

Sectoral approaches to studying cost-benefits of apprenticeship in Germany

New Models of Workbased learning – New WBL
Final conference
21.03.2018, Ljubljana, Slovenia



Co-funded by the
Erasmus+ Programme
of the European Union



Motivation of the employers



Introduction: BIBB Cost-Benefit Survey 2012/13

- Edding Commission / past surveys 1980, 1991, 2000, 2007, 2012/2013
- Representative sample:
3,032 companies providing training and 913 non-training companies
 - Computer-assisted personal interviews with company staff in charge of apprenticeship; 43 minutes (non-training companies) to 77 minutes (training companies)
 - Specific training occupations
 - Total of 11,206 trainees from the 3,032 companies
- New survey in 2018/2019

Germany	Dec. 2015
Apprentices	1.337.004
Enterprises involved in apprenticeships	428.000 (=20%)

Source: Analysis by Anika Jansen, Harald Pfeifer, Gudrun Schönfeld and Felix Wenzelmann

Introduction: Cost-benefit of apprenticeship to companies

- Economically rational behaviour

Non-personel costs	+	Personel costs	=	Gross costs
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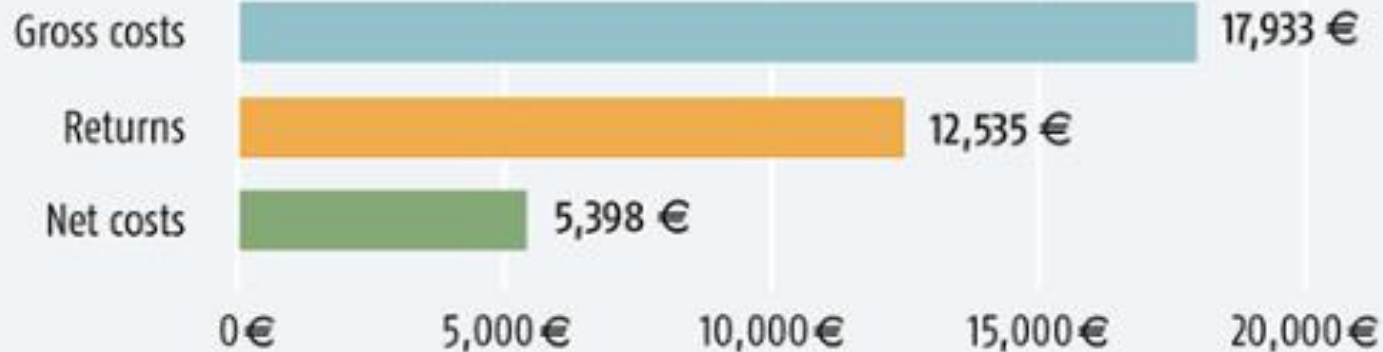
Gross costs	-	Returns	=	Net costs
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- Returns
 - Production motive
 - Investment motive
 - Time-span (short, medium, long term)

