

Learning R & Quarto

PIDE Lecture Series

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Quarto



R Language is more than a **Statistics Application**, endless opportunities and has great presence in research community and is **one of the most popular language for data analysis.**

Why data analytics skills matter

- Data Wrangling (80%)
- Summarising and Visualizing Data for making sense of data
- Dealing with Categorical Data
- Modeling and producing models in nice printable
- How to produce beautiful documents with Quarto in R

Excel (or Stata) Can't Do This

[Code](#)

[Output](#)

► Code

Or This

Input

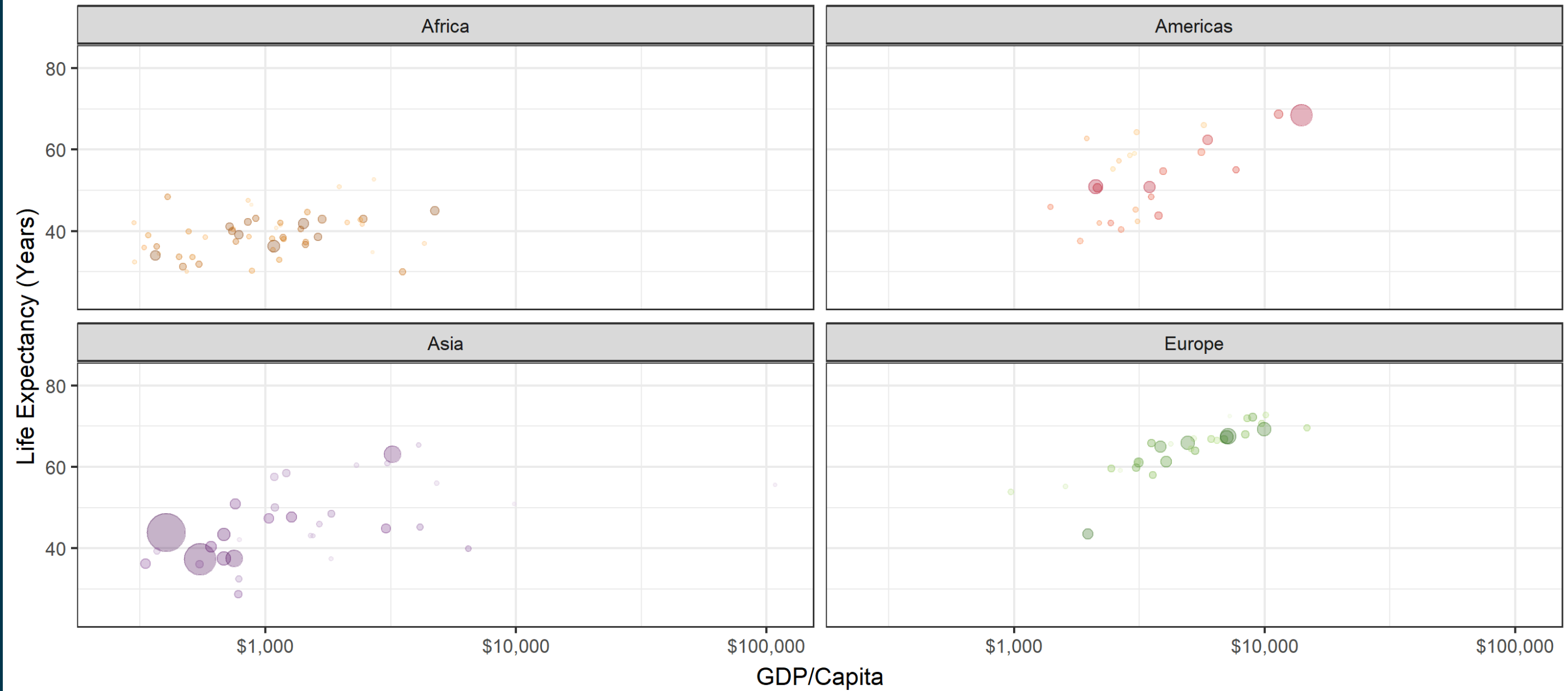
Output

The average GDP per capita is `` r dollar(mean(gapminder$gdpPercap)) `` with a standard deviation of `` r dollar(sd(gapminder$gdpPercap)) ``.

