Universität Konstanz

The costs and benefits of investing in training: Insights from the case of Germany

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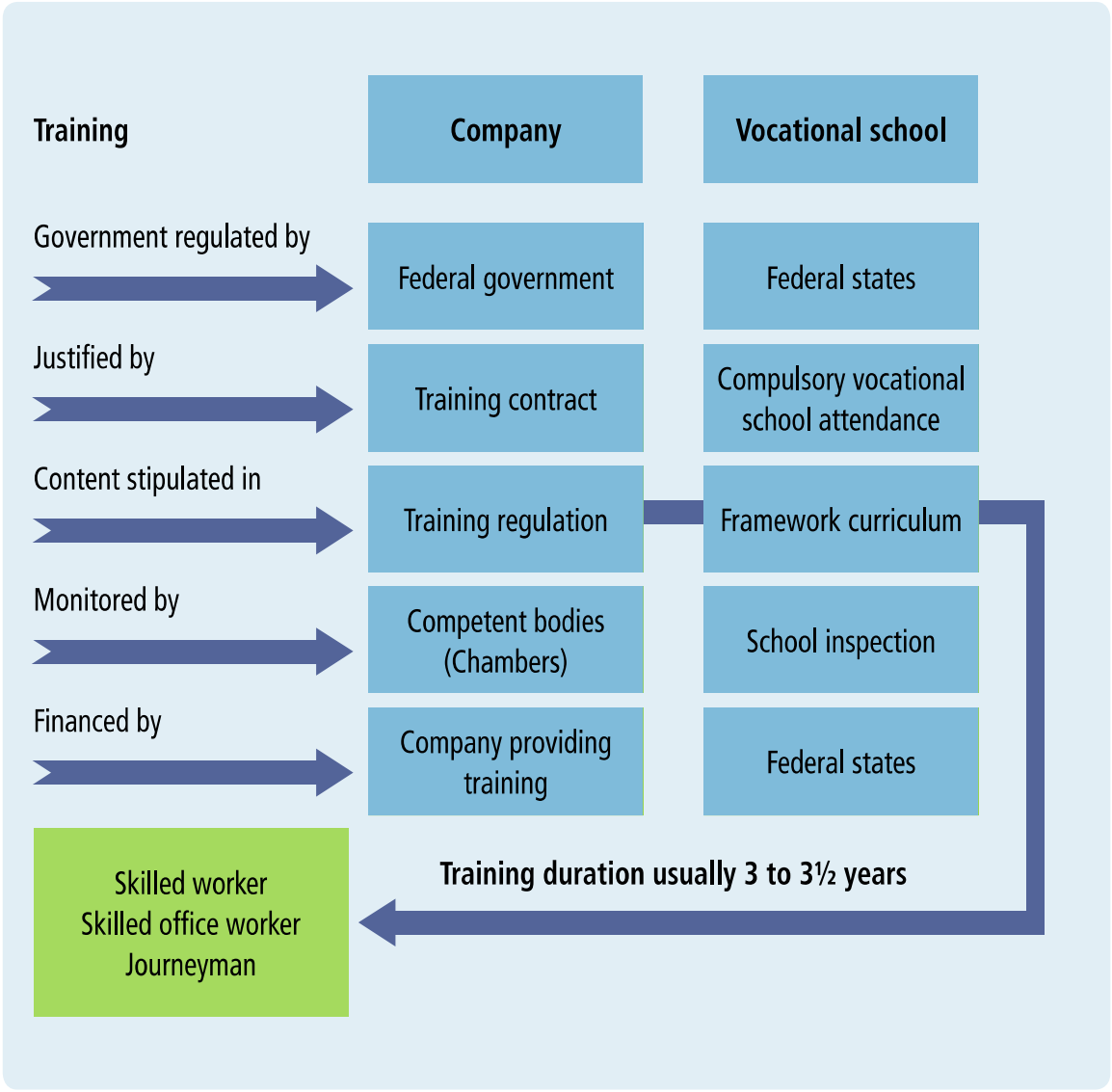
Introduction and overview