! Costs incur during apprenticeship

Costs to Returns ratio: around 70%

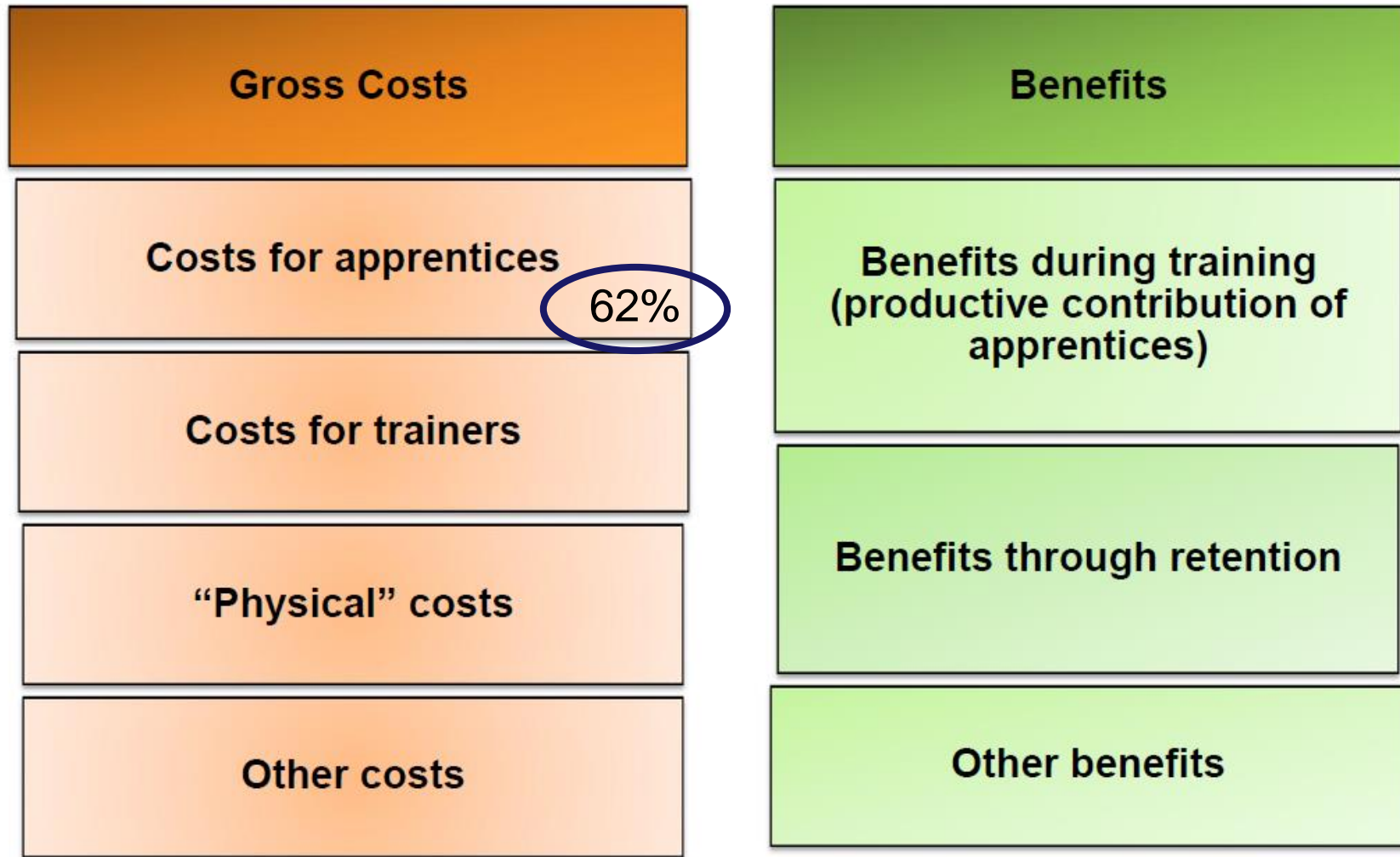
Figure 1: Gross costs, returns and net costs per apprentice per year (in euros)




Source: BIBB-CBS 2012/13

BIBB report 1/2015; <https://www.bibb.de/en/25852.php>

Measuring costs and benefits



BIBB-Cost-Benefit-Survey 2000 and 2007



Self-Assessment of costs by firms

- **Not based on** representative studies:
- Especially **large firms** quantify their training costs
- There is **no standardized model** for self-assessment of costs
- Often **no measurement** of the costs of **part time trainers**
- Usually **no measurement** of **productive contributions** of the apprentices
- **Assumption** that the part time trainers costs and benefits during training are of the **same size**; at least at the workplace
- **Small firms** normally make a “**rule of thumb estimation**” of their cost-benefit relation

Normann Müller, Felix Wenzelmann, Anika Jansen: **Financing of vocational education and training in Germany.**
<https://www.bibb.de/en/41380.php>. Retrieved 25.08.2017

