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Skills, Signals and Labour Market Outcomes: An Analysis of the 2012 Longitudinal and International Study of Adults Appendix

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Appendix

Table 1: Descriptive Statistics for Variables from the 2012 Longitudinal and International Study of Adults (LISA) (Earnings Subsample)

Variables	Percent/Mean	(SE)
Literacy Proficiency		
Low Skill (<226)	14	(0.62)
Medium-Low Skill (226-275)	32	(0.88)
Medium-High Skill (276-325)	40	(1.03)
High Skill (>=326)	15	(0.70)
Numeracy Proficiency		
Low Skill (<226)	19	(0.68)
Medium-Low Skill (226-275)	32	(0.83)
Medium-High Skill (276-325)	34	(0.96)
High Skill (>=326)	14	(0.72)
Level of Education		
Bachelors	17	(0.44)
High School or less	36	(0.44)
PSE below Bachelor	38	(0.39)
PSE above Bachelor	10	(0.40)
Field of Study		
General Programs	31	(0.66)
STEM	22	(0.66)
BHASE	37	(0.68)
None/No PSE	10	(0.32)
Log(Income)	10.30	(0.02)
Employment Status		
Unemployed	4	(0.31)
Full-Time	68	(0.67)
Part-time	14	(0.55)
NILF	14	(0.54)
Experience	20	(0.13)
Immigration Status		
Immigrant: No	79	(0.67)
Immigrant: Yes	21	(0.67)
Sex		
Male	51	(0.42)
Female	49	(0.42)
Parent Education		
Parent Degree: No	75	(0.66)
Parent Degree: Yes	25	(0.66)
Books in Home		

Variables	Percent/Mean	(SE)
Books: 10 or Less	15	(0.59)
Books: 11-25	15	(0.60)
Books: 26-100	34	(0.76)
Books: 101-200	18	(0.63)
Books: 201-500	13	(0.55)
Books: 500+	5	(0.36)
Province		
Ontario	38	(0.45)
AB	13	(0.42)
SK	3	(0.18)
MA	4	(0.18)
BC	13	(0.42)
QC	23	(0.33)
NB	2	(0.10)
NS	3	(0.12)
PEI	<1	(0.03)
NFLD	1	(0.07)
Location of Residence		
Rural	17	(0.66)
Not Rural	83	(0.66)
N=8278		

Notes: Bootstrapped standard errors in parentheses. Reported values are survey weighted using REPEST package in Stata.

Table 2: Descriptive Statistics for Variables from the 2012 Longitudinal and International Study of Adults (LISA) (Employment Subsample)

Variables	Percent/Mean	(SE)
Literacy Proficiency		
Low Skill (<226)	16	(0.61)
Medium-Low Skill (226-275)	32	(0.86)
Medium-High Skill (276-325)	38	(0.91)
High Skill (>=326)	14	(0.54)
Numeracy Proficiency		
Low Skill (<226)	23	(0.60)
Medium-Low Skill (226-275)	32	(0.78)
Medium-High Skill (276-325)	33	(0.78)
High Skill (>=326)	12	(0.55)
Level of Education		
Bachelors	22	(0.32)
High School or less	33	(0.16)
PSE below Bachelor	34	(0.12)
PSE above Bachelor	11	(0.31)
Field of Study		
General Programs	31	(0.48)
STEM	20	(0.52)
BHASE	35	(0.54)
None/No PSE	14	(0.15)
Employment Status		
Unemployed	4	(0.30)
Full-Time	68	(0.60)
Part-time	14	(0.47)
NILF	14	(0.57)
Experience		
	21	(0.07)
Immigration Status		
Immigrant: No	77	(0.60)
Immigrant: Yes	23	(0.60)
Sex		
Male	50	(0.13)
Female	50	(0.13)
Parent Education		
Parent Degree: No	76	(0.55)
Parent Degree: Yes	24	(0.55)
Books in Home		

