

Following Polish graduates' pathways with R

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Who we are?



Tomasz Żółtak PhD in sociology,
statistician and methodologist (writing papers ,
research software engineer (co-author of over a
dozen of R packages )

Bartłomiej Płatkowski
sociologist and data engineer



Who we represent?



Educational Research Institute – National Research Institute, Warsaw Poland

Conducts interdisciplinary studies in education, qualifications, and the labour market. Provides evidence-based policy support for the Ministry of Education and other public bodies, coordinates national and international research projects, and develops digital solutions for education.

The team developing the Polish secondary schools graduate tracking system  Monitoring KARIER

What do we do?

Provide data about the situation of Polish secondary school graduates, like this:

School type:

- ☐ Stage I Sectoral Vocational School
- ☐ Stage II Sectoral Vocational School
- ☒ Technical Secondary School
- ☐ General Secondary School
- ☐ General Secondary School for Adults
- ☐ Post-secondary School
- ☐ Special Education School Preparing for Employment

Graduation year:

☒ 2023 ☒ 2022 ☒ 2021 ☒ 2020 ☒ 2019

Type of school:

☒ Overall ☐ Mainstream school

☐ Special education school

Gender:

☒ Overall ☐ Men ☐ Women

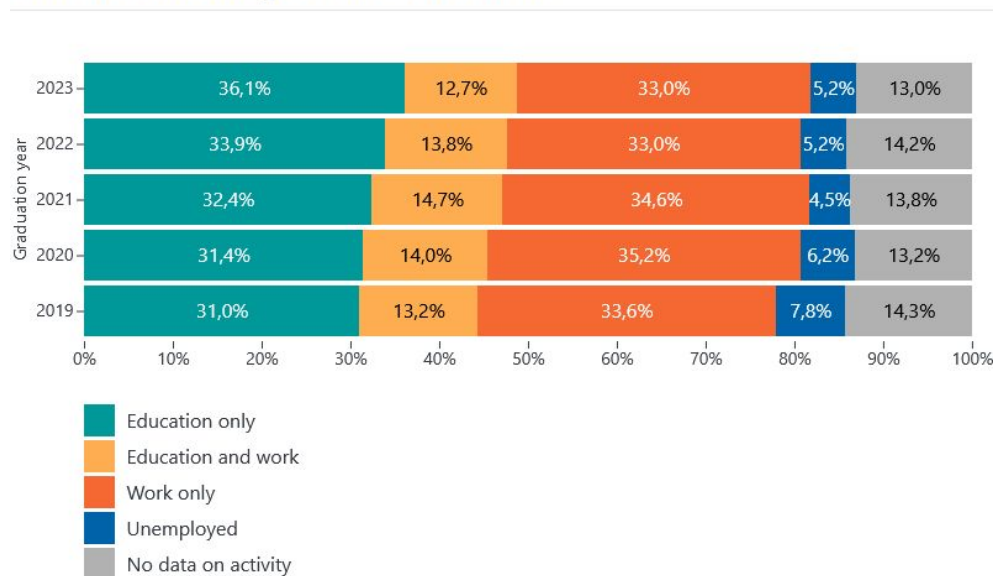
Profession learned at school:

Overall

Month since graduation:

☐ 6 ☒ 12 ☐ 18

Educational and professional status



Each year (edition) 3 cohorts, each of about 400,000 graduates of about 8000 secondary schools

What we want to share?

Data recycling: public data for public good

- With the growth of e-government, more and more data is collected in public registers... but this does not mean that we can easily answer important questions using it
 - *F.g., do Polish graduates continue their education and find jobs that match the profile of their education obtained in secondary school?*

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 - F.g., *do Polish graduates continue their education and find jobs that match the profile of their education obtained in secondary school?*
- Challenges:
 - Ability to merge data from different sources
 - Convincing the public administration that they need it (and that this would not hurt them)

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 - From time to time – you will always need some corrections
- **And still we made it!** (“we” – the whole team and supporters)



Learning about the needs of the users

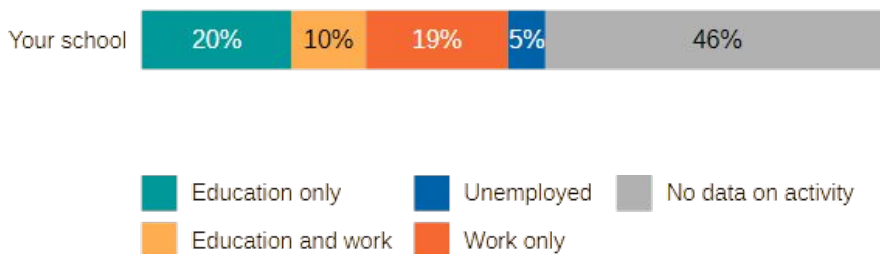
- In the case of public data there are often many stakeholders
 - F.g. for data about graduates: Ministry of Education, Ministry of Labour, local authorities, employers' organizations, schoolmasters, parents and pupils, journalist, scientist...
- ...but typically you deal mostly with only one of them
- It's essential to perform research on the needs of various stakeholders
 - Although you will always have to set priorities
- Qualitative research methods
- UX research
 - Users often need a little less and with much simpler interface, than what you want to give them

Learning about the needs of the users

Example: Polish secondary school graduate school-reports

- Automatically produced in PDFs
 - We know this format is bad for many reasons...
 - ...but schoolmasters still like it very much (feels *official*; printing)
- Value of each indicator presented along with a benchmark

Chart: Educational and occupational status of graduates of your school and graduates of other technical schools from rybnicki powiat in December 2021 – in the occupation Mechatronic technician

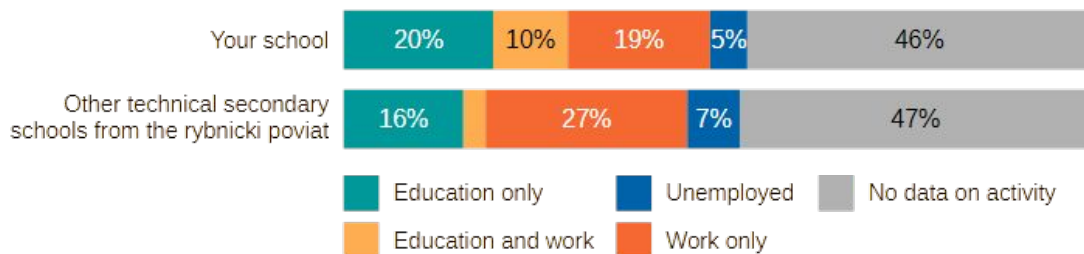


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Why R?

- We knew, that it offers:
 - Good integration with relational database backends
 - Good support for automatic generation of reports
- Most of the *quantitative* part of our team had some familiarity with R
 - And some had quite huge experience from previous projects
- We could develop solutions completely on our own, without the need of the specialist IT support
 - Our data is not so large that it cannot fit on a good laptop
- However, it took us a long time to implement some basic principles of good coding (packages, documentation)
 - Really hard for a pack of (mostly) sociologists...



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