Gross costs

Personal cost of apprentices

Salaries of apprentices

Legal social contributions

Tariff / social contributions

Personal cost of training staff

Full time in-company trainers

Part-time training skilled workers

External trainers

Costs for premises

Workplace related materials and tools

Learning labs

In-company teaching

Other costs

Teaching and learning materials

Fees to the Chambers

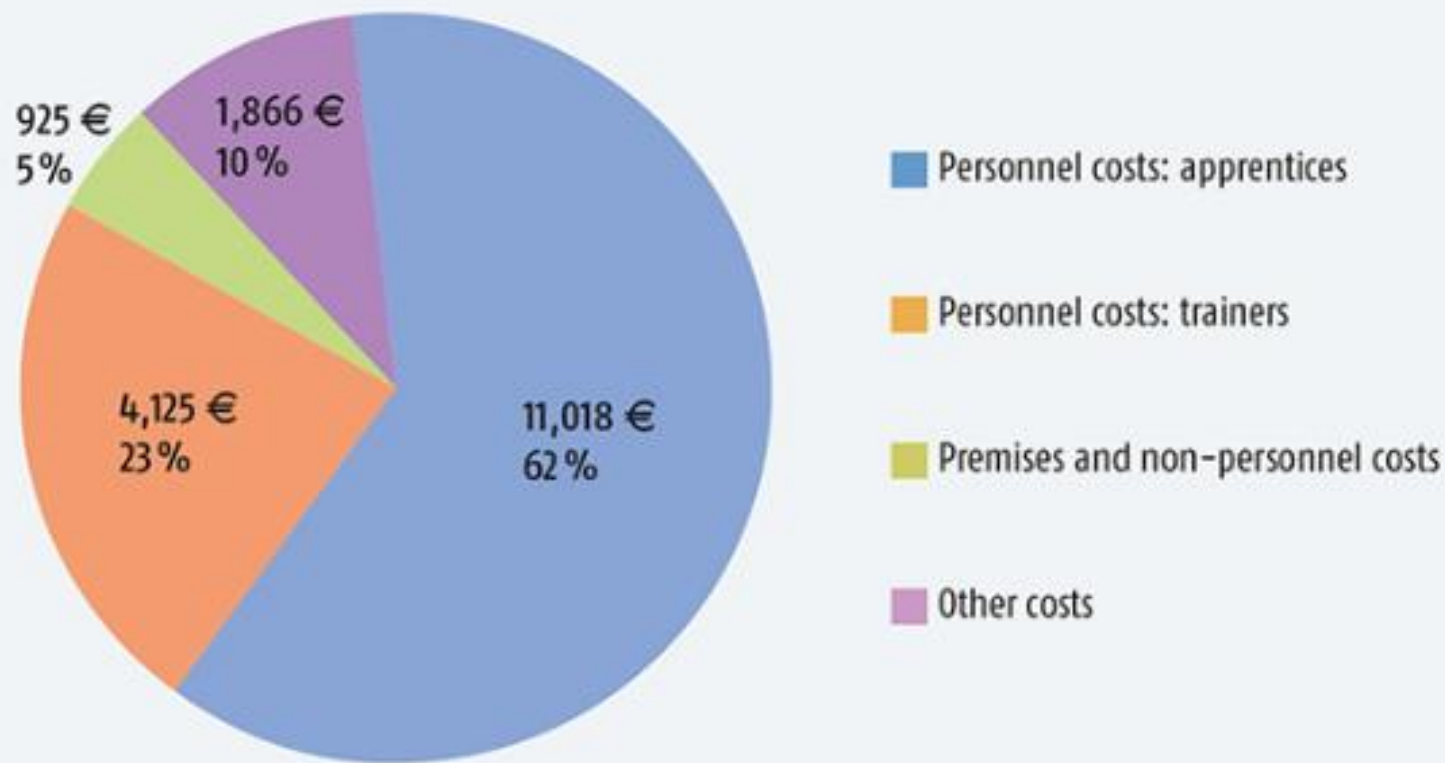
Work and security clothings

External training

Administrative costs

Recruitment costs

Figure 2: Breakdown of gross costs per apprentice and year by cost categories (percentage and euros)

