



VET Research and Data

Bennet Krebs, Stefan Winnige
Federal Institute for Vocational Education and Training

Bonn, May 5, 2025

Challenges of the VET system

- Making skills systems more agile to meet changing labor market demands
- Anticipating future skill needs and updating qualifications, curricula, and standards
- Modernizing training delivery (infrastructure, methods, trainer skills)
- Declining interest in VET compared to academic education pathways
- Increasing need for reskilling and upskilling due to evolving job roles
- Integrating digital technologies across the entire VET ecosystem
- Engaging the private sector effectively in shaping and supporting VET
- Establishing sustainable funding mechanisms for VET systems

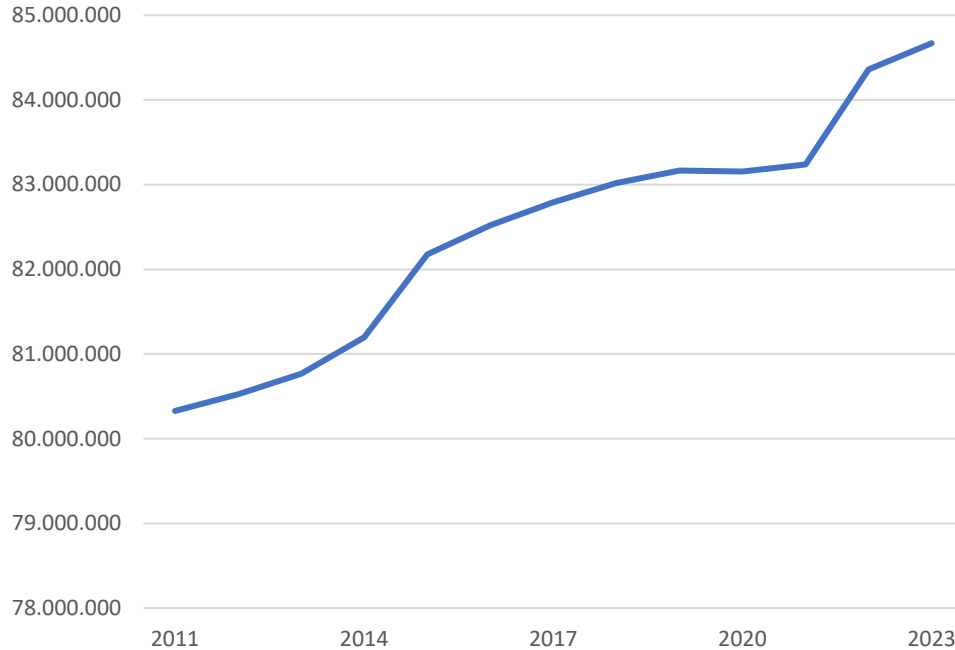
Is there a declining interest in VET compared to academic education pathways?

Development of VET Contracts



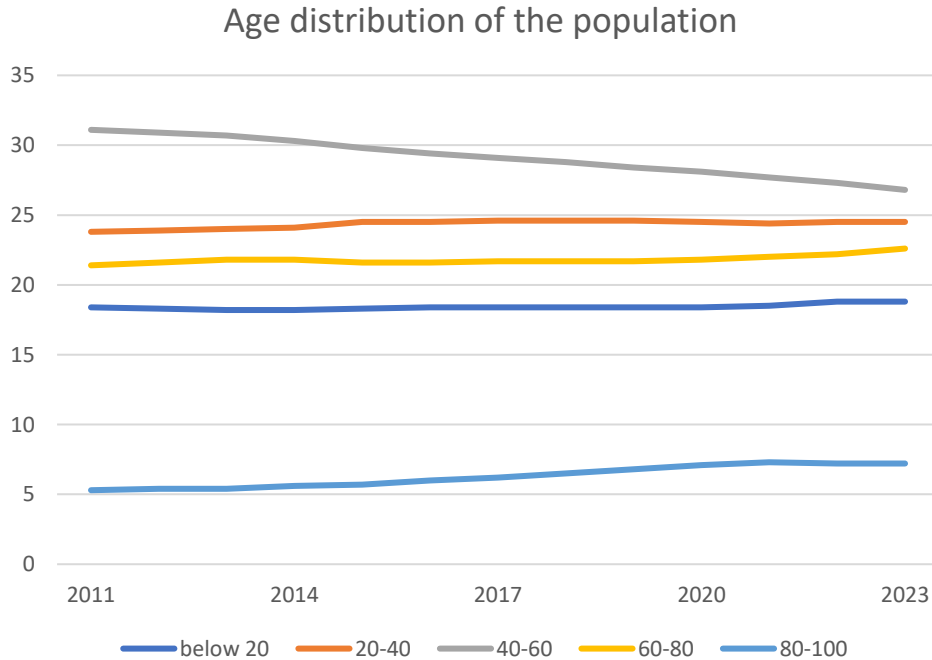
- Number of VET contracts declined by approximately 23 percent between 2007 and 2023
- Possible reasons:
 - Declining population
 - Aging population
 - Changes in educational behavior

