Number crunching with R #3: Creating effective charts

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Empowered lives.
Resilient nations.

Contents:

- Why R? About R.
- Examples of data visualization (aka charts)
- Using R to create effective charts (just a flavour)

Why R? About R.

- Excel, STATA/ SPSS, GIS-like capabilities (data manipulation, statistical analysis, visualization, maps)
- Open-source: free, but not costless (steep learning curve, time investment)
- Base R + Rstudio
- Packages
- Worldwide community of R developers and users

Examples of data visualization

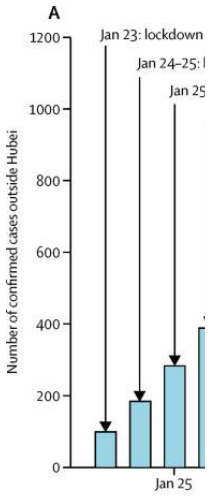
Asia Pacific | China | Afghanistan | Tajikistan

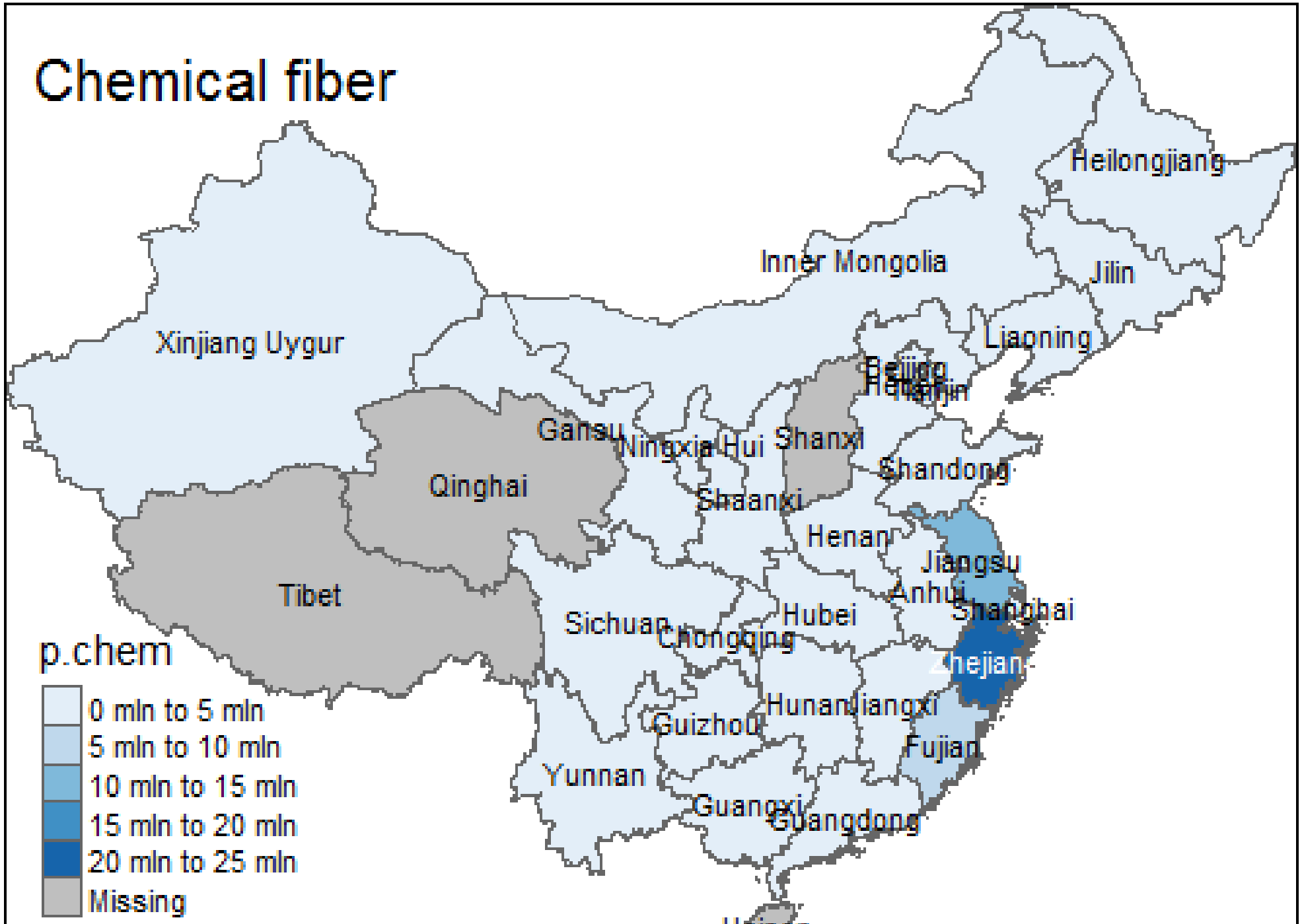
5
4
3
2
1
Micronesia
Solomon Islands
Vanuatu
Nepal
Afghanistan
Timor-Leste
Bhutan
Palau
Fiji
Tonga
Samoa
Sri Lanka
Pakistan
India
Brunei Darussalam
Mongolia
Lao PDR
Papua New Guinea
Indonesia
Iran
Bangladesh
Myanmar
Philippines
Vietnam
Cambodia
Malaysia
Thailand
Hong Kong SAR
Singapore
China
Republic of Korea
GDP.per.capita
Fiscal.space
Trade.exposure.to.China
Trade.exposure.to.world
matrix_2
0
0.2
0.4
0.6
0.8
1