Variables	Percent/Mean	(SE)
Books: 10 or Less	16	(0.55)
Books: 11-25	15	(0.50)
Books: 26-100	34	(0.66)
Books: 101-200	17	(0.53)
Books: 201-500	12	(0.48)
Books: 500+	5	(0.32)
Province		
Ontario	39	(0.15)
AB	12	(0.32)
SK	3	(0.14)
MA	3	(0.13)
BC	13	(0.33)
QC	23	(0.12)
NB	2	(0.07)
NS	3	(0.08)
PEI	<1	(0.02)
NFLD	1	(0.06)
Location of Residence		
Rural	16	(0.60)
Not Rural	84	(0.60)
N=6201		

Notes: Bootstrapped standard errors in parentheses. Reported values are survey weighted using REPEST package in Stata.

Table 3: OLS Regressions Predicting the Log of Annual Earnings, Literacy Skills (LISA 2012) (Coefficients Shown)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Literacy Proficiency							
Low Skill (<226)	-	-	-	-	-	-	-
Medium-Low Skill (226-275)	0.186*	0.084	0.046	0.158*	0.125	0.122	0.122
Medium-High Skill (276-325)	0.407***	0.200**	0.151*	0.332***	0.281***	0.277***	0.269***
High Skill (>=326)	0.676***	0.315***	0.252**	0.501***	0.424***	0.420***	0.405***
Level of Education							
Bachelors		-	-	-	-	-	-
High School or less		-0.659***	-0.589***	-0.261***	-0.298***	-0.303***	-0.310***
PSE below Bachelor		-0.168**	-0.201***	-0.171***	-0.202***	-0.205***	-0.203***
PSE above Bachelor		0.236***	0.257***	0.222***	0.225***	0.229***	0.242***
Field of Study							
General Programs			-	-	-	-	-
STEM			0.241***	0.171**	0.138**	0.139**	0.138**
BHASE			-0.086	-0.021	0.016	0.013	0.017
None/No PSE			-0.261**	-0.197**	-0.224***	-0.219***	-0.221***
Employment Status							
Unemployed				-	-	-	-
Full-Time				1.082***	1.077***	1.079***	1.066***
Part-time				0.088	0.124	0.125	0.112
NILF				-0.278*	-0.254*	-0.251*	-0.256*
Experience				0.004*	0.004*	0.004*	0.004*
Experience Squared				-0.336***	-0.348***	-0.343***	-0.343***
Immigration Status							
Immigrant: No					-	-	-
Immigrant: Yes					0.161***	0.156***	0.172***
Sex							
Male					-	-	-
Female					-0.188***	-0.186***	-0.189***
Parent Education							
Parent Degree: No						-	-
Parent Degree: Yes						-0.028	-0.024
Books in Home							
Books: 10 or Less						-	-
Books: 11-25						0.091	0.080
Books: 26-100						0.053	0.035
Books: 101-200						0.057	0.036

Books: 201-500						0.092	0.067
Books: 500+						-0.009	-0.037
Province							
Ontario							-
AB							0.200***
SK							0.055
MA							-0.016
BC							0.047
QC							-0.056
NB							-0.143*
NS							-0.079
PEI							-0.077
NFLD							0.002
Location of Residence							
Rural							-
Not Rural							0.001
Constant	9.926***	10.372***	10.405***	9.251***	9.282***	9.241***	9.245***
n	6201	6201	6201	6201	6201	6201	6201
R-square	0.028	0.084	0.097	0.404	0.411	0.412	0.416

Multiple parameter Wald tests reported next to categorical variable names. Reported values are survey weighted using REPEST package in Stata.

