Do young people acquire additional skills in their first job? Who does (or not) and why?

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STRUCTURE:

- Why look at skill acquisition in the first job?
- Why do we need to confront Heckman?
- Which research question do I consider?
- Which data do I use?
- What results do I get?
- What do I conclude and what could I do next?

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Why look at skill acquisition (in the first job)?

- Knowledge economy
- Life Long Learning
- Skills and/or competence development
- Employability
- Flexibility

Lisbon agenda:

development and use of all skills =

more welfare growth + more equality and social cohesion

Why the need to confront Heckman?

- Since early 2000, impressive series of working papers and articles,
- summarizing existing research on returns to education, policy intervention and school effectiveness
- developing a model of skill production technology

  and

- getting quite some attention in policy circles.

Heckman's skill production technology model

- **Central concepts:**
  - 'recursive (or self) productivity'
    - "It embodies that idea that skills acquired in one period persist into future periods. It also embodies the idea that skills are self-reinforcing and cross-fertilizing." (Cunha, e.a., 2007: 35)
  - 'skill complementarity'
    - "… skills produced at one stage raise the productivity of investment at subsequent stages. In a multistage technology, complementarity implies that levels of skills acquisition at different ages bolster each other. They are synergistic." (Cunha, e.a., 2007: 35)
- **Hence technology characterized by some "skill multiplier"**

Heckman's main message

- "Skills beget skills"

- "Invest in skill acquisition at very early age, not in later phases of the life cycle"

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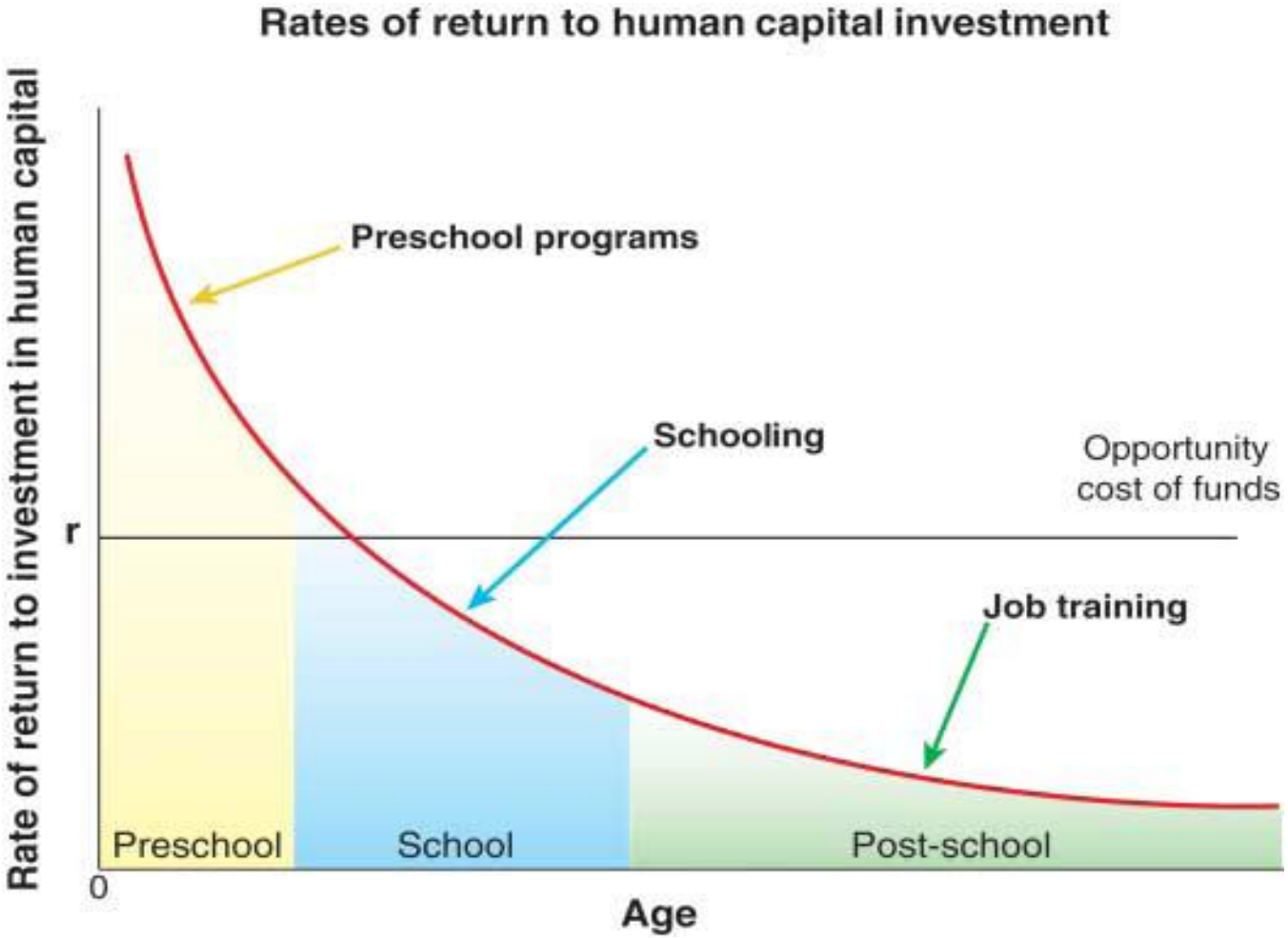

Pro's and con's of the Heckman model

- Focus on dynamic and cumulative nature of skill production and, hence, alerts for the risk of a so-called Matthew effect
- No conflict between efficiency and equality when investing in skill production at (very) early age
- Differentiates between kinds of skills and their importance at different periods in the life-cycle

- Excessive (?) stress on importance of investing at early age and risk of neglecting possibilities of skill acquisition at later ages
- Excessive (?) stress on 'self-productivity (and risk to neglect context)

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So what's the problem?