Declining population?



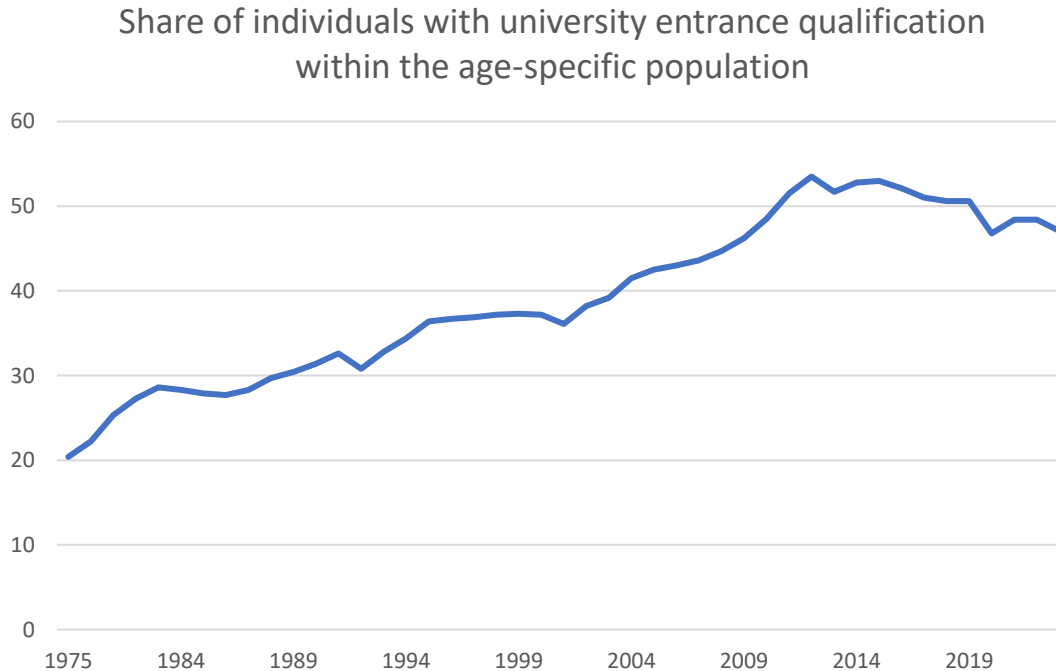
- No, the German population has actually grown in recent years
- The number of births has consistently been lower than the number of deaths, resulting in a natural population decline.
- The growth is due to migration
 - Typically younger than the average population age

Less young people?



- The share of the population under 20 and from 20-40 is relatively stable
 - The population in vocational training age is growing
- About 5 percentage points decline in the age group 40-60
 - This poses a challenge, since they represent the backbone of the workforce