* p<0.05; ** p<0.01; *** p<0.001

Table 4: OLS Regressions Predicting the Log of Annual Earnings, Numeracy Skills (LISA 2012) (Coefficients Shown)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Numeracy Proficiency							
Low Skill (<226)	-	-	-	-	-	-	-
Medium-Low Skill (226-275)	0.243***	0.139	0.103	0.181***	0.147**	0.146**	0.149**
Medium-High Skill (276-325)	0.522***	0.319***	0.263***	0.393***	0.335***	0.333***	0.329***
High Skill (>=326)	0.764***	0.444***	0.355***	0.542***	0.457***	0.458***	0.447***
Level of Education							
Bachelors (ref)	-	-	-	-	-	-	-
High School or less	-0.618***	-0.565***	-0.239***	-0.278***	-0.284***	-0.284***	-0.291***
PSE below Bachelor	-0.146**	-0.183***	-0.157***	-0.190***	-0.194***	-0.194***	-0.191***
PSE above Bachelor	0.229***	0.249***	0.215***	0.221***	0.225***	0.225***	0.239***
Field of Study							
General Programs (ref)	-	-	-	-	-	-	-
STEM		0.213***	0.139*	0.118*	0.119*	0.119*	0.119*
BHASE		-0.080	-0.003	0.026	0.024	0.024	0.027
None/No PSE		-0.243**	-0.197**	-0.222***	-0.217***	-0.217***	-0.217***
Employment Status							
Unemployed (ref)	-	-	-	-	-	-	-
Full-Time			1.073***	1.072***	1.074***	1.074***	1.059***
Part-time			0.096	0.127	0.128	0.128	0.114
NILF			-0.289*	-0.264*	-0.261*	-0.261*	-0.266*
Experience							
			0.005*	0.004*	0.004*	0.004*	0.004*
Experience Squared							
			-0.337***	-0.349***	-0.343***	-0.343***	-0.343***
Immigration Status							
Immigrant: No (ref)	-	-	-	-	-	-	-
Immigrant: Yes				0.158***	0.153***	0.153***	0.170***
Sex							
Male (ref)	-	-	-	-	-	-	-
Female				-0.159***	-0.157***	-0.157***	-0.160***
Parent Education							
Parent Degree: No (ref)	-	-	-	-	-	-	-
Parent Degree: Yes					-0.033	-0.033	-0.029
Books in Home							
Books: 10 or Less (ref)	-	-	-	-	-	-	-
Books: 11-25					0.095	0.095	0.082
Books: 26-100					0.050	0.050	0.029
Books: 101-200					0.049	0.049	0.025

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Books: 201-500						0.089	0.061
Books: 500+						-0.012	-0.043
Province							
Ontario (ref)							-
AB							0.193***
SK							0.050
MA							-0.022
BC							0.044
QC							-0.070
NB							-0.132*
NS							-0.083
PEI							-0.062
NFLD							0.006
Location of Residence							
Rural (ref)							-
Not Rural							0.006
Constant	9.886***	10.288***	10.333***	9.232***	9.252***	9.214***	9.216***
n	6201	6201	6201	6201	6201	6201	6201
R-square	0.041	0.091	0.102	0.408	0.414	0.415	0.420

Multiple parameter Wald tests reported next to categorical variable names. Reported values are survey weighted using REPEST package in Stata.

* p<0.05; ** p<0.01; *** p<0.001

Table 5: Multinomial Logistic Regressions of Employment Status on Literacy Skills (LISA 2012). Reference Category Unemployed, (Coefficients Shown)

