

Life Expectancy and GDP per Capita in Europe

Math/Stat 242 Final

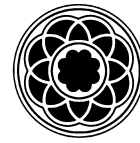
N. Paterno

Pacific Lutheran University

2021-11-18

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The Data Set: gapminder

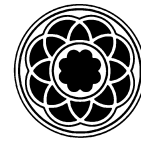


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Variables:

- country
- continent
- year
- lifeExp
- pop
- gdpPercap

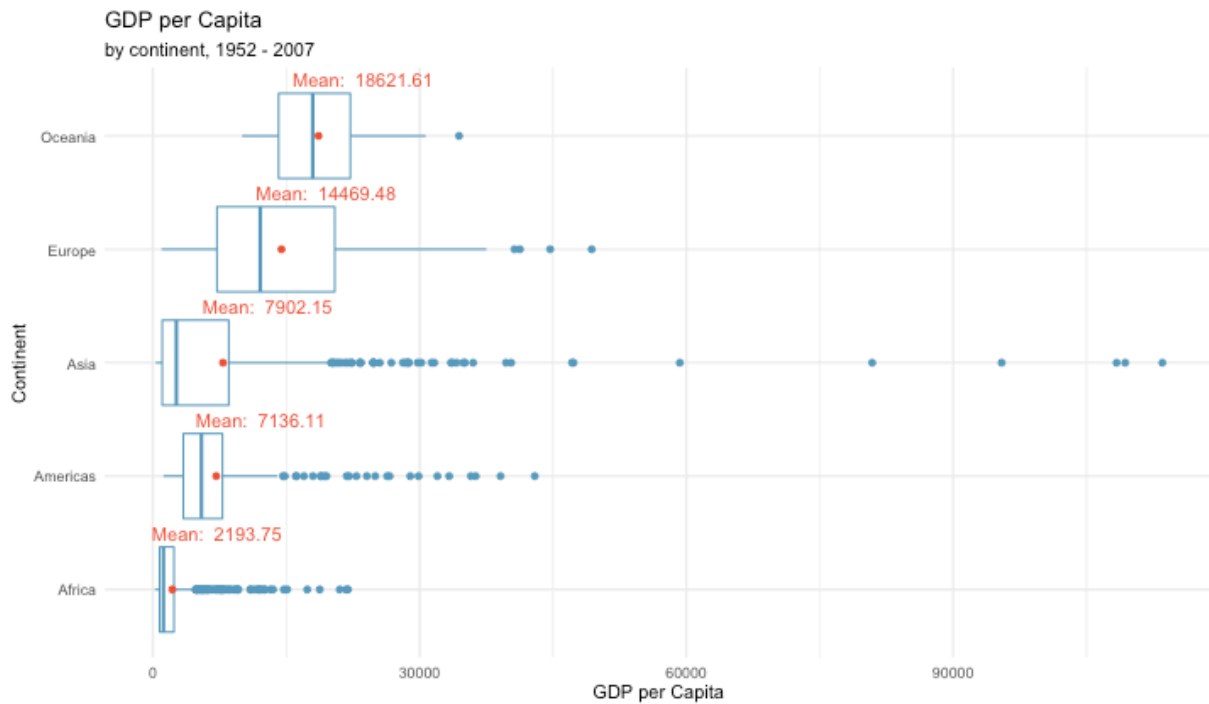
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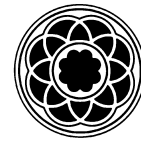
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Exploratory analysis:

gdpPercap



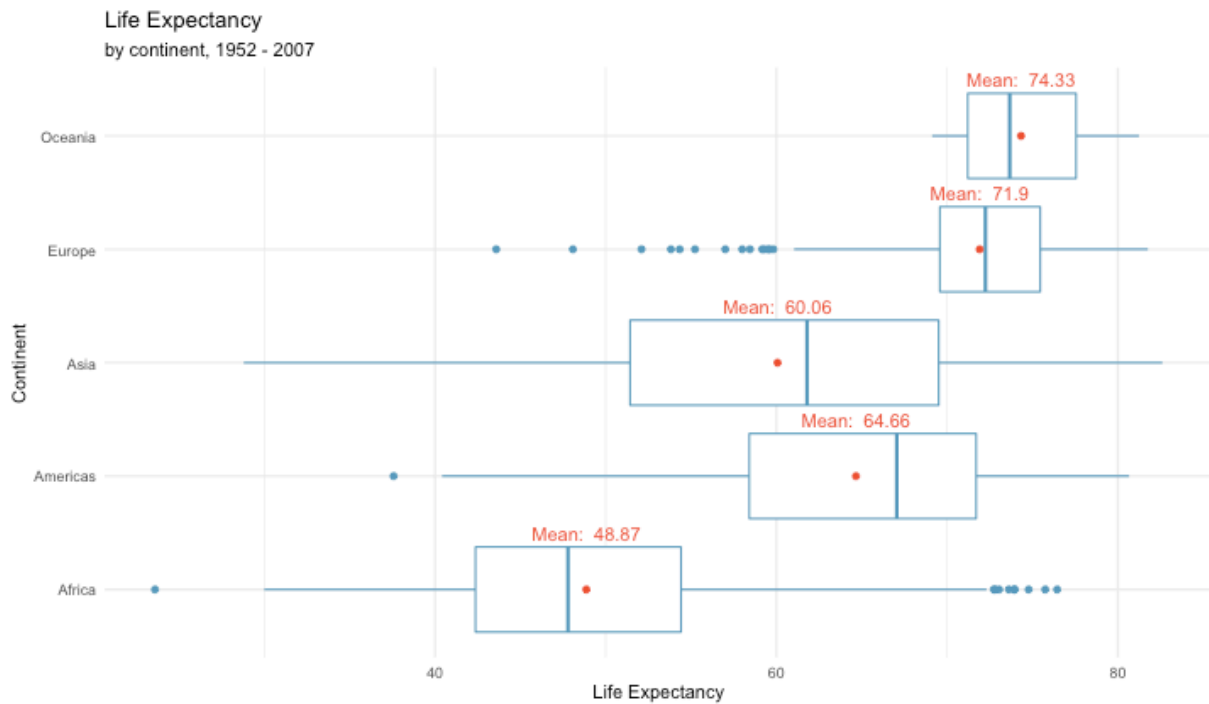
Source: Gapminder 3 / 11



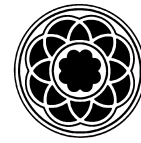
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Exploratory analysis:

lifeExp



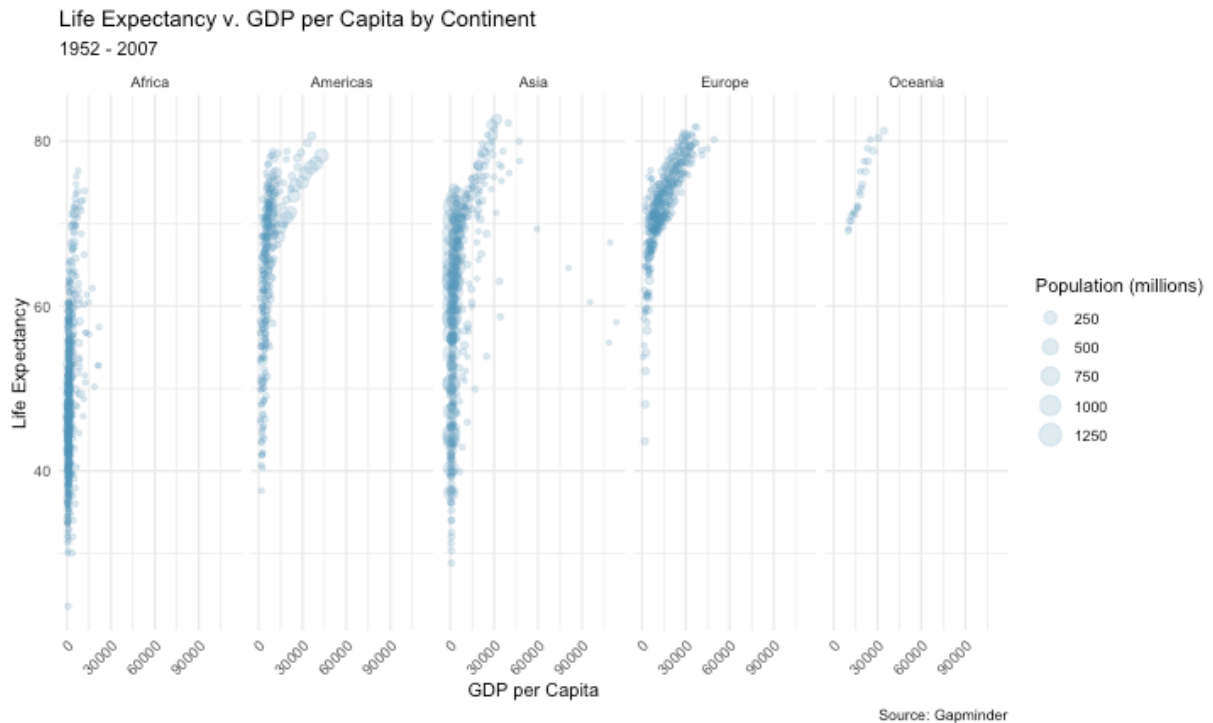
Source: Gapminder 4 / 11



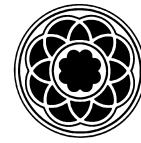
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Modeling the data:

Question: Can we predict life expectancy from GDP per capita?



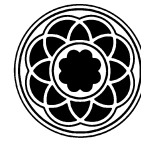
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Modeling the data:

Correlation by continent

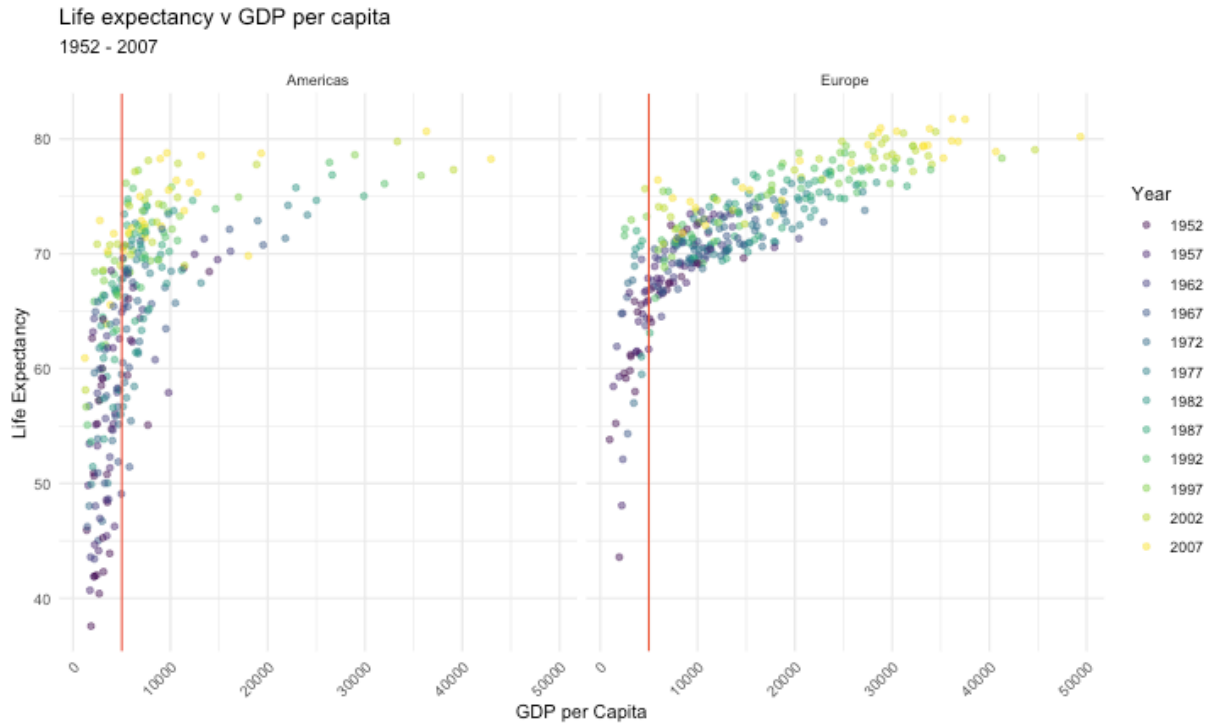
continent	cor
Africa	0.4256076
Americas	0.5583655
Asia	0.3820476
Europe	0.7807831
Oceania	0.9564738