Asia Pacific

FIGURE 4. EVERY ECONOMY IS AFFECTED IN ITS OWN WAY – SHARING EXPERIENCES AND DIFFERENTIATED STRATEGIES ARE NEEDED

	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5
	Very high to high human development, advanced manufacturing value chains	**Mostly high or medium human development, integration into value chains**	**Wide range of income and development levels, reliance on natural resource exports**	**Medium to high human development, relatively less trade integration**	**Wide range of human development levels, LDCs and SIDS**
Spread of the pandemic and responses	Pandemic's early onset, focus on rapid containment, extensive stimulus packages, signs of early recovery	The "second wave" of the pandemic, stimulus packages and containment measures	Different degrees of the spread of the pandemic and wide variety of responses	Late wave of the pandemic, extensive containment measures, massive public health risks	Relatively isolated and potentially less affected by the pandemic, but public health risks due to low capacities
Level of human development	Very high or high human development	Ranges from very high to medium human development	Wide range from very high to low human development	High and medium human development	Wide range of human development levels, but mostly medium level
Degree of global value chains integration and trade	Highly integrated in advanced manufacturing value chains	Integrated in various manufacturing value chains	Forward linkages through supply of natural resources	Lower degree of trade openness	Small open economies, high degree of imports

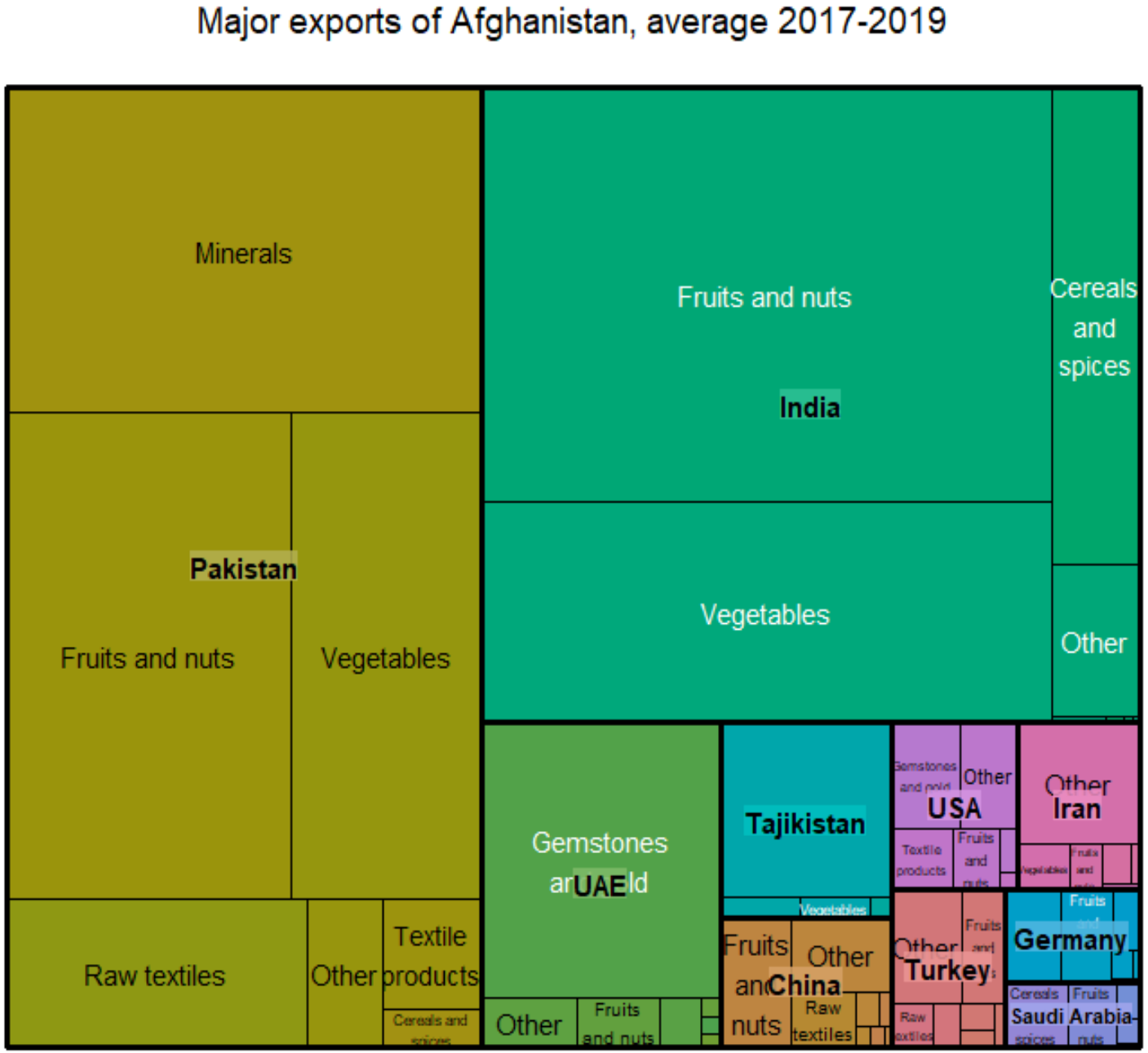

A
1200
1000
800
600
400
200
0
Number of confirmed cases outside Hubei
Jan 23: lockdown
Jan 24–25:
Jan 25
Jan 25
B
Semi-lockdown
Complete lockdow
Wartime measures


Chemical fiber
Heilongjiang
Inner Mongolia
Jilin
Xinjiang Uygur
Liaoning
Beijing
Tianjin
Gansu
Ningxia Hui
Shanxi
Shandong
Qinghai
Shaanxi
Henan
Jiangsu
Tibet
Anhui
Shanghai
Hubei
Sichuan
Chongqing
Zhejian
Hunan
iangxi
Guizhou
Fujian
Yunnan
Guangxi
Guangdong
p.chem
0 mln to 5 mln
5 mln to 10 mln
10 mln to 15 mln
15 mln to 20 mln
20 mln to 25 mln
Missing

Afghanistan: Exports by country and product category

- Package: treemap
- See alternative:

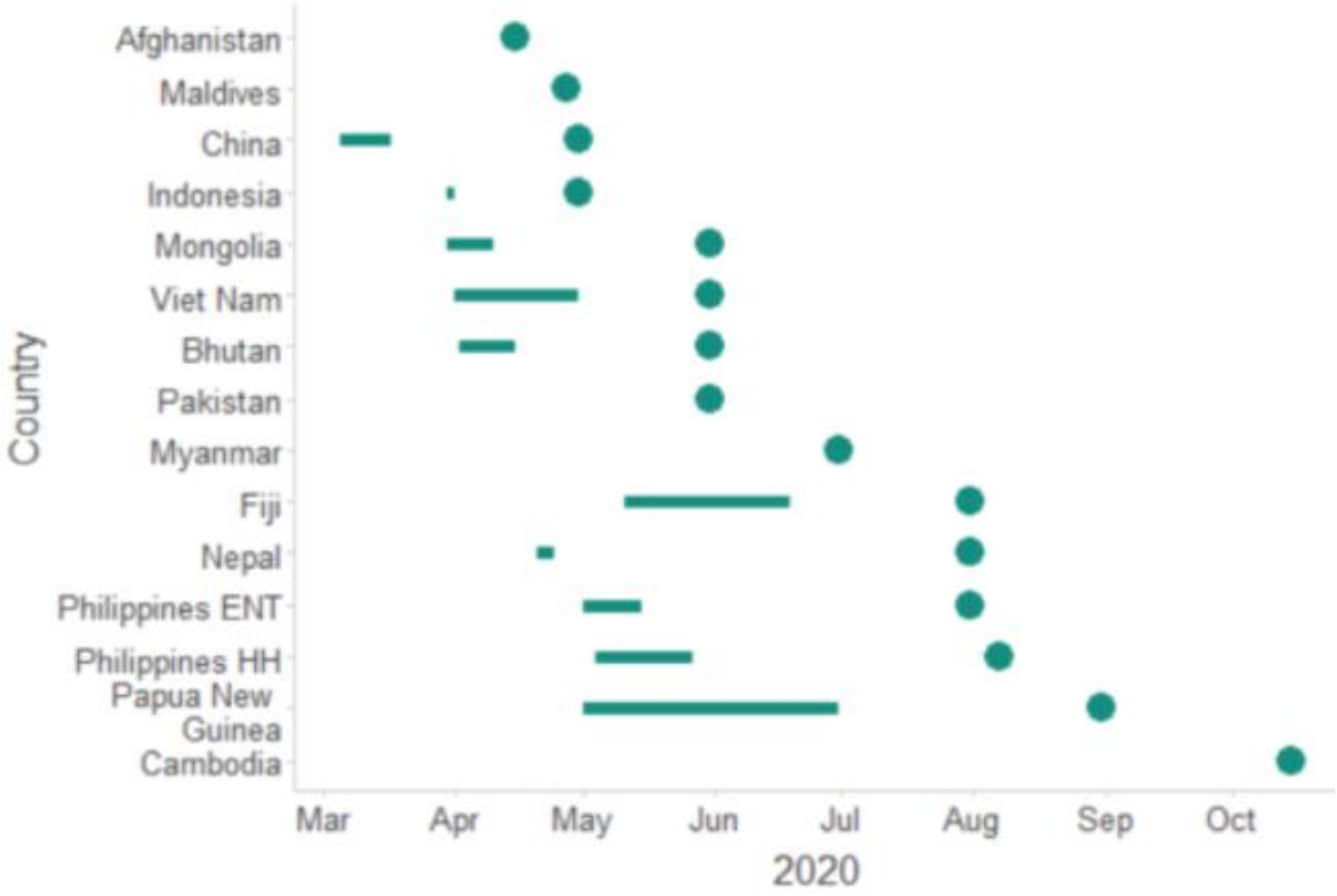
https://oec.world/en/profile/country/afg



