

Europe and the US: The Educational System and Intergenerational Mobility

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Summer Term, 2010

Inequality in Sweden and US

Figure 1. The Distribution of Disposable Income in 32 High- and Middle-Income Economies

	P10 (Low income)	Length of bars represents the gap between high and low income individuals	P90 (High income)	P90/P10 (Decile ratio)	Gini index
High-income economies					
Denmark 2000	57		153	2.7	0.217
Norway 2000	57		159	2.8	0.251
Finland 2000	57		164	2.9	0.247
Sweden 2000	57		168	3.0	0.252
Netherlands 1999	56		167	3.0	0.248
Slovenia 1999	53		167	3.2	0.249
Austria 2000	55		173	3.2	0.260
Luxembourg 2000	57		184	3.2	0.260
Germany 2000	54		177	3.3	0.264
Belgium 2000	53		174	3.3	0.277
Switzerland 2000	55		182	3.3	0.280
France 2000	52		183	3.5	0.279
Taiwan 2000	52		196	3.8	0.296
Canada 2000	48		188	3.9	0.302
Japan 1992	46		192	4.2	0.315
Australia 1994	45		195	4.3	0.311
Italy 2000	45		199	4.5	0.333
Ireland 2000	41		189	4.6	0.323
United Kingdom 1999	47		215	4.6	0.345
Greece 2000	43		207	4.8	0.338
Spain 2000	44		209	4.8	0.340
Israel 2001	43		216	5.0	0.346
Portugal 2000	45		226	5.0	0.363
United States 2000	39		210	5.5	0.368
Middle-income economies					
Slovak Republic 1996	56		162	2.9	0.241
Czech Republic 1996	59		179	3.0	0.259
Romania 1997	53		180	3.4	0.277
Hungary 1999	54		194	3.6	0.295
Poland 1999	52		188	3.6	0.293

Fathers and self-reported and son-reported characteristics

	Fathers' own reports of their characteristics	Sons' reports of fathers' characteristics
Living in Stockholm	0.17	0.13
Education higher than compulsory	0.62	0.63
<i>Occupation</i>		
Higher-grade professional (I)	0.11	0.09
Lower-grade professional (II)	0.13	0.13
Nonmanual workers and lower-grade technicians (III + V)	0.13	0.13
Small proprietors with employees (IVa)	0.05	0.07
Small proprietors without employees (IVb)	0.06	0.05
Farmers, self-employed in primary production, agricultural, and other workers (IVc + IVd + VIIb)	0.10	0.15
Skilled manual workers (VI)	0.21	0.17
Semiskilled manual workers (VIIa)	0.21	0.21
<i>n</i>	540	327

Source: Björklund and Jäntti (1997)

Results from Sweden and US

TABLE 2—ESTIMATED INTERGENERATIONAL CORRELATIONS IN SWEDEN AND THE UNITED STATES USING VARIOUS METHODS—REGRESSION AND CORRELATION COEFFICIENTS

Measure and technique	Fathers' characteristics	Symbol	Sweden		United States	
			Uncorrected for age	Market income Uncorrected for age	Earnings	
					Uncorrected for age	Corrected for age
Panel A. Regression coefficients						
1. Actual incomes		ρ_1	—	—	0.334 (0.076)	0.392 (0.082)
2. IV estimates (Fathers' predicted, sons' actual income)	Fathers' report	ρ_2	—	—	0.437 (0.130)	0.521 (0.140)
3. Two-sample IV estimates (Fathers' predicted, sons' actual income)	Sons' report	ρ_2	0.282 (0.094)	0.363 (0.113)	0.417 (0.121)	0.516 (0.138)
4. Predicted incomes	Fathers' report	ρ_1	—	—	0.329 (0.087)	0.365 (0.093)
5. Predicted incomes	Sons' report	ρ_1	0.216 (0.044)	0.240 (0.044)	0.294 (0.081)	0.327 (0.090)
Panel B. Correlation coefficients						
6. Actual incomes		ρ_1	—	—	0.263 (0.061)	0.309 (0.069)
7. IV estimates (Fathers' predicted, sons' actual income)	Fathers' report	ρ_2	—	—	0.345 (0.101)	0.411 (0.112)
8. Two-sample IV estimates (Fathers' predicted, sons' actual income)	Sons' report	ρ_2	0.226 (0.074)	0.286 (0.088)	0.329 (0.097)	0.407 (0.107)
9. Predicted incomes	Fathers' report	ρ_1	—	—	0.259 (0.065)	0.288 (0.073)
10. Predicted incomes	Sons' report	ρ_1	0.173 (0.035)	0.189 (0.036)	0.232 (0.064)	0.258 (0.069)

Notes: Education and occupation are predictors of income. Tables with full regression results are available from the authors on request. Five-year (1967–1971) averages are used for fathers' earnings in the United States. Standard errors have been obtained using bootstrap sampling.

Sources: Authors' calculations from SLLS and PSID data.

