Does the university education pay off in Estonian labour market?

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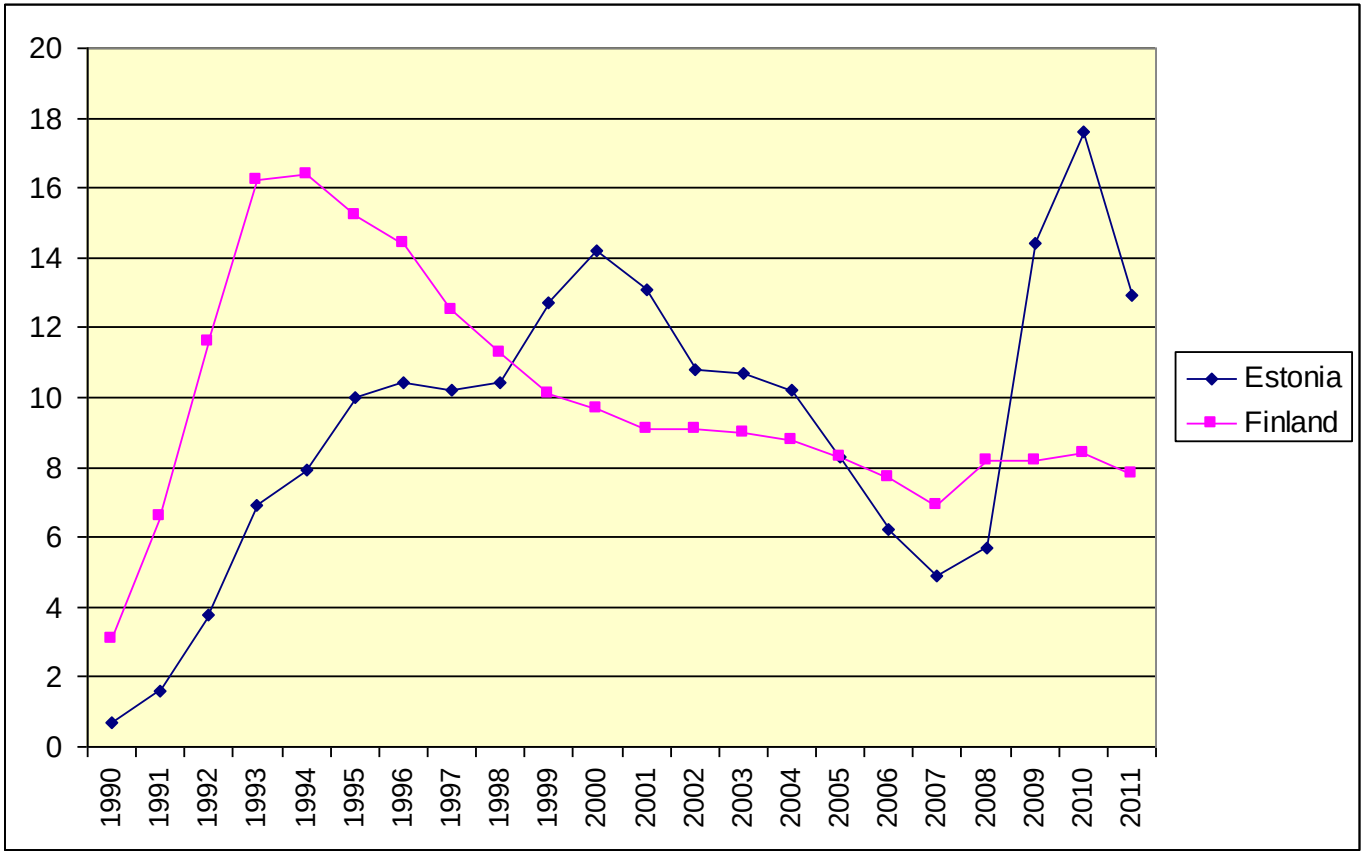
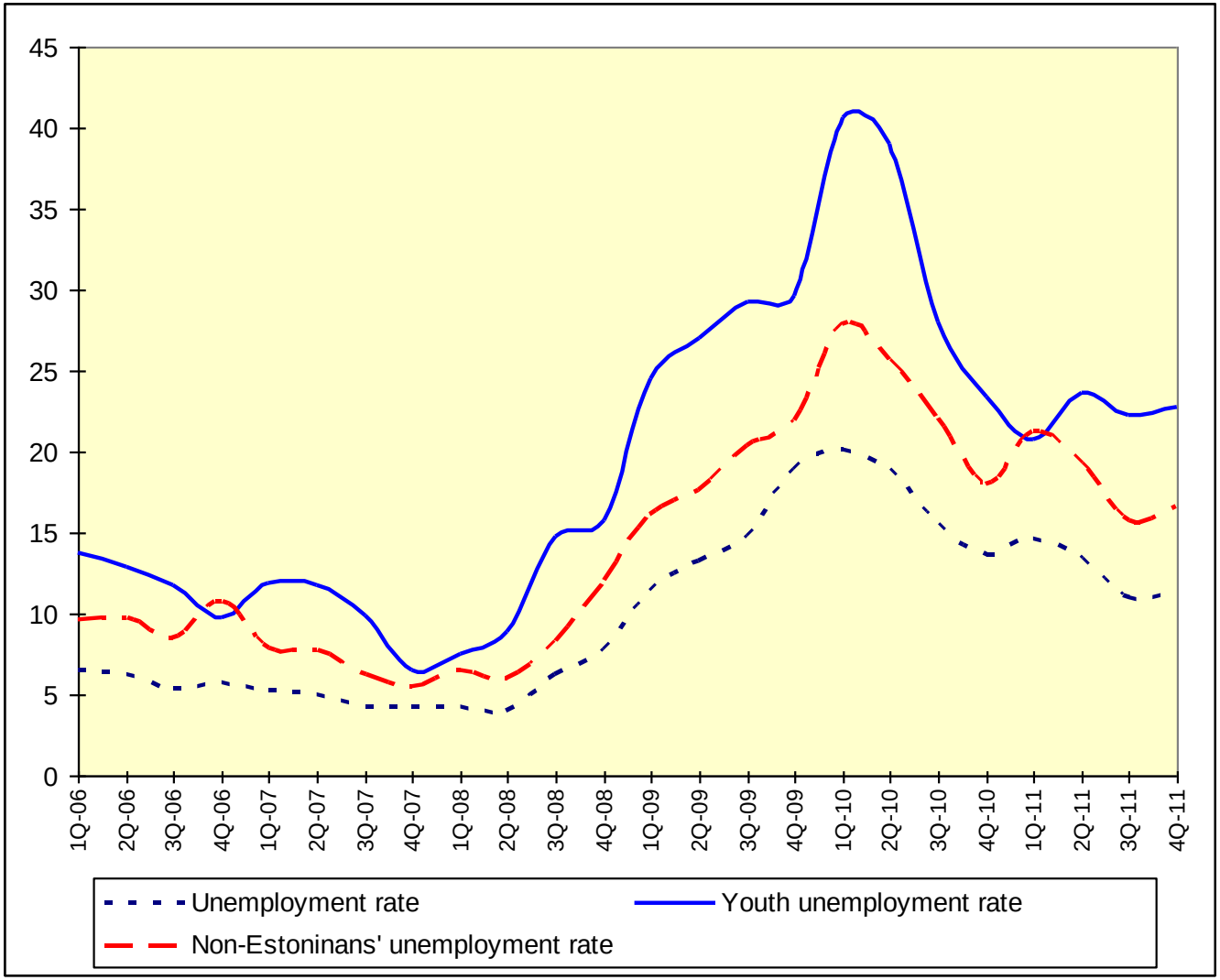
HSE, Moscow
January 29. 2013