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF
Literacy Proficiency																					
Skill 1 (<226)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skill 2 (226-275)	0.372	0.336	0.040	0.257	0.312	0.096	0.165	0.224	0.115	0.227	0.219	0.076	0.188	0.214	0.115	0.180	0.195	0.082	0.170	0.170	0.080
Skill 3 (276-325)	1.046***	0.733**	0.470*	0.810***	0.671**	0.575*	0.692**	0.553*	0.601*	0.806***	0.570*	0.556*	0.743**	0.570*	0.615*	0.711**	0.523	0.524	0.682**	0.469	0.523
Skill 4 (>=326)	1.398***	1.042**	0.592	0.982**	0.902*	0.752*	0.856*	0.806*	0.795*	1.011**	0.835*	0.742	0.920*	0.858*	0.838*	0.863*	0.793	0.690	0.817*	0.706	0.679
Level of Education																					
Bachelors				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High School or less				-0.829***	-0.177	0.411	-0.606*	0.129	0.536	-0.540	-0.004	0.217	-0.582*	0.012	0.258	-0.551	0.037	0.311	-0.577*	-0.033	0.316
PSE below Bachelor				-0.267	-0.111	0.013	-0.278	-0.020	0.081	-0.334	-0.087	-0.013	-0.371	-0.097	0.025	-0.336	-0.076	0.095	-0.327	-0.073	0.089
PSE above Bachelor				0.257	0.365	0.216	0.267	0.313	0.187	0.237	0.305	0.211	0.237	0.356	0.217	0.208	0.339	0.145	0.243	0.367	0.156
Field of Study																					
General Programs							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STEM							0.089	-0.550*	-0.138	0.109	-0.546	-0.158	0.057	-0.373	-0.061	0.054	-0.368	-0.078	0.043	-0.385	-0.096
BHASE							0.016	0.373	0.270	0.015	0.400	0.312	0.065	0.277	0.217	0.051	0.262	0.179	0.038	0.241	0.153
None/No PSE							-0.594**	-0.480*	0.084	-0.533**	-0.593**	-0.194	-0.567**	-0.577**	-0.162	-0.573**	-0.585**	-0.158	-0.570**	-0.575*	-0.154
Experience										-0.003	0.035***	0.060***	-0.004	0.035***	0.060***	-0.003	0.036***	0.063***	-0.001	0.037***	0.065***
Experience Squared										-0.494**	0.704***	1.488***	-0.515**	0.719***	1.506***	-0.540**	0.711***	1.471***	-0.541**	0.723***	1.470***
Immigration Status																					
Immigrant: No													-	-	-	-	-	-	-	-	-
Immigrant: Yes													0.171	0.056	-0.184	0.185	0.057	-0.158	0.302	0.223	-0.093
Sex																					
Male													-	-	-	-	-	-	-	-	-
Female													-0.259	0.653***	0.450**	-0.248	0.668***	0.460**	-0.262	0.661***	0.453**
Parent Education																					
Parent Degree: No																-	-	-	-	-	-
Parent Degree: Yes																0.151	0.046	0.297	0.145	0.053	0.269

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF
Books in Home																					
Books: 10 or Less																-	-	-	-	-	-
Books: 11-25																-0.171	-0.222	-0.042	-0.192	-0.273	-0.016
Books: 26-100																-0.210	-0.130	-0.109	-0.263	-0.229	-0.093
Books: 101-200																0.545*	0.801**	0.759**	0.482	0.673*	0.781**
Books: 201-500																-0.038	-0.021	0.223	-0.097	-0.163	0.253
Books: 500+																-0.109	-0.203	0.311	-0.177	-0.350	0.338
Province																					
Ontario																			-	-	-
AB																			0.412	0.241	0.070
SK																			0.917**	0.306	0.218
MA																			0.373	0.172	-0.079
BC																			-0.059	-0.004	0.027
QC																			-0.099	-0.515*	0.192
NB																			-0.735**	-1.009***	-0.444
NS																			-0.006	-0.041	0.182
PEI																			-1.070**	-0.782*	-0.884*
NFLD																			-1.171***	-1.207***	-0.820**
Location of Residence																					
Rural																			-	-	-
Not Rural																			0.299	0.092	0.266
n		8278			8278			8278					8278						8278		8278
Log Likelihood		-8980.918			-8780.376			-8690.563					-8134.560						-7984.334		-7912.311

Multiple parameter Wald tests reported next to categorical variable names. Reported values are survey weighted using REPEST package in Stata.

