

HIGHER EDUCATION GRADUATES AND THEIR EMPLOYABILITY

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STRUCTURE OF PRESENTATION

- **EU-Policy Context and the (proposed) EU-Employability Benchmark**
- **What brings higher education graduates in the orbit of an ‘employability’ discourse?**
- **Which questions should one really ask? And which ‘indicators’ follow from this?**
- **Is there recent research that show us the way forward?**
- **Final remarks**

EU-POLICY CONTEXT AND EU-EMPLOYMENT BENCHMARK

EMPLOYABILITY AND THE 'BOLOGNA PROCESS' (I)



- **What is employability?**

“There are many definitions of employability. For the purpose of the Bologna Follow-up Group, employability is defined as **the ability to gain initial employment, to maintain employment, and to be able to move around within the labour market.**”

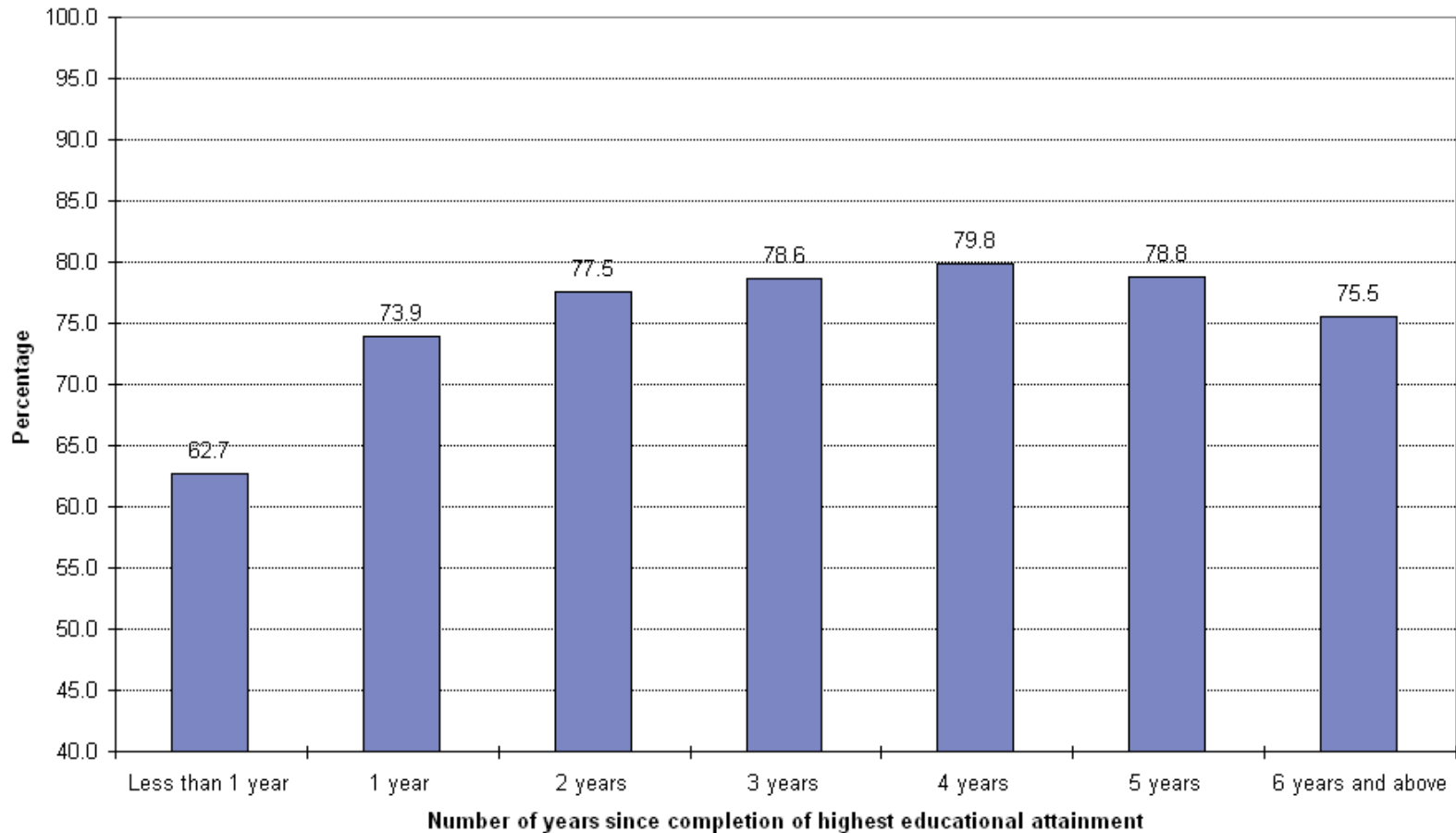
WHAT AND WHEN IS EDUCATION EXPECTED TO CONTRIBUTE?