Cyclical unemployment becomes structural



Unemployment by social groups



Employment changes: construction was most affected

Table 2. Changes in employment during boom (2005-2007) and recession (2008-2009) as a percentage by sectors in th Baltic States

	Employment change, 2005–2007, %			Employment change, 2008–2009, %			Percentage of total job loss in 2009		
Sector	EE	LV	LT	EE	LV	LT	EE	LV	LT
Total economy	7.9%	8.0%	4.1%	-9.2%	-12.2%	-6.8%	100.0 %	100.0%	100.0%
Primary sector	-3.2%	-11.9%	-22.9%	-5.1%	-0.4%	8.9%	2.1%	0.3%	-10.3%
Industry	-5.6%	7.2%	1.0%	-14.0%	-21.0%	-13.3%	34.9%	29.8%	38.3%
Construction	68.2%	38.8%	29.0%	-28.0%	-39.7%	-26.4%	37.4%	36.2%	42.2%
Business services	7.3%	19.1%	15.1%	-6.3%	-8.1%	-4.9%	23.1%	24.7%	25.9%
Public services	5.8%	-6.4%	0.1%	-0.9%	-4.3%	-1.1%	2.6%	9.2%	3.9%

Source: national statistical offices

Wages are flexible

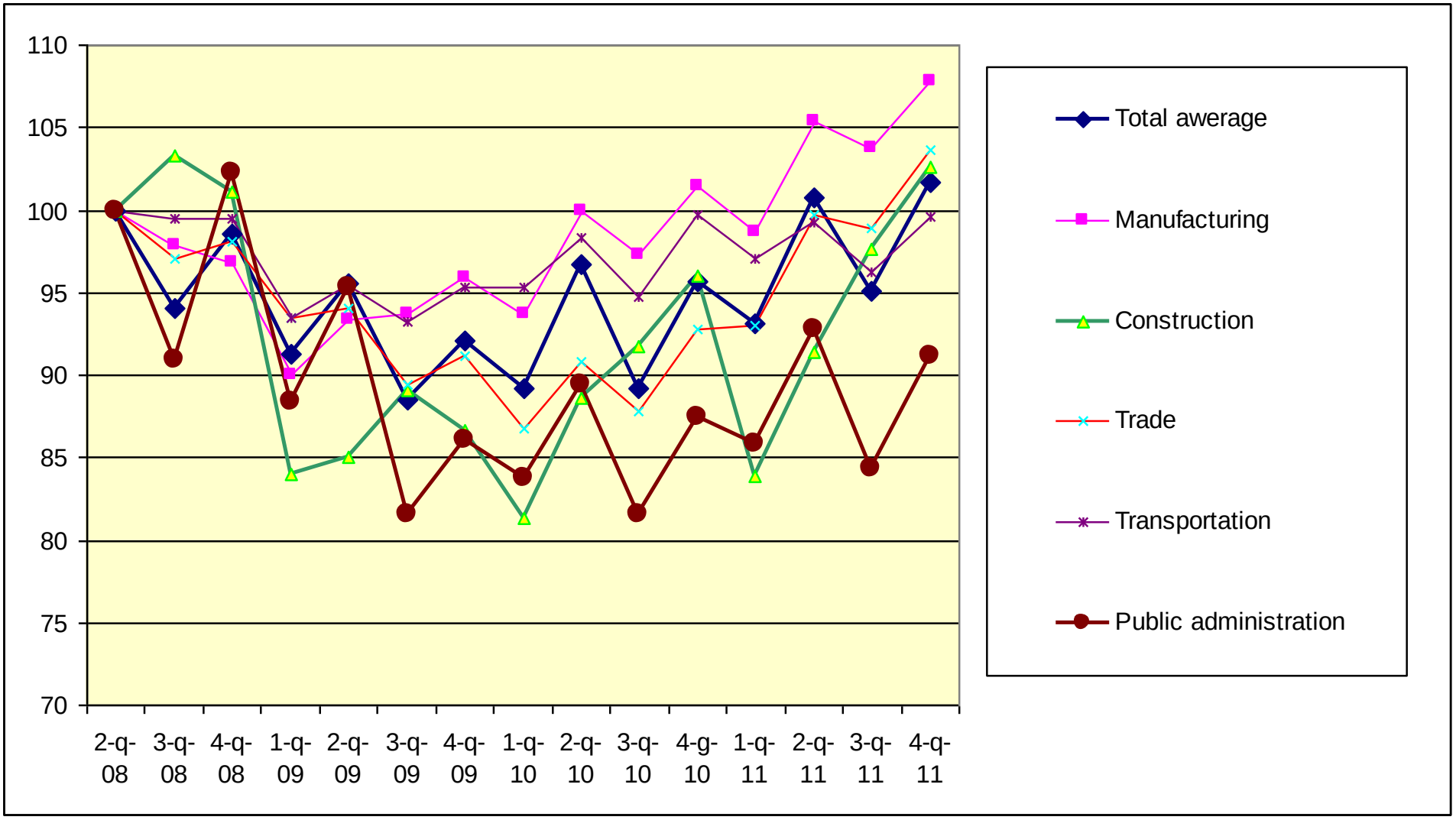
- Union density and collective bargaining coverage is very low
- Latvia - 20% salary cuts in public institutions
- Estonia – 9,6% salary cuts in public institutions
- Estonia - The **total salary income** of Estonian population will also **decrease** around 10 billion EEK which is around **4%** of GDP