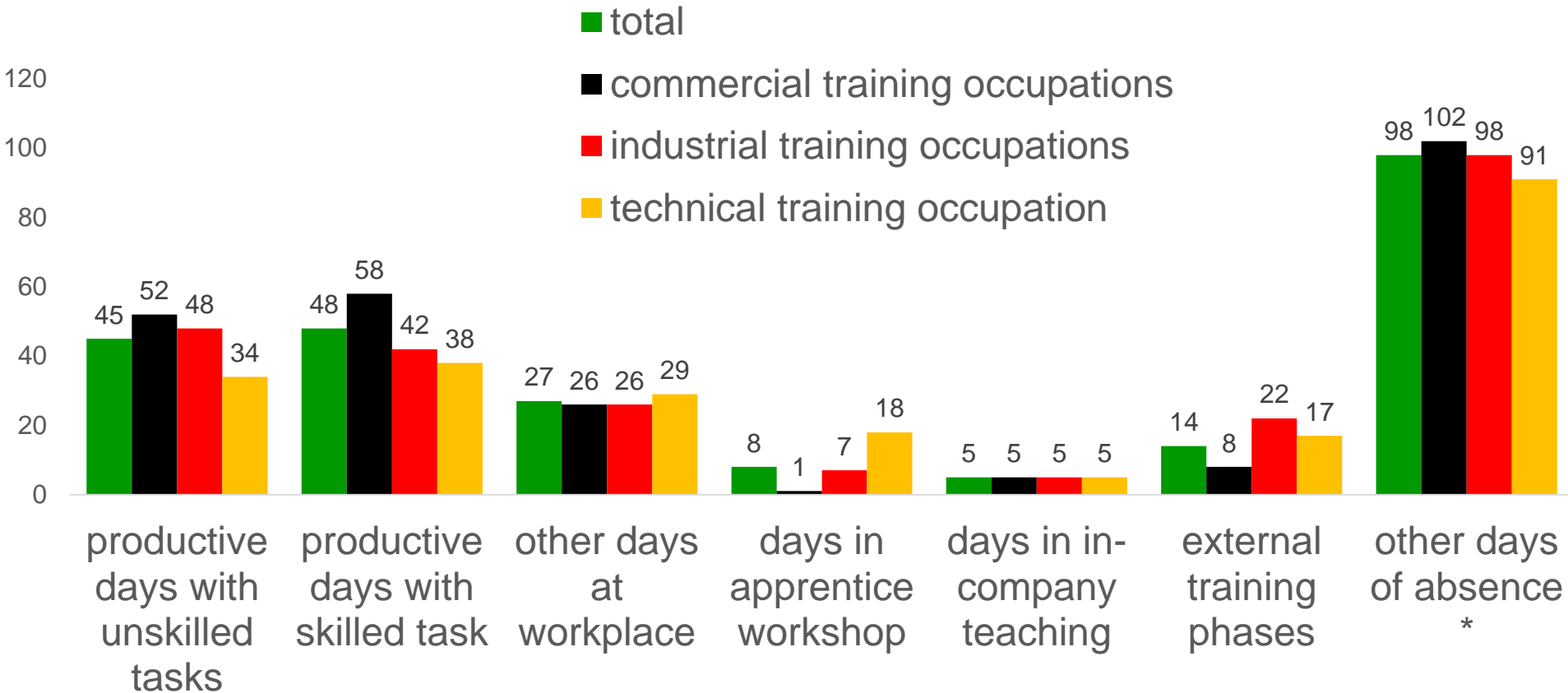


Source: BIBB-CBS 2012 / 13

BIBB report 1/2015; <https://www.bibb.de/en/25852.php>

Time structure of training by training occupations in days

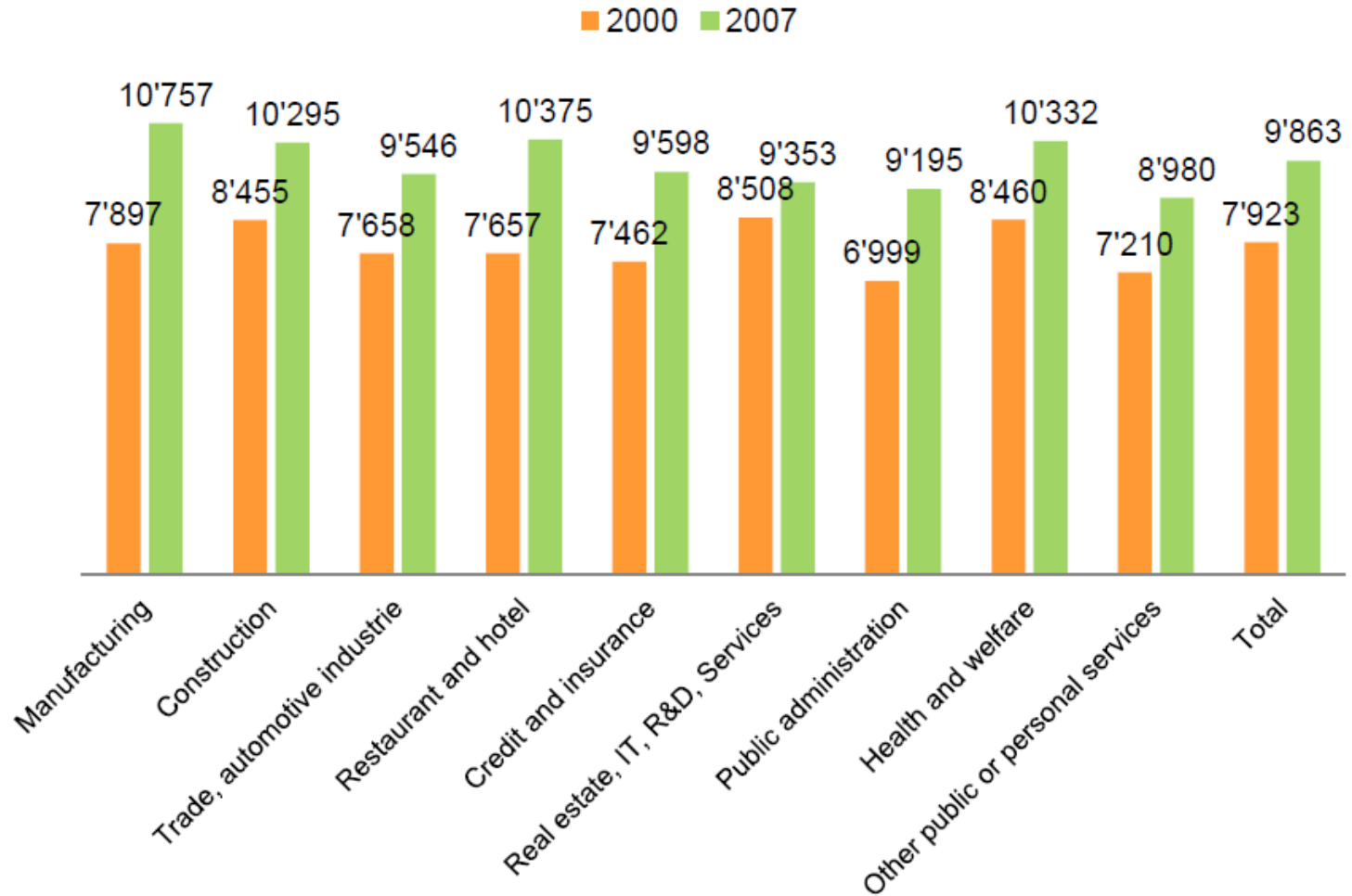
(apprenticeship year 2012/2013)



