

The skill match of young graduate employees: An empirical analysis based on REFLEX data



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The research issue



The determinants of educational
match and skill match among
young graduates

Research rationale (I)

Matching between required and provided skills is desirable ...

- ⇒ ... for employees (better return to investment in skills, higher satisfaction)
- ⇒ ... for employers (no skill shortage, enables innovation/change processes)
- ⇒ ... for the PA (success of public education and VET systems and related policies)

Research rationale (II)

A large body of empirical analyses exists, however...

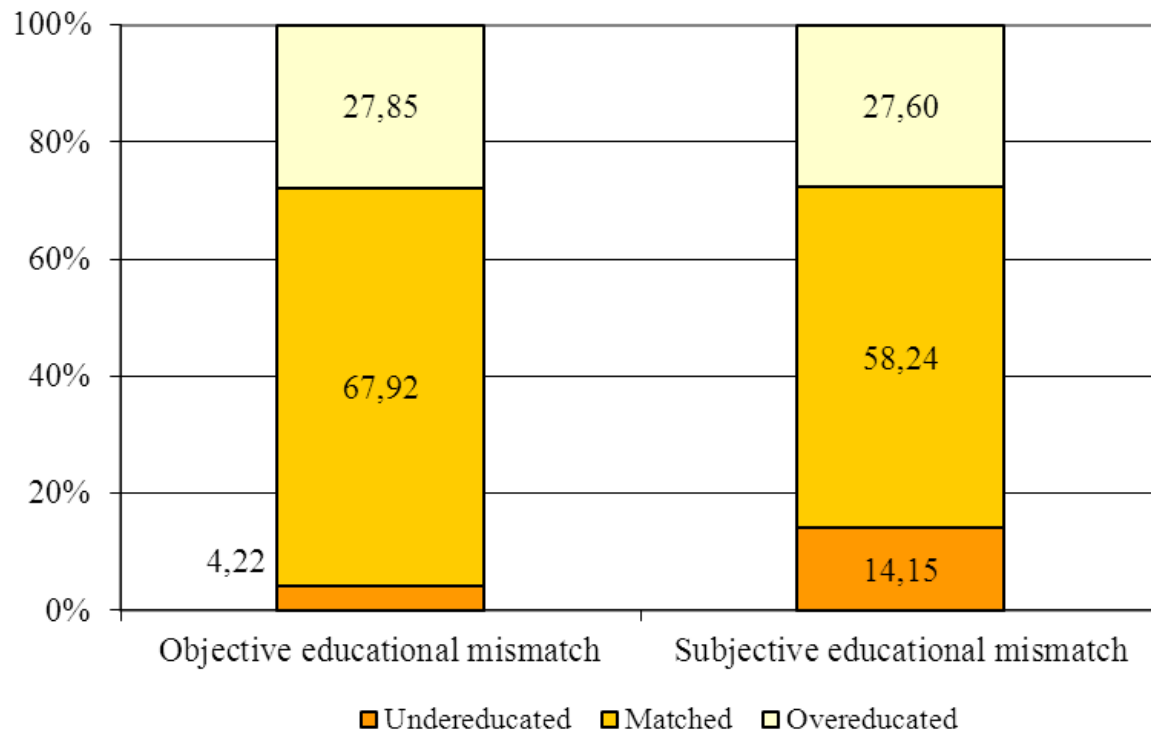
- ... focus on educational mismatch as a proxy for skill mismatch (yet, significant recent attention to direct measures of skill mismatch)
- ... focus on supply-side effects
- ... focus on overeducation/overskilling (undereducation/underskilling overlooked especially in the case of university graduates)

Research rationale (III)

