Analysing PIAAC data – capacity building workshop

This 1.75-day workshop aims to build practical capacity among Slovak researchers, analysts and policy professionals to access, understand and analyse PIAAC data. All sessions combine theoretical grounding with hands-on exercises. The workshop is designed for mixed audiences - participants with and without prior PIAAC data experience - with a common plenary curriculum and differentiated breakout exercises.

Who is this workshop for?

Audience	Typical background	Primary interest
Ministry analysts and policy staff	Familiar with PIAAC results; limited data experience	Policy interpretation; Slovak-specific findings; cross-country benchmarking
Academic researchers	Statistical background; limited PIAAC-specific knowledge	PIAAC design; correct variance estimation; replication of OECD analysis
Data analysts and statisticians	Strong technical skills; variable familiarity with PIAAC design	Plausible values; replicate weights; regression modelling; Remote Execution Service

How is the content differentiated by experience level?

Participants self-select into a track at registration. There is no formal test or barrier to entry. The beginner track assumes no prior data analysis experience with PIAAC; the advanced track assumes working knowledge of at least one statistical software package. The advanced track can accommodate researchers with no knowledge of PIAAC but software experience. The split occurs only during hands-on exercise periods. All conceptual and methodological content is delivered in plenary and is relevant to both groups.

What software should participants use?

- Beginner track: All exercises use the PIAAC Data Explorer.
- Advanced track: R (Repest) and Stata (Repest) are referenced where relevant. Participants are asked to have software installed and tested before Day 1.

Monitorovanie a hodnotenie úrovne kľúčových kompetencií dospelých (MOHOK) / Tento projekt je spolufinancovaný Európskou úniou v rámci Programu Slovensko

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Tuesday, 19 May 2026

Morning builds common foundation for all participants; afternoon provides hands-on exercises

Time	Activity
8:30-9:00	**Arrival and registration of participants**
9:00-9:45	**PLENARY** **Welcome, introductions and expectations** • Welcome by Ministry of Education, Research, Development and Youth • Introduction of the workshop team • Overview of learning outcomes and workshop structure • Participant introductions: background, software experience, key questions *Exercise (pairs): What is the one research question about Slovak skills that you most want to answer with this data?*
9:45-10:30	**PLENARY** **What is the Survey of Adult Skills? Design, content and analytical potential** • The PIAAC programme: history, objectives and country participation • Survey design: sampling, instruments, adaptive testing • The three cognitive domains: literacy, numeracy, and APS • Background questionnaire: structure, thematic coverage and analytical potential • The BFI-2-S personality questionnaire: six facets and analytical potential • The Employer Module in Cycle 2: design, scope and analytical potential *Q&A*
10:30-11:00	**PLENARY** **The Survey of Adult Skills in the Slovak Republic** • Participation, sample characteristics, response rates • National questions • Key results and policy relevance *Q&A*

11:00-11:30	*Coffee break*
11:30-12:30	**PLENARY** **PIAAC Data: Structure, access and methodological foundations** • Public Use File (PUF), international Restricted Use File (RUF) and Slovak national scientific use file: differences and when each is needed. • The Slovak National RUF: access conditions • Plausible values: why ten values exist, what they represent, and what happens if you ignore them • Replicate weights: why standard errors from PIAAC require special treatment • Cross comparability of measurement and standardisation • Variable categories: demographics, education, employment, wages, adult learning, skill use, personality (BFI-2-S) • Key documentation and tools: PIAAC variable finder Shiny app, IDB Analyser, OECD Data Explorer, Remote Execution Service *Q&A*
12:30-13:30	Lunch break
13:30-14:15	**PLENARY** **From data to research questions: framing analysis with PIAAC** • What kinds of questions can PIAAC answer — and what it cannot (causality, longitudinal issues, very specific sub-group analysis) • Illustrative published OECD analyses that Slovak participants could replicate or extend • Worked example: methodology behind Figure 3.1 in SES report Skills that Matter: regression of employment probability on literacy, extraversion and emotional stability, controlling for education and demographics • Worked example: methodology behind Figure 2.8 in Trends in Adult Learning: regression model structure and variable derivation *Exercise (pairs): draft one or two research questions answerable with PIAAC data; identify variables and method needed*
14:15-14:30	**PLENARY** **Track Orientation and Software Setup Check** • Participants move to track rooms

