



Changing technologies – persistent inequalities?

Michael Tiemann
Bundesinstitut für Berufsbildung

Bonn, 28th May 2018

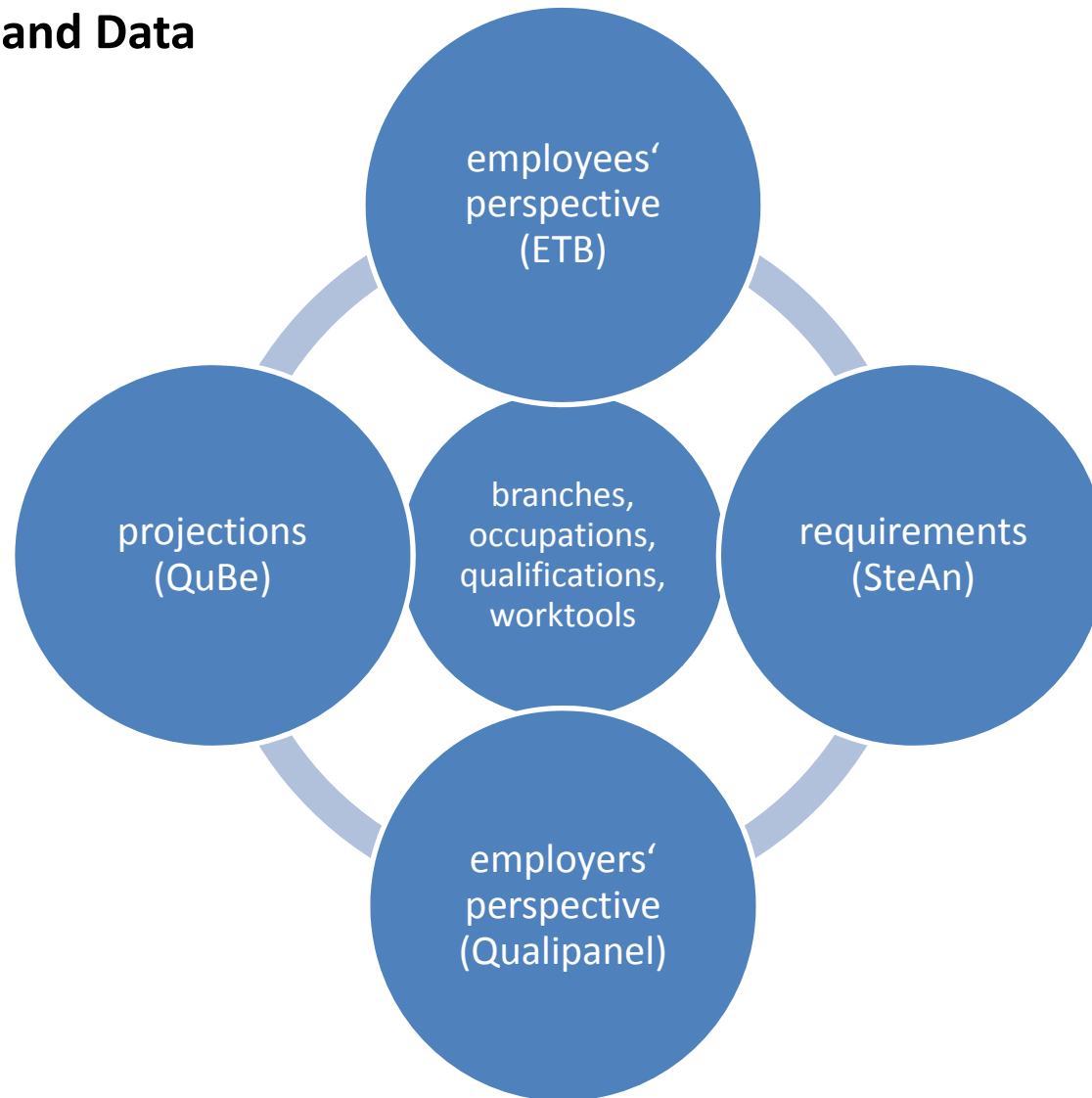
Outline

- Background
- Past trends
- Future projections
- Technology and inequality

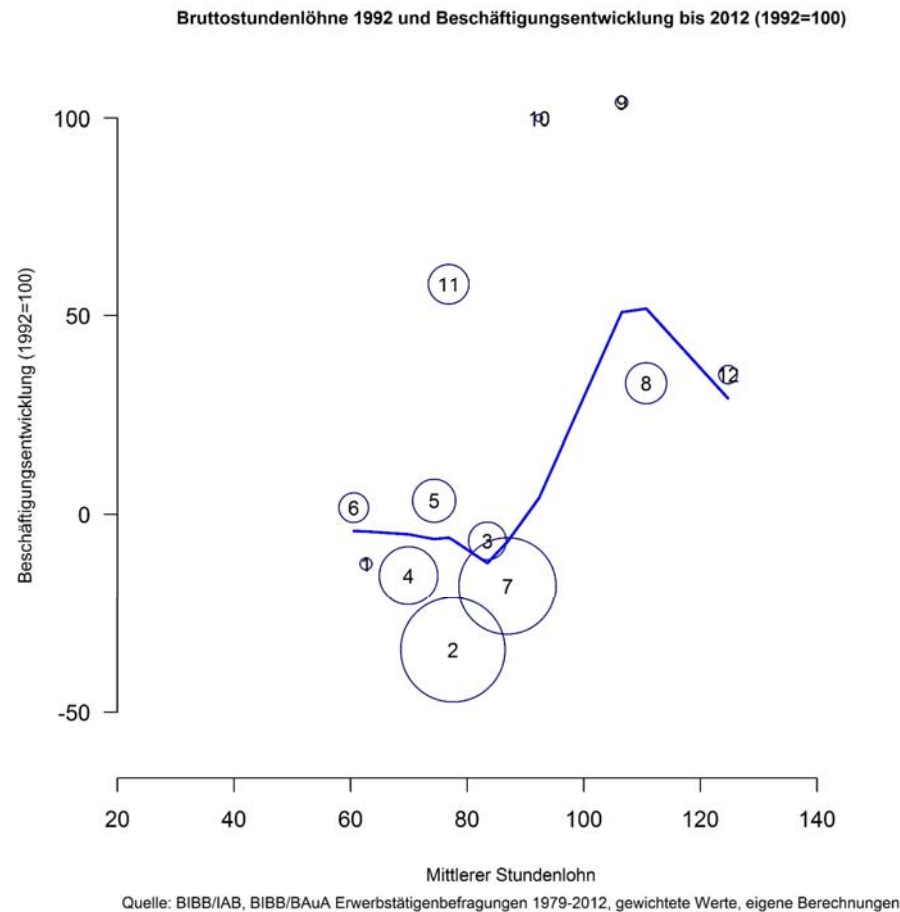
Aim and Ideas

- Understand the impacts of technological change on the labour market (structurally) and on the work place level
- Starting point: Can polarisation (as in task-approach and Frey/Osborne) be found / expected in Germany?
 - TASK-approach
 - medium qualified workers' tasks are being substituted
 - technological developments being the reason
 - Polarisation
 - substitution of tasks leads to
 - increase in shares of employment and increase in wages for low and high qualified
 - decrease in shares of employment and decrease in wages for medium qualified

Structure and Data



Polarisation in Germany?