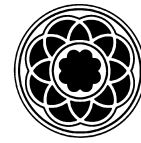
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Modeling the data:

Is there a *tipping point* in Europe and the Americas?



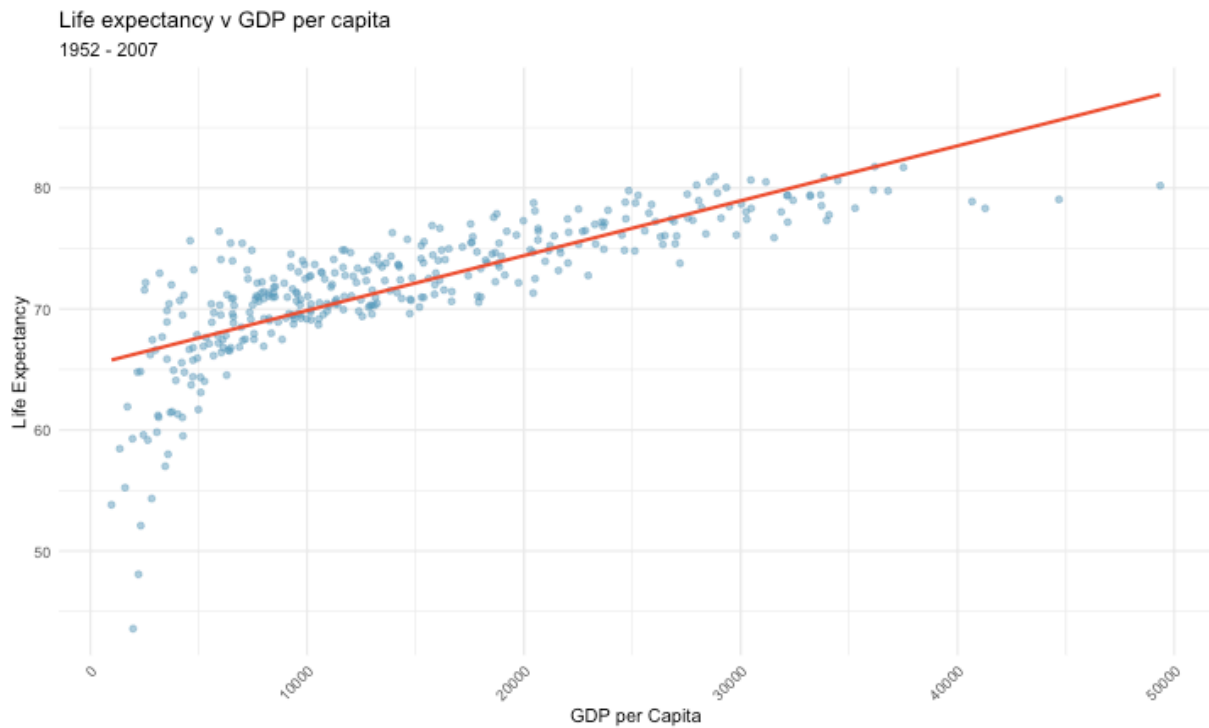
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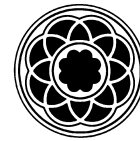
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Modeling the data:

Focusing on Europe



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Inferential statistics:

Hypothesis testing

GDP per capita test:

Would a GDP per capita below \$5000 be unusual in Europe?

Life Expectancy test:

Would the corresponding predicted life expectancy be unusually low for a European country?

p_value	stat
0.1560588	GDP per capita
0.2149315	Life Expectancy

Conclusion:



- Average life expectancy in Europe is higher
- Life expectancy is closely correlated to GDP per capita

Questions?



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