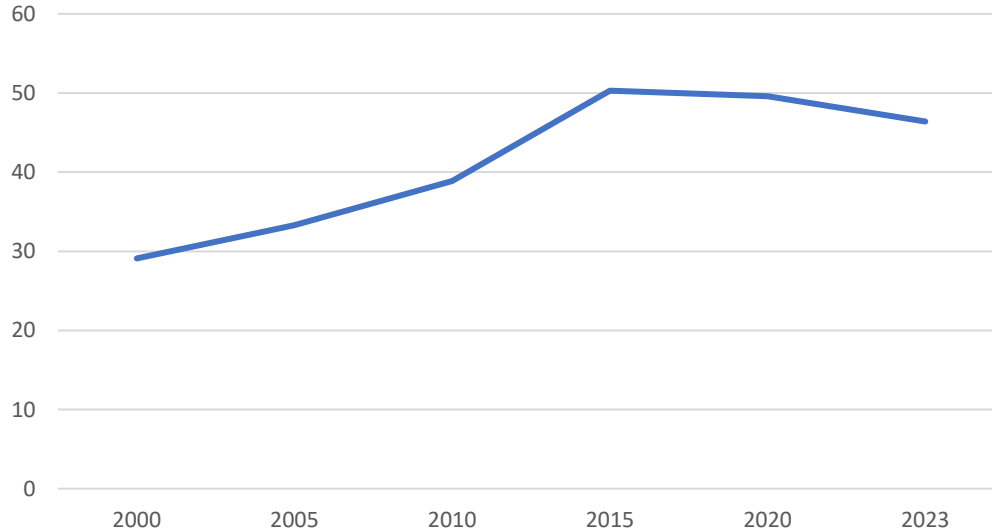
Changes in educational behavior I



- Proportion of young people with a university entrance qualification (Fach-(Abitur)) increased from 20.4% in 1975 to 47.1% in 2023
- Proportion peaked at 53.5% in 2012 and declined since then
- Beginning of a trend reversal?
- People with an Abitur are less likely to pursue vocational education

Changes in educational behavior II

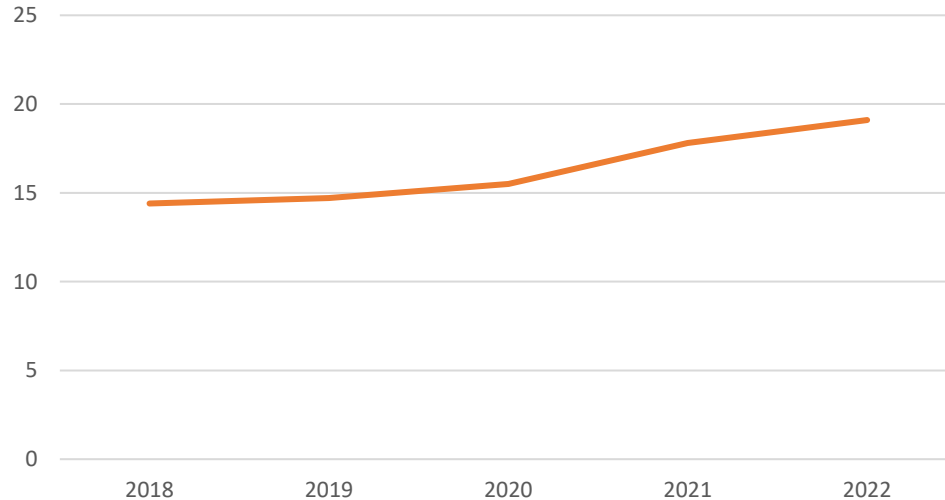
Share of university entrants within the age-specific population



- An increasing share of young people is enrolling in higher education.
- However, we again observe a slight decline over the past ten years

Changes in educational behavior III

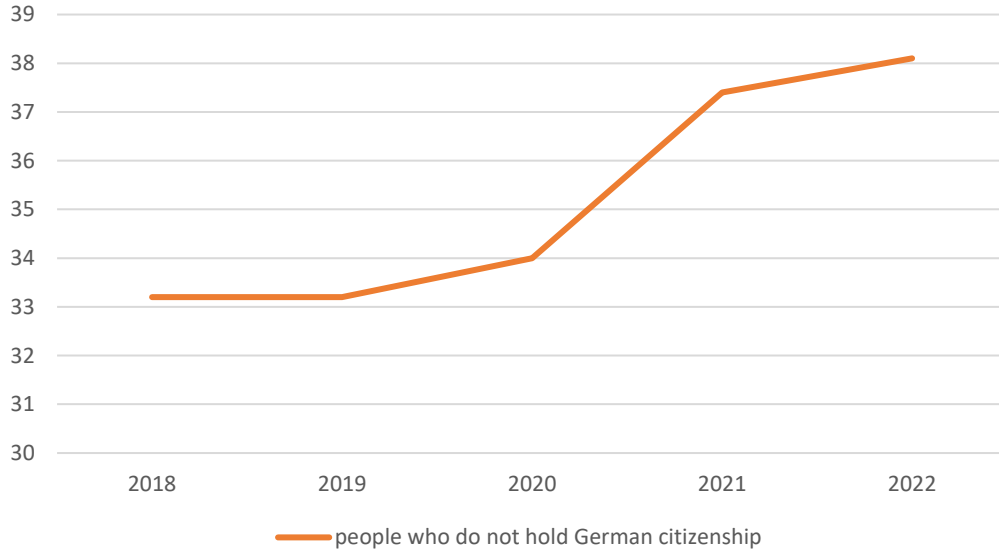
20- to 34-year-olds without vocational qualifications



- Rising number of individuals without vocational training
- Share increased by 4.7 percentage points: from 14.4% (2018) to 19.1% (2022)
- Possible explanation:
 - Impact of the minimum wage (?)