* other days of absence: vocational school, holiday, sick-leave

BIBB Datenreport 2016; Schaubild A7.3-1

Short-term benefits by sector (Germany)



Wenzelmann, Felix. Labour market reforms and companies training behaviour

Comparison of the years 2017 and 2012/13 – gross costs, returns and net costs per apprentice per year

Maybe to be deleted

Year	Gross Costs	Returns	Net Costs
2007	17.269	12.622	4.647
2012	17.769	12.527	5.241

Source: BIBB CBS 2007 and 2012/13

Long- and mid-term benefits

Benefits through retention

Saved recruitment and adjustment costs

Avoided costs of mismatch

Avoided costs related to lack of qualified employees

Long-run productivity differences

Wage differences

Other benefits

Image
→ Attractiveness for potential employees and clients

Institutionalized regeneration of staff
→ Synergies between initial and further training

Spot on personnel recruitment costs

(in €, per new skilled worker)

	Total	Eastern Germany	Western Germany
Application process of which	928	650	1,012
Advertising costs	275	187	301
Personnel costs for application process	413	271	456
Costs of external consultant	240	192	254
CVET during induction process of which	723	671	739
Costs of CVET	349	378	340
Costs of absence from work for CVET	374	293	399
Induction costs of which	7,063	5,043	7,672
Reduced performance during induction	2,966	1,895	3,289
Personnel costs of induction	4,097	3,148	4,384
Total	8,715	6,365	9,423

Source: BIBB-CBS 2012/2013

Costs and returns per apprentices in € (2012/2013)

	Gross costs	Returns	Net costs
Total	17.933	12.535	5.398
Commercial training occupations	18.206	14.684	3.522
Industrial training occupations	16.116	11.859	4.257
Technical training occupations	19.092	10.153	8.939

BIBB Datenreport 2016; Tabelle A7.3-1

Costs and returns per apprentices (2012/2013) in € by vocational fields and by types of costs and returns

	Total	Commercial occupations	Industrial occupations	Technical occupations
Brut costs	17.933	18.206	16.116	19.092
Personal costs for apprentices	11.018	11.895	9.959	10.705
Personal costs of in-company training staff	4.125	4.373	3.634	4.200
Costs for premises and non-personal costs	925	347	587	2.004
Other costs	1.866	1.591	1.937	2.183
Returns	12.535	14.684	11.859	10.153
Returns from simple tasks	6.210	7.075	6.473	4.800
Returns from tasks as skilled workers	5.875	7.440	4.739	4.683
Returns from learning labs	209	16	179	499
Funds from support schemes	241	153	468	171
Net costs	5.398	3.522	4.257	8.939

Quelle: BIBB-CBS 2012/2013; Tabelle A7.3-2; BIBB Datenreport 2016

Gross costs, returns and net costs overall (per apprentice per year in €)

Domain of apprenticeship	Gross costs	Returns	Net costs
Industrie and trade	19,535	13,389	6,146
Skilled crafts	15,187	10,798	4,390
Agriculture	14,043	12,750	1,293
Free professions	16,474	12,769	3,705
Public service	19,801	11,768	8,032
Home economics	15,329	8,945	6,385

Quelle: BIBB-CBS 2012/2013; BIBB Datenreport 2016

Costs and returns per apprentices (2012/2013)

in € by training vocations (excerpt)

	Gross costs	Return	Net costs
Plant mechanic for sanitary, heating and air conditioning systems Anlagenmechaniker für Sanitär-, Heizungs- und Klimatechnik	15,158	10,428	5,398
Specialist in the hotel business Hotelfachmann	13,411	13,839	- 428
Electronics technician Elektroniker	12,358	13,721	- 1,363
Baker Bäcker	12,572	15,818	- 3,246
Hairdresser Friseur	10,533	7,733	2,800
Cook Koch	16,461	11,765	4,696