Asia Pacific: Socio-economic impact assessments

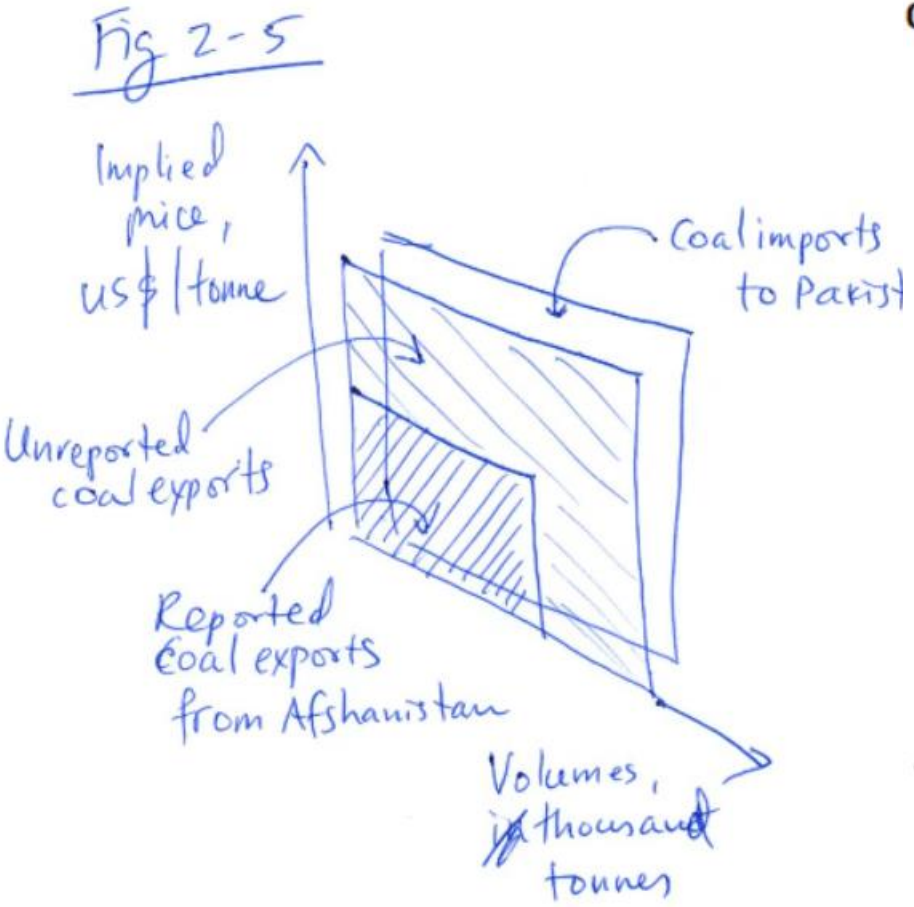
- Package: ggplot2

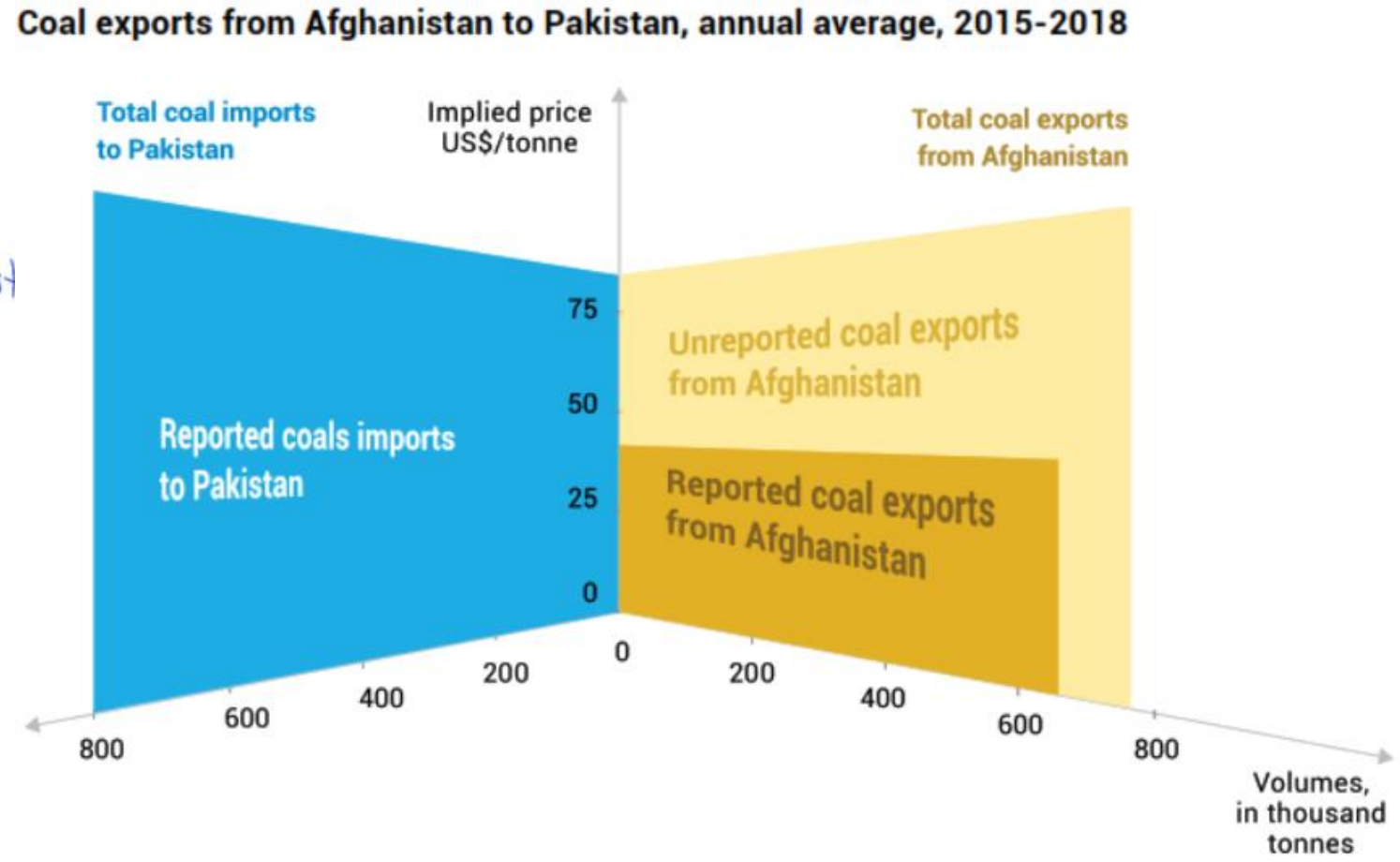
Figure 1. The timeline of Asia Pacific SEIAs



Afghanistan & Pakistan:
Discrepancies in exports – smuggling of minerals?