Is it not crazy

[Output](#)[Code](#)

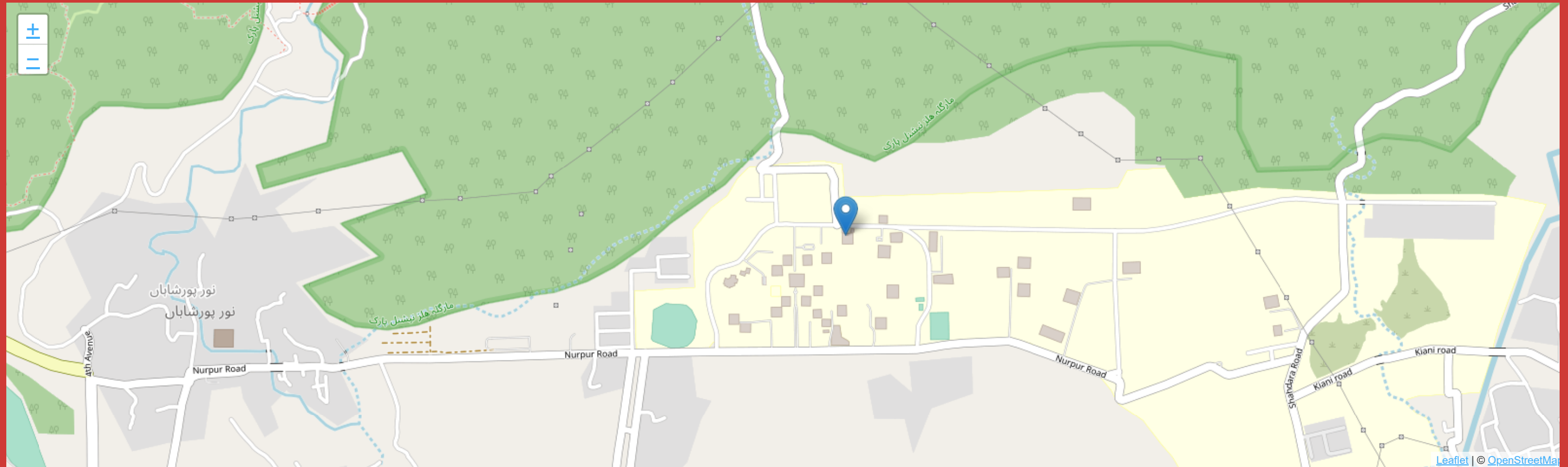
Income & Life Expectancy - 1952



Source: Hans Rosling's gapminder.org

Or This

► Code



How To Prepare Students For The Jobs Of 2030

Forbes Magazine

Develop comprehensive computer curricula and technical materials that cover popular **computer programming like Python or R** as well as common digital tools like **Bloomberg Terminal or ArcGIS**. This will help students become digitally fluent in mastering computers across different platforms to advance their coursework and research.

In today's digital age, **simply knowing how to use MS Word, Excel, Powerpoint, emails, internet search or social media no longer qualifies as digital fluency**. Students with comprehensive computer skills who know how to use various tech tools will thrive and succeed in their future workplaces.

of the jobs that will exist
in 2030 haven't been
invented yet

Quarto-R

- [Google Trends](#)
- [google sheet](#)
- [PIDE policy brief](#)
- Investment, Penguin, Cricket
- Web API like WDI, **youth bulge**, export
- Interactive , animated
- Reproducibility
- CV, webpage, [book](#)/thesis writing
- PPTX, slidy, ioslidy, beamer, revealjs slides
- word, pdf/LaTeX, html reports/thesis/blogs/research papers
- **Data import/export (STATA, csv, xlsx, SPSS, SAS....)**
- Meta Data
- Tables with NYT, 538, guardian, wsj themes
- ggplot2 for data visualization (Economist, BBC, WSJ, Gaurdian, Google, FB, NYT...)
- Shinny App

Why choose R and Quarto

- **Use One Tool from Start to Finish**
- Focus on Content, Not Formatting
- **Easier to share and review**
- Its not R vs others but R for jobs
- **R for analytics and statistical computing, econometric modeling and data science**
- R for Reproducible research

What will you gain by learning Quarto and R

Speed

Simplicity

Focus on core instead of focusing on formatting and editing

Reproducibility and replicability without any copy and paste

What else

- Free
- **Flexible**
- open source
- **expanding (increasing capabilities through add-ons)**
- able to open almost any data format
- **able to scrape data from the web**
- a decent tool for data wrangling
- **popular in data products, business analytics, industry & academia**
- pretty old (“born” 1976...)

