

Exploring the gapminder data

Kejing Li

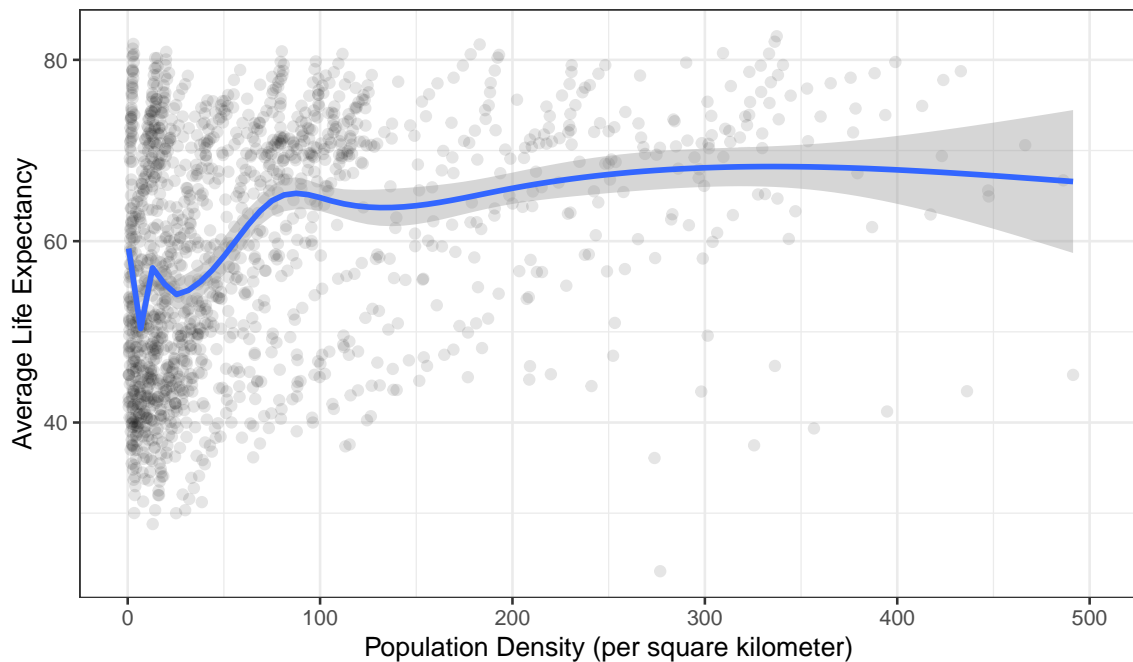
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Relationship between population density and average life expectancy

1.Graph



Source: Gapminder, GeoNames geographical database

The graph suggests when population density is below around 100 million people/ km^2 , the average life expectancy seems to increase with the population density; when population density exceeds 100 million/ km^2 , there's a weak relationship.

2.Model

To confirm the relationship, I fit a single variable linear regression model of the relationship between the population density and average life expectancy. The coefficient estimates are as follows:

term	estimate	std.error	statistic	p.value	conf.low	conf.high
(Intercept)	58.63	0.34	170.3	0	58	59.31
Population Density	0.01	0.00	7.1	0	0	0.01

Though the predictor has a low p -value, the coefficient is only 0.01. Based on the model, population density may not be a good estimator for the average life expectancy.