Changes in educational behavior IV

20- to 34-year-olds without vocational qualifications



- Non-German citizens are at greater risk of lacking vocational qualifications
- Possible reasons:
 - Discrimination
 - Time needed to adapt to the labor market (for recent migrants)
 - Cultural differences

Summarization

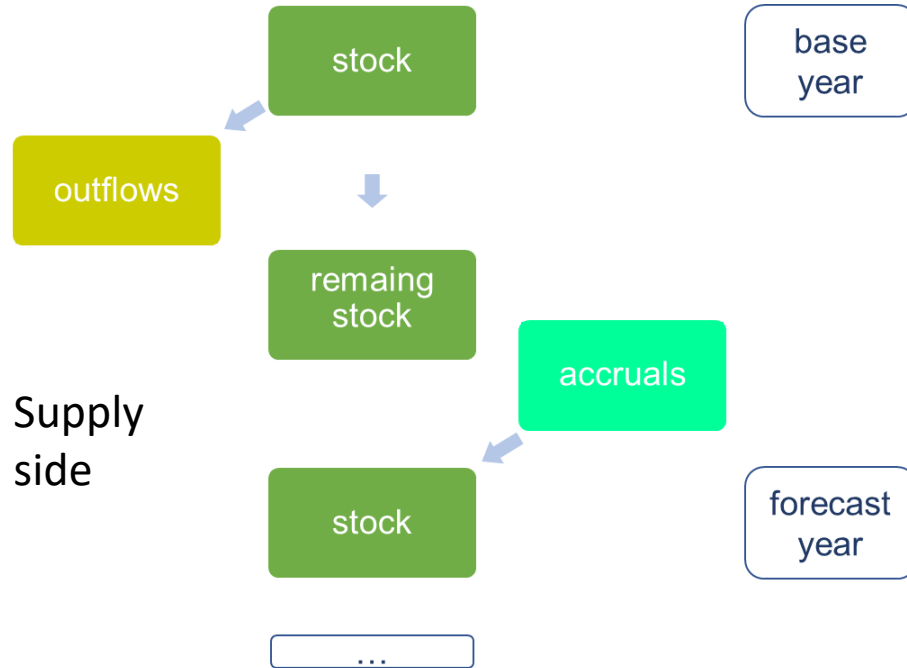
- Decline in VET contracts is not primarily due to fewer young people, but rather to changing educational preferences
- Clear trend toward academic education, driven by a higher proportion of young people attaining university entrance qualifications
- Growing share of individuals lacks vocational qualifications, particularly among non-German citizens

Making skills systems more agile to meet changing labor market demands
Anticipating future skill needs and updating qualifications, curricula, and standards
Increasing need for reskilling and upskilling due to evolving job roles

Projects by the department that provide data to support addressing these challenges