How might you use R?

Create dataviz for teaching

Introduce as a tool for students

Your own research

Nonlinear Regression

math equations

This whole sentence is yellow.

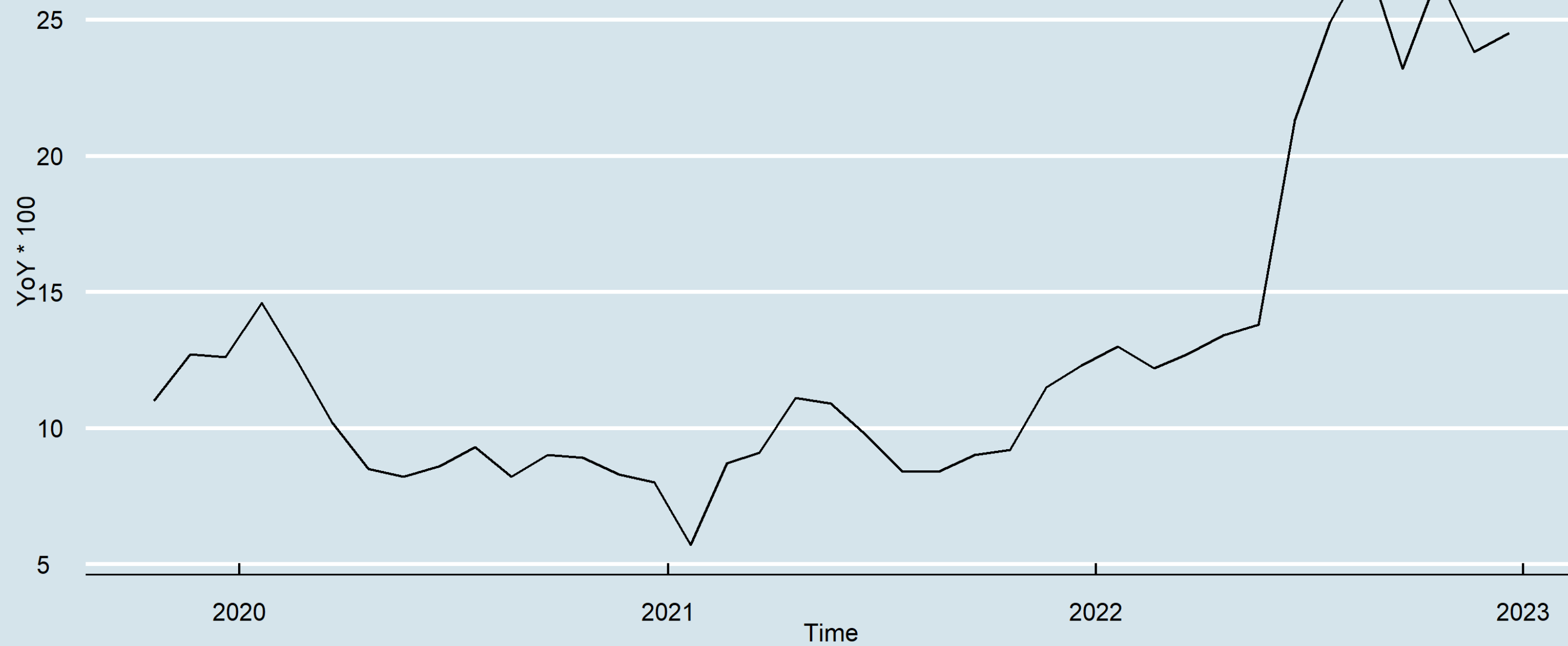
Its not cool!

⚠ Warning

Pakistan's energy crisis is a crisis of governance and politics. Nothing else. Neither bureaucracy nor politicians want to give up control to set up a system of checks and balances. They want control and do projects. Not their jobs.