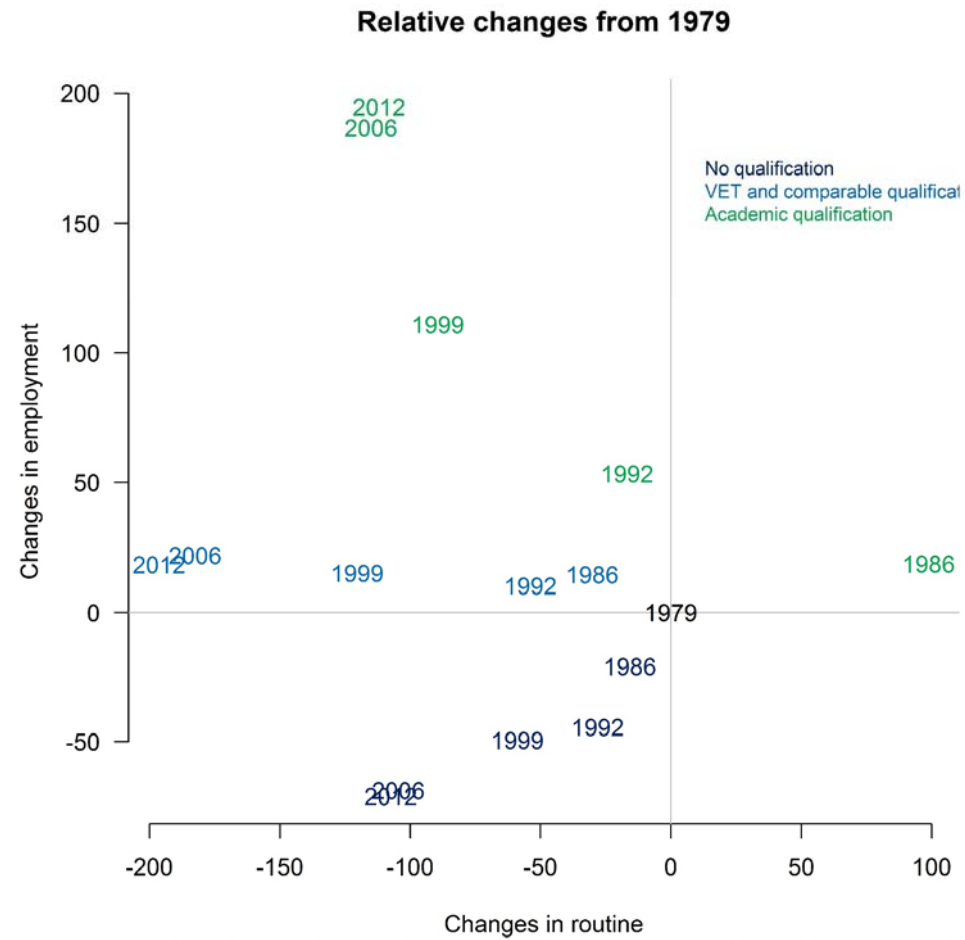


N.B.:

Prices for robots dropped significantly after 1991. (Michaels, Guy; Graetz, Georg: Robots at Work. CEP discussion paper 1335. 2015, revised 2017)

In the U.S., prices for microprocessors dropped by 35.3% each year on average between 1985 and 1996. (Grimm, Bruce T.: Price Indexes for Selected Semiconductors, 1974-96. Survey of Current Business 1998)

Polarisation in Germany?

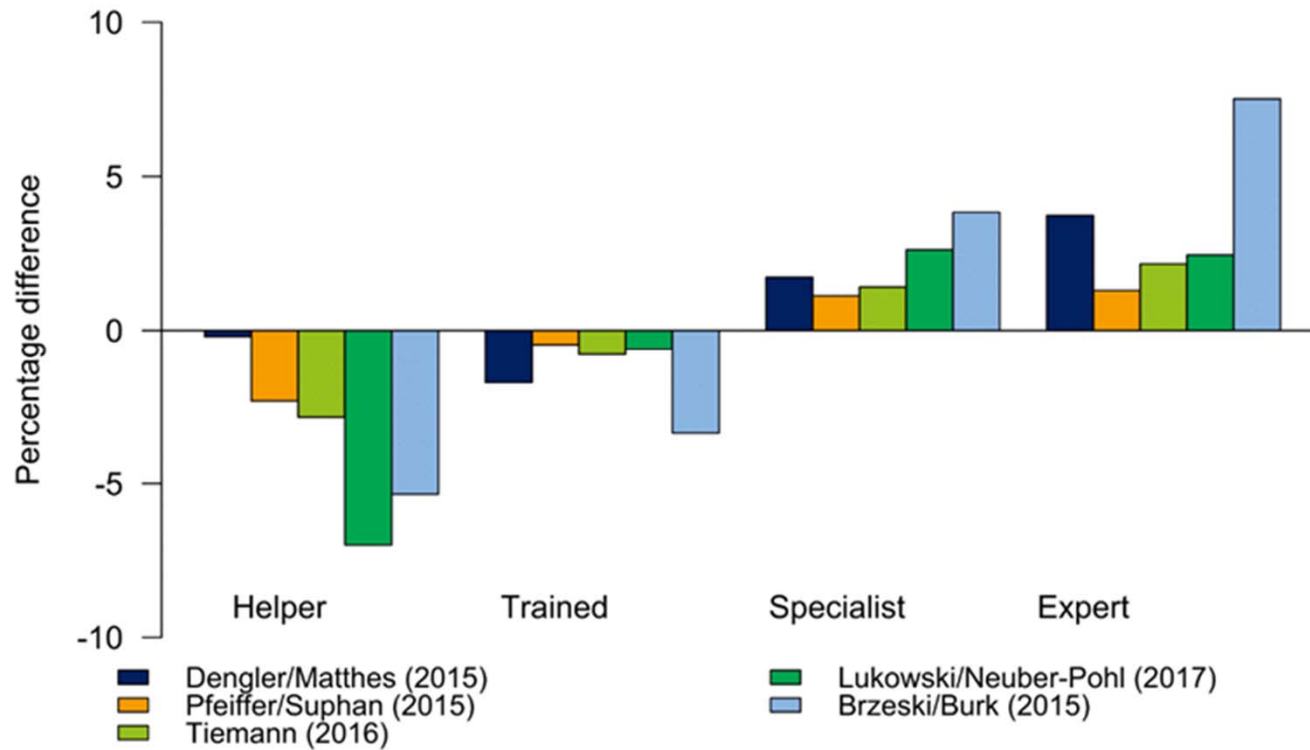


What will the future bring?