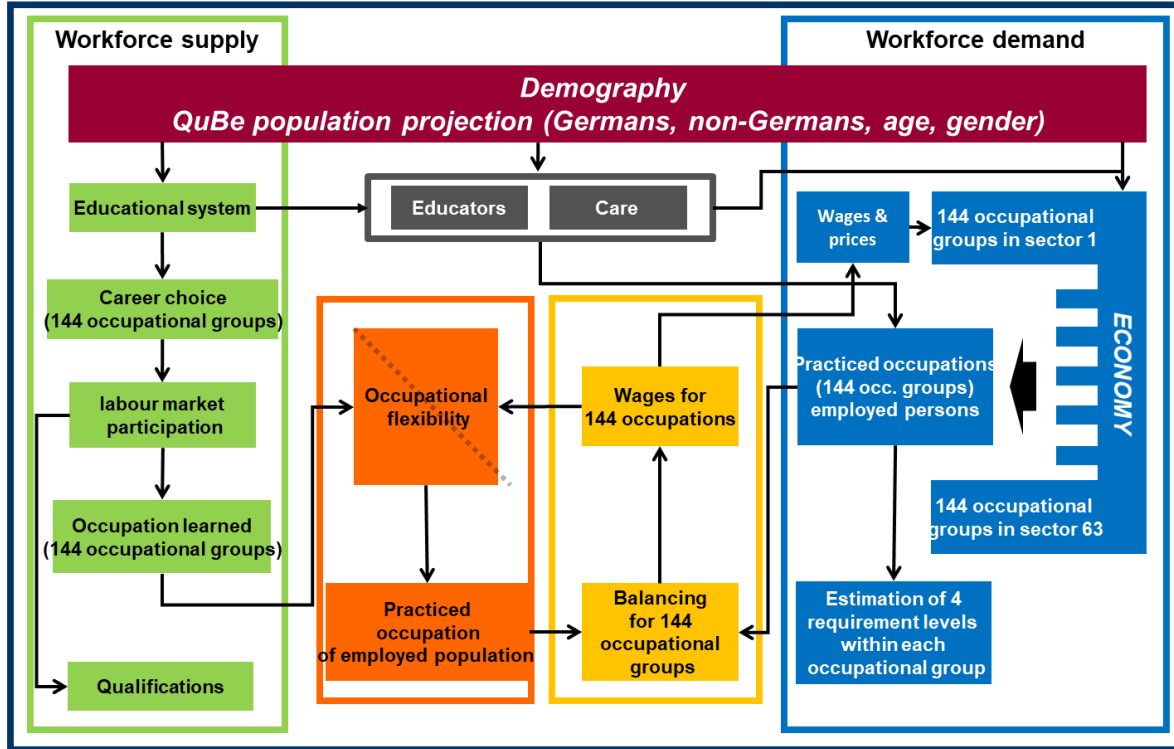
- QuBe (Qualifications and Occupations in the Future)
 - Joint initiative of the BIBB, the Institute for Labour Market and Career Research (IAB), Institute of Economic Structures Research (GWS)
 - Provides long-term labor market forecasts for 144 occupations/ 4 qualification levels
 - Currently projects trend through the year 2040
 - Projections can be disaggregated by federal states and Labour market regions
 - Scenario calculations enable the comparison of different potential developments
 - Recent scenarios/ topics:
 - Impact of U.S. tariffs
 - Impact of the Ukraine crisis
 - Transition to a hydrogen economy
 - Effects of the Carbon Border Adjustment Mechanism (CBAM)
 - Effects of increased women's Labour force participation rate
 - Impact of Artificial Intelligence
 - Deep-dive: Health Occupations

QuBe (Qualifications and Occupations in the Future): stock-flow model



- QuBe (Qualifications and Occupations in the Future) is an elaborate stock-flow model
- ...covering multiple dimensions of German labour market: supply side and demand side for occupations and branches, search durations, skill requirements
- ...incorporating and harmonising different data sources

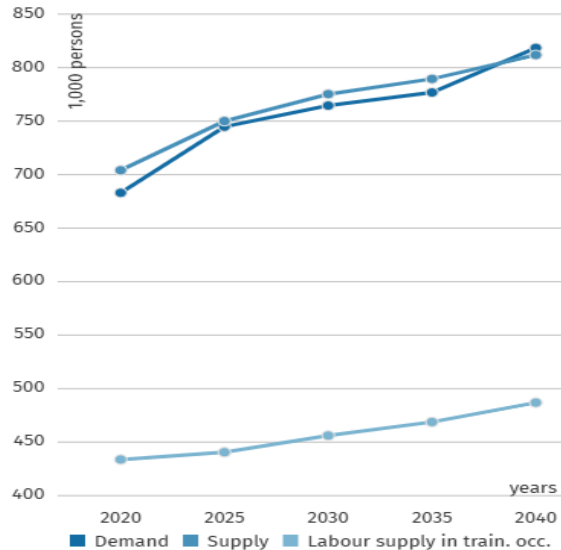
QuBe (Qualifications and Occupations in the Future)