Table 11. Annual wage changes in the Baltic States by economic sector

Industry	Estonia		Latvia		Lithuania	
	2008	**2009**	**2008**	**2009**	**2008**	**2009**
Total economy	13.8%	-4.6%	20.6%	-4.0%	19%	-4%
Primary	17.7%	-7.4%	17.2%	-4.6%	23%	-8%
Industry	11.5%	-3.5%	13.4%	-4.0%	18%	-4%
Manufacturing	10.8%	-3.9%	19.8%	-2.1%	18%	-4%
Energy	17.0%	6.8%	5.6%	-5.0%	16%	0%
Construction	8.3%	-13.4%	19.0%	-1.1%	10%	-21%
Business services	12.3%	-4.2%	21.0%	-1.8%	19%	-5%
Public services	17.4%	-4.5%	20.2%	-9.7%	22%	-11%
Public administration	15.7%	-7.6%	16.1%	-18.0%	23%	-10%
Education	20.4%	-2.5%	23.4%	-9.9%	26%	8%

Source: national statistical offices of Estonia, Latvia, Lithuania

Estonian wages



Labour market conclusions:

Labour market flexibilty is a “buffer” for macroeconomic adjustment

- Negative

socially costly → unemployment ⇧

- Positive

Increasing competitiveness and “forced” restructuring, low loan burden for future generations

Survey of university graduates

Motivation

- No of students from 25 000 in 1995, to 70 000 in 2008 (5,5% of total population)
- Share of social science students 41%(2000)⇨36%(2010)
- Real sciences 8%⇨10%
- “Overproduction” of social science graduates?

Objective

- The purpose of the paper is to analyse the success of social sciences and real and technical sciences university graduates in Estonian labour market.
- labour market status during the studies
- a year after the graduation
- wages after graduation.

Who covers cost?

Table 1 Share of students studying in state commissioned and non-state commissioned places

	No of students, 8.11.2005		**No of students, 10.11.2006**		**No of students, 10.11.2007**		**No of students, 10.11.2008**		**No of students, 10.11.2009**	
	SF	**NSF**	**SF**	**NSF**	**SF**	**NSF**	**SF**	**NSF**	**SF**	**NSF**
Social sciences	4 090	22 515	4 013	23 326	3 884	23 509	3 898	23 210	3 938	21 174
Share of total	*15*	*85*	*15*	*85*	*14*	*86*	*14*	*86*	*16*	*84*
Real sciences	5 058	1 802	5 060	1 769	5 038	1 527	5 015	1 480	5 398	1 793
Share of total	*74*	*26*	*74*	*26*	*77*	*23*	*77*	*23*	*75*	*25*
TOTAL	31 386	36 901	31 268	37 499	31 150	37 018	31 536	36 863	33 080	35 905
Share of total	*46*	*54*	*45*	*55*	*46*	*54*	*46*	*54*	*48*	*52*

Note: SC – state commissioned; NSC – non-state commissioned

Source: Ministry of Education and Reserach

Data (1)

Two surveys of university graduates in 2009 and 2006, surveys were launched 2010 and 2007

Questions covered

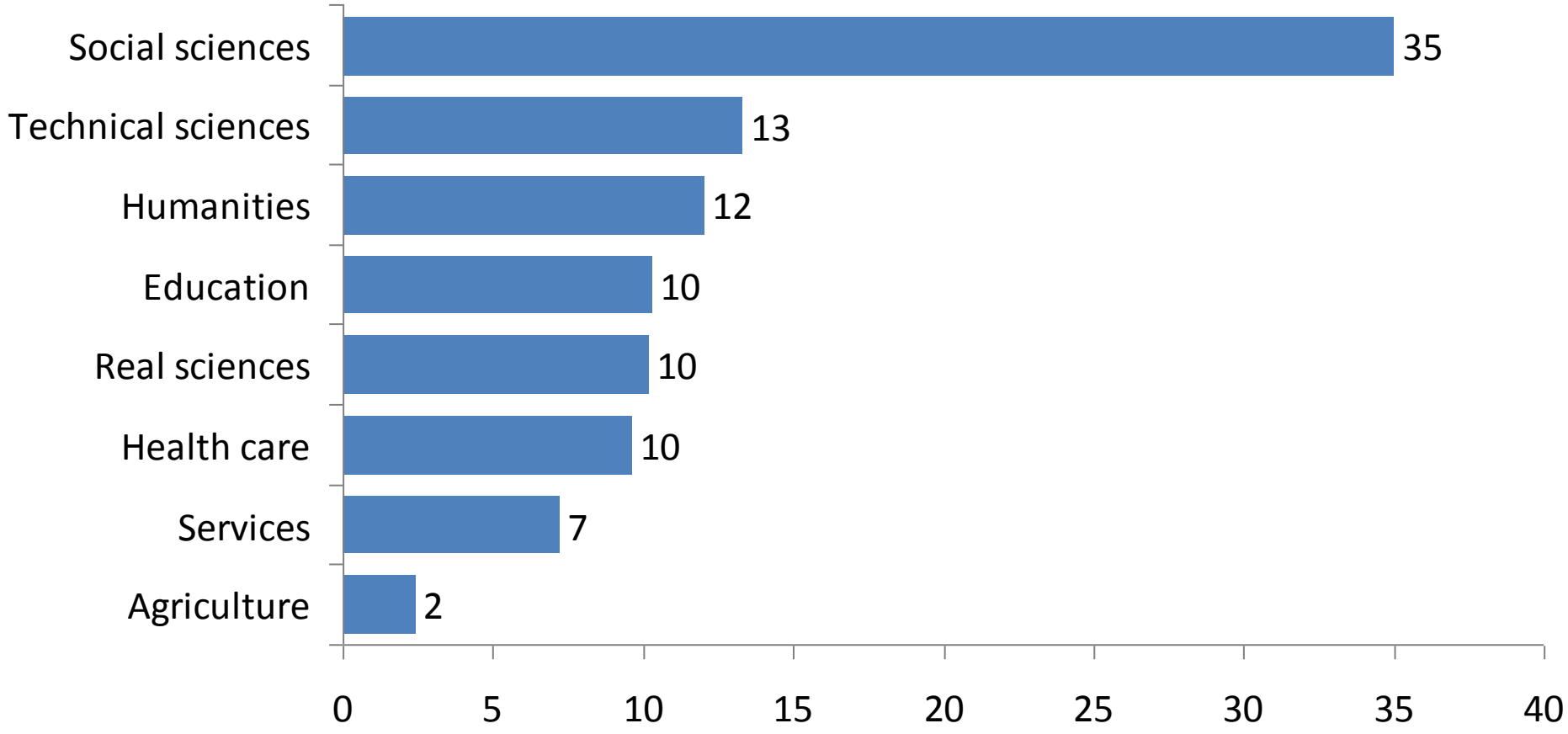
- working during studies
- labour market status a year after graduation.
  - which channels were used when entering into the labour market,
  - how and to what extent the job was related to the field of study,
  - current position of employment,
  - skills and level of education required on the position, gross wage and other income, etc).

The questionnaire was in a web-based format.

Data (2)

- In 2007 the survey covered four Estonian universities governed by public law – University of Tartu, Tallinn University of Technology, Tallinn University and Estonian University of Life Sciences.
- In 2010 14 public and private universities were covered

Graduates according to study field (%, n=9267, 2010)



Working during the studies

	before and during studies	during studies	before but not during studies	neither before nor during studies	TOTAL
Real sciences, 2006	18	46	2	33	100
Real sciences, 2009	23	47	5	26	100
Social sciences, 2006	48	31	3	19	100
Social sciences, 2009	50	35	3	12	100

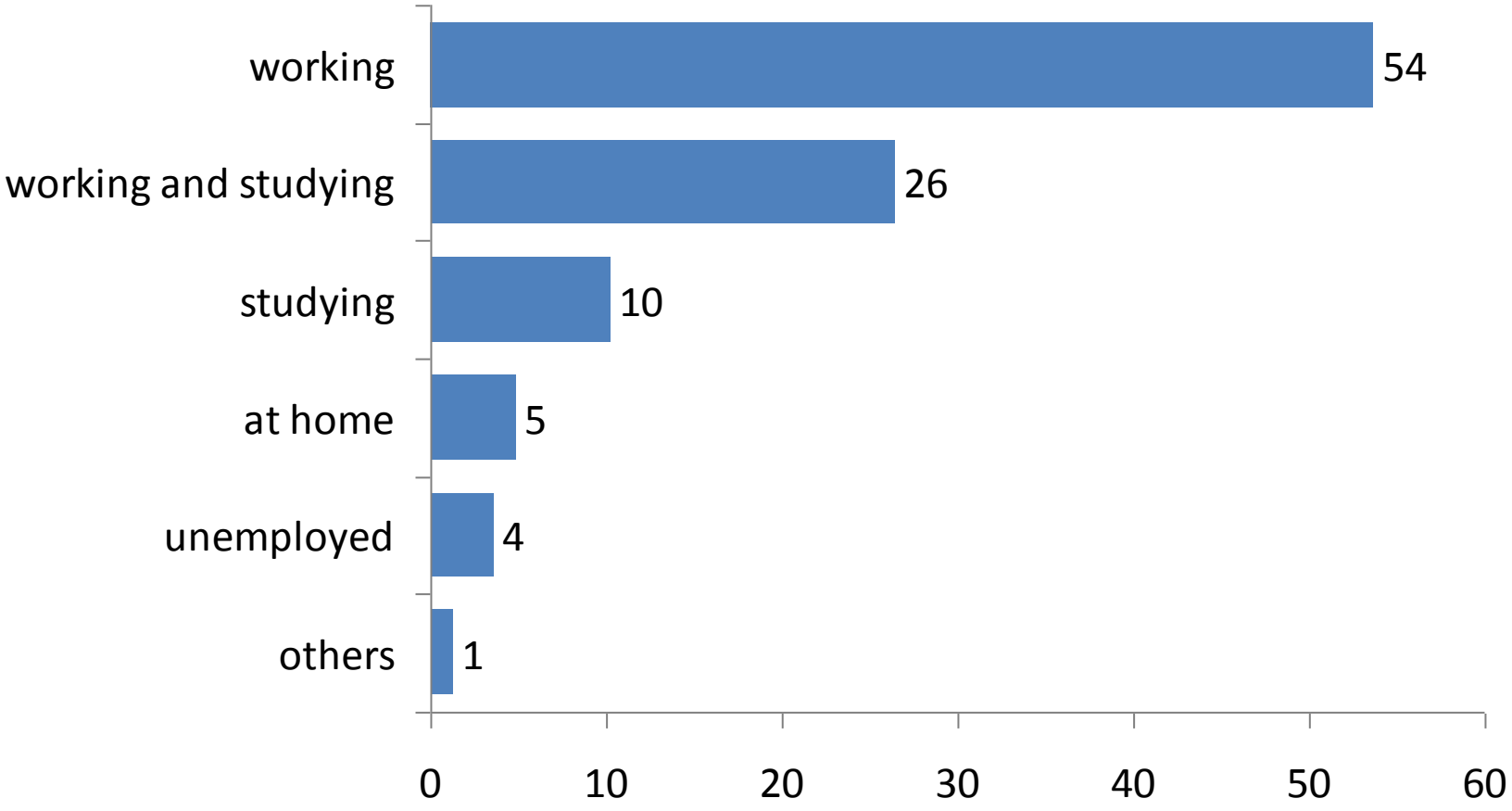
Working time (during the studies)