- If the Heckman skill production technology model captures the main mechanism driving skill production, how to square this with …
  - A) … the emphasis of policy-makers on life-long learning and on improving employability of low-skilled unemployed and older workers. Is this not simply throwing away money and allowing the inequality to grow in later life by not attending to the ability gap at early age?
  - B) … with the fact that a lot, if not most (productively relevant) skill acquisition takes place after leaving education, via workplace learning and their likes? Does the Heckman model not neglect the potential (and potentially remedying) impact of the job setting?

Heckman rescued ?

- Main message: “skills beget skills” or “invest in skill acquisition at very early age, not in later phases of the life cycle”
- BUT
- Cognitive ⇔ Non-cognitive abilities
- Critical period ⇔ Significant period
- Need for additional investments in later period

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A first explorative attempt …

Suppose 'educational achievement' is an acceptable proxy for 'ability' or 'capacity to acquire additional skills' in the sense of Heckman.

To what extent is the acquisition of additional skills in the first job due to differences in 'ability' or to differences in job characteristics?

How to measure 'acquiring additional skills'?

SONAR QUESTIONNAIRE

Direct measurement of (an all encompassing) (subjective) indicator for acquiring additional skills in the (first) job

- "Did you learn in your first job some new skills which you did not have before?"
- "If yes: Can these skills be used a) only in the job you then had, b) also in similar jobs, but with other employers, c) also in other jobs then your first job?"

Three dependent variables

	A	B	C	D	E
No additional skills acquired	0	0	0	0	0
Additional skills only useful in first job	1	1	0	0	0
Additional skills also useful in similar jobs	0	1	1	0	1
Additional skills also useful in other jobs	0	1	1	1	0

B = differentiates between acquiring additional skills or not 72,8%

C = differentiates between additional skills that are portable or not 65,0%

D = differentiates between additional skills that are general or not 33,7%

Data source

- *Sonar-dataset C76_78(23-26)*
  - Total sample: 6017 respondents
  - 5517 have a job before the age of 26
  - 4723 have no missings on one of the variabels in the analyses
  - Beware: to reduce 'selction bias' or 'low numbers' introduction of 'unknown' as additional category

- *Binary logistic regressions*
  - Risk not to have acquired any additional skills
  - Probability of having acquired portable skills
  - Probability of having acquired general skills

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FIRST QUESTION:

DOES EDUCATIONAL LEVEL INFLUENCE SKILL ACQUISTION?

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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*
HOBU1C	19,3%	6,4%	39,9%	34,3%	*1442*
HOBU2C	12,9%	3,4%	37,3%	46,4%	*295*
UNIV	16,6%	4,2%	31,6%	47,6%	*668*
TOTAAL	*24,6%*	*7,8%*	*35,3%*	*32,3%*	*5434*

Source: SONAR-database C76_C78 (23-26)

Other included variables

- **Gender**
- **Social background**
  - Ethnic background
  - Educational level mother
  - Job level father
  - Employment contract father

!!!! Category ‘unknown’ added

- **Educational Career**
  - Pathway secondary education
  - Self-evaluation results end secondary education
  - Internship or not
  - Track specificity (Hirschman – Herfindahl)

TABLE 2: Results logistic regression (odds ratios)

N = 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****
HOBU1C	1,283	***,747****	***,633****
HOBU2C	,736	1,247	,953
INTERNSHIP	***1,241****	,877	***,840****
SPECIFICITY EDUCATIONAL TRACK	***,485****	1,373	,712

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Results (I)

- Having a lower educational level starting one's first job implies a greater risk not to have acquired additional skills as well as a lower probability of acquiring (also) portable or general skills.
- Men have a smaller risk than women not to have acquired any additional skills and have a higher probability of acquiring portable and general skills.
- No noticeable effect of ethnic or social background.
- No effect of secondary school related variables
- Internship? Track specificity?.

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SECOND QUESTION:

DOES EDUCATIONAL LEVEL STILL INFLUENCE SKILL ACQUISTION (TO THE SAME EXTENT) AFTER CONTROLLING FOR JOB RELATED CHARACTERISTICS ?

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

Karasek Job Demand Control Model

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

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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

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*
HOBU1C	1,283	1,370*	1,386*	,747*	,709*	,685**	,633***	,639***	,627***
HOBU2C	,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***

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

N = 4723	No additional skills			Additional portable skills			Additional general skills		
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EDUC LEVEL (ref: university)									
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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***
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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

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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 collegues 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'?

Limits and potential further developments

- Only subjective judgement of youngsters (cfr. ALMP)
- No specifics on what kind of skills acquired

WHAT TO DO NEXT?

- Interactions are not (yet) taken into account
- Other proxies for job characteristics are possible
- Use of 'objective' mismatch variables
- Ordinal logistic regression?

- As yet no data concerning participating in training included
- As yet no data related to interest in learning or something akin

Two final theoretical reflections

- Human capital theory ⇔ Heckman ⇔ job queuing?
- Justice aspect: whether starting from a Rawlsian view focusing on a basket of primary goods or from a Sen-like view focusing on the capability of choosing the life people have reasons to value, the results of this exercise suggest that it is not only important to recognize the importance of education, but also to look more deeply into the role of job as "devices providing differential access to opportunities to acquire skills".