BIBB Datenreport 2016

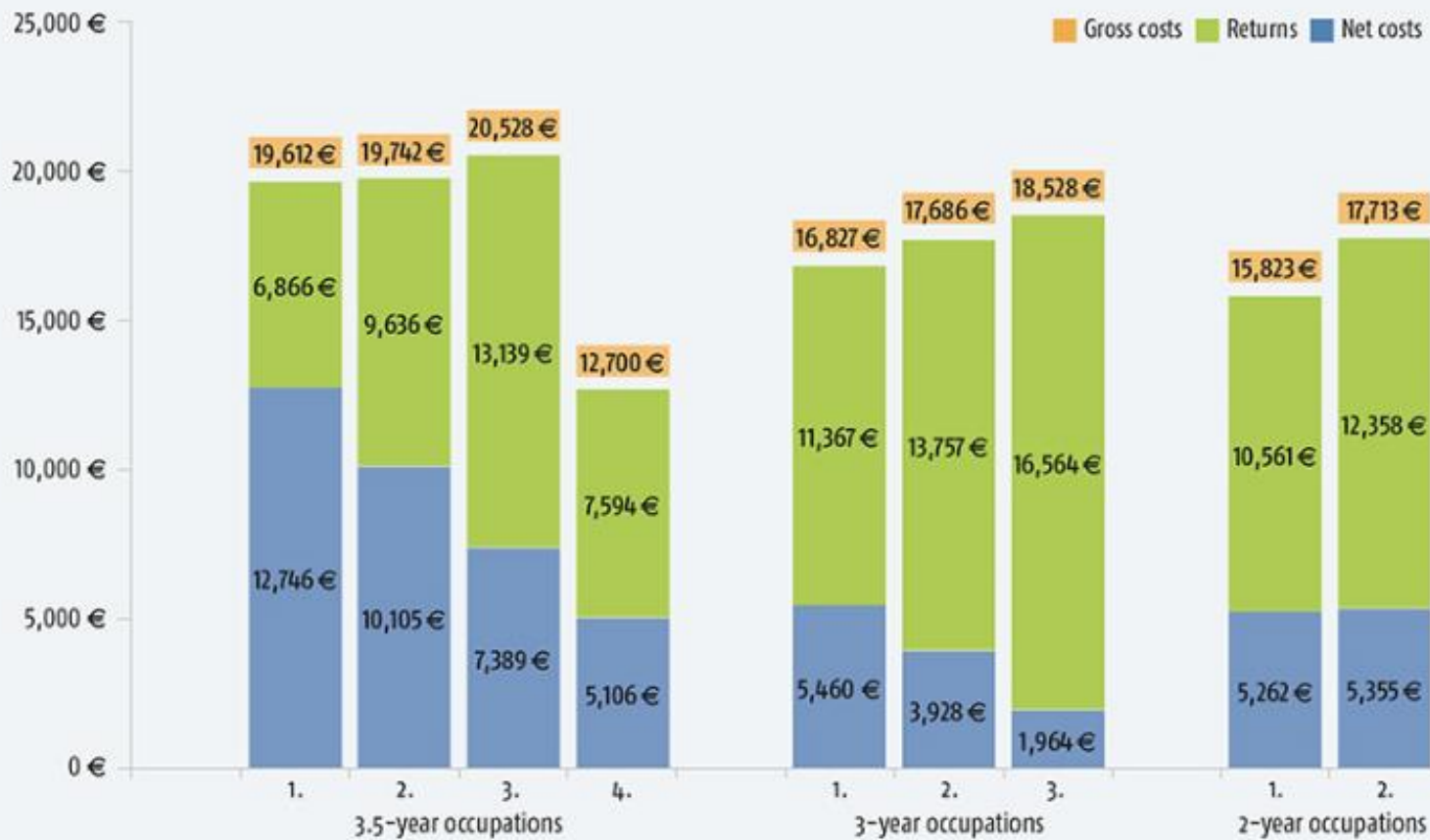
Costs and returns per apprentices (2012/2013)

in € by training vocations (excerpt)

	Gross costs	Return	Net costs
Motor vehicle mechatronics technician Kraftfahrzeugmechatroniker	14,327	9,733	4,595
Mechatronics fitter Mechatroniker	26,339	9,065	17,274
Human resources services consultant Personaldienstleistungskaufmann	17,599	16,052	1,547
Restaurant specialist Restaurantfachmann	13,933	11,336	2,597
Joiner Tischler	16,927	11,403	5,525
Clerk in public administration Verwaltungsfachangestellte	18,749	12,421	6,328

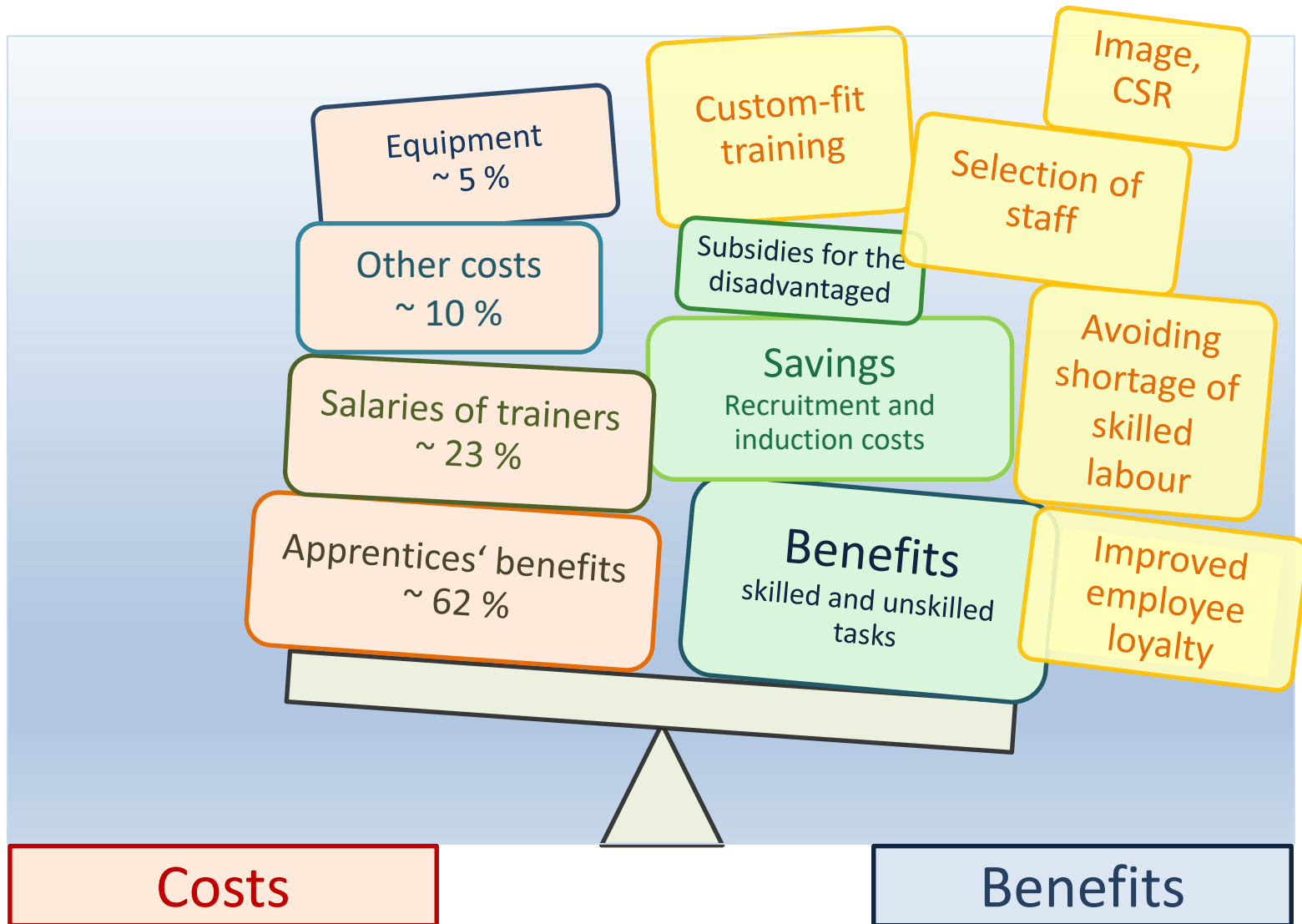
BIBB Datenreport 2016

Figure 4: Gross costs, returns and net costs per apprentice, by training years³ and duration of training (in euros)



Source: BIBB-CBS 2012/13

³ It should be borne in mind that the fourth year of training only lasts for half a year.