		Full-time	Part-time/occasional	Total
2009				
Bachelor studies	Social Sciences	**47**	**53**	**100**
	Real sciences	**17**	**83**	**100**
Master and doctoral studies	Social Sciences	**75**	**25**	**100**
	Real sciences	**30**	**70**	**100**
2006				
Bachelor studies	Social Sciences	**49**	**52**	**100**
	Real sciences	**36**	**64**	**100**
Master and doctoral studies	Social Sciences	**88**	**12**	**100**
	Real sciences	**60**	**40**	**100**

Working during the studies

		Financial difficulties	To get working experience	Self-determination	A good job offer was made	Other reasons	Total
2009							
Bachelor studies	Social sciences	62	18	6	4	10	100
	Real sciences	72	21	3	2	2	100
Master and doctoral studies	Social sciences	48	23	9	3	17	100
	Real sciences	50	35	7	4	4	100
2006							
Bachelor studies	Social sciences	44	40	6	9	1	100
	Real sciences	43	44	3	4	5	100
Master and doctoral studies	Social sciences	42	33	7	9	9	100
	Real sciences	53	35	4	8	0	100

Labour market status, one year after graduation (%, 2010)

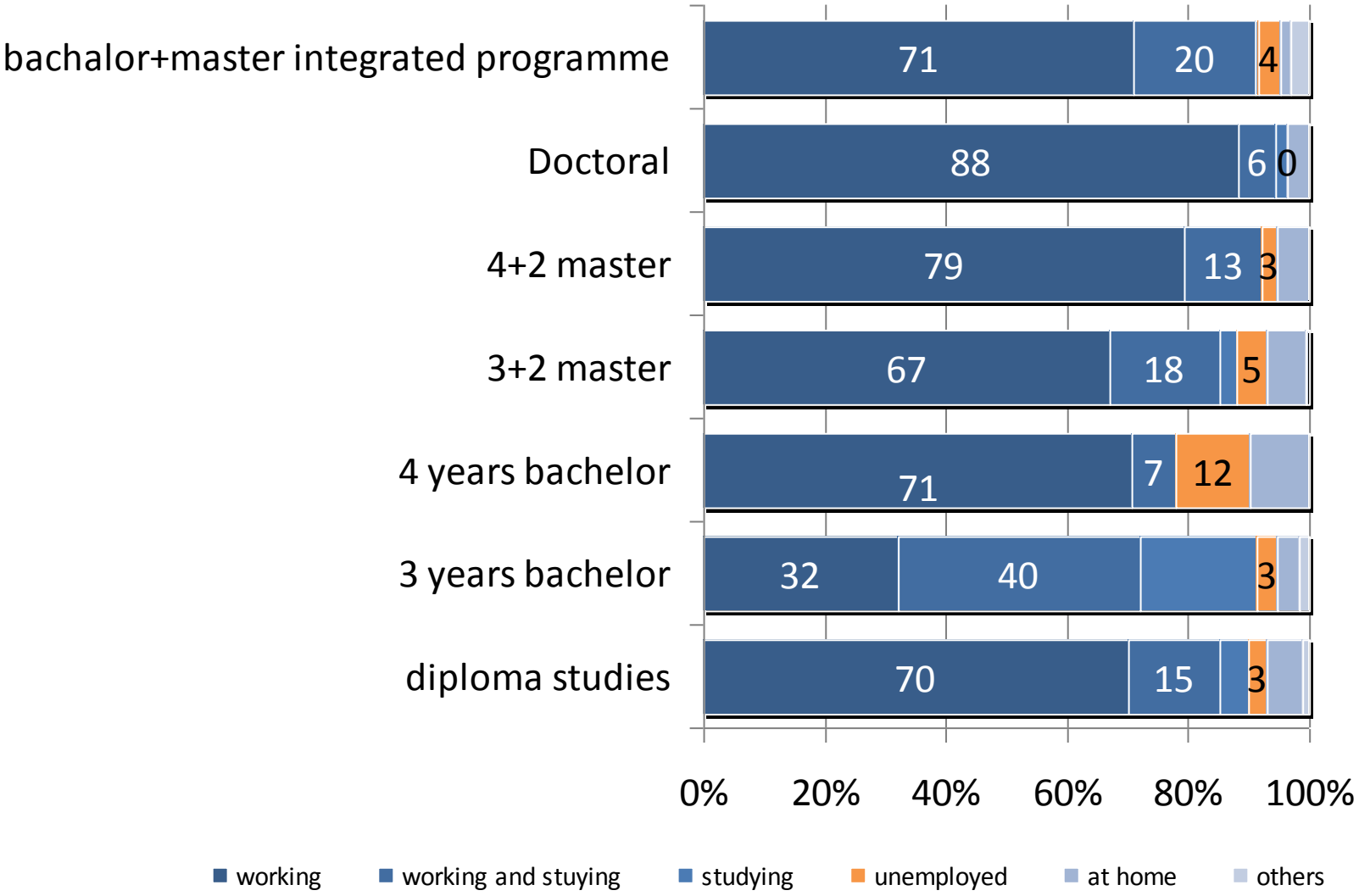


Overeducation

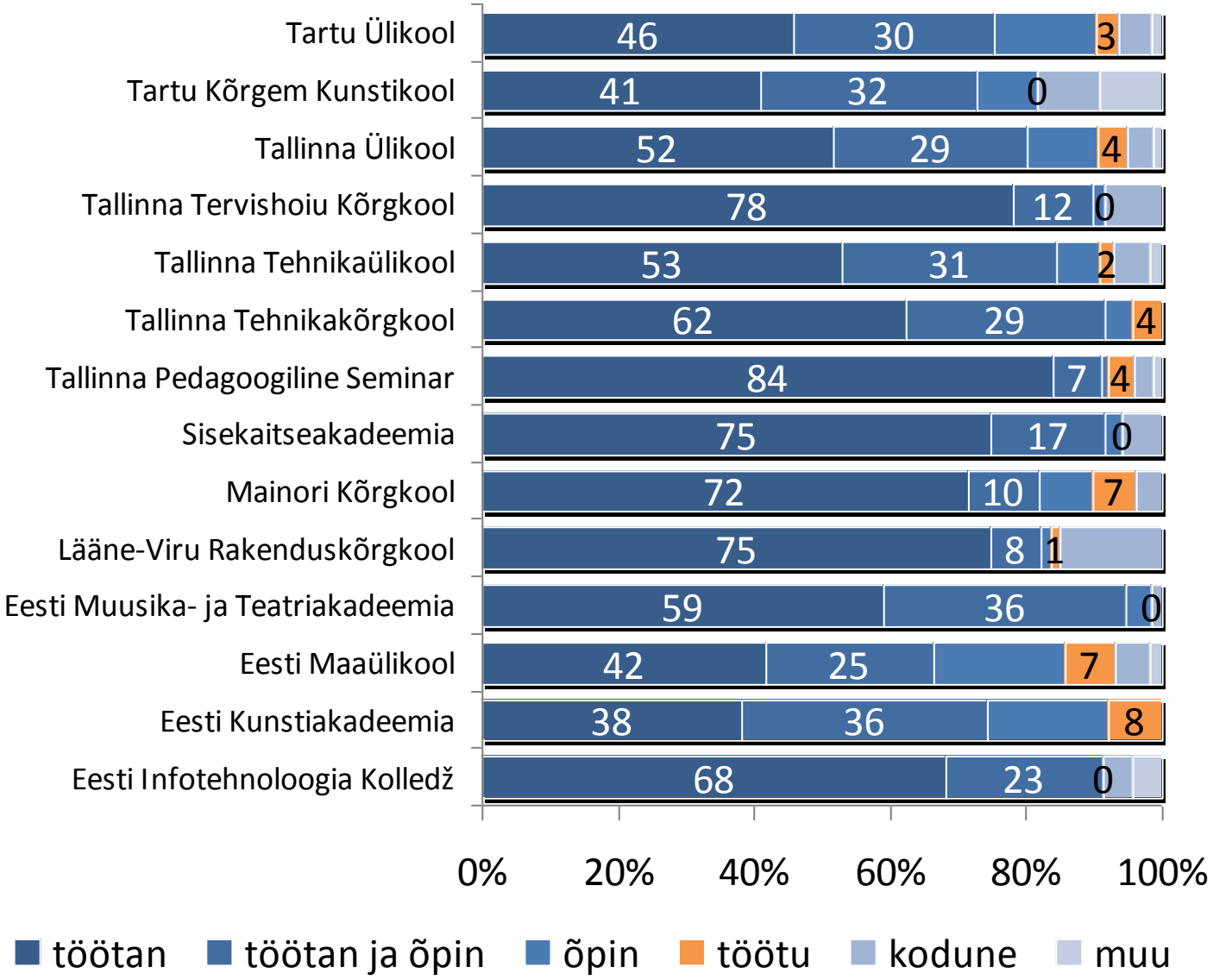
Table 1. **Relationship between actual educational level and educational level required in the current job (subjective evaluation by graduates), %**

Level of study	Field of study	Educational level is not important	Secondary (general)	Voca-tional	Applied higher	Bachelor	Master/ doctoral	NA	*TOTAL*
Bachelor's or applied higher educational degree	Social sciences	**6**	**15**	**5**	**11**	**34**	**5**	**24**	***100***
	Real sciences	**5**	**8**	**2**	**9**	**29**	**6**	**41**	***100***
Master or doctoral degree	Social sciences	**2**	**3**	**1**	**2**	**40**	**35**	**17**	***100***
	Real sciences	**2**	**2**	**1**	**4**	**27**	**50**	**14**	***100***