Assumptions	Partial scenarios
<p>Equipment investments</p> <ul style="list-style-type: none"> ① Additional investments ② Conversion of capital stock sensor technology ③ Conversion of capital stock IT services 	PSC 1
<p>Building investments</p> <ul style="list-style-type: none"> ④ Capital expenditure "high-speed Internet" ⑤ Distribution on industries ⑥ Balanced Government budget 	PSC2
<p>Cost and profit structures</p> <ul style="list-style-type: none"> ⑦ Continuing education ⑧ Consulting services ⑨ Digitisation ⑩ Decrease in raw materials, consumables and supplies as well as purchased services ⑪ Decrease in the cost of logistics ⑫ Increasing labour productivity 	PSC3
<p>Change in the structures of occupational fields and requirements</p> <ul style="list-style-type: none"> ⑬ Adjustment in occupational structure with industrial sectors considering routine ⑭ Adjustment in labour productivity 	PSC4
<p>Increases in demand</p> <ul style="list-style-type: none"> ⑮ Higher government spending on security ⑯ Additional demand from private households ⑰ Higher willingness to pay ⑱ Increases in export 	PSC5
Comparison with the baseline scenario (baseline projection) QuBe project	

What will the future bring?

Effect on job requirements by shifting index



What will the future bring?



Technology and inequality

- We see a general upgrading and a shift towards higher complexity
- Different potentials for substitution for different workers, it rises with *age*, being *female*, working in *logistic, security or office occupations*, when *no new technologies have been implemented* in the last two years, the *lower* your job's *required qualification*
- Segmentation and segregation on the labour market could be balanced by technology, but instead substitution penalises the same individuals as these structures
- We do not (especially in international comparison) have equal access to, understanding and usage of technology
- Technologies are not neutral to inequalities, it seems they preserve and promote them

Thank you!

Dr. Michael Tiemann

AB 1.2 „Qualifications, Occupational Integration and Employment“

Robert-Schuman-Platz 3

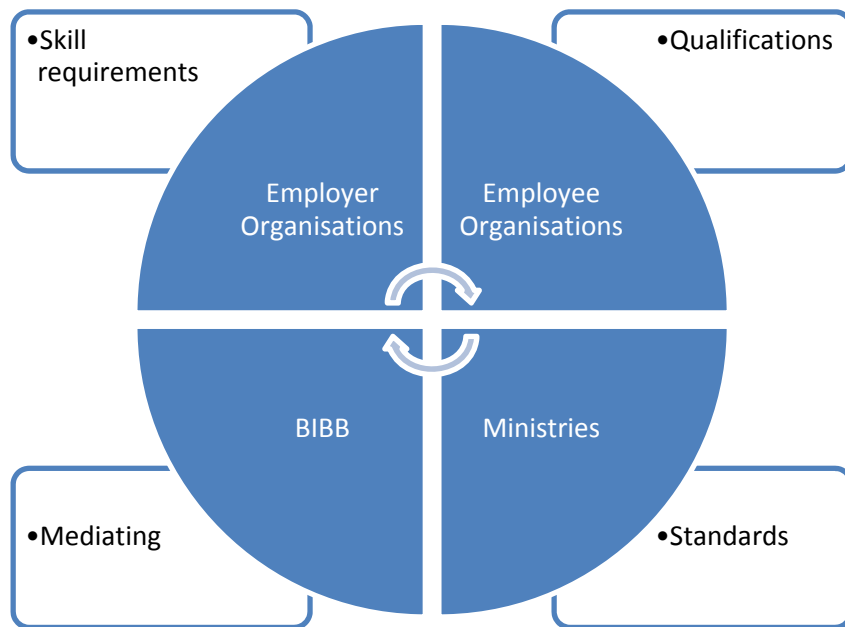
53175 Bonn

tiemann@bibb.de

Characteristics of occupations in Germany

Processes of change: How are new requirements incorporated into VET?

Note: There are differences in academic training – but also strong leanings towards the mediating aspects of this dual system („dual studies“).



In Germany, institutionalised mediation of occupational contents for curricula ...

... leads to a specific understanding of the concept of occupation:

