

Innovative funding for higher education in the 21st century

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Dr. Dieter Dohmen

**FiBS - Forschungsinstitut für Bildungs- und Sozialökonomie
Research Institute for the Economics of Education and Social Affairs**

Tel. 030/847 122 3-0

D.Dohmen@fibs.eu

1. Challenges to higher education around the globe
2. Who benefits from HE?
3. Tuition fee and loan schemes
4. (Higher) Education Investment Fund

Demographic change with shrinking young cohorts in some and increasing cohorts in other countries

SDG ask for additional funding for primary and secondary education

Increasing demand for skilled and highly skilled labour

It is unlikely that public funding will be able to meet all needs, particularly in developing countries with increasing young age cohorts

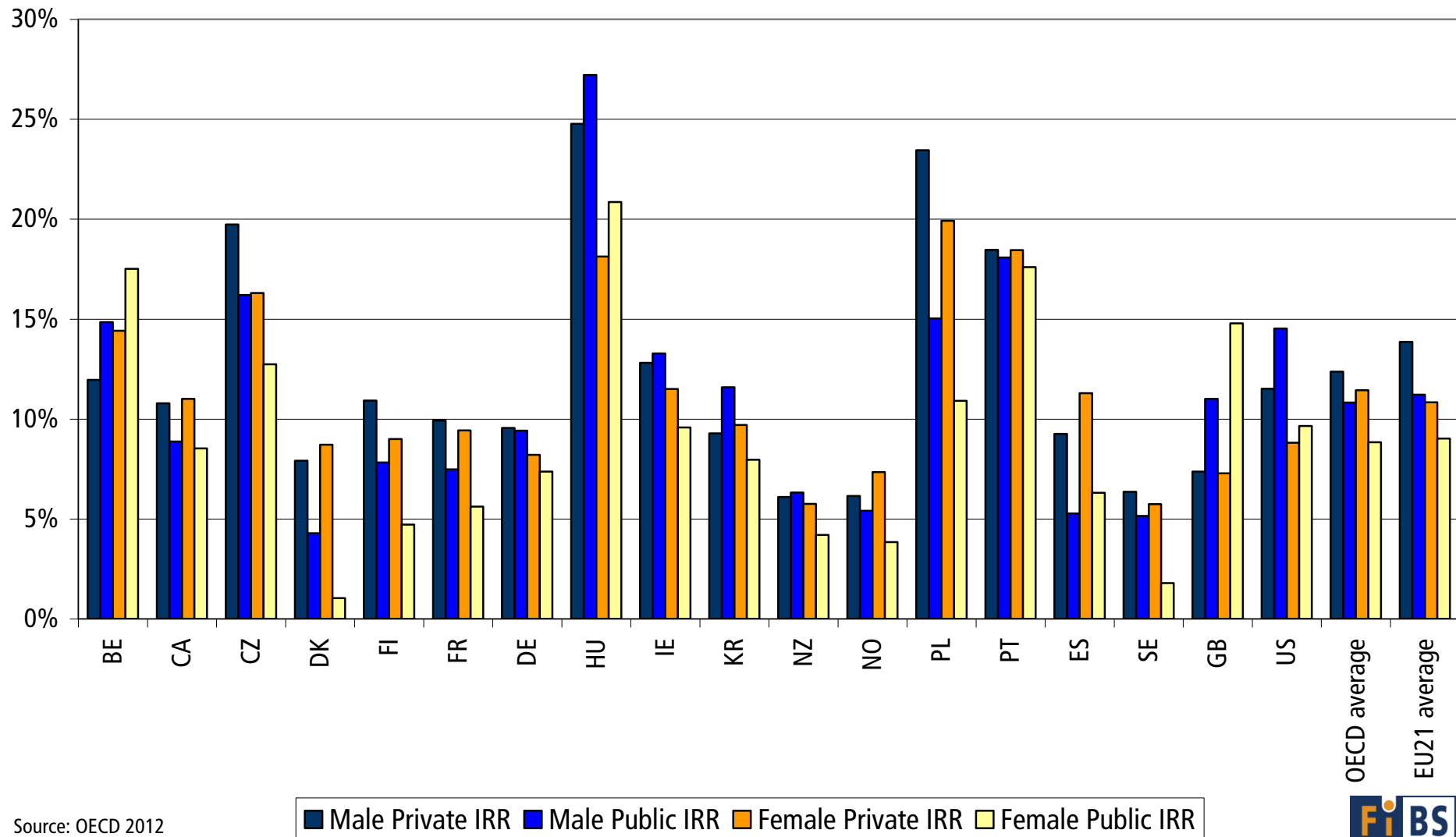
=> Sources of private (co-) funding are needed

Education benefits the individual, the economy, the social system and the public purse, ...

- Higher income and lower unemployment probability
- Higher income taxes
- Higher social security/insurance contributions
- Lower social welfare payments
- Higher growth and innovation rates etc.
- Higher employment and lower unemployment rates of highly educated are a key driver for fiscal returns!

2. Public net present value to initial HE

Private and public Internal Rate of Return for initial higher education

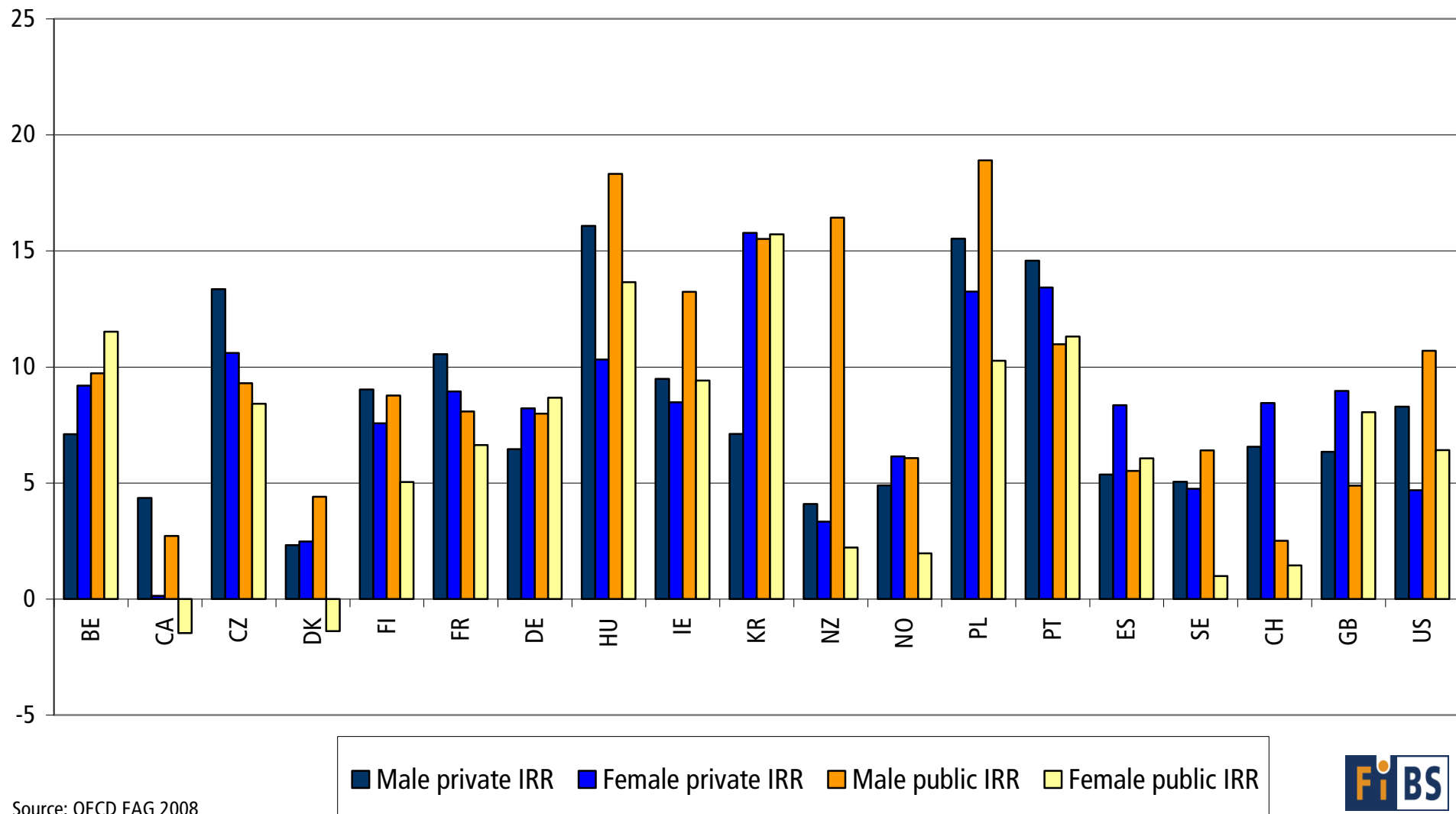


Source: OECD 2012

■ Male Private IRR
 ■ Male Public IRR
 ■ Female Private IRR
 ■ Female Public IRR

2. Rates of return to HE ,later in life'

Private and public internal rates of return to higher education at age 40



Source: OECD EAG 2008

Public debt – in the EU unlikely due to regulations on debt ...

... instead, public budgets for (higher) education are cut-off in some countries

Tuition fees – could play a role in raising additional funds,

3. Tuition fees and loans

Only few countries don't request fees from students, e.g. the Nordic countries (SE, FI, DK, and NO) and Germany as well as some former SU states for a certain share of their best students

In most other countries, tuition fees are gaining ground –and are on the rise

USA: responsibility lies with the universities and/or states, ...

... depend on the reputation of the university,

... low income students are commonly exempted

Average level for a 4-year programme, incl. accommodation USD 40,000 (2013) (private) and USD 17,000 at public universities, but maximum is much higher

Australia:

<i>Funding Cluster</i>	<i>Government contribution</i>	<i>Maximum student</i>	<i>Revenue per student</i>	<i>Government %</i>
1 Law, accounting, economics	\$1,900	\$9,800	\$11,700	16%
2 Humanities	\$5,400	\$5,900	\$11,200	48%
... ..				
7 Engineering, science	\$16,600	\$8,400	\$25,000	67%
8 Dentistry, medicine,	\$21,100	\$9,800	\$30,900	68%

DE 2013a

England: Upper boundary increased from GBP 3,000 to 9,000 in 2012

4. Average fee rate in OECD-countries

		Annual average tuition fees charged by public institutions (for full-time NATIONAL STUDENTS) ¹									
		2013-14									
		Total: All fields of education	Education (ISC 14)	Humanities and Arts (ISC 2)	Social sciences, business and law (ISC 3)	Science (ISC 4)	Engineering, manufacturing and construction (ISC 5)	Agriculture (ISC 6)	Health and welfare (ISC 7)	Services (ISC 8)	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
OECD countries											
Australia	Bachelor or equivalent level		4473	3615	3775	4789	4697	4945	5516	4656	4142
	Master's or equivalent level		7334	3876	5120	10231	5685	5303	6945	7648	6839
	Doctorate or equivalent level		314	189	144	393	129	302	145	730	118
Austria	Bachelor or equivalent level		861								
	Master's or equivalent level		861								
	Doctorate or equivalent level		861								
Canada	Bachelor or equivalent level	1	4761	3603	4147	4873	4653	5713	4320	6308	0
	Master's or equivalent level		4961	4517	3737	5151	4929	5083	4290	4986	0
	Doctorate or equivalent level										
France	Bachelor or equivalent level	2	0 to 8,313								
	Master's or equivalent level		300 to 2166								
	Doctorate or equivalent level		458								
Japan	Bachelor or equivalent level	1	5152	5152	5152	5152	5152	5152	5152	5152	5152
	Master's or equivalent level		5150	5150	5150	5150	5150	5150	5150	5150	5150
	Doctorate or equivalent level		5149	5149	5149	5149	5149	5149	5149	5149	5149
Korea	Bachelor or equivalent level		4773								
	Master's or equivalent level		6281								
	Doctorate or equivalent level		7137								
New Zealand	Bachelor or equivalent level	3	4113 d	3419 d	3473 d	3609 d	4004 d	4481 d	5571 d	5993 d	
	Master's or equivalent level		x	x	x	x	x	x	x	x	
	Doctorate or equivalent level		x	x	x	x	x	x	x	x	
United States	Bachelor or equivalent level	6	8202	7560	8110	8419	8287	9624	8372	7425	7681
	Master's or equivalent level		10818	6898	11770	12108	9416	11555	c	12188	9921
	Doctorate or equivalent level		13264	12223	14476	11885	13531	15755	c	14494	10762

3 different model types

- mortgage-type loans with fixed monthly repayment based on debt amount, interest rate and repayment period,
- Income-contingent loans, repayment based on monthly income
- Human capital contracts or temporary graduate tax

... are the conventional loan approach:

Fixed instalments are established, independently from income, i.e. all pay the same amount (if income is above a certain threshold)

The lower the income, the higher the share of income and vice versa

As women have usually lower earnings and are “responsible” for child bearing and rearing, the debt burden is (much) higher than for men,

...the same applies for certain subject areas (e.g. arts, humanities) compared to others (e.g. management, law, medicine)

Default rates are substantial and usually above 10% and up to 80% (Kenia), sometimes even more

- ⇒ Mortgage-type loans are easy to establish and handle (for banks, states), but ...
- ⇒ ... unfair, if the repayment rate is considered in relation to income, ...
- ⇒ Default rates are substantial, particularly in developing countries

Two different approaches:

1) Australia: HECS – Higher Education Contribution Scheme

25% discount for up-front payment or repayment of full fee after graduation via the social security system

Initially, all students are to repay the same share of their income

In 1997, different income shares in relation to subject:

4% for arts, humanities, 6% for ... and 8% for medicine)

And upon income: 4% when exceeding income threshold of \$ 51,000 and 8% when surpassing \$95,000 (i.e. 2,040-7,060 p.a.)

Officially, no real-interest rate charged, but in fact, the discount results in an interest rate

20% default rate (i.a. because of emigration)

Arguably, no negative impact on participation rates of students from low-income families

2) England – Student loan

Repayment starts, when income is above the threshold of GBP 21,000, ...

... but only to the extent the income exceeds this amount

i.e. GBP 22,000 results in a fee rate of GBP 90 (9%), (GBP 30,000 = 2,700)

No empirical figures yet, because of very recent introduction

Discussions: no real interest rate argued to result in redistribution effects to women and high income students, and the low-income earners don't benefit as they don't repay

Temporary graduate tax (also called human capital contract)

Idea: Students repay the loan over a certain period and with a fixed income share,

i.e. those earning little, repay little and those earning much, repay much

=> Those earning nothing, get eventually a 100% grant, and the grant share decreases

⇒ The interest rates varies according to income and become, in fact, very substantial!

Evidence: no figures yet (are only small scale pilot-schemes)

Yet, it appears that students are less reluctant to rely on this model, ...

... and are even willing to accept a higher repayment burden (than for conventional loans)

3. Tuition fees and loan schemes – summary

Mortgage loans are easier to employ in developing countries than income-contingent loans (mobility and limited reliability of income figures are difficult to establish, moral hazard etc.)

... but are unfair in relation to low returns (i.e. gender, subject etc.)

ICL are fairer, but difficult to employ (particularly if income tax system not existent or weak),

... repayment period depends on income and will be far longer for low-income earners

Temporary graduate tax system seems the most fairest system, but even more demanding

Mortgage-type loans appear the only option for least developed countries, ...

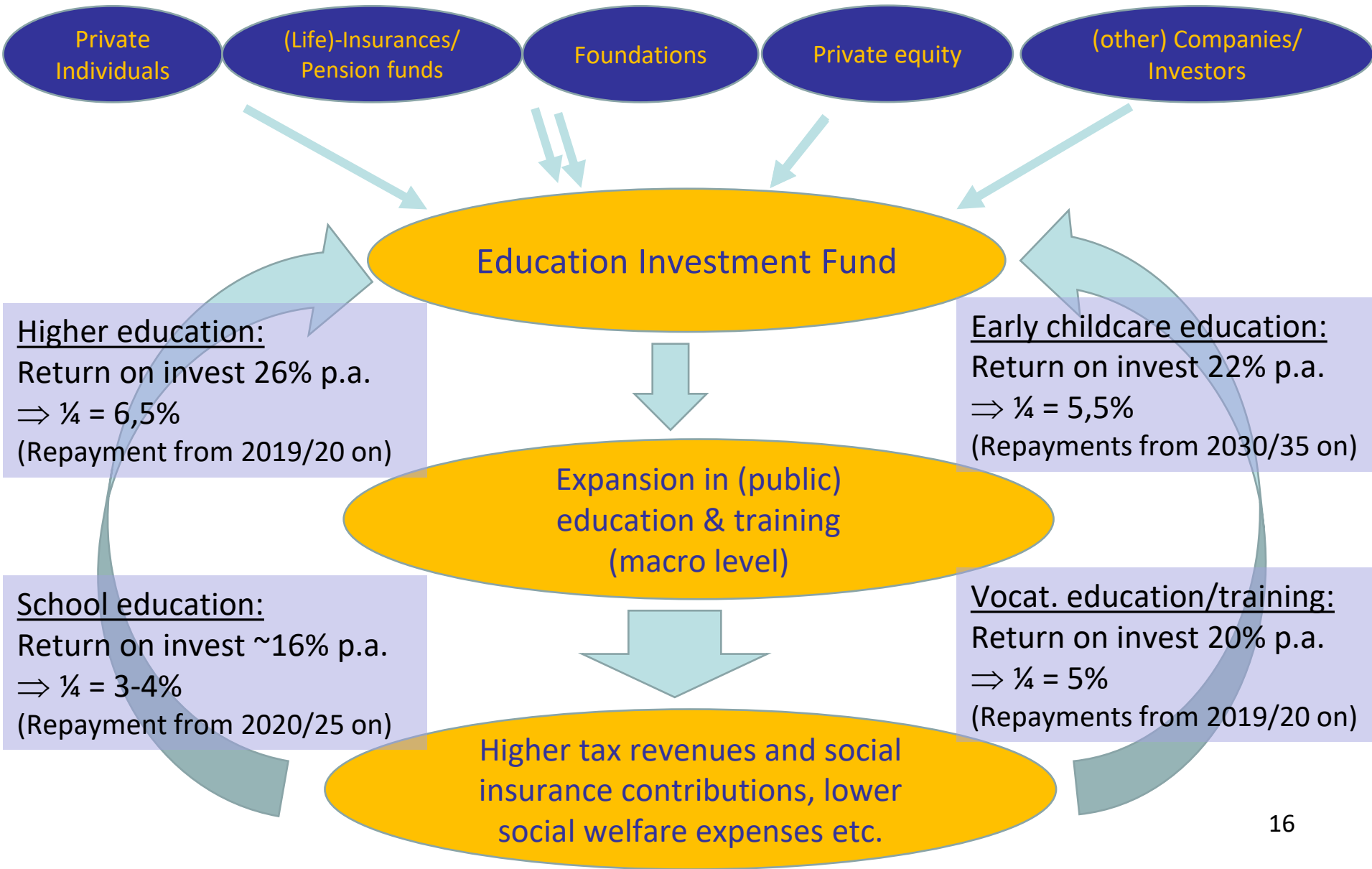
... while ICL or TGT/HCC can be employed in more developed countries only

Repayment should be limited, as also the public purse benefits from HE graduates

⇒ Fees and public funding will not be sufficient to cover total spending for HE

⇒ Additional funding sources are needed!

4. (Higher) Education Investment Fund



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FiBS - Forschungsinstitut für Bildungs- und Sozialökonomie
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Hobrechstr. 48
12047 Berlin
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(H)EIF raises money from private investors

- individuals
- private equity (e.g. capital investors)
- not-for-profit sources (charities, foundations etc.)
- pension/life insurances, etc.

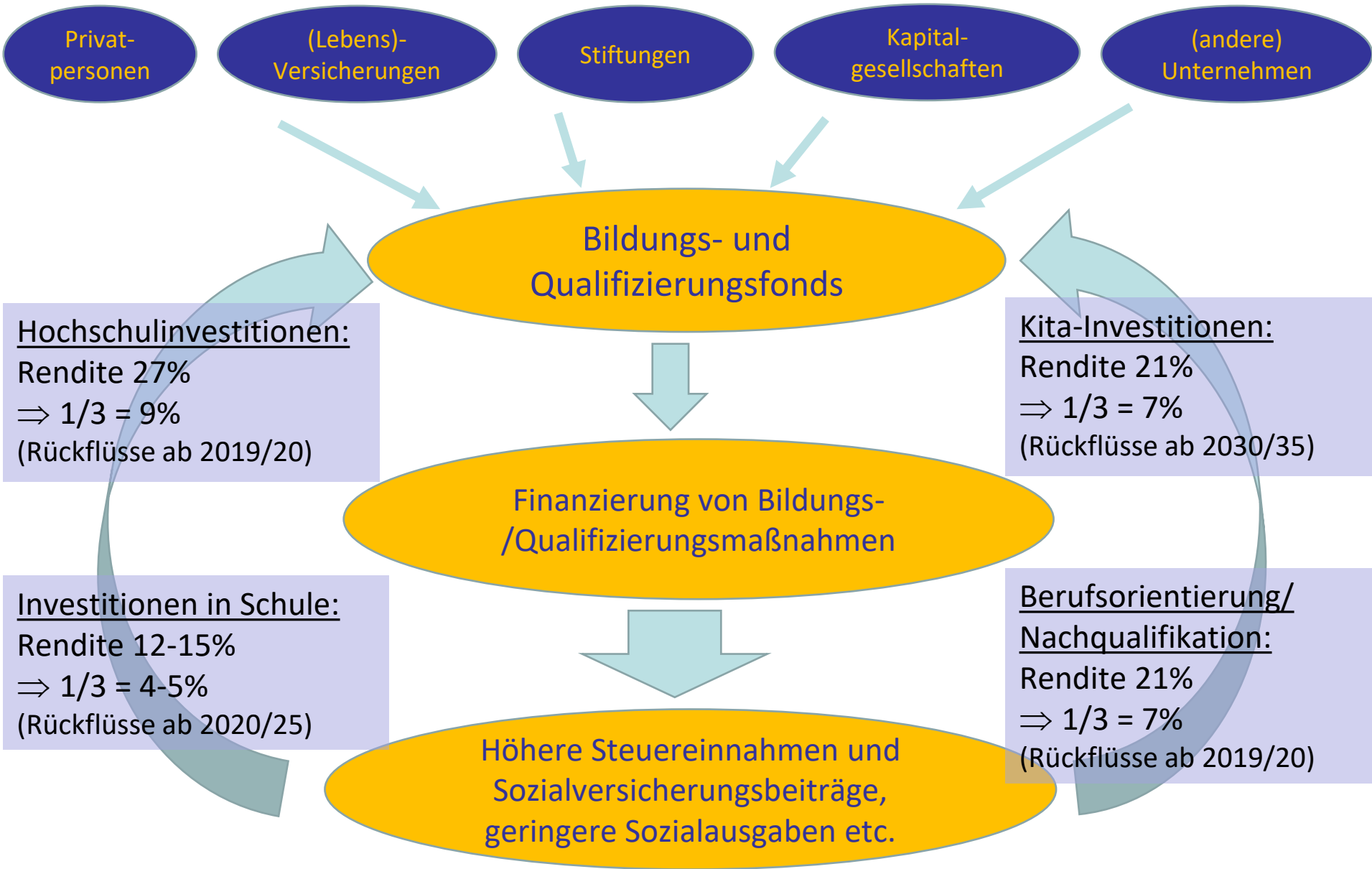
3. Tuition fees and loans

Developing countries

Chile

South Africa

China



Agreement between (H)EIF and government how much money is invested where, e.g.

€ 5b annually over 5 years to expand the university system or in early childhood education

Repayment is foreseen as a certain share of additional fiscal returns arising in the future due to this investment

Fiscal return is estimated at 26% p.a.(for Germany)

If 25% of additional fiscal revenue is appropriated to HEIF, revenue would be 6.5%

Students are equipped with a learning account based on the ECTS they need to graduate with a Bachelor or Master degree

In turn, students appropriate a certain share of their future income per ECTS, e.g. 0.02% per ECTS

In Germany, a Bachelor is granted for 180 ECTS, a Master for another 120 ECTS

This would result in 3.6 and 6% of income repaid over e.g. 7 years

=> if income is € 1.500 x 6% = € 90

=> if income is € 5.000 x 6% = € 300

=> over 7 years: € 7.560 and 25,200, respectively

Public funding will commonly not be available to the extent needed ...

..., because of debt restriction

... instead it is more likely that public budgets for (higher) education are cut-off

Tuition fees – WILL have play a role in raising additional funds,

... but have to be balanced in order to not hamper access to HE

... and will therefore not be able to raise enough money to resolve the financial situation of the university system

'Traditional' funding sources are not able to raise enough money ...

=> Need for new ideas that help the (higher) education system to grow!

Short-term political (reparation) needs (because of crisis) vs. long-term benefits in education

Long-term investment needs long-term investment horizon, while most „investors“ are short-term oriented!

Still limited knowledge about full range of education benefits (wider benefits exist and change the common pattern)

Exploiting all educational potentials is extremely expensive, e.g. € ~20bn p.a. for Germany

Immediate action is needed to avoid future problems, i.e. no time to lose!

Adult learning is correlated with GDP growth

	FE1	FE2	RE1	RE2
	Real GDP growth	Real GDP growth	Real GDP growth	Real GDP growth
AES participation	0.827***	1.048***	0.569**	0.542**
Time lag of AES participation (participation rate in previous year)		0.274**		0.355****
GDP per capita	3.248*	1.142	-0.389*	-0.477***
Year dummy	yes	yes	yes	yes
N	44.000	37.000	44.000	37.000
r2_w	0.627	0.731	0.489	0.609

Accounting for time-lag effects enhances explanatory power!

Human capital formation (i.e. higher and adult education) explain 2/3 of differences in innovation performance

	Components (factors)
Human capital formation	1
participation in AL (LFS 2009)	0.799
share of training enterprises as% of total (2005)	0.916
employee participation in CVT courses (2005)	0.848
workplace learning index (2005)	0.764
HR index (2009)	0.735
costs of CVT as% of total labour cost (2005)	0.821

Table 6: Human capital formation (Cedefop 2012)

Higher education and research system needs to expansion

- Skills needs of labour markets increase worldwide
- Equity concerns
- Lifelong Learning (almost everyone will enter a university once in his/her lifetime)
- New target groups (non-traditional or mature students)
- In fact, the whole education system needs expansion!
- Funding requirements: appr. € 15-20bn, annually (Germany)

R&D expenditures are core driver for innovation performance

Example (based on DE)

Gross income:	€ 50,000
Tax payment:	€ 10,000 (appr.)
Social security contributions:	€ 20,500 (appr.)
Social welfare payments (foregone):	€ 2,500 (est.)
Total:	€ 33,000 p.a.

Repayment per additional student: € 8,250 (over his/her working life, i.e. 45 yrs)

Example (based on DE) (2)

Repayment per additional student: € 8,250 (over his/her working life, i.e. 45 years)

Total repayment : € 8,250 * 45,000 (incl. 10% non employment)

Total repayment : € 8,250 * 45,000 = € 270m p.a. = € 16.7bn

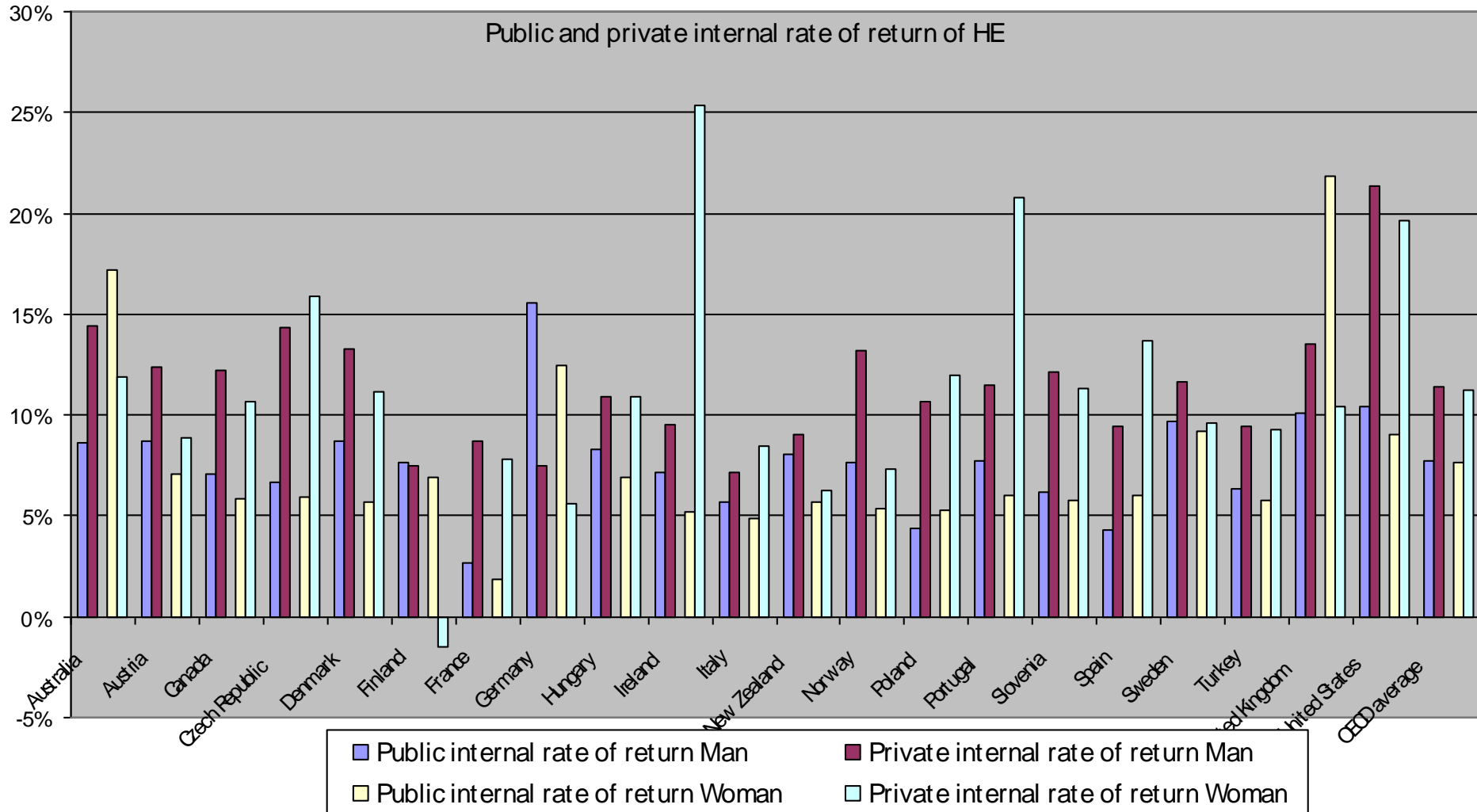
Net return of HEIF: 2.7%

Net return of HEIF increases to 4.3% in case that 50% of additional returns are appropriated

New ways of financing - Higher Education Investment Fund (HEIF)

Dr. Dieter Dohmen
FiBS - Forschungsinstitut für Bildungs- und Sozialökonomie
Institute for Education and Socio-Economic Research
Reinhardtstr. 31
10117 Berlin
Tel. 030/847 122 3-10
D.Dohmen@fibs.eu

Public net present value to HE



The whole education system needs expansion

- Early education (coverage of children from disadvantaged families)
- Expansion of full-day-school system
- Number of upper secondary graduates will have to be increased
- Qualification of early school leavers
- Further education needs also expansion

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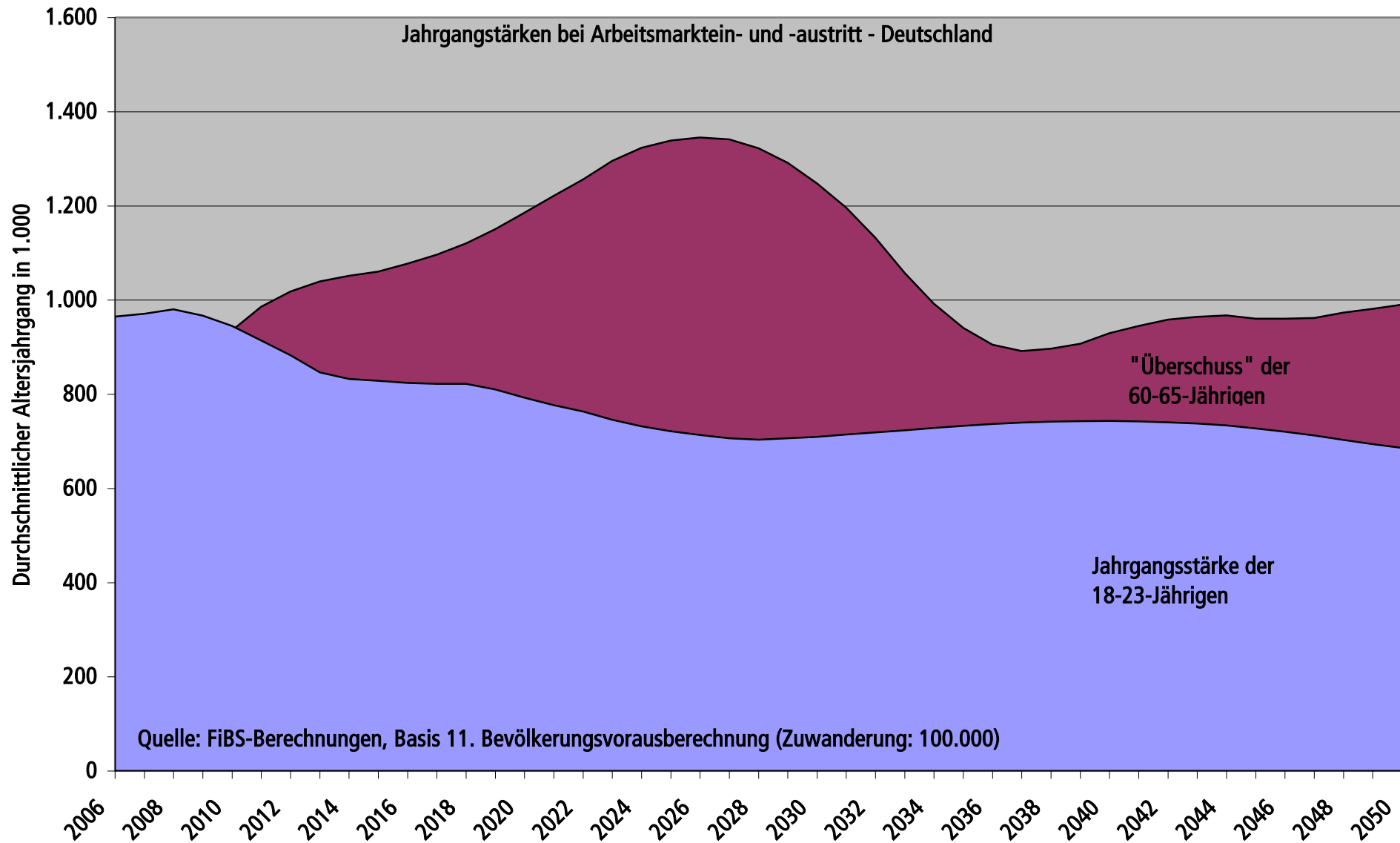
Zukunft der Hochschulfinanzierung - Mut zu neuen Wegen