Inflation 2016-2022 (YoY)

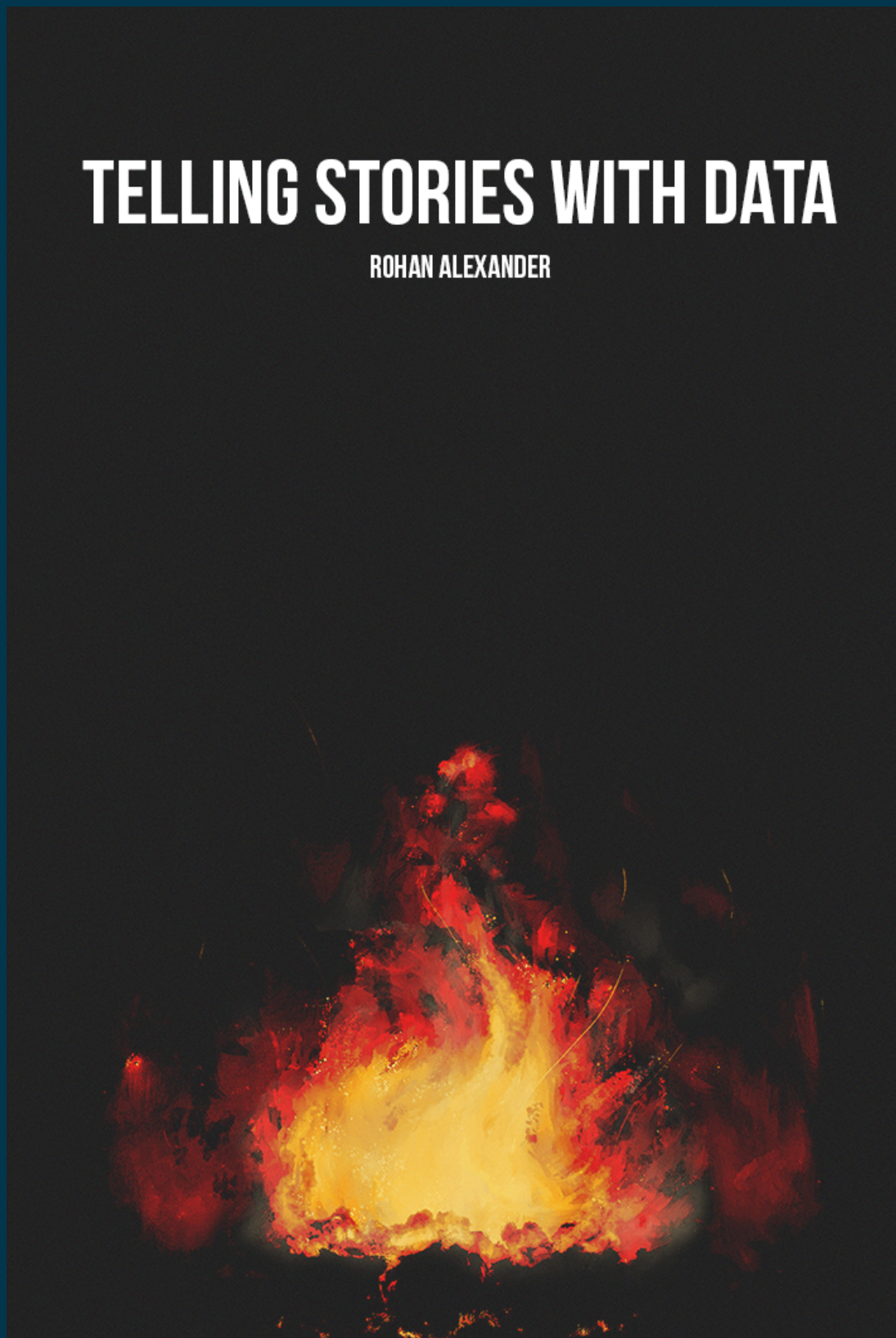
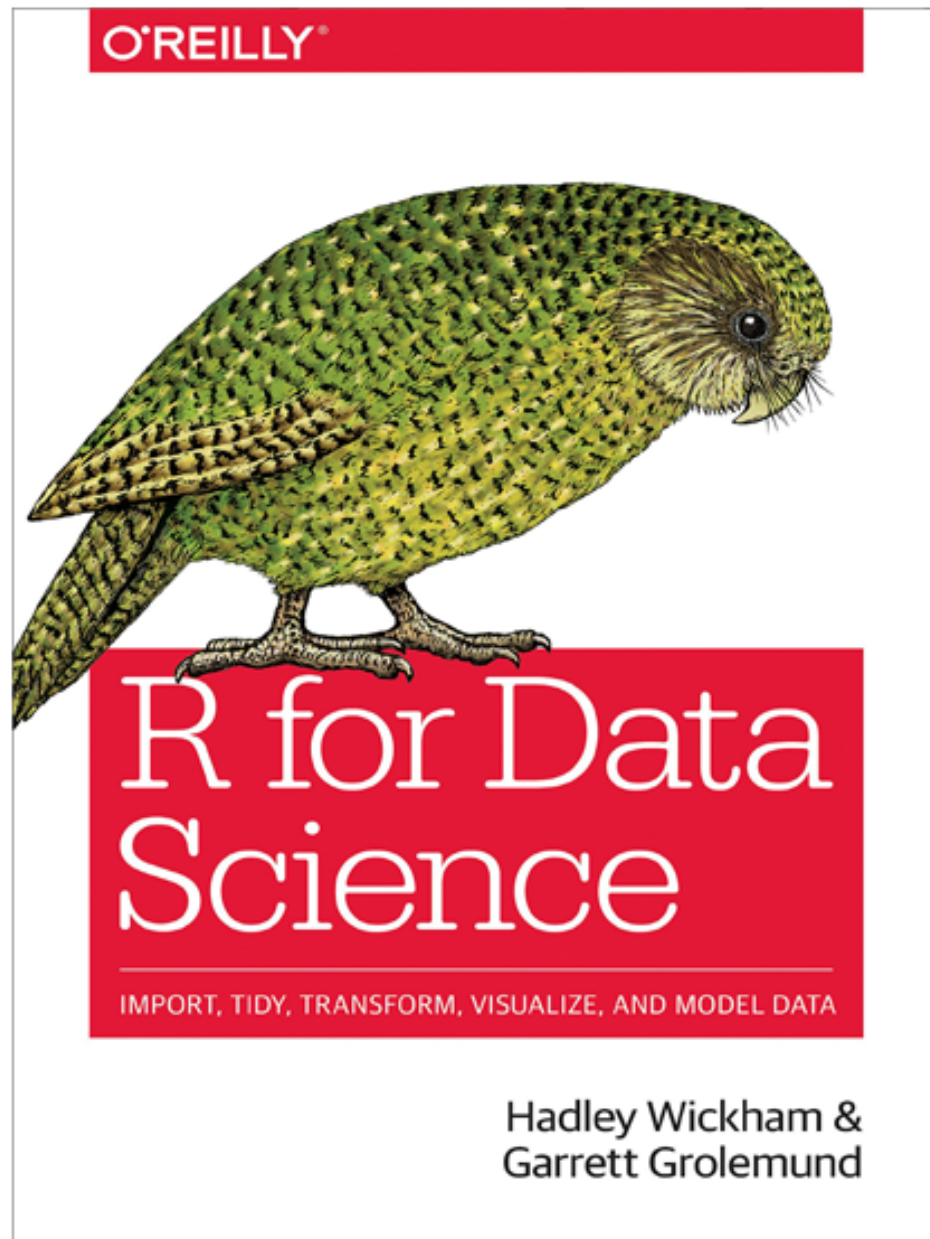


PIDE-R Programme

- Data wrangling (80% of the work with very few)
- **Survey Data Analytics, Beautiful Documents using Quarto**
- Data Visualizations using ggplot2
- **Program/Impact Evaluation Tools' Application: DID, RDD, IV, Propensity Score Matching...**
- **Computer+Your Brain+ Your Skills+Your traits= Job Success**

 Learning Curve is relatively steep.

Resources



And hey, there's a 🍌 over 👉

