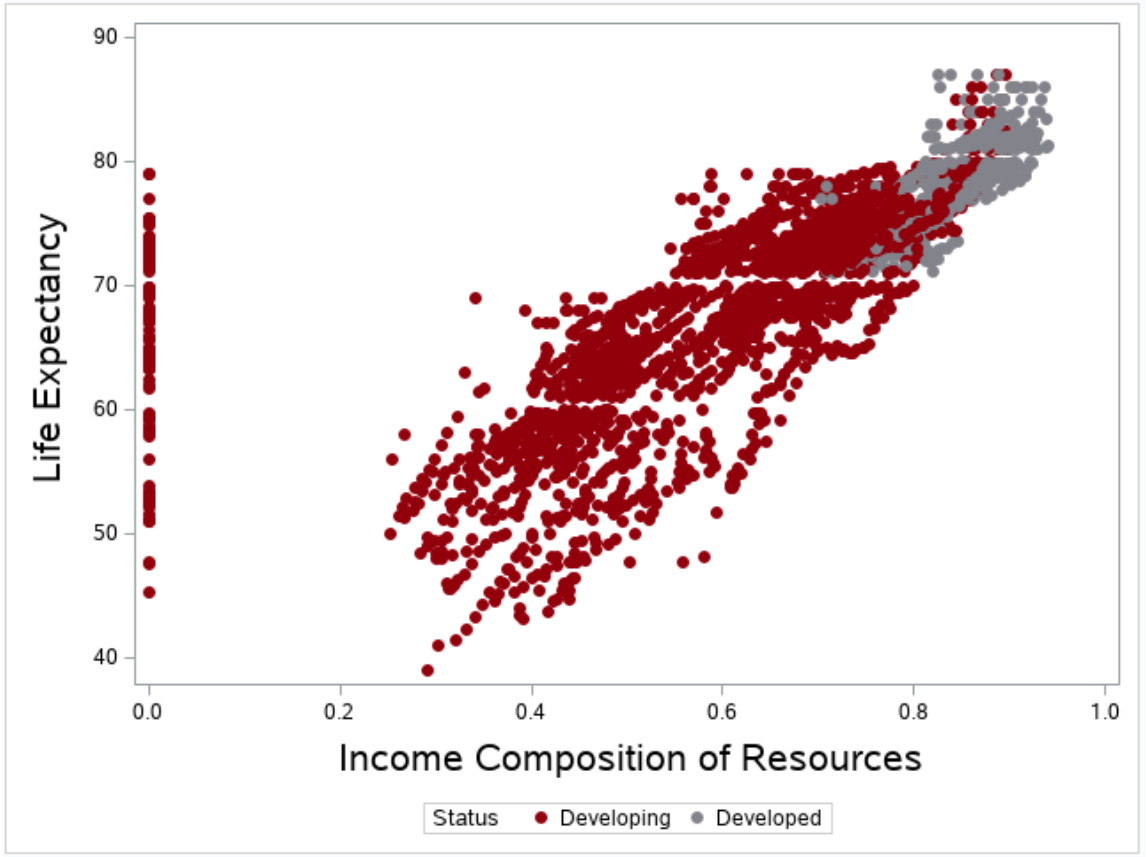
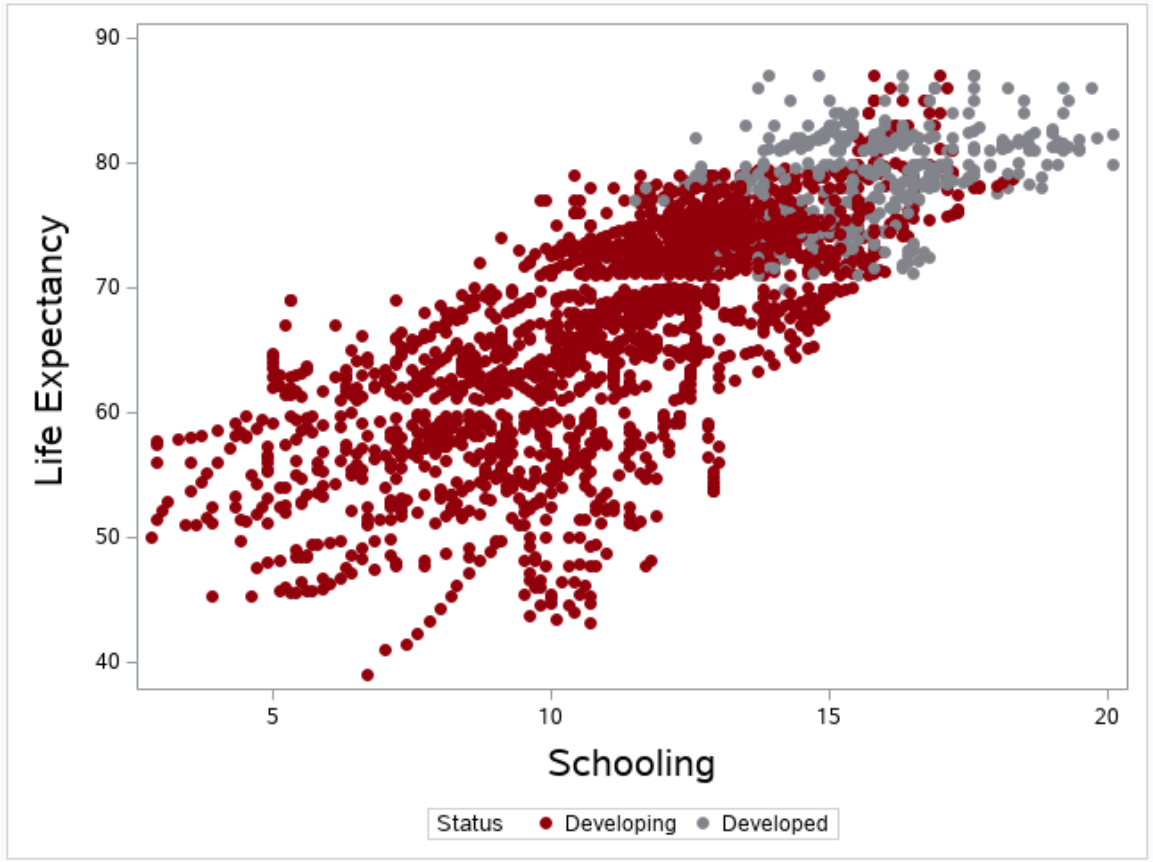
Most significant variable across life Expectancy