- Dual apprenticeship training model in Germany has become role model for reforms, because of:
  - low levels of youth unemployment and smooth transitions from training to employment
  - Source of skilled labor for highly competitive, export-oriented reforms in manufacturing, machine-building, car industry, etc.
- Long discussion about whether dual VET promotes educational innnovation
  - On the one hand: tight connection between content of VET and firms' needs for training, strong incentives to keep training curricula and equipment up to date
  - On the other hand: apprenticeship model rooted in industry/crafts sector → potentially not well-suited to support radical innovation in service-oriented knowledge economy, school-based VET better in this regard (?)
- Overview of talk:
  - Main characteristics of German VET system
  - Costs and benefits of training
  - Strength and weaknesses regarding potential for innovation

Main characteristics of VET in Germany

- dual apprenticeship model:
  - Combination of practical training in workplace with theoretical training in vocational schools and colleges (1-2 days per week)
  - Most importantly: integrated, not sequential way of learning
- Encourages the formation of “polyvalent skills” (Streeck) and “training above short-term need”
- Social integration into workplace: tacit and social skills (team work, work discipline, etc.)
- Content of training curricula is negotiated in complex corporatist process:
  - Federal Institute for Vocational Education and Training (BIBB)
  - Federal government and subnational governments (”Länder”)
  - “social partners” (trade unions, employers’ associations, chambers)



Source: BIBB 2014: 10.

Cost-benefit analysis of VET

- Regular analyses of costs and benefits of dual vocational training in participating firms (since 1970s), conducted by Federal Institute for Vocational Education and Training (BIBB)
- Survey among employers
- Costs:
  - Wages for apprentices, set in collective wage agreements
  - Wages for trainers (taking into account time they spent on training)
  - Training equipment, machines, etc.
- Benefits:
  - Direct contributions of apprentices to production processes (taking into account different levels of training during apprenticeship period)
  - More indirect benefits:
    - avoiding recruitment costs for skilled workers on external labor markets
    - Provision of firm-specific skills to apprentices → higher productivity, lower wages
    - Preventing skill shortages, investing in future skilled workforce

Different motives why firms participate in training

Production-oriented model

- Hiring apprentices as partial replacement of (semi-)skilled workers

→ Above average contributions of apprentices to the production process, lower net costs

- Mostly in smaller firms, crafts sector, services, domestic markets
- Below average retention rates of apprentices after training
- Traditionally: apprentice graduates then move from small to larger firms

Investment-oriented model

- Hiring apprentices as future skilled members of core workforce

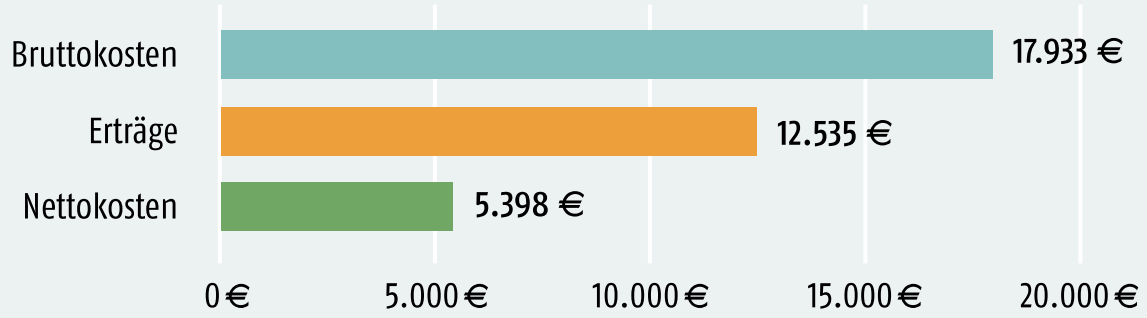
→ Above average net costs of training

- Mostly in larger, export-oriented firms, machine-building, chemicals, but also insurance/banking
- Above average retention rates for apprentices after training → apprenticeship as gateway to skilled workforce

Costs and benefits: Facts and figures

- Latest wave of BIBB cost-benefit survey from 2012/13
- Sample: 3.032 firms participating in training, 913 non-participating firms