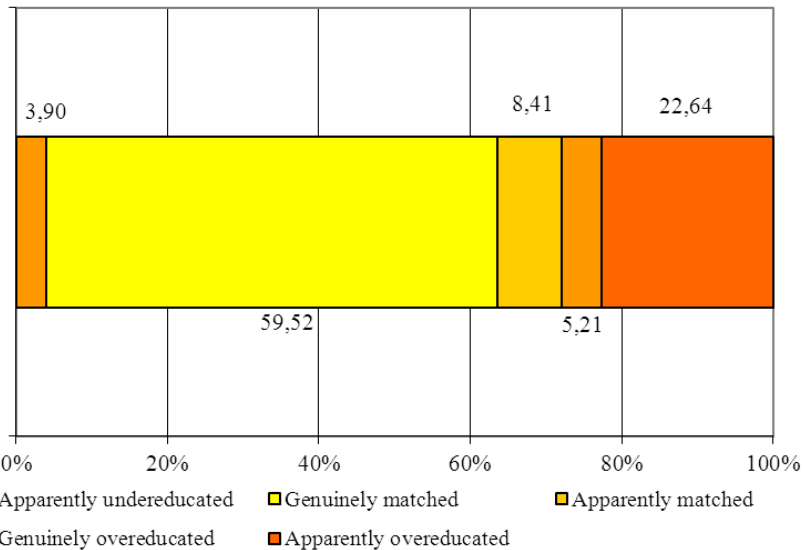
The analysis of the determinants of educational and skill match provides indications on enabling factors/obstacles relevant for all actors in the labour market

The data \Rightarrow REFLEX sample of young Italian graduates

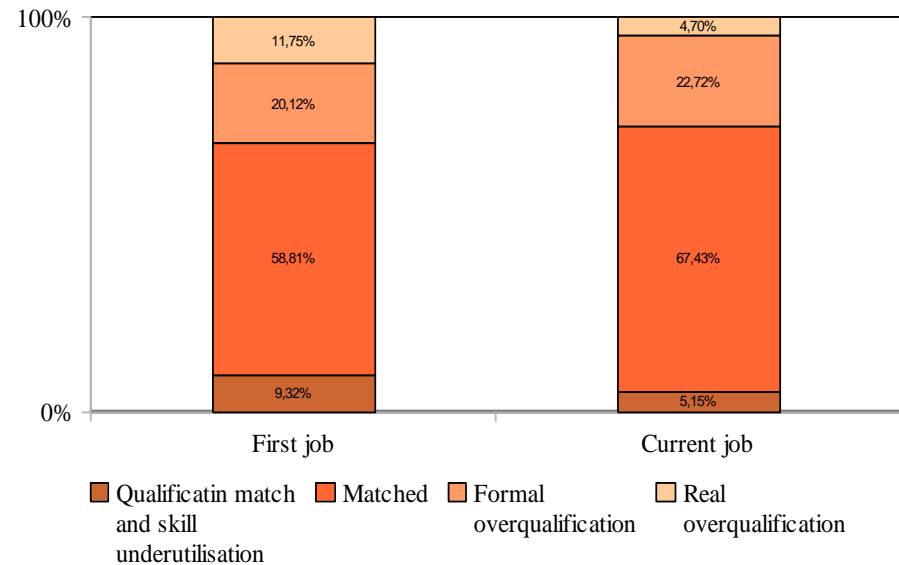
Educational mismatch: objective and subjective measures