Thank you for your attention

Marthe Geiben
geiben@bibb.de



Main source for further reading

- Normann Müller, Felix Wenzelmann, Anika Jansen:
Financing of vocational education and training in Germany.
- <https://www.bibb.de/en/41380.php>. Retrieved 25.08.2017

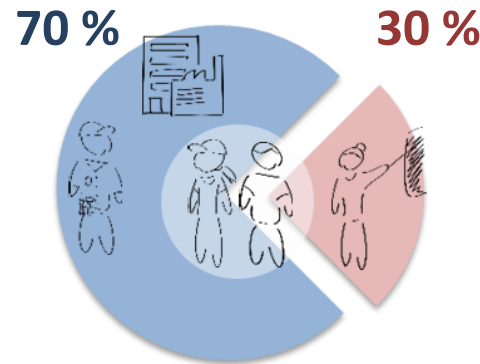
Backup

Two learning venues Shared responsibility

Company



Quelle: BIBB



Vocational school



Quelle: Ministerium für Bundesangelegenheiten,
Europa und Medien des Landes NRW

Learning in production process

Legal basis: Apprenticeship contract

- Company establishes conditions for learning at the workplace (trainers, workshops, etc.)
- Company pays allowance to apprentices

➔ Companies shoulder the costs



Lessons at the vocational school

Legal basis: School laws

- States/communities finance vocational schools (buildings, teachers, etc.)
- Lessons are free for the apprentices

➔ Government shoulders the costs

1.d How are costs in the dual system shared?

Employers



- 438,000 out of a total 2.1m companies provide training (20%), most of them SME
- **Contribute €7.7bn**
(= overall net cost of *Dual VET*; gross cost = € 25.6bn)
- Train more than **500,000** new trainees every year
- Hire **68%** of *Dual VET* trainees as employees after training
- Invest on average **€18,000 per apprentice per year** (62% of which is training allowance)
- **70% of investment is refinanced** by the productive contribution of trainees during the training period



Government

- Shares expenses for VET system with employers
- **Public expenditure for *Dual VET* in 2016: €4,75bn**
- €2.9bn for 1,550 public vocational schools providing part-time VET
- €1.85bn for steering, monitoring and further supporting measures

Apprentices



- **Receive** an average training allowance of **854 € gross per month** (2016)
- Visit vocational schools **free of charge**



Public spending (budget year 2013; apprenticeship)

Federal state-funded vocational schools; official statistics do not record spending by individual types of school

→ Assumption: all VET schools have the same level of costs

Largest single share of spending = part-time VET schools in the dual system

→ around Euro 2.9 billion in 2013). Spending on individual types of school in the school-based occupation system, such as full-time vocational schools or specialised upper secondary schools, is lower although these schools together actually account for approximately Euro 3.7 billion.

Transitional provision such as the prevocational training year and the basic vocational training year make up about Euro 0.4 billion.

In the school-based occupation system, the living costs of those attending vocational school on a full time basis are also funded pursuant to the Federal Education and Training Assistance Act (BAföG, approximately Euro 0.3 billion) alongside the financing of vocational schools. In the transitional sector, VET spending by the BA and the Bundesministerium für Arbeit und Soziales (BMAS) [Federal Ministry of Labour and Social Affairs] together totals around Euro 1.3 billion and constitutes a further major segment.³

These costs relate to vocational orientation and preparation as well as to vocational education and training itself. A large part of BA funding is used to support trainees who are particularly disadvantaged, specifically trainees in publicly financed company-based training.

Public spending (budget year 2013; apprenticeship) 2

The latter could also be said to be part of the dual system because it represents a substitute for company-based training and thus supplements the dual system.

The same applies with regard to the vocational education and training assistance which trainees within the dual system receive in order to secure their living costs (approximately Euro 0.4 billion). Spending on the vocational education and training of disabled persons is not included in the figure.

The federal states continue to offer countless funding programmes which display a relation to vocational education and training. A rough estimate by BIBB put the value of these at around Euro 0.5 billion in 2013, whereby a causal correlation with the VET system not necessarily need to exist. Several programmes are in place to support infrastructures (such as inter-company vocational training centres, training for disadvantaged young people or vocational orientation). Other schemes are aligned towards economic policy and provide assistance to areas such as the small and medium sized enterprises (SME) sector. It is, however, unknown to what extent the funds are connected with initial or rather with continuing vocational education. The same applies to Federal Government spending on structural development, maintenance of infrastructures or support for gifted students, which also in some cases is connected with continuing vocational training.

Selected data on apprenticeship in Germany*

	2016	2015 to 2016
New contracts for apprenticeship (Male: 60,8%; Female: 39,2%)	520.300	- 0,4% (1.800)
Apprentices in total (Dec. 2015)	1.337.004	- 1,6% (21.546)
VET beginners in ‚transition‘ system	298.800	+ 12,2% (32.600)
In-company apprenticeship placements offered	563.800	+ 0,3% (1.900)
Demand for apprenticeship placements	600.933	- 0,4% (2.300)
Enterprises involved in apprenticeships (Dec. 2015)	428.000 (=20%)	- 0,8% (3.600)
Cancellation of contracts (2015)	24,9%	
Recognised training occupations (242 mono-occupations)	326	
Unemployment upon completion of apprenticeship (2015)	113.000 (=27,3% of graduates)	- 1,3%
Average salary	854 €	