- **Preparation for employment**
 - Capacity of Education and Training Systems to equip young people with key competences and necessary motivation and understanding of the labour market
- **Transition from education to employment**
 - Capacity of Education and Training Systems to (create) link(eage)s to employers and the world of work
- **Stay in employment and progress in career**
 - Capacity of Education and Training Systems to update and upgrade the knowledge and skills of workers

PROPOSAL FOR A BENCHMARK

- Working Group on Employability => proposal for a benchmark
- Since the labour market entry entry takes longer and becomes more chaotic, proposal to use the average of the employment rate for young people within the same birth cohort, being one, two or three years after leaving the educational system.
- EU-LFS as only existing comparative data-set

Employment rate of the 20-34 years old by number of years since completion of highest educational attainment level

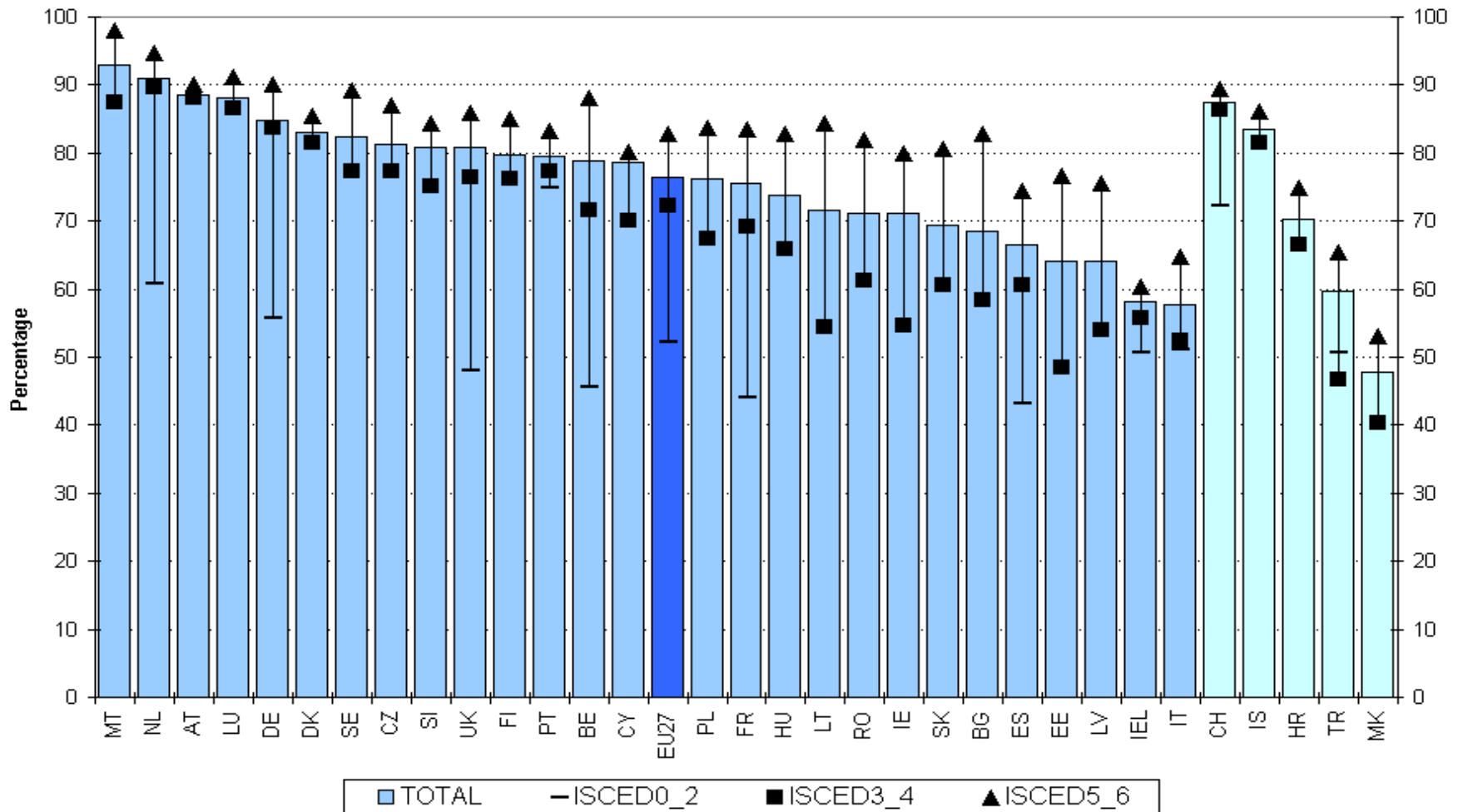


Source: Boateng, Garrouste and Jouhette, 2011. Authors' computations based upon the core annual EU-LFS, 2009

THE EU EMPLOYABILITY BENCHMARK

Employability of the 20-34 years old by educational attainment, 2010

(Source: CRELL computations based on Eurostat, EU-LFS 2010)



SOME EXTENSIONS ARE POSSIBLE

- Given the data available in the EU-LFS, this general procedure could be applied to several sub-groups (gender, ethnicity, field of education, ...)
- Or be used with different definitions of what is considered to be 'employment' (full time, type of contract, etc.), although data would refer to 'employment' at the time of the interview
- Special modules added to the EU-LFS in 2000 and 2009 would also allow to look more in detail at the transition period (like length of the search period to first job, ...)

Nevertheless, availability of comparative data is limited

WHY DO HIGHER EDUCATION GRADUATES ENTER THE 'EMPLOYABILITY' DISCOURSE?

EMPLOYABILITY AND THE 'BOLOGNA PROCESS'



- **The role of higher education**

“The role of higher education in this context is to equip students with skills and attributes (knowledge, attitudes and behaviours) that individuals need in the workplace and that employers require, and to ensure that people have the opportunities to maintain or renew those skills and attributes throughout their working lives. At the end of a course, students will thus have an in-depth knowledge of their subject as well as generic employability skills.”

U. TEICHLER

(Higher Education in Europe, vol.23, 1998, n° 4)

“The transition from higher education to employment is viewed as a phenomenon that deserves attention, for graduation from a higher education institution is no longer a guarantee of a prestigious position and demanding job tasks. (...) It is obvious that transition from higher education to employment has become a complex process that requires substantial time and effort and often stretches over a long period.” (p.556)

FIVE MAJOR DEVELOPMENTS

- **Massification of higher education**, leading to a decline of the ‘differentiating power’ of educational levels
- **Task-based technological advance**, resulting in relative decline of both manual and cognitive routine jobs
- **Transitional labour markets** with an emphasis on mobility, flexibility and de-standardisation
- **Internationalisation and Globalisation**
- **Knowledge economy** or the increasing emphasis on education and training as an important factor in economic growth

SKILL NEEDS OF HE GRADUATES

- **Professional expertise**
 - Knowledge, skills and analytical thinking
- **Functional flexibility**
 - Ability to deal with changes in a positive way
- **Innovation and Knowledge Management**
 - Innovative capacity and ability to implement ideas
- **Mobilisation of Human Resources**
 - Mobilise their own competences and those of others
- **International Orientation**
 - Other languages, but also ability to deal with other cultures

TAKING THE (INDIVIDUAL AND/OR SOCIAL) INVESTMENT POINT OF VIEW

THREE IMPORTANT QUESTIONS

- **Do the skills and competences acquired by higher education graduates sufficiently match the skills and competences required to do their jobs properly?**
- **And, if so, do ‘we’ make proper use of the skills and competences acquired by higher education graduates?**
- **To what extent and through which mechanisms can and/or do educational systems influence the production of the skills and competences acquired and/or required?**
- **What kind of data are needed to answer the two former questions?**

SOME EXAMPLES FROM RECENT RESEARCH

FIRST EXAMPLE:

THE SONAR RESEARCH PROGRAMME

SONAR RESEARCH PROGRAMME (I)

	C 1976	C 1978	C 1980
1994			
1995			
1996			
1997			
1998			
1999	23		
2000			
2001		23	
2002	26		
2003			23
2004		26	
2005	29		
2006			
2007			
2008			
2009			29

SONAR RESEARCH PROGRAMME (II)

RESPONDENTS

	W1-23	W2-26	W3-29
Cohort1976	3015	2060	1657
Cohort 1978	3002	2099	
Cohort 1980	2993		1922

SONAR RESEARCH PROGRAMME (III)

LM entry	Cohort 1976	Cohort 1978	Cohort 1980	TOTAL
1992	1			1
1993	3			3
1994	269			269
1995	407			407
1996	377	228		605
1997	456	408	2	866
1998	507	415	290	1212
1999	440	436	470	1346
2000	214	462	386	1062
2001	105	409	461	975
2002	26	250	433	709
2003	10	120	376	497
2004	1	37	199	237
2005	3		87	90
2006			36	36
2007			16	16
2008			4	4
2009			2	2
TOTAL	2819	2765	2753	8377

WHO DOES ACQUIRE ADDITIONAL SKILLS IN THE FIRST JOB?

TABLE 1: Skill acquisition by educational level

	No additional skills acquired	Skills acquired only useful in present job	Skills acquired in similar jobs with other employers	Skills acquired useful in a wide range of jobs	N
No SO	33,8%	12,5%	30,0%	23,8%	714
6BSO	31,9%	9,6%	39,4%	19,1%	439
7BSO	30,6%	9,5%	35,0%	25,0%	569
TSO/KSO	27,4%	8,1%	34,3%	30,2%	941
ASO	25,7%	8,5%	31,1%	34,7%	366
HOBUC	19,3%	6,4%	39,9%	34,3%	1442
HOBUC	12,9%	3,4%	37,3%	46,4%	295
UNIV	16,6%	4,2%	31,6%	47,6%	668
<i>TOTAAL</i>	<i>24,6%</i>	<i>7,8%</i>	<i>35,3%</i>	<i>32,3%</i>	<i>5434</i>

Source: SONAR-database C76_C78 (23-26)

Other included variables

- **Gender**
- **Social background**
 - Ethnic background
 - Educational level mother
 - Job level father
 - Employment contract father
- **Educational Career**
 - Pathway secondary education
 - Self-evaluation results end secondary education
 - Internship or not
 - Track specificity (Hirschman – Herfindahl)

!!!! Category 'unknown' added

TABLE 2: Results logistic regression (odds ratios)

<i>N</i> = 4723	No skills acquired	Useful in other than present job	Additional skills widely portable
MALE	,651***	1,352***	1,249***
ETHNICITY (ref: Autochtoon)			
Allochtoon	1,055	,939	,940
Overige niet Belg	1,030	,975	,990
EDUCATIONAL MOTHER (ref: PE)			
Lower SE	,835	1,108	1,053
Higher SE	,771*	1,232*	1,070
Higher Education	,805	1,153	1,190
Level Unknown	1,007	,988	,852
STATUUT VADER (ref: Blue collar worker)			
White collar	,978	1,201	1,249*
Public sector	,984	1,084	1,066
Self employed	,929	1,063	1,174
Status unknown	1,134	,932	1,009
EDUCATION LEVEL AT FIRST JOB (ref: univ)			
No SO	1,643**	,420***	,443***
6BSO	1,787**	,495***	,325***
7BSO	1,838***	,468***	,398***
TSO/KSO	1,584**	,527***	,488***
ASO	1,392	,560***	,571***
HOBUI1C	1,283	,747*	,633***
HOBUI2C	,736	1,247	,953
INTERNSHIP	1,241*	,877	,840*
SPECIFICITY EDUCATIONAL TRACK	,485***	1,373	,712

Additionally included variables

- **Job characteristics**
 - Vertical match (subj. indicator)
 - Horizontal match (subj. indicator)
 - Karasek-type
 - Type of contract
 - Part-time or not
- **Firm characteristics**
 - Company size
 - Sector

TABLE 5a: Skill acquisition in first job by vertical mismatch

Source: SONAR-dataset C76_C78 (23-26)

	No additional skills acquired	Skills acquired only useful in present job	Skills acquired in similar jobs with other employers	Skills acquired useful in a wide range of jobs
Undereducated	15,2%	7,4%	37,1%	40,2%
Overeducated	41,9%	7,8%	24,0%	26,3%
Adequately educated	18,6%	7,5%	39,7%	34,2%
TOTAL	24,6%	7,6%	35,4%	32,4%

TABLE 5b: Skill acquisition in first job by horizontal mismatch

Source: SONAR-dataset C76_C78 (23-26)

	No additional skills acquired	Skills acquired only useful in present job	Skills acquired in similar jobs with other employers	Skills acquired useful in a wide range of jobs
Not matched at all	37,9%	10,0%	26,3%	25,8%
More or less matched	19,6%	5,6%	34,3%	40,5%
Fully matched	16,9%	7,1%	42,7%	33,4%
TOTAL	24,6%	7,7%	35,3%	32,3%

Karasek Job Demand Control Model

		AUTONOMY	
		LOW	HIGH
JOB DEMANDS	LOW	Passive job	Low stress job
	HIGH	High stress job	Active job

TABLE 4a: Job type by skill acquisition
Source: SONAR-dataset C76_C78 (23-26)

Type job	No additional skills acquired	Skills acquired only useful in present job	Skills acquired in similar jobs with other employers	Skills acquired useful in a wide range of jobs	N
Passive	31,9%	7,8%	33,4%	27,0%	1024
Low stress	25,0%	8,8%	37,2%	29,0%	1718
High stress	28,4%	8,0%	33,9%	29,7%	1306
Active	13,9%	5,5%	36,7%	43,9%	1158
ALL	24,7%	7,7%	35,5%	32,1%	5206

TABLE 4b: Job type by educational level

Source: SONAR-dataset C76_C78 (23-26)

	Passive job	Low stress job	High stress job	Active or growth job
No SE	24,1%	35,6%	30,1%	10,2%
6BSO	25,7%	37,1%	27,8%	9,3%
7BSO	25,3%	33,0%	28,9%	12,7%
TSO/KSO	22,1%	37,5%	24,2%	16,2%
ASO	21,1%	37,0%	22,0%	19,9%
HOBUC1	16,6%	31,6%	23,2%	28,6%
HOBUC2	13,9%	23,8%	22,4%	39,9%
UNIV	10,8%	25,9%	22,5%	40,8%
TOTAL	19,7%	33,0%	25,1%	22,2%

Variables included in the models

- **Model 4: Educational and background variables**
- **Model 5: Model 4 + mismatch indicators**
- **Model 6: Model 5 + Karasek based job types**
- **Model 7: Model 6 + Contract characteristics**
- **Model 8: Model 7 + Firm characteristics**

TABLE 6: Resultats of binary logistic regressions (odds ratios)

N = 4723	No additional skills			Additional portable skills			Additional general skills		
	M4	M6	M8	M4	M6	M8	M4	M6	M8
MALE	,651***	,654***	,736***	1,352***	1,328***	1,256**	1,249***	1,216**	1,227**
EDUCATIONAL LEVEL (ref: universitair)									
Geen SO	1,643**	1,570*	1,631*	,420***	,444***	,424***	,443***	,494***	,521***
6BSO	1,787**	1,548*	1,653*	,495***	,574**	,540***	,325***	,374***	,386***
7BSO	1,838***	1,858***	2,000***	,468***	,469***	,436***	,398***	,431***	,434***
TSO/KSO	1,584**	1,385*	1,462*	,527***	,599***	,563***	,488***	,541***	,549***
ASO	1,392	1,008	1,065	,560***	,770	,722	,571***	,678*	,671*
HOBUC	1,283	1,370*	1,386*	,747*	,709*	,685**	,633***	,639***	,627***
HOBUC2	,736	,708	,756	1,247	1,274	1,173	,953	,960	,941
INTERNSHIP	1,241*	1,247*	1,281**	,877	,882	,868	,840*	,844*	,829*
SUBJ. SPECIFICITY	,485***	,827	,779	1,373	,852	,985	,712	,679*	,805
HORIZONTAL MATCH (ref:complete match)									
More or less match		1,551***	1,456***		,629***	,643***		,942	,881
No match at all		,909	,933		1,158	1,103		1,421***	1,345***
VERTICAL MATCH (ref: adequate level)									
Under-educated		,696	,655*		1,509*	1,599**		1,391*	1,438*
Over-educated		2,553***	2,436***		,438***	,455***		,712***	,726***
JOBTYPE KARASEK (ref: active job)									
Passive job		1,938***	1,760***		,551***	,585***		,611***	,615***
Low strain job		1,428**	1,376**		,701***	,704***		,705***	,704***
High strain job		1,747***	1,604***		,612***	,646***		,643***	,660***

TABLE 6: Resultat of logistic regressions (odds ratios)

N = 4723	No additional skills			Additional portable skills			Additional general skills		
	M4	M6	M8	M4	M6	M8	M4	M6	M8
MALE	,651***	,654***	,736***	1,352***	1,328***	1,256**	1,249***	1,216**	1,227**
EDUC LEVEL (ref: university)									
Geen SO	1,643**	1,570*	1,631*	,420***	,444***	,424***	,443***	,494***	,521***
6BSO	1,787**	1,548*	1,653*	,495***	,574**	,540***	,325***	,374***	,386***
7BSO	1,838***	1,858***	2,000***	,468***	,469***	,436***	,398***	,431***	,434***
TSO/KSO	1,584**	1,385*	1,462*	,527***	,599***	,563***	,488***	,541***	,549***
ASO	1,392	1,008	1,065	,560***	,770	,722	,571***	,678*	,671*
HOBUC1	1,283	1,370*	1,386*	,747*	,709*	,685**	,633***	,639***	,627***
HOBUC2	,736	,708	,756	1,247	1,274	1,173	,953	,960	,941
INTERNSHIP	1,241*	1,247*	1,281**	,877	,882	,868	,840*	,844*	,829*
TRACK SPECIFICITY.	,485***	,827	,779	1,373	,852	,985	,712	,679*	,805
TYPE OF CONTRACT (ref: CDI)									
CDD			1,208			,863			1,109
Temp agency			1,908***			,532*			,856
ALMP measure			1,019			1,106			1,312*
Unknown			,735			,804			,892
PART TIME JOB			1,230*			,890			1,106

TABLE 6: Results of binary logistic regressions (odds ratios)

N = 4723	No additional skills			Additional portable skills			Additional general skills		
	M4	M6	M8	M4	M6	M8	M4	M6	M8
FIRM SIZE (ref: >249)									
Unknown			2,148***			,665*			,915
< 10 employed			1,164			,843			,885
10-49 employed			1,225			,871			,872
50-249 employed			1,029			1,053			,989
SECTOR (ref: industry)									
Construction			,451***			1,618**			1,014
Retail			,923			1,227			1,310*
Horeca			,861			1,437			1,192
Transport, logistics			,721			1,464			1,409*
Finance			,974			1,298			1,244
Real estate, comp.services			,902			1,298			1,190
Public administration			,838			1,058			1,523*
Education			1,262			,760			,885
Health			,995			1,011			,837
Community, social serv.			,896			1,398			1,086
Other			,813			1,140			,973
- 2 Log Likelihood	5049,023	4733,885	4639,412	5665,722	5353,037	5259,071	5731,585	5635,475	5595,484
Cox Snell	.041	.103	.121	.049	.110	.127	.050	.069	.077
Nagelkerke	.061	.154	.180	.068	.154	.178	.069	.096	.107

Source: SONAR-dataset C76_C78 (23-26), all models controlled for duration of first job and cohort

Results (II)

- **Introducing job and firm characteristics does not affect either the significance or the coefficient of educational level and gender.**
- **However, this does not imply that the variables relating to job and firm characteristics are unimportant and could not account for at least part of the differences of skill acquisition in the first job.**

Results (II)

- **Whoever does not start his labour market career in an 'active' risks far more than his or her colleagues who do not to acquire any additional skills during the first job. In addition, they have a much lower probability to acquire additional portable or general skills.**
- **There is not much difference between the other job types.**

Results (III)

- **Not only type of job, but the nature of the match seems to be of importance.**
- **Over-educated (under-educated) run a greater (smaller) risk not to acquire any additional skills than adequately matched entrants. A similar results is found with regard to acquiring additional portable skills.**
- **Results for horizontal mismatch are much less clear.**

Results (IV)

- **The type of employment contract is clearly of some importance. Part-time work implies a greater risk not to acquire any additional skills, but does not significantly affect acquiring portable or general skills.**
- **The risk of not acquiring any additional skills is greater for youngsters who find their first job via a temp agency as compared to young people who start in a contract of indeterminate duration.**
- **Results for sector seem intuitively acceptable.**
- **No statistical significant influence of firm size.**

Main conclusions

TWO MAIN CONCLUSIONS

- Importance of 'learning capacity' as well as 'job characteristics'
- Risk of widening gap in 'skill richness' is real

BUT

- How to differentiate between 'educational level' as a sorting mechanism over jobs and as an indicator of 'learning capacity'?

SECOND EXAMPLE:

THE REFLEX/HEGESCO PROJECT

- **Higher education graduates from year 1999/2000 (Reflex) or 2002/2003 (HEGESCO) – data collection resp. in 2005 and 2008**
 - REFLEX: Austria, Belgium-Flanders, Finland, France, Germany, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the UK, Estonia, Czech Republic; HEGESCO: Slovenia, Turkey, Lithuania, Poland, Hungary
 - REFLEX: 36,612; HEGESCO: 8,742 => average response rate: 31%
- **ISCED 5A – representative samples – first level programs (not giving direct access to PhD) and second level programs (giving direct access to PhD)**

- **EDUcation, HUManities and Arts, SOCIal sciences, Business and Law, SCIENCE, Mathematics and Computing, ENGeneering, Manufacturing and Construction, AGRiculture and Veterinary, HEALth and Welfare, SERvices**
- J. Allen, R. Van der Velden (eds), *Competencies and Early Labour Market Careers of Higher Education Graduates*, Ljubljana, 2009, 136 p.
- J. Allen, R. Van der Velden (eds), *The Flexible Professional in the Knowledge Society. New Challenges for Higher Education*, Springer Verlag, 2011, 259 p.

A1 DESCRIPTIONS OF STUDY PROGRAMS

		EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Demanding	37	51	46	63	60	43	52	39	49
	Familiar to empl.	47	27	31	30	38	35	51	33	37
	Freedom choice	18	28	21	23	17	20	12	17	19
	Broad focus	44	49	58	52	52	61	52	59	53
	Vocational orient.	61	34	38	29	46	51	71	51	47
	Ac. Prestigious	20	36	32	36	31	24	22	16	28
SLP	Demanding	46	54	56	69	74	61	83	51	62
	Familiar to empl.	39	25	38	28	42	45	62	28	38
	Freedom choice	27	47	32	33	26	21	9	23	30
	Broad focus	55	51	59	53	60	65	48	55	56
	Vocational orient.	46	24	28	23	40	50	53	46	34
	Ac. prestigious	30	39	47	48	53	39	69	29	47

A2 MODES OF TEACHING AND LEARNING

		EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Lectures	71	67	79	83	73	69	71	72	74
	Group assignment	50	34	41	34	42	40	56	48	44
	Teacher main	46	51	49	49	54	49	36	45	47
	Project or problem	25	27	22	29	35	29	34	28	28
	Facts – practical kn.	48	44	35	43	40	45	62	47	44
	Theories –paradigm	50	41	54	53	41	36	47	33	48
	Participation res.	13	15	12	18	13	20	18	17	14
	Internship –work pl.	52	23	26	21	32	46	75	47	39
	Written assignment	55	60	56	53	47	50	56	52	54
	Multiple choice	16	7	22	11	8	15	20	16	16
Oral presentation	42	47	36	25	29	33	38	38	36	
SLP	Lectures	73	69	73	77	69	72	78	65	72
	Group assignment	46	25	35	31	40	31	27	49	34
	Teacher main	51	51	52	55	52	59	50	52	52
	Project or problem	23	20	19	23	36	20	13	28	22
	Facts – practical kn.	38	31	26	36	34	40	47	40	33
	Theories –paradigm	68	59	70	65	62	54	53	46	64
	Participation res.	16	12	10	22	16	12	12	16	13
	Internship –work pl.	43	17	17	25	23	34	58	40	26
	Written assignment	62	65	52	42	51	27	22	58	50
	Multiple choice	12	6	24	9	9	19	42	17	18
Oral presentation	46	51	36	29	32	28	23	40	36	

A3 EXPERIENCE DURING HE

		EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Study related WE	39	36	41	34	41	43	58	52	43
	Non-study rel. We	45	52	52	46	46	44	39	52	47
	Experience abroad	11	33	19	16	19	20	15	20	18
SLP	Study related WE	48	43	42	42	52	53	46	47	45
	Non-study rel. We	50	56	56	53	49	49	40	52	52
	Experience abroad	19	41	29	25	31	34	29	22	29

FACTORS INFLUENCING SEARCH DURATION

		NCMS	NE	SE	Total
Progr. charac.	Academic prestige	-0.205***		-0.224**	-0.149***
	Demanding				
	Familiar to empl.	-0.285***	-0.233***	-0.394***	-0.275***
	Vocationally oriented	-0.211***	-0.116***	-0.160*	-0.170***
Experiences	Internship				
	Study-related WE	-0.685***	-0.352***	-0.646***	-0.500***
	Non study-related WE				
	Position in vol.org.	-0.676***			-0.221**
	Spent time abroad	-0.589**	-0.302**		-0.404***
Study behavior and performance	Study hours per week				
	Did extra work	0.269***			0.131***
	Strived to highest mark				
	Average grad. Grade	-0.290***			-0.088**
Personal and background characteristics	Father HE	-0.800***			-0.217***
	Age	0.786	0.188***		0.223***
	Age squared	-1.006**	-0.178***		-0.228***
	Female		0.176**	0.613***	0.258***
	Born abroad				
First level degr			0.407*		
Field of study	Education	-0.783***	-0.775***	0.743	-0.524***
	Humanities and Arts		0.314***		
	Social Sc., Bus. and Law	Ref.	Ref.	Ref.	Ref.
	Sc., Math., Computing				
	Eng., Man., Construct.	-1.179***		-1.064***	-0.660***
	Agric. And Vet.				
	Health and Welfare	-1.650***	-0.761***	-1.254***	-1.082***
	Services				
N		5916	10292	4879	21089
Adj. R-square		.133	.045	.049	.111

Factors influencing hourly wage

		NCMS	NE	SE	Total
Progr. charac.	Academic prestige	0.017**	0.014***	0.029***	0.017***
	Demanding		0.013***	0.020**	0.012***
	Familiar to empl.		0.016***	0.018***	0.012***
	Vocationally oriented		0.017***		0.006**
Experiences	Internship	-0.041**	-0.024***	0.040***	-0.013*
	Study-related WE	0.084***	0.037***		0.052***
	Non study-related WE				
	Position in vol.org.		0.016***		0.017***
	Spent time abroad	0.087***	0.032***		0.061***
Study behavior and performance	Study hours per week	-0.002***	-0.001***	-0.001**	-0.001***
	Did extra work	-0.014*			-0.006**
	Strived to highest mark		-0.005*	0.012*	
	Average grad. Grade		0.006*		0.007**
Personal and background characteristics	Father HE	0.028*		0.048***	0.020***
	Age	-0.026*	0.028***		0.007*
	Age squared	0.039**	-0.026***	0.015*	
	Female	-0.079***	-0.072***	-0.100***	-0.082***
	Born abroad	-0.092*	-0.055***		-0.053***
First level degr		-0.067***	-0.078***	-0.117***	-0.074***
Field of study	Education	-0.079***	-0.084***	0.128***	-0.053***
	Humanities and Arts	-0.096***	-0.113***	0.067***	-0.081***
	Social Sc., Bus. and Law	Ref.	Ref.	Ref.	Ref.
	Sc., Math., Computing	-0.089***	-0.023**	0.062***	-0.025**
	Eng., Man., Construct.			0.126***	0.037***
	Agric. And Vet.	-0.152***	-0.156***	-0.144***	-0.145***
	Health and Welfare	-0.116***	-0.083***	0.073***	-0.061***
	Services	-0.083**	-0.076***	0.118***	-0.053***
N		7602	11271	4373	23248
Adj. R-square		0.169	0.209	0.160	0.396

JOB SATISFACTION

		NCMS	NE	SE	Total
Progr. charac.	Academic prestige	0.065***	0.045***	0.078***	0.058***
	Demanding		0.027**		
	Familiar to empl.	0.08 ***	0.077***	0.066***	0.074***
	Vocationally oriented	0.034***	0.062***	0.043***	0.048***
Experiences	Internship				
	Study-related WE	0.027**	0.024**	0.029*	0.027***
	Non study-related WE		-0.026***		-0.017***
	Position in vol.org.				
	Spent time abroad	0.023**			0.012*
Study behavior and performance	Study hours per week	-0.02 *	-0.024**	-0.033**	-0.027***
	Did extra work				
	Strived to highest mark	0.03 **	0.023**	0.034**	0.027***
	Average grad. Grade		0.025***		0.018***
Personal and background characteristics	Father HE	0.02 *			
	Age		-0.119***		-0.121***
	Age squared		0.108*		0.108*
	Female		0.029***		0.012*
	Born abroad		-0.016*		-0.012**
First level degr		-0.023***	-0.032***		-0.017**
Field of study	Education	0.037***	0.07 ***	0.046***	0.053***
	Humanities and Arts			0.053***	0.014**
	Social Sc., Bus. and Law	Ref.	Ref.	Ref.	Ref.
	Sc., Math., Computing		0.033***	0.032***	0.017***
	Eng., Man., Construct.				
	Agric. And Vet.				
	Health and Welfare		0.036***	0.039**	0.029***
	Services			0.027*	
N		8757	12515	5197	26471
Adj. R-square		0.054	0.035	0.029	0.043

Competences required in tertiary level jobs

	NCMS	NE	SE	Total
Ability to use computers/internet	65	52	55	58
Ability to use time efficiency	65	61	63	63
Ability to work productively with other	64	56	59	59
Ability to make meaning clear to others	63	52	61	58
Ability to perform under pressure	63	63	60	62
Mastery of own field or discipline	62	55	55	58
Ability to coordinate activities	61	54	54	56
Ability to rapidly require new knowledge	60	50	55	55
Ability to write reports, etc.	56	48	51	51
Ability to come up with w. ideas or solutions	54	45	49	49
Analytical thinking	53	44	47	48
Ability to assert your authority	50	33	45	42
Alertness to new opportunities	47	39	35	41
Ability to negotiate effectively	47	36	38	40
Ability to present to an audience	45	39	42	42
Ability to mobilize capacities of others	46	40	45	43
Willingness to question ideas	45	39	42	42
Ability to write/speak in foreign language	40	28	27	32
Knowledge of other fields or disciplines	28	18	23	22

Reported competence shortages and surpluses

	Shortage	Surplus
Ability to use computers/internet	5	18
Ability to use time efficiency	16	10
Ability to work productively with other	7	13
Ability to make meaning clear to others	11	11
Ability to perform under pressure	13	10
Mastery of own field or discipline	14	10
Ability to coordinate activities	8	13
Ability to rapidly require new knowledge	6	16
Ability to write reports, etc.	9	16
Ability to come up with w. ideas or solutions	9	15
Analytical thinking	7	13
Ability to assert your authority	15	14
Alertness to new opportunities	9	18
Ability to negotiate effectively	15	15
Ability to present to an audience	12	17
Ability to mobilize capacities of others	12	15
Willingness to question ideas	6	20
Ability to write/speak in foreign language	12	26
Knowledge of other fields or disciplines	10	17

B1 Evaluation of study program as a ...

	Good basis for	EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Starting work	53	40	48	51	59	51	70	51	53
	Further learning	53	45	51	53	58	49	70	54	55
	Current job	51	43	44	43	45	46	64	47	48
	Future career	48	43	51	48	52	45	58	50	51
	Personal develop.	64	71	66	60	64	63	72	65	66
	Dev. Entrepr. Sk.	19	14	35	16	22	31	17	23	24
SLP	Starting work	55	42	58	57	66	56	64	54	57
	Further learning	59	50	61	61	66	61	70	57	61
	Current job	54	45	51	50	53	49	59	44	51
	Future career	50	41	59	48	56	47	62	48	54
	Personal develop.	69	77	69	66	65	61	61	63	68
	Dev. Entrepr. Sk.	12	12	27	13	20	18	12	17	20

B2 Strong points of study programme

	Good basis for	EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Mastery own field	1	1	2	3	2	1	1	1	1
	Analytical thinking			1	1	1	3	3		2
	Rapidly new know	3	2	3	2	3	2			3
	Work with others	2						2	2	
	Use computers								3	
	Write speak FL		3							
SLP	Analytical thinking	2	3	1	1	1	3	3		1
	Mastery own field	1	1	2	2	2	1	1	2	2
	Rapid new know	3		3	3	3	2	2	1	3
	Write reports		3							
	Work with others								3	

B2 Weak points of study programme

	Good basis for	EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
FLP	Write speak FL	1	1	1	1	1	1	1	1	1
	Assert authority		2	3	3	2	3	3		2
	Negotiate effect.		3	2	2	3	2		2	3
	Present to audien								3	
	Use computers	2								
	Knowl. other Field	3								
SLP	Write speak FL	1	3	1	1	1	1	1	1	1
	Negotiate effect.			2	2	2	3		2	2
	Assert authority	3	2	3	3	3				3
	Present to audien						2	3	3	
	Use computers							2		

B3 DID HE GET A MATCHING JOB ?

Appropriate Field	EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
Exclusively own field	44,0	25,7	21,7	21,5	26,5	36,8	59,8	26,0	31,5
Own or a related field	40,9	38,3	53,0	57,7	61,8	43,2	34,4	47,8	48,9
Compl. different field	5,8	12,5	7,4	8,1	5,6	9,6	2,2	10,4	6,9
No particular field	9,3	23,5	17,9	12,7	6,2	10,3	3,6	15,8	12,7
	100	100	100	100	100	100	100	100	100

B4 HOW DID HE-GRADUATES FIND WORK

Way of finding work	EDU	HUM	SOC	SCI	ENG	AGR	HEA	SER	TOT
Newspaper ad.	15,3	13,8	15,7	12,4	12,1	10,9	11,5	13,5	13,7
Public empl.	4,8	5,3	4,2	5,2	3,1	3,6	3,2	5,2	4,2
Private empl. agency	2,0	5,2	6,9	3,6	3,0	1,7	2,8	6,6	4,4
Through internet	4,2	5,2	7,6	9,8	8,3	4,4	3,0	6,0	6,5
Contact empl. myself	28,3	19,5	17,6	16,1	22,9	21,5	31,4	23,3	22,0
Approached by empl.	14,0	12,4	9,2	10,8	12,4	14,4	10,6	10,7	11,2
Work placement HE	7,9	4,1	7,8	9,6	10,1	8,9	13,9	8,1	8,9
Family, friends, ...	12,4	17,6	16,8	15,2	14,5	18,2	9,8	14,6	14,8
Help of HE institution	2,2	5,1	5,1	8,8	6,7	5,6	4,1	4,2	5,3
Set up own business	1,5	3,7	2,3	1,4	2,5	5,1	1,1	1,2	2,2
Other	6,6	7,4	6,0	6,4	4,2	5,6	8,1	6,2	6,3
Previous work	0,8	0,6	0,7	0,7	0,2	0,1	0,5	0,4	0,6
	100	100	100	100	100	100	100	100	100

B5 HOW DID 'ENGINEERS' FIND WORK?

Way of finding work	Engineering, Manufacturing and Construction	Engineering and engineering trades	Manufacturing and processing	Architecture and building
Newspaper ad.		12,5%	16,4%	10,1%
Public empl.	9,1%	3,0%	3,7%	3,1%
Private empl. agency	9,1%	3,4%	0,7%	2,7%
Through internet		9,6%	6,7%	6,1%
Contact empl. myself	18,2%	21,5%	24,3%	25,4%
Approached by empl.	27,3%	12,6%	12,4%	12,0%
Work placement HE	18,2%	10,9%	11,4%	7,9%
Family, friends, ...		12,6%	14,6%	18,7%
Help of HE institution	9,1%	7,5%	4,2%	5,7%
Set up own business		1,5%	2,0%	4,7%
Other	9,1%	4,6%	3,2%	3,5%
Previous work		0,2%	16,4%	10,1%

FINAL REMARKS (I)

- Monitoring is not enough, there is also a big need to understand the mechanisms producing the outcomes.
- Data-collection does not only need to deliver the necessary input for the construction of a proper set of (multi-dimensional) indicators, but also the data needed for the analysis of the factors driving the trends and developments.

FINAL REMARKS (II)

- Remember that success in the labour market does not (necessarily) signal high quality educational performance. (*Or does it?*)
- Remember also that one size does not fit all !!! (*Or is there convergence?*)
- Remember that education does not have the same 'structuring capacity' in all countries under consideration. (*Or is this less and less important?*)

THANKS FOR YOUR ATTENTION

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