Example Analysis: Geriatric Care Occupations

Time series

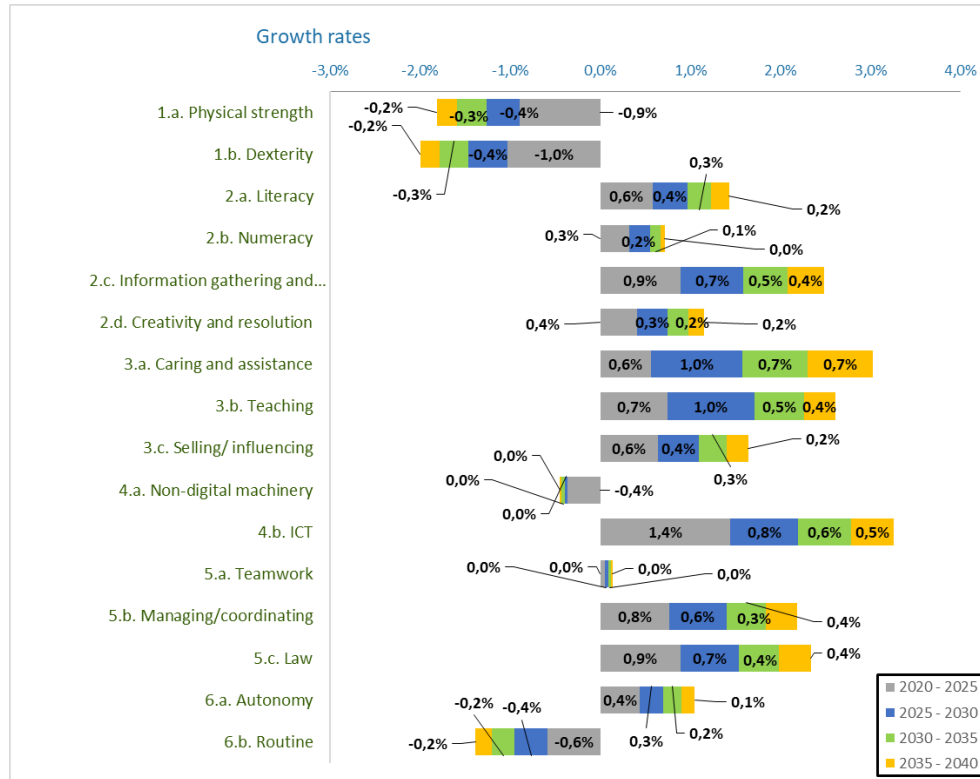
Basis Projection - persons - occupations in geriatric care



- Occupational flexibility matrices make it possible to distinguish between the current occupation and the occupation originally trained for
- Too few individuals are being trained in the field of geriatric care
- Increase in trained persons is not sufficient to meet future demand

BIBB-IAB Qualification and occupational groups projections (www.qube-projekt.de).
8th Wave. Database enquiry from QuBe Data Portal (Federal Institute for Vocational Education a
The content is licensed under Creative Commons-License 4.0 International. See www.bibb.de/cc
The presented values of 2024 or later are values of projection.

Example Analysis: Skill forecast



- Skill requirements can be associated with occupations
- Linked with the growth of workforce demand by occupations, growth rates of skill needs can be computed

Example Analysis: Skill forecast and search durations 2023-2040



- Regression Analysis enable an examination of the impact skill requirements have on changes in search durations for given occupations

Wrap up

- The QuBe long-term labor market forecasts provide guidance on which occupations and qualification levels will be in demand in the future
- Elaborate analyses are possible
- Scenario analyses can demonstrate how differing assumptions about the future are likely to impact the labor market
- Differentiating between the current occupation and the occupation a person was trained for allows assessment of whether a shortage is due to a lack of apprentices or to dropouts
- Initial attempts have been made to project skills, but only on the demand side

Radar (Work in Progress)

Two Pillars

- Pillar One: Data Integration
 - Integration of heterogeneous data sources from BIBB and external providers into a single, harmonized dataset
 - Aims to deliver structured information on vocational occupations to inform stakeholders in politics, research, and professional associations
 - Development of an accessible online platform to make this information available to all
 - A preview of the platform will be available in Q3 2025
- Pillar Two: Skill Extraction from Job Advertisements
 - Extraction of detailed skill requirements from job advertisements as a basis for updating training curricula
 - The aggregated skill data will serve as a foundation for future skills forecasting

Thank you very much for your attention!

References

- <https://www.bibb.de/de/12129.php> (DAZUBI)
- [Tabelle 2.5.85 - Datenportal des BMBF](#) (Anteil Abi)
- [Nichtmonetäre hochschulstatistische Kennzahlen - Fachserie 11 Reihe 4.3.1 - 1980 – 2023](#) (Studienanfänger)
- [Bevölkerung nach Altersgruppen - Statistisches Bundesamt](#) (bevölkerung und Altersverteilung)