Low-tech works too



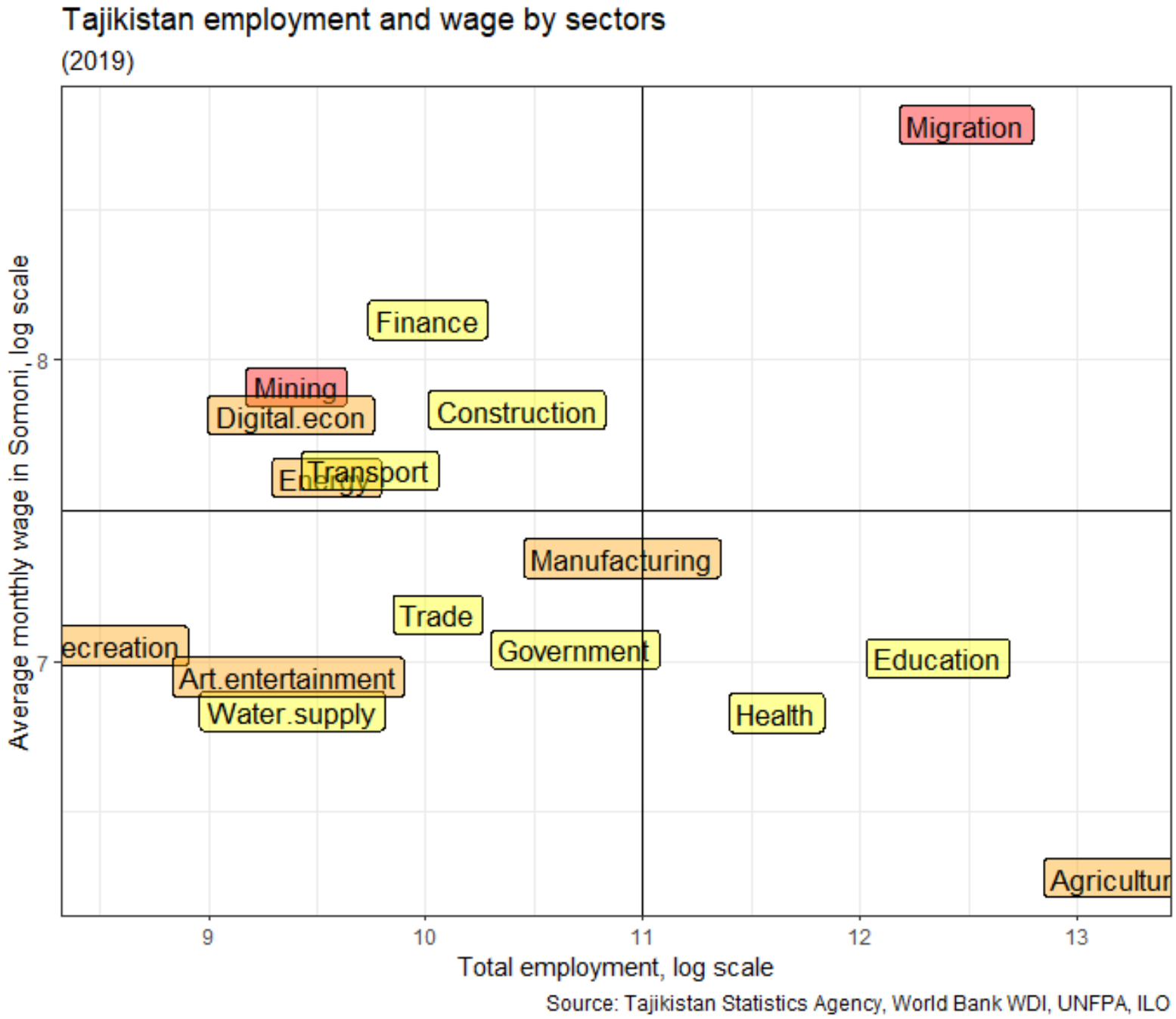


Tajikistan: Inclusive growth strategy

Package: ggplot2

1. Employment
2. Wages
3. Sectors
4. Type of sectors (tradable v. non-tradable)

Let's use R!



In conclusion

- Decide whether to invest your time in R
- Data viz - only one of the links in the data “value chain”
- Join data groups in UNDP: Here we R at Teams

- Links on ggplot2:
  - https://rpubs.com/arvindpdmn/ggplot2-basics
  - http://www.sthda.com/english/wiki/be-awesome-in-ggplot2-a-practical-guide-to-be-highly-effective-r-software-and-data-visualization
  - https://rstudio-pubs-static.s3.amazonaws.com/228019_f0c39e05758a4a51b435b19dbd321c23.html#