“Qualified” educational mismatch

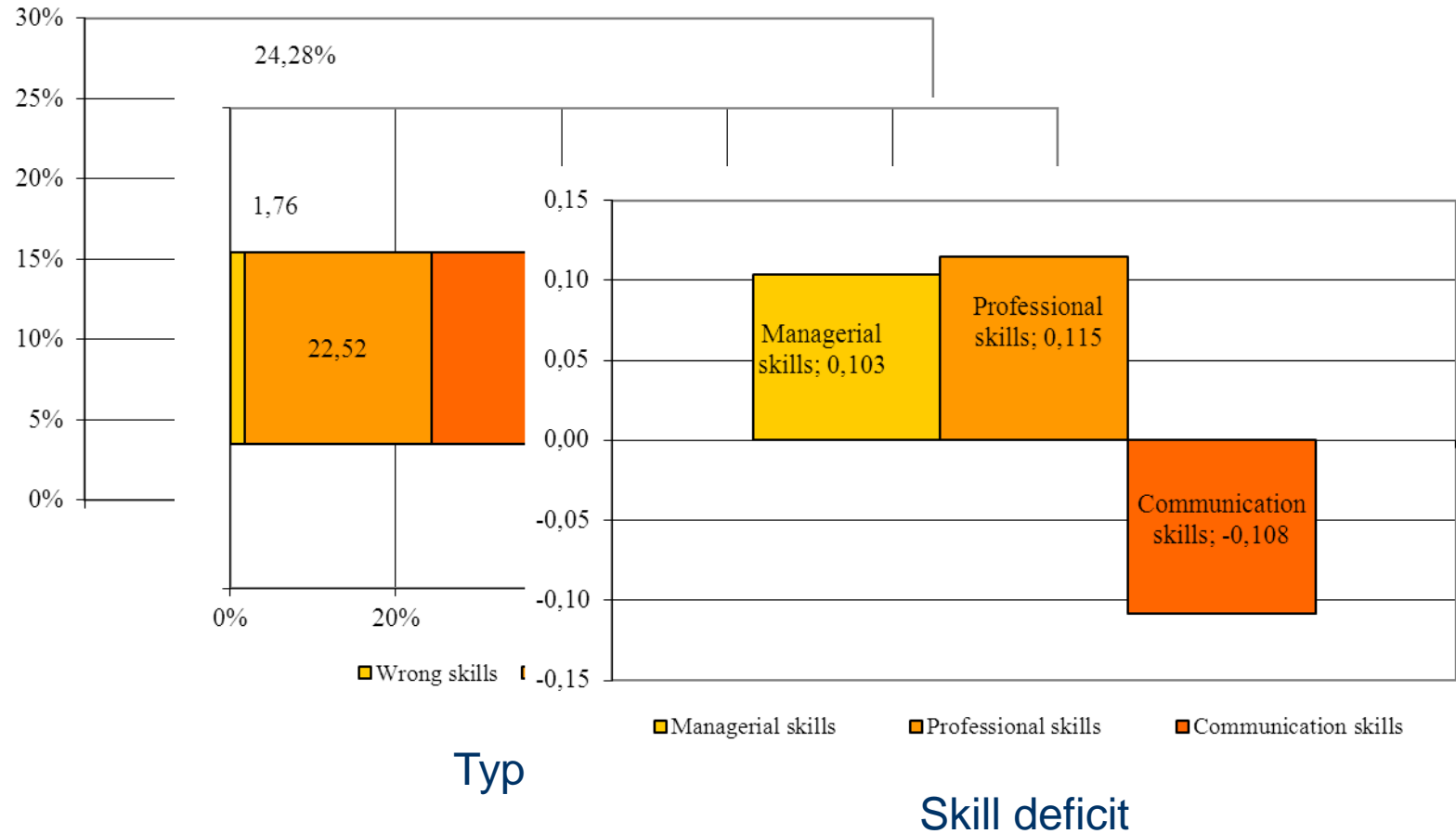


Genuine vs. Apparent mismatch
(Chevalier and Lindley, 2009)



Real vs. Formal mismatch
(Green and Zhu, 2010)

Skill mismatch



State transitions (I)

Objective educational mismatch. Transitions between first and current job

			<u>Objective</u> educational msm, Current job			
			Undereducation	Match	Overeducation	Total
<u>Objective</u> educational msm, First job	Undereducation	Count	100	11	1	112
		<i>% of total</i>	4.08	0.45	0.04	4.58
	Match	Count	2	1,493	80	1575
		<i>% of total</i>	0.08	60.99	3.27	64.34
	Overeducation	Count	6	161	594	761
		<i>% of total</i>	0.25	6.58	24.26	31.09
	Total	Count	108	1,665	675	2,448
		<i>% of total</i>	4.41	68.01	27.57	100.00

State transitions (II)

Subjective educational mismatch. Transitions between first and current job

			<u>Subjective</u> educational msm, Current job			
			Undereducation	Match	Overeducation	Total
<u>Subjective educational msm, First job</u>	Undereducation	Count	97	95	55	247
		<i>% of total</i>	3.98	3.89	2.25	10.12
	Match	Count	175	929	314	1,418
		<i>% of total</i>	7.17	38.07	12.87	58.11
	Overeducation	Count	67	395	313	775
		<i>% of total</i>	2.75	16.19	12.83	31.76
	Total	Count	339	1,419	682	2,440
		<i>% of total</i>	13.89	58.16	27.95	100.00

State transitions (III)

Skill mismatch. Transitions between first and current job

			Type of skill msm, Current job				
			Wrong skills	Skill shortage	Skill match	Skill surplus	Total
Type of skill msm, First job	Wrong skills	Count	7	27	42	6	82
		<i>% of total</i>	0.29	1.10	1.71	0.24	3.34
	Skill shortage	Count	4	206	282	30	522
		<i>% of total</i>	0.16	8.39	11.49	1.22	21.27
	Skill match	Count	25	251	1,083	55	1,414
		<i>% of total</i>	1.02	10.23	44.13	2.24	57.62
	Skill surplus	Count	6	73	246	111	436
		<i>% of total</i>	0.24	2.97	10.02	4.52	17.77
	Total	Count	42	557	1,653	202	2,454
		<i>% of total</i>	1.71	22.70	67.36	8.23	100.00

The return to education and skill mismatch

	All		Men		Women	
	β	Std. error	β	Std. error	β	Std. error
Objective educational mismatch (<i>reference category: educational match</i>)						
Overeducation dummy	-0.071	0.036	-0.063	0.056	-0.076	0.047
Undereducation dummy	-0.030	0.073	-0.216	0.112	-0.119	0.096
Subjective educational mismatch (<i>reference category: educational match</i>)						
Overeducation dummy	-0.075	0.026	-0.065	0.040	-0.080	0.035
Undereducation dummy	-0.004	0.037	-0.004	0.057	0.013	0.048
Overskilling/Underskilling (<i>reference category: skill match</i>)						
Overskilling	-0.061	0.038	-0.053	0.057	-0.058	0.052
Underskilling	0.003	0.028	-0.012	0.044	0.008	0.038
Skill mismatch (<i>reference category: skill match</i>)						
Skill surplus	-0.075	0.040	-0.070	0.061	-0.073	0.053
Skill shortage	-0.005	0.029	-0.022	0.045	0.000	0.038
Wrong skills	0.070	0.115	0.029	0.142	0.226	0.213
Skill deficit						
Managerial_deficit	0.035	0.015	0.028	0.022	0.030	0.021
Professional_deficit	-0.031	0.017	-0.033	0.026	-0.030	0.022
Communication_deficit	0.012	0.015	0.004	0.023	0.029	0.019
Apparent/Genuine objective educational mismatch (<i>reference category: educational match</i>)						
Genuine overeducation	-0.179	0.053	-0.134	0.083	-0.224	0.071
Apparent overeducation	-0.042	0.038	-0.039	0.062	-0.043	0.050
Genuine undereducation	0.095	0.173	0.341	0.239	-0.111	0.256
Apparent undereducation	0.034	0.075	0.209	0.115	-0.099	0.099
Formal/Real overqualification/underqualification (<i>reference category: real match</i>)						
Real overqualification	-0.168	0.058	-0.229	0.094	-0.133	0.074
Formal overqualification	-0.065	0.039	-0.030	0.061	-0.087	0.052
Qual. match with skill underutilisation	-0.025	0.054	0.042	0.074	-0.078	0.080
Qual. match with skill deficit	-0.036	0.033	-0.057	0.050	-0.027	0.045
Formal underqualification	0.073	0.082	0.223	0.121	-0.057	0.115
Real underqualification	-0.094	0.104	0.100	0.168	-0.221	0.130

The drivers of objective educational mismatch

Overeducation						Undereducation					
		β	Std. Error		Exp(β)			β	Std. Error		Exp(β)
	Intercept	2.944	1.447	**			Intercept	-4.156	2.615		
	edu_msm_first	4.374	0.181	***	79.395		edu_msm_first	6.535	0.736	***	688.582
	Underskilling_FirstJ	0.406	0.192	**	1.501		Underskilling_FirstJ	0.402	0.323		1.494
	Overskilling_FirstJ	-0.220	0.184		0.803		Overskilling_FirstJ	-1.065	0.378	***	0.345
	Uni_grade	-0.020	0.012	*	0.980		Uni_grade	0.012	0.021		1.013
	Field_competence	-0.004	0.067		0.996		Field_competence	-0.090	0.113		0.914
	Recent_training	-0.146	0.160		0.864		Recent_training	0.770	0.283	***	2.160
	Further_qualification	-0.527	0.215	**	0.590		Further_qualification	-1.665	0.535	***	0.189
	Temporary_first	0.238	0.166		1.269		Temporary_first	-0.175	0.280		0.840
	Part_time_first	-0.018	0.427		0.982		Part_time_first	0.501	0.688		1.650
	Industry_change	-0.112	0.220		0.894		Industry_change	-0.987	0.422	**	0.373
	Firm_change	-0.253	0.192		0.777		Firm_change	0.770	0.327	**	2.159
	Task_change	0.154	0.205		1.167		Task_change	0.944	0.338	***	2.570
	Public	-0.697	0.194	***	0.498		Public	0.486	0.298	*	1.626
	Female_worker	0.359	0.165	**	1.432		Female_worker	-0.194	0.281		0.824
	EduParent_Medium	-0.005	0.176		0.995		EduParent_Medium	-0.608	0.293	**	0.545
	EduParent_High	0.170	0.219		1.185		EduParent_High	-1.062	0.432	**	0.346
	Ptime_student	0.315	0.182	*	1.370		Ptime_student	-0.786	0.340	**	0.455

The drivers of qualification mismatch (I)

	β	Std. Error		Exp(β)		β	Std. Error		Exp(β)
	Real overqualification					Formal overqualification			
Intercept	4.295	2.270	*		1.864	1.532			
edu_msm_first	3.987	0.348	***	53.888	4.441	0.193	***	84.818	
Underskilling_FirstJ	0.550	0.306	*	1.734	0.346	0.198	*	1.413	
Overskilling_FirstJ	0.997	0.269	***	2.711	-0.532	0.194	***	0.588	
Uni_grade	-0.023	0.019		0.977	-0.023	0.012	**	0.977	
Field_competence	-0.323	0.102	***	0.724	0.076	0.070		1.079	
Recent_training	-0.348	0.263		0.706	-0.129	0.165		0.879	
Further_qualification	-1.157	0.441	***	0.314	-0.421	0.221	*	0.656	
Temporary_first	0.182	0.268		1.199	0.263	0.172		1.301	
Part_time_first	1.290	0.528	**	3.633	-0.756	0.528		0.470	
Industry_change	-0.058	0.344		0.944	-0.170	0.228		0.844	
Firm_change	-0.179	0.316		0.836	-0.228	0.198		0.796	
Task_change	0.166	0.332		1.180	0.114	0.211		1.121	
Public	-0.733	0.330	**	0.481	-0.648	0.201	***	0.523	
Female_worker	0.668	0.270	**	1.950	0.337	0.170	**	1.400	
EduParent_Medium	-0.083	0.275		0.921	-0.012	0.182		0.988	
EduParent_High	-0.071	0.365		0.931	0.281	0.226		1.324	
Ptime_student	0.262	0.286		1.300	0.310	0.188	*	1.364	

The drivers of qualification mismatch (II)

	Real underqualification				Formal underqualification			
Intercept	-6.833	2.958	**		1.485	4.303		
edu_msm_first	5.734	0.616	***	309.083	5.133	0.766	***	169.594
Underskilling_FirstJ	-0.104	0.380		0.901	1.265	0.458	***	3.541
Overskilling_FirstJ	-1.223	0.448	***	0.294	-0.565	0.614		0.569
Uni_grade	0.021	0.024		1.022	-0.035	0.035		0.966
Field_competence	-0.058	0.125		0.944	-0.147	0.183		0.864
Recent_training	0.479	0.309		1.614	1.488	0.529	***	4.429
Further_qualification	-1.699	0.646	***	0.183	-1.610	0.846	*	0.200
Temporary_first	0.233	0.311		1.262	-1.297	0.477	***	0.273
Part_time_first	0.112	0.842		1.118	0.532	0.926		1.702
Industry_change	-1.058	0.498	**	0.347	-0.827	0.657		0.437
Firm_change	0.676	0.354	**	1.966	1.267	0.566	**	3.549
Task_change	1.062	0.379	***	2.893	0.486	0.519		1.627
Public	0.274	0.335		1.315	1.281	0.460	***	3.601
Female_worker	-0.341	0.310		0.711	0.412	0.469		1.509
EduParent_Medium	-0.927	0.336	***	0.396	0.097	0.452		1.102
EduParent_High	-0.925	0.460	**	0.397	-1.097	0.822		0.334
Ptime_student	-0.782	0.391	**	0.457	-0.750	0.531		0.473

Preliminary conclusions

- Higher matching for younger higher education graduates in Italy compared to other industrialised countries
- Educational mismatch and skill mismatch matter
- The aggregate categories of overeducation and undereducation mask differentiated combinations of educational and skill mismatch, often affected by distinct drive
- Strong path dependence: (mis)match in 1st job after graduation conditions subsequent adjustments
- Need to focus attention on segmented, multi-dimensional measures rather than on aggregate measures of overeducation, undereducation and matching