	• Facilitators confirm software access and resolve any installation issues	
14:30-15:45	**BEGINNER TRACK** **Hands-On Exercise 1: Exploring PIAAC Data with the PIAAC data explorer** • Introduction to the explorer: navigating the interface • Selecting variables: literacy and numeracy scores, education level, employment status, gender, country • Generating correctly weighted descriptive statistics for Slovakia • Subgroup analysis by gender and education level; interpreting group differences • Interpreting and exporting results • *Exercise A: Reproduce the Slovak row of a descriptive table from an OECD publication (e.g. mean literacy score by education level); verify your result matches the published figure* • *Exercise B: Reproduce a selected table in an OECD PIAAC publication*	**ADVANCED TRACK** **Hands-On Exercise 1: Correct Estimation with PVs and Weights** • Loading the PIAAC PUF in software of choice • Understanding dataset structure: plausible values, replicate weights, variable naming conventions • *Exercise A: Compute mean literacy proficiency for Slovakia using all ten PVs and correct replicate weights; compare against a naïve single-PV estimate - quantify the bias in standard errors* • *Exercise B: Reproduce a selected table in an OECD PIAAC publication*
15:45-16:00	Coffee break	
16:00-16:45	• Explore adult learning participation rates in Slovakia (Figure 2.8 variable derivation)	• Exercise: Replicate the bivariate associations from Figure 2.5 in main report (regression controlling for age,

	• Exercise: Reproduce the Slovak bar in Figure 2.8; identify which background characteristics are most strongly associated with participation • Discussion with facilitator: what does Figure 2.8 tell us and what does it not tell us?	gender, immigrant background, partner and children); identify which differences are statistically significant at 5% • Discuss how controlling for demographics changes the raw correlations
16:45-17:00	**PLENARY** Summary day one and preview day two • Both tracks share key findings and methodological questions • Revisiting core concepts: plausible values, replicate weights, standardisation • Collect open questions to be answered at the start of Day 2 • Preview of Day 2: trend analysis, regression modelling, PISA–PIAAC bridge, life satisfaction models, Remote Execution Service	

Wednesday, 20 May 2026

Trend analysis, deeper analysis remote code execution service

Time	Activity	
8:30-9:00	**Arrival and registration of participants**	
9:00-9:30	**PLENARY** **Recap and Questions from Day 1** • Key concepts recap: plausible values, replicate weights, variable derivation • Answers to questions collected at end of Day 1 *Discussion: What analytical questions do participants want to prioritise today?*	
9:30-10:30	**PLENARY** **Trend Analysis – Cycle 1 vs Cycle 2** • What changed between PIAAC Cycle 1 and Cycle 2 — and why it matters for analysis • Which variables are comparable across cycles and which are not; how the OECD handles this in published analyses • Doorstep interviewees, linking error, components • How to deal with pooled samples • Worked example: Trends in numeracy proficiency • Worked example: Trends in adult learning *Q&A*	
10:30-10:45	Coffee break and allocation to tracks	
10:45-12:15	**BEGINNER TRACK** **Hands-on exercise 2: adult learning participation in Slovakia** Exercise: Using PIAAC Data Explorer to replicate participation rates by education level, employment status and age group Interpreting model output	**ADVANCED TRACK** **Hands-on exercise 2: Regression Models with Social and Emotional Skills** Methodology and model structure behind Skills that Matter (Figure 3.1): logistic regression of employment probability on literacy, extraversion and emotional stability,

	Exercise: Interpreting an OECD chart critically: what does Figure 3.3 in SES report claim about emotional stability, extraversion and conscientiousness for adults with low literacy proficiency? Is the claim supported by the data shown?	controlling for education, age, gender, immigration and family status Exercise: Replicating Figure 3.1 for Slovakia Exercise: Figure 3.3 interaction effects: emotional stability, extraversion and conscientiousness as moderators of the literacy–employment relationship among adults with low proficiency Exercise: Build a regression model explaining life satisfaction using demographic predictors and Big Five personality traits (BFI-2-S) for Slovakia; interpret Extend model to pool data from all six BFI-2-S countries (Slovakia, Czech Republic, Germany, Italy, Spain, Estonia); add country fixed effects; test for cross-country heterogeneity
12:15-13:30	Coffee break and allocation to tracks	
13:30-14:30	**PLENARY** **The PISA–PIAAC Relationship** Differences between PISA and PIAAC Methodology of the OECD PISA–PIAAC comparison Slovak Republic in context: how Slovak PISA and PIAAC results compare; implications for education policy Methodological cautions	

	Discussion: What can Slovakia learn from the PISA–PIAAC relationship about which groups gain or lose skills after school?
14:30-15:00	**PLENARY** **Remote Execution Service, Resources and Close** Introduction to the OECD Remote Execution Service: what it is, when to use it, and how to apply for access Demonstration: submitting a syntax file and interpreting the output
15:00-15:30	**PLENARY** **Closing session** Resources and next steps: OECD PIAAC documentation, Remote Execution Service application: Participant action plans: one concrete analysis each participant will run using PIAAC data within 30 days Evaluation forms and close