Countries that use its income resources productively are more likely to have their citizens live longer



The number of years people spend learning in school could potentially increase their life expectancy

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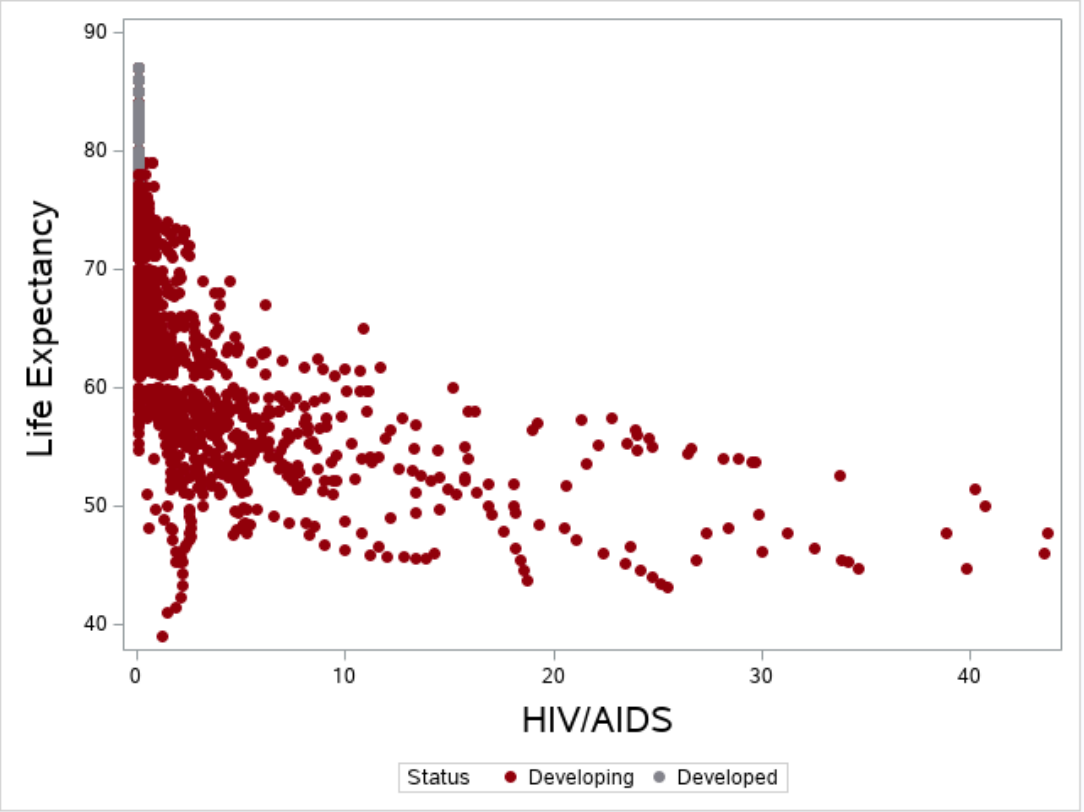
Most significant variable across life Expectancy

For every 1000 people in a developed country less than 100 people die compared to some countries that have lowest life expectancy rates where more than 600 people die for every 1000.



As the mortality rate increases from HIV/AIDS the life expectancy decreases.

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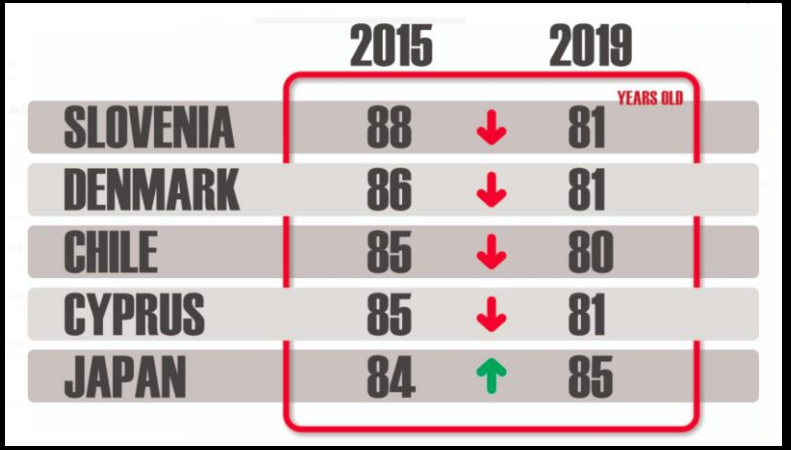
Conclusions

- Some countries build a system to prevent the population from dying early while other countries don't have enough resources to keep people alive in the long term.
- The longer the life expectancy the lower the mortality rate

Changes
2015 / 2019



Recommendation

My recommendation and my desire is that we can live in a world where everyone is able to have a healthy, long and meaningful life.