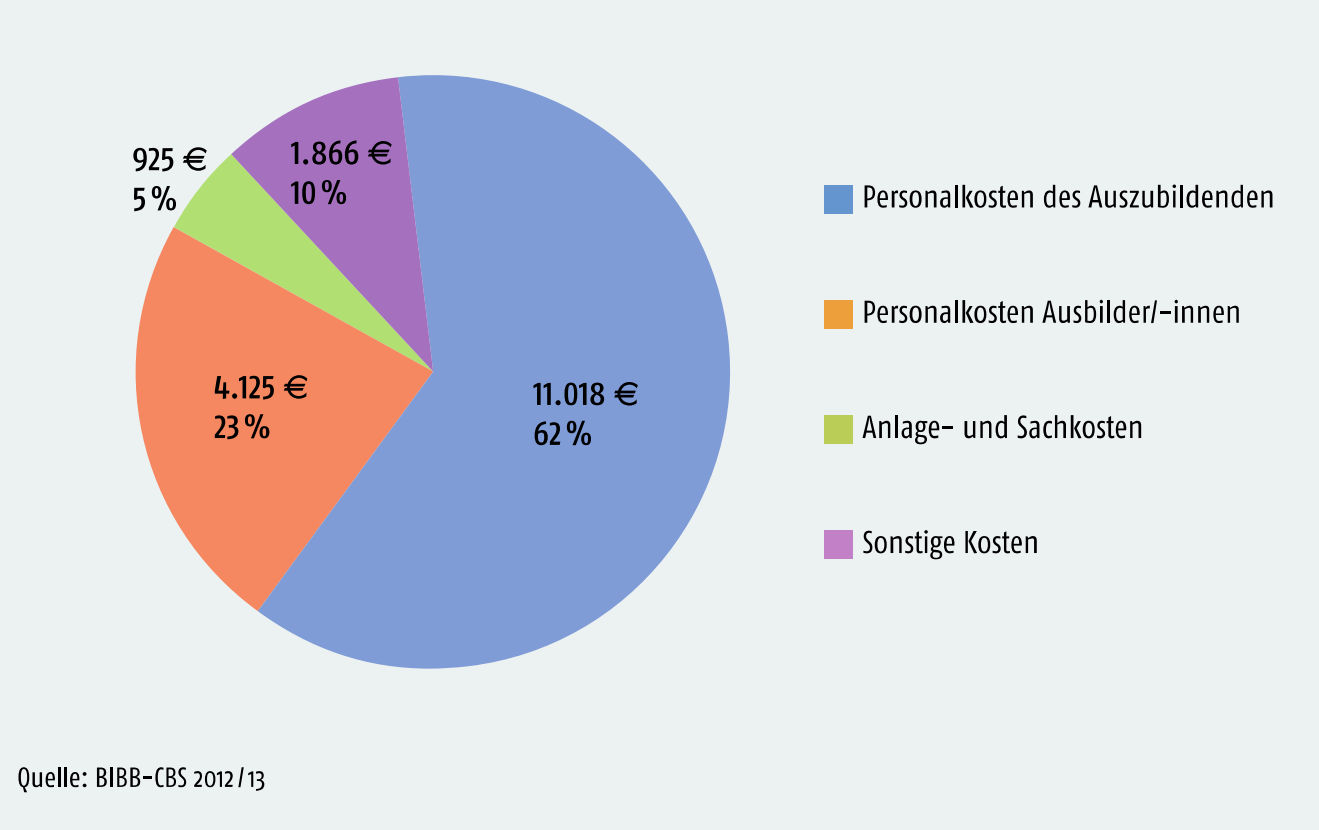
Abbildung 1: Bruttokosten, Erträge und Nettokosten pro Auszubildendem und Jahr (in Euro)