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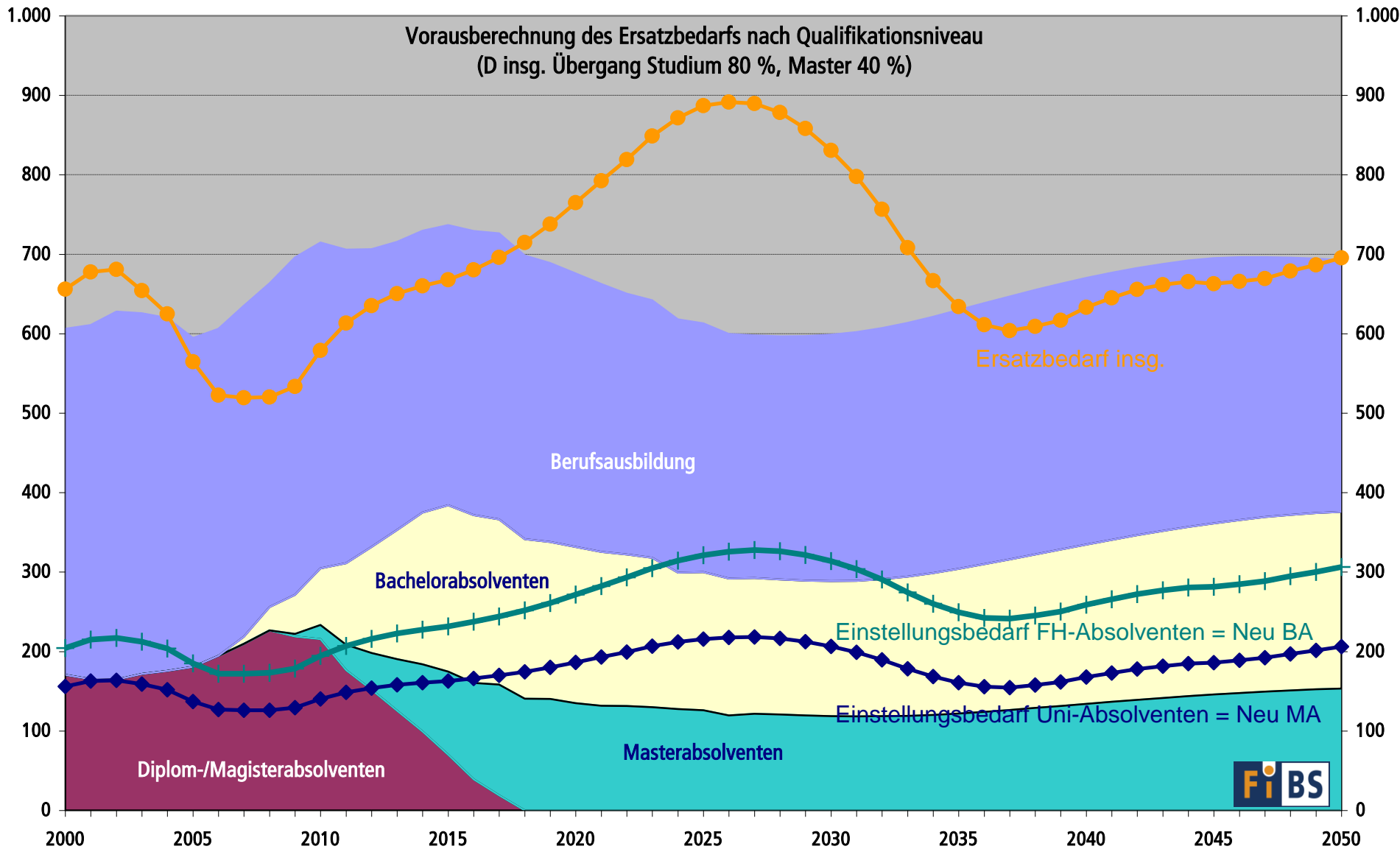
Individual benefits

- Higher income
- lower unemployment risk etc.
- ...
- ...

- In fact, whole education system needs expansion!
- Funding requirements: appr. € 15-20bn, annually (Germany)



Ersatzbedarf und Arbeitsangebot (D) (1/3)



Ersatzbedarf und Arbeitsangebot (D) (1/3)