Source: Björklund and Jäntti (1997)

Results from Europe and US/Canada

Table 2: Internationally Comparable Estimates of Intergenerational Mobility

Country	Dataset	Sons Born	Sons Earnings Measure	Measure of Parental Status	Intergenerational partial correlation ¹
Britain	British Cohort Study	1970	2000 (Age 30)	Parental income 1980 and 1986 (average)	.271 ^a
US	Panel Study of Income Dynamics	1954-1970	Age 30	Parental income when son age 10 and age 16 (average)	.289 ^a
West Germany	Socio-Economic Panel	1960-1973	2000	Parental income 1984 and 1988 (average)	.171 ^a
Canada	Intergenerational Income Data (from tax registers)	1967-1970	1998	Parental income when son aged 16	.143 ^a
Norway	Register data	1958	1992 and 1999 (average)	Father's earnings 1974	.139 ^b
Denmark	Register data	1958-1960	1998 and 2000 (average)	Father's earnings 1980	.143 ^b
Sweden	Register data	1962	1996 and 1999 (average)	Father's earnings 1975	.143 ^b
Finland	Quinquennial census panel	1958-1960	1995 and 2000 (average)	Father's earnings 1975	.147 ^b

^aBlanden (2005) Table 3.3

^bBjorklund et al (2005) Table 3.

The partial correlation is equal to the beta coefficient scaled to adjust for changes in inequality across generations. This is important as inequality grew at different rates for the countries in this sample.

¹These results differ slightly from those in Table 5 owing to some adjustments required to ensure that results are comparable across countries and over time.

Source: Blanden, Gregg, Machin (2006)

Transition Matrix for Britain, 1970 cohort

Table 1: Transition Matrix for Britain, Sons Born in 1970

Parental average income quartile (average of incomes measured when son aged 10 and 16)	Sons' earnings quartile aged 30 in 2000			
	Bottom	2 nd	3 rd	Top
Bottom	.37	.23	.23	.16
2 nd	.30	.30	.24	.16
3 rd	.20	.24	.29	.27
Top	.13	.23	.24	.40

Data drawn from the British Cohort Study of 1970 as described in the text.

Source: Blanden, Gregg, Machin (2006)

Intergenerational Mobility in Britain for 2 Cohorts

Table 3: Transition Matrix for Sons born in 1958

Parental income quartile when son aged 16	Sons' earnings quartile when aged 33 in 1991			
	Bottom	2 nd	3 rd	Top
Bottom	.31	.28	.23	.17
2 nd	.30	.28	.23	.19
3 rd	.22	.25	.25	.28
Top	.17	.20	.28	.35

Data drawn from the National Child Development Survey.

Table 4: Transition Matrix for Sons born in 1970

Parental income quartile when son aged 16	Sons' earnings quartile when aged 30 in 2000			
	Bottom	2 nd	3 rd	Top
Bottom	.38	.25	.21	.16
2 nd	.29	.28	.26	.17
3 rd	.22	.26	.28	.25
Top	.11	.22	.24	.42

Data drawn from the British Cohort Study.

Source: Blanden, Gregg, Machin (2006)

The Role of Income for Education

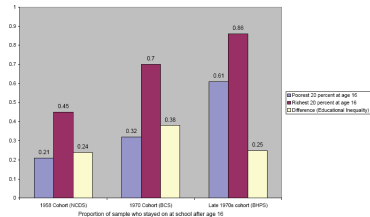
Table 6: Education and Intergenerational Mobility: Decomposition

	β	Return to education (ϕ_j)	Relationship between parental income and education (ψ_j)	Persistence through Education ($\phi_j\psi_j$)	Persistence not through education $\frac{Cov(u^{son}, \ln Y^{parents})}{Var(\ln Y^{parents})}$
1958 Cohort	.205 (.026)	.081 (.004)	.947 (.121)	.077	.132 (.024)
1970 Cohort	.291 (.025)	.075 (.005)	1.350 (.098)	.101	.191 (.024)

Source: Blanden, Gregg, Machin (2006)

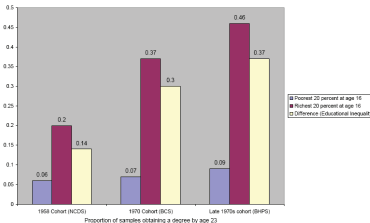
Educational Attainment by Family Income

Figure 1: Staying on Rates (Proportions) by Parental Income Group



Source: Blanden, Gregg and Machin (2005) Table 5.3.

Figure 2: Degree Completion by Age 23 by Parental Income Group



Source: Blanden, Gregg and Machin (2005) Table 5.4.

Achievement Inequality and Tracking



Fig. 1. *Inequality in Primary and Secondary School*

Notes: Standard deviation of test scores in the national population (difference from international average of national standard deviations in each test). Countries with a tracked school system before the age of 16 have solid lines, countries without tracking before age 16 have dashed lines.

Achievement Inequality and Tracking: Regression Analysis

Table 2
Tracking and Inequality: PISA 2003 and PIRLS

	(1)	(2)	(3)	(4)	(5)	(6)
Measure of inequality:	Standard deviation		75th-25th percentile difference		95th-5th percentile difference	
Early tracking	0.046 (0.136)	0.248** (0.110)	0.157 (0.206)	0.385* (0.185)	0.143 (0.462)	0.834** (0.376)
Inequality in primary school (measure: see top row)		0.594*** (0.129)		0.538** (0.197)		0.605*** (0.127)
Constant	3.970*** (0.092)	2.165*** (0.399)	5.298*** (0.153)	3.156*** (0.781)	13.027*** (0.316)	6.957*** (1.332)
Number of countries	18	18	18	18	18	18
R ²	0.007	0.479	0.035	0.366	0.006	0.506

Dependent variable. Inequality in secondary school, as indicated in top row. Huber-White heteroscedasticity-consistent standard errors in parentheses. Significance levels: ***1%, **5%, *10%.

Source: Hanushek and Wößmann (2006)

Achievement Inequality and Tracking: Other Measures

Table 3
Tracking and Inequality: Different Tests

	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15) [†]
Secondary-school test:	PISA 03	PISA 00/02	TIMSS 95	TIMSS 95	TIMSS 03	TIMSS 03	TIMSS 99	TIMSS 99	Pooled
Primary-school test:	PIRLS	PIRLS	TIMSS 95	TIMSS 95	TIMSS 03	TIMSS 03	TIMSS 95	TIMSS 95	Pooled
Subject:	Reading	Reading	Math	Science	Math	Science	Math	Science	Pooled
Early tracking	0.248** (0.110)	-0.018 (0.077)	0.147* (0.076)	0.197** (0.084)	0.013 (0.054)	0.105 (0.073)	0.005 (0.074)	0.208* (0.107)	0.101*** (0.029)
Inequality in primary school (standard deviation)	0.594*** (0.129)	0.255* (0.139)	0.476 (0.306)	0.843*** (0.224)	-0.014 (0.248)	0.252 (0.176)	0.099 (0.146)	0.785*** (0.135)	0.392*** (0.071)
Constant	2.165*** (0.399)	1.829*** (0.325)	0.811 (0.499)	0.675 (0.411)	1.323*** (0.291)	1.073*** (0.189)	1.532*** (0.255)	0.869*** (0.275)	1.468*** (0.159)
Number of countries	18	20	26	26	25	25	18	18	176
R ²	0.479	0.255	0.258	0.419	0.003	0.257	0.022	0.558	0.951

Dependent variable: Inequality in secondary school, measured by the standard deviation in test scores. Huber-White heteroscedasticity-consistent standard errors in parentheses. [†]Regression includes seven test-pair dummies. Significance levels: ***1%, **5%, *10%.

Source: Hanushek and Wößmann (2006)

Mean Performance and Tracking

Table 4
Tracking and Mean Performance

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24) [†]
Secondary-school test:	PISA 03	PISA 00/02	TIMSS 95	TIMSS 95	TIMSS 03	TIMSS 03	TIMSS 99	TIMSS 99	Pooled
Primary-school test:	PIRLS	PIRLS	TIMSS 95	TIMSS 95	TIMSS 03	TIMSS 03	TIMSS 95	TIMSS 95	Pooled
Subject:	Reading	Reading	Math	Science	Math	Science	Math	Science	Pooled
Early tracking	-1.053*** (0.343)	-0.951*** (0.287)	-0.062 (0.135)	0.597** (0.222)	-0.021 (0.157)	-0.013 (0.161)	-0.410* (0.219)	0.234 (0.370)	-0.179* (0.096)
Mean performance in primary school	0.676*** (0.139)	0.643*** (0.130)	0.965*** (0.063)	0.738*** (0.097)	0.928*** (0.085)	0.929*** (0.075)	1.045*** (0.088)	0.828*** (0.124)	0.865*** (0.038)
Constant	0.526** (0.230)	0.475** (0.203)	0.019 (0.087)	-0.184* (0.103)	0.006 (0.101)	0.004 (0.095)	0.137 (0.079)	-0.078 (0.102)	0.089 (0.180)
Number of countries	18	20	26	26	25	25	18	18	176
R ²	0.582	0.635	0.900	0.779	0.858	0.863	0.921	0.751	0.714

Dependent variable: Mean performance in secondary school. Huber-White heteroscedasticity-consistent standard errors in parentheses. [†] Regression includes seven test-pair dummies. Significance levels: ***1%, **5%, *10%.

Source: Hanushek and Wößmann (2006)

Tracking and Performance at Different Percentiles

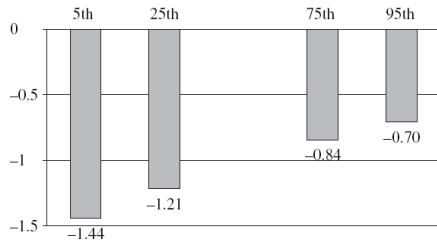


Fig. 2. *The Effect of Tracking on Performance at Different Percentiles*

Notes. Coefficient estimate on the early-tracking dummy in separate differences-in-differences estimations of the performance of the Xth percentile in PISA 2003 on the performance of the Xth percentile in PIRLS and the early-tracking dummy.

Source: Hanushek and Wößmann (2006)