Quelle: BIBB-CBS 2012/13

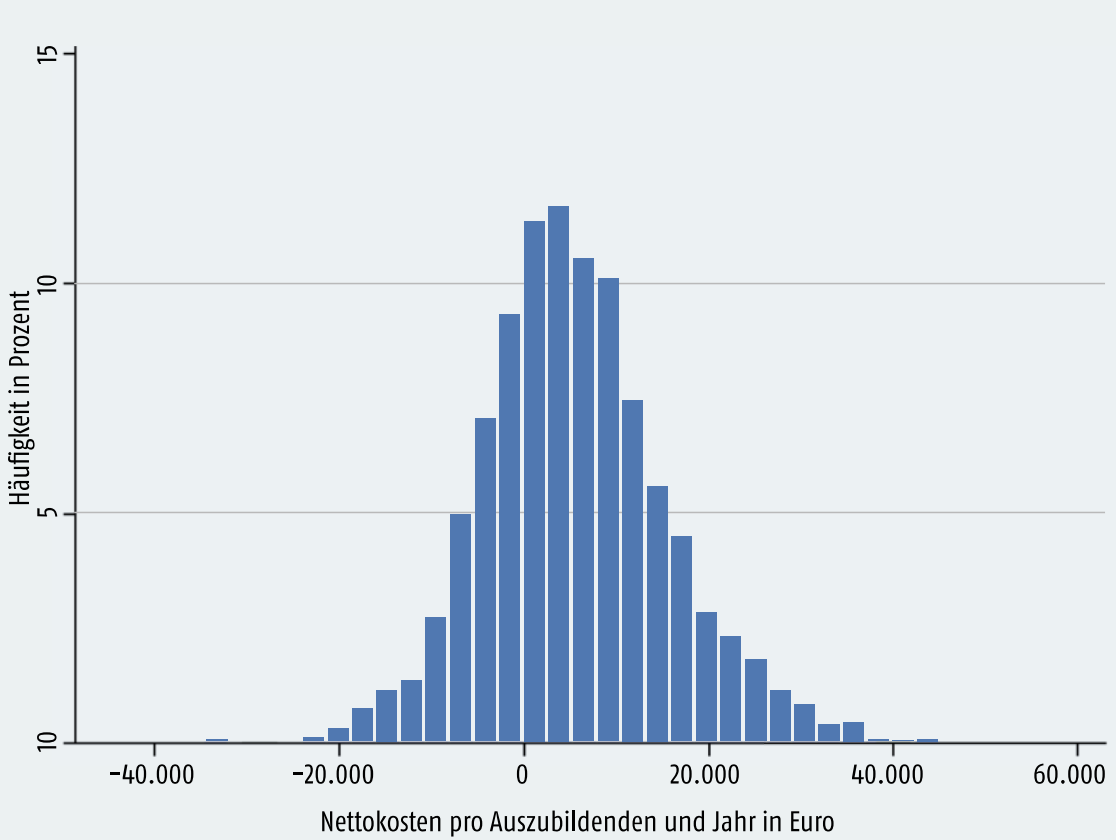
Source: Jansen et al., 2015: Ausbildung in Deutschland weiterhin investitionsorientiert, BIBB-Report 1/2015, p. 3.

Distribution of costs across different categories



Source: Jansen et al., 2015: Ausbildung in Deutschland weiterhin investitionsorientiert, BIBB-Report 1/2015, p. 4.