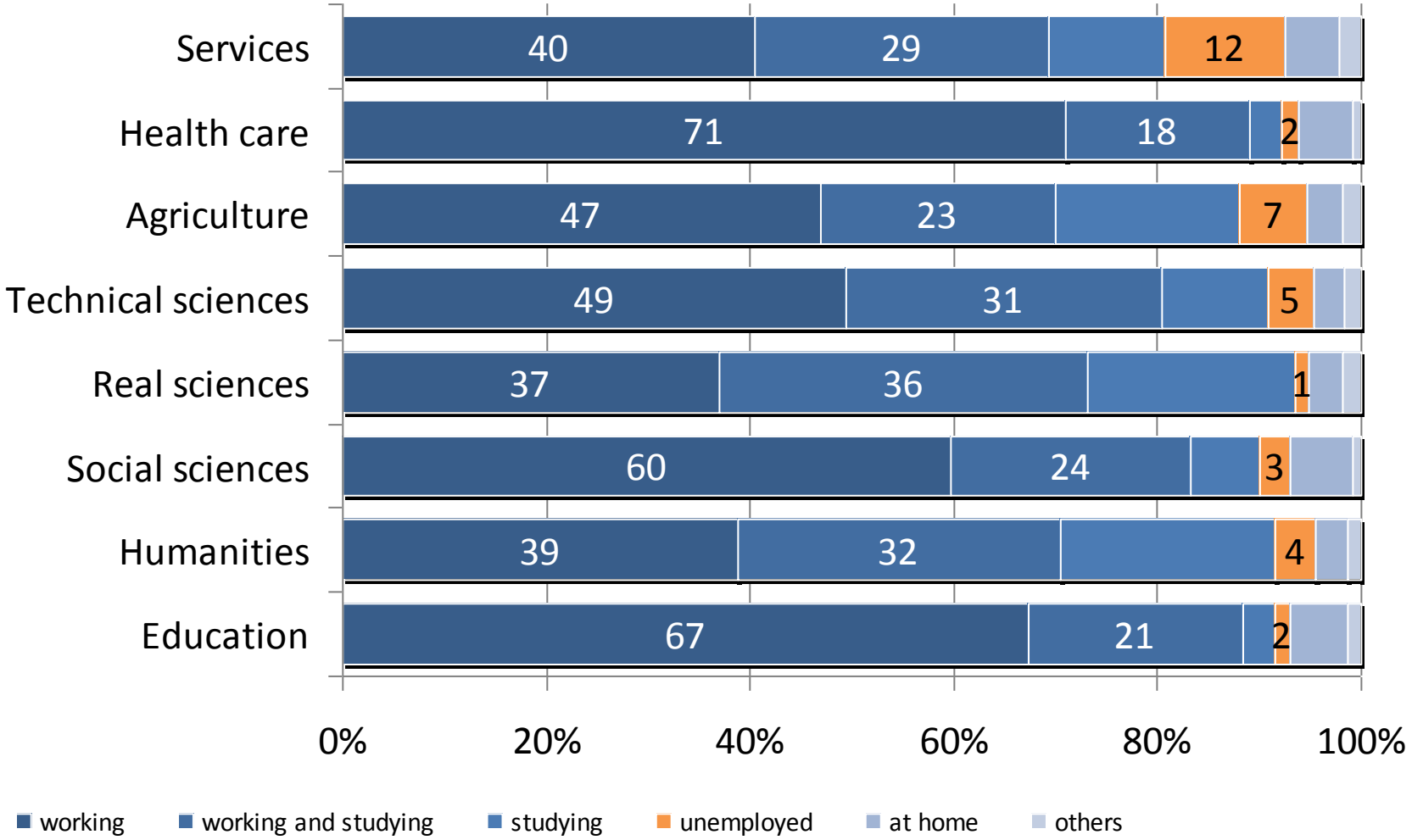
Labour market status, study levels (%,)



Labor market status, institutions (%)



Labour market status, study field (%)



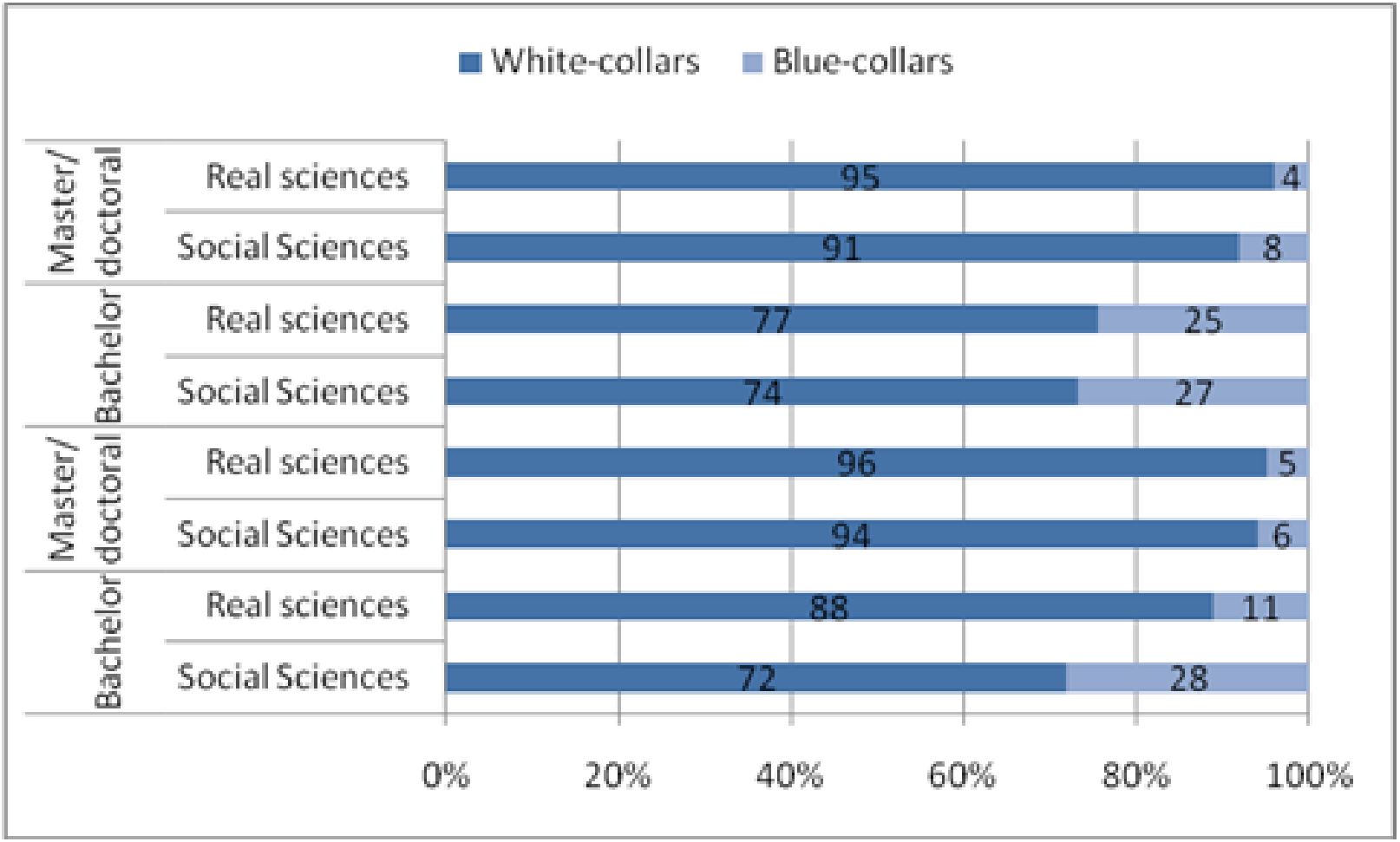
Labour market status

Table 1 Table labour market status a year after graduation

		Working	Studying	Working and studying	Unemployed	At home	Other	Total
2009								
Bachelor studies	Social sciences	40	11	40	3	4	2	100
	Real sciences	20	37	38	1	0	3	100
Master and doctoral studies	Social sciences	79	1	10	2	7	0	100
	Real sciences	51	4	37	1	7	0	100
2006								
Bachelor studies	Social sciences	51	25	20	0	4	0	100
	Real sciences	37	34	26	1	1	0	100
Master and doctoral studies	Social sciences	75	10	8	0	6	1	100
	Real sciences	55	27	17	0	1	0	100

Source: alumni surveys, authors' own calculations

Occupations



Wage distribution

Table 1. Wage distribution of 2009 graduates by educational level and subject learnt (EUR)

		…-300	300-500	500-792	792-1000	1000-1500	1500-…	TOTAL	less than national average (% of total)
Bachelor's or applied higher educational degree	Social sciences	4,3	10,1	35,8	27	17	5,8	100	50,2
	Real sciences	5	12,7	23,6	29,4	22	7,3	100	41,3
Master or doctoral degree	Social sciences	0	2,4	17,6	17,5	41,2	21,3	100	20
	Real sciences	4,9	15,6	24	14	25	16,5	100	44,5

Source: 2009 alumni survey, authors' own calculations, average gross wage for 2010 was 792

Note: inly intramural graduates, weighed data, upper and lower 2.5% of wage scale excluded.

Gross wages

Table 1. Gross monthly salary of employed alumni a year after graduation (EUR)

Statistics	Bachelor's or applied higher educational degree		Master or doctoral degree	
	Social sciences	Real sciences	Social sciences	Real sciences
N	855	262	267	223
Mean	822	876	1183	963
Median	793	893	1150	895
Std. Deviation	346	385	442	508
Minimum	256	256	320	243
Maximum	2556	2301	2556	2512

Table 1 Oaxaca-Blinder decomposition of the wage (in EUR) gap between the graduate of real and social sciences: gross wage

Variables	1	2	3	4	5
Social sciences	885	885	885	885	885
Real sciences	847	847	847	847	847
Wage gap (log difference)	4.5%	4.5%	4.5%	4.5%	4.5%
Explained	-5.8%	-17.0%	-19.4%	-18.8%	-17.0%
Unexplained	10.3%	21.5%	23.9%	23.4%	21.5%
Explained part by factors					
Level (first/second level)	-0.058 (-3.82)	-0.046 (-3.33)	-0.027 (-2.4)	-0.038 (-3.21)	-0.033 (-2.94)
University		-0.087 (-4.32)	-0.067 (-3.66)	-0.051 (-3.03)	-0.051 (-3.16)
Age		-0.053 (-3.09)	-0.039 (-2.46)	-0.027 (-1.87)	-0.013 (-0.94)
Gender		0.016 (1.46)	0.005 (0.53)	0.009 (0.93)	0.015 (1.53)
Occupation			-0.066 (-3.33)	-0.058 (-3.08)	-0.05 (-2.71)
Sector				-0.023 (-0.57)	-0.043 (-1.13)
Location					0.02 (1.51)
Firm size					-0.017 (-1.75)
Tenure					0.001 (0.32)
Observations	544	544	544	544	544

Note. Z-statistics are in the parenthesis. In order to control for possible measurement errors, we excluded from calculations the lower and upper 2.5% of observations. Only intramural students are included into the analysis. Both graduates with master's and bachelor degree are included in the calculations. The sample size is in all estimations the same as we chose to the sample the observations with non-missing values in all relevant variables. All estimations are with sample weights.

The reported numbers ad different factors show the contribution of each factor to the explained part of the wage gap. The estimated regression coefficients of the underlying wage regressions are not reported to save space.

Conclusions (1)

- The socialia-realia wage gap observed is largely due to factors not included in the analysis.
- The unexplained gap is remarkably high and positive in all models and increases.
- The explained part of the gap is large, too, but on the contrary to unexplained part, negative. This means that based on the socio-demographic and job-related characteristics that we use as explanatory variables in the analysis, we should observe a remarkable wage gap in favour of real sciences graduates, but there are determinants not included in the analysis that turn the gap on the opposite.
- What those factors are, remains still the open question and includes probably personal-related characteristics,, probably there is some role of family-related characteristics , etc.
- One possible explanation could be that the variables as defined in our data are too general

Conclusions (2)

- 2009 85% of social sciences and 70% of real sciences graduates were working during studies.
- The economic reasons for working during studies were mentioned most frequently,
- Only every fourth of social sciences and 30% of real sciences bachelor students and half of master/doctoral students had a job directly related to the subject learnt during studies.
- After graduation most of the alumni have either continued studying and/or working, the share of those unemployed is very low.
- Wages of graduates in bachelor level are higher for real sciences graduates in master level for social science graduates.