* p<0.05; ** p<0.01; *** p<0.001

Table 6: Multinomial Logistic Regressions of Employment Status on Numeracy Skills (LISA 2012). Reference Category Unemployed, (Coefficients Shown).

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7		
	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF
Numeracy Proficiency																					
Skill 1 (<226)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skill 2 (226-275)	0.674***	0.503***	0.266**	0.551**	0.467*	0.332	0.481*	0.407	0.354	0.540**	0.400	0.310	0.506*	0.413	0.363	0.489*	0.381	0.316	0.481*	0.376	0.301
Skill 3 (276-325)	1.079***	0.543***	0.456***	0.846***	0.456	0.565*	0.756***	0.407	0.613**	0.859***	0.412	0.560*	0.794***	0.474	0.660**	0.756***	0.417	0.564*	0.733**	0.399	0.540*
Skill 4 (>=326)	1.682***	0.936**	0.820**	1.306***	0.766	0.977*	1.214**	0.808	1.077*	1.366***	0.822	1.005*	1.271**	0.947	1.164**	1.209**	0.865	1.020*	1.161**	0.810	0.987*
Level of Education																					
Bachelors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High School or less				0.785***	-0.244	0.425	-0.557*	0.118	0.574	-0.483	-0.014	0.253	-0.523	0.020	0.311	-0.499	0.038	0.357	-0.529	-0.031	0.356
PSE below Bachelor				-0.246	-0.162	0.016	-0.245	-0.043	0.105	-0.301	-0.110	0.005	-0.337	-0.105	0.058	-0.309	-0.088	0.121	-0.299	-0.081	0.115
PSE above Bachelor				0.237	0.372	0.202	0.243	0.317	0.166	0.210	0.310	0.192	0.214	0.355	0.196	0.184	0.335	0.121	0.220	0.365	0.135
Field of Study																					
General Programs																					
STEM							0.029	-0.566*	-0.186	0.047	-0.560*	-0.197	0.015	-0.390	-0.100	0.018	-0.380	-0.109	0.007	-0.399	-0.126
BHASE							0.055	0.410	0.309	0.063	0.441	0.353	0.098	0.309	0.249	0.085	0.293	0.209	0.069	0.266	0.182
None/No PSE							-0.568**	-0.503*	0.097	-0.510**	-0.617**	-0.183	-0.542**	-0.587**	-0.142	-0.550**	-0.595**	-0.137	-0.543**	-0.575*	-0.136
Experience																					
Experience Squared																					
Immigration Status																					
Immigrant: No																					
Immigrant: Yes																					
Sex																					
Male																					
Female																					
Parent Education																					
Parent Degree: No																					
Parent Degree: Yes																					
Books in Home																					
Books: 10 or Less																					
Books: 11-25																					
Books: 26-100																					
Books: 101-200																					
Books: 201-500																					
Books: 500+																					
Province																					
Ontario																					
AB																					

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7			
	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	Full Time	Part Time	NILF	
SK																			0.917**	0.301	0.218	
MA																			0.358	0.167	-0.090	
BC																			-0.062	-0.003	0.024	
QC																			-0.136	-0.542*	0.162	
NB																			-0.705**	0.991***	-0.422	
NS																			-0.004	-0.037	0.182	
PEI																			-1.037**	-0.766*	-0.860*	
NFLD																			-	-	-	
NFLD																			1.149***	1.198***	-0.805**	
Location of Residence																						
Rural																			-	-	-	-
Not Rural																			0.313*	0.101	0.274	
n		8278			8278			8278			8278			8278			8278				8278	
Log Likelihood		-			-			-			-			-			-				-	
		8955.788			8765.755			8680.771			8121.514			8007.060			7978.357				7906.373	

Multiple parameter Wald tests reported next to categorical variable names. Reported values are survey weighted using REPEST package in Stata.

* p<0.05; ** p<0.01; *** p<0.001



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