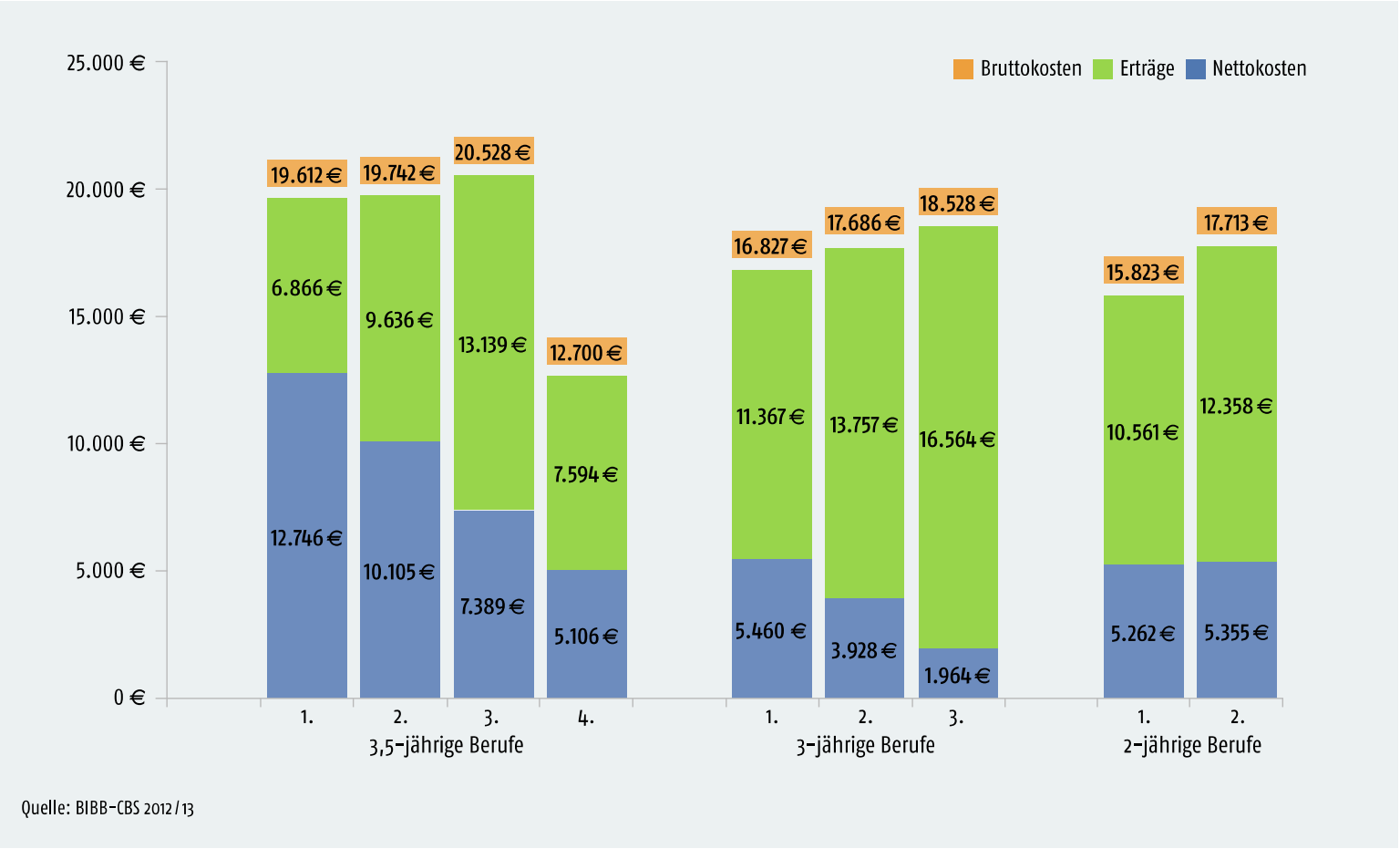
Variation of cost profiles



Erläuterung: Die Balken spiegeln den prozentualen Anteil der Auszubildenden mit den jeweiligen Nettokosten (horizontale Achse) wider.
Quelle: BIBB-CBS 2012/13

Source: Jansen et al., 2015: Ausbildung in Deutschland weiterhin investitionsorientiert, BIBB-Report 1/2015, p. 4.

Declining net costs for later stages of apprenticeship

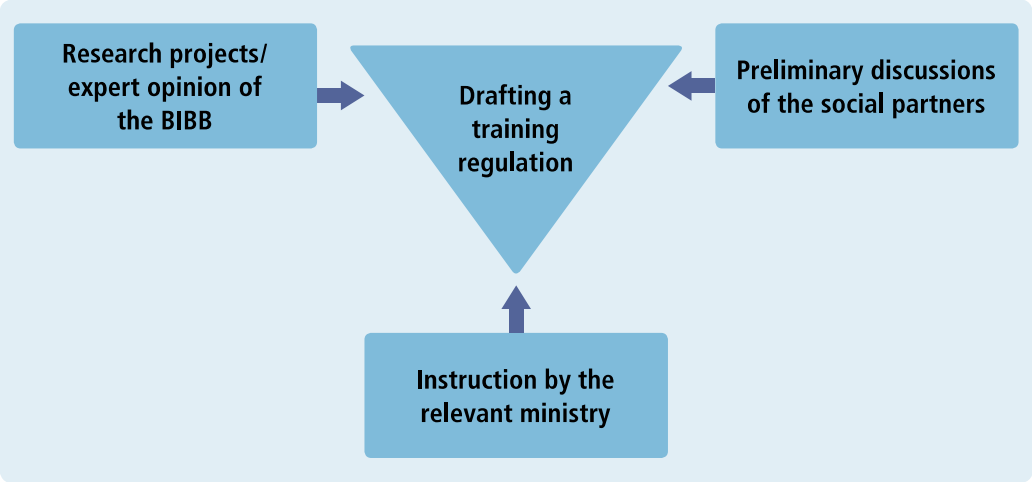


Source: Jansen et al., 2015: Ausbildung in Deutschland weiterhin investitionsorientiert, BIBB-Report 1/2015, p. 7.

Some concrete examples

Occupation	Gross Costs (in €)	Benefits (in €)	Net Costs (in €)
Real state sales clerk (“Immobilienkaufmann”	18.938	18.494	444
Baker (“Bäcker/in”)	12.572	15.818	-3.246
Industrial mechanic (“Industriemechaniker/in”)	27.129	8.509	18.620

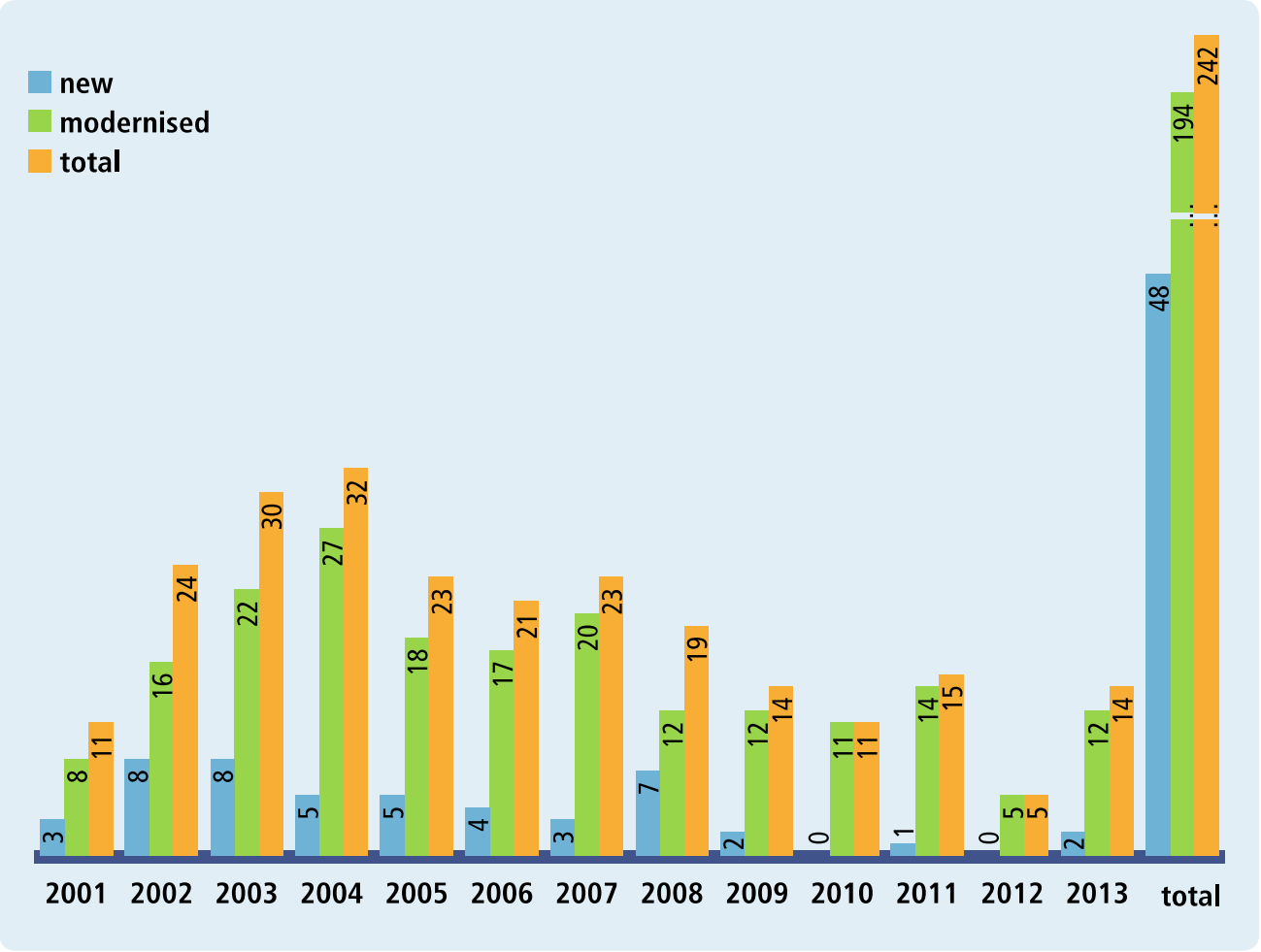
Innovation in training curricula reform



Source: BIBB 2014: 25

- Social partners contribute practical experiences and perspectives on changing skill needs
- BIBB has dual function: moderator and facilitator of dialogue; but also: provides research and technical expertise
- Unions and employers: bring in different perspectives and interests → reformed training curricula as compromise between involved stakeholders

Revised and new training regulations in Germany per year



Source: BIBB 2014: 21.

Advantages and disadvantages of the corporatist process

- Disadvantages:
  - Process of updating training curricula can take a long time (e.g. up to 15 years in the case of metal and electrical occupations in the 1980s) → delimits innovation potential
  - But: social partners and governmental actors have accumulated institutional and procedural knowledge over the years, developed joint problem orientation → nowadays: process usually takes only about one to two years
- Advantages:
  - VET system remains flexible and adapts to changing skill needs (compared to school-based VET, for instance)
  - Based on research findings
  - Cross-class compromise between unions and employers avoids conflicts in implementation phase
  - Coordination avoids fragmentation of vocational profiles
  - Cost-sharing: state finances school-based part, firms pay for workplace-based training

Dual study programs in Germany

- New type of program at the intersection between VET and higher education (HE)
- Different varieties, core idea: combination of workplace-based training with theoretical education in colleges
  - *ausbildungsintegrierend*: HE and VET degree (often at FHs)
  - *praxisintegrierend:* only degree from HE institution, but extended practical training in firms (often at *Berufsakademien*)
- Transfer of dual training model to post-secondary and tertiary level
- First models established in 1970s in BaWü, but significant expansion in recent years
- Mostly for engineering, business studies, IT, but also social services and health care

Facts and figures about dual study programs

Jahr	2004	2005	2006	2007	2008	2009	2010	2011*	2012*	2013*	2014*
Anzahl dualer Studiengänge	512	545	608	666	687	712	776	879	910	1.014	1.505
Angebote von Unternehmen	18.168	18.911	22.003	24.246	24.572	26.121	27.900	40.555	45.630	39.622	41.466
Studierende	40.982	42.467	43.536	43.220	43.991	48.796	50.764	59.628	64.093	64.358	94.723

Stand: Oktober 2014

*Werte beziehen sich ausschließlich auf Studiengänge für die Erstausbildung

→ About 10 percent of FH students, but about 25 percent of FH programs are „dualized“

Dual study programs

- Dual study programs popular with students:
  - earn both VET and HE credential
  - good job prospects
  - get paid while studying
- Popular with higher education institutions
  - successful HE programs: easy transition to employment,
  - working with prestigious business partners
- unions: some criticism about lack of regulation, but generally supportive

Dual study programs

- From the perspective of employers:
  - compared to traditional HE: more practical training at the workplace
  - compared to traditional dual apprenticeship: higher-level theoretical skills
  - employers have more influence over the design of curriculum in the theoretical part, more specific training programs, because only a couple of employers work with HE institution
- employers still free to select student-apprentices
- less regulation on employment conditions

→ Combination of general studies and firm-specific training

Conclusions and implications for policy transfer

- Potential of German VET system for educational innovation is higher than might be assumed, but depends on: involvement of employers in VET and embeddedness of firm in corporatist institutional framework
- Policy transfer difficult, but not impossible:
  - Promoting institutional analysis, which focuses on the interaction between employers and corporatist governance frameworks of VET
  - Employers more likely to get engaged if their voice has influence on design of training curricula
  - Training curricula more likely to be accepted on labor market if they are supported by multiple stakeholders (including unions)

- → state actors could make their willingness to delegate public responsibilities to non-state actors dependent on association showing that they